

150457_Carn Gwavel_Landscape_Specification

150457 -STL-XX-XX-SP-L-4080-SP001 LANDSCAPE SPECIFICATION

06 June 2018

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B

Complete buildings/ structures/ units

B91

Buildings in the landscape

B91 Buildings in the landscape

To be read with Preliminaries/ General conditions

SYSTEM OUTLINE

105 PROPRIETARY SMALL BUILDINGS/ STRUCTURES FOR COURTYARD

- Building type: Canopy .
- Services requirements: Not required.

SYSTEM PERFORMANCE

215 CONTRACTOR'S DESIGN

- Design responsibility: PREFABRICATED STRUCTURE OF CANOPY STRUCTURE TO BE PROVIDED BY SUPPLIER AND INSTALLED IN LINE WITH MANUFACTURER'S GUIDANCE .
- Including: Fabric and structure, fixings between elements, anchorage to supporting structure and functionality.
- Structural and fire requirement:
 - Generally: As section B50 or B51.
 - Modifications: None.
 - Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
- Functional requirements: Satisfy specified criteria for Durability of fabric .
- Additional requirements: Location, size and acceptable loading on anchorages to be checked for suitability with design and detailing of supporting structure.
- Design and production information: As Preliminaries sections.
- Timing of submissions: As Preliminaries section A31 .

217 STRUCTURAL DESIGN PROVIDED

- Description: CANOPY UPRIGHTS AND SAILS.
- Requirements:
 - Generally: As section B50 or B51.
 - Additional requirements: None.
- Production/ Execution records: In accordance with the designated code of practice .

220 DURABILITY CANOPY.

- Minimum life span:
 - Fabric:
Element: SAILS.
Duration: 10 YEARS.
 - Finishes: AS SUPPLIED.
Item: POSTS.
Duration: 20 YEARS .

240 WATER PENETRATION

- Requirement: Under site exposure conditions, moisture must not penetrate onto internal surfaces or into cavities not designed to be wetted.

PRODUCTS

330 CANOPY ABOVE COURT YARD AREA

- Manufacturer: ABLE CANOPIES.
 - Product reference: EVERSHADE.
- Size: 2.5m clear height.
- Frame: As standard and Stainless steel.
- Panels: Not required.
- Roof covering: Tensile fabrics.
- Accessibility: No requirement.
- Accessories/ Special requirements: None.
- Method of fixing to ground, base or walls: Post mounted, 300 mm rooted base set in concrete.

MATERIALS

450 STAINLESS STEEL FIXINGS FOR THE SAILS

- Standards:
 - Properties of stainless steels: To BS EN 10088-1.
- Grade: Manufacturer's standard.
- Finish: Manufacturer's standard.
 - Bars, rods and sections for general purposes: To BS EN 10088-3.
 - Sheet/ plate and strip for general purposes: To BS EN 10088-2.
- Method of fixing: As manufacturer's recommendations.
- Additional requirements: Pre-drilled fixing holes and As manufacturer's recommendation.

486 TENSILE FABRIC FOR SAILS OF CANOPY

- Manufacturer: ABLE CANOPIES.
 - Product reference: EVERSHADE.
- Fabric: BESPOKE COMMERCIAL GRADE BREATHABLE KNITTED FABRIC.
 - Coating: HDPE.
 - Colour: VANILA.
- Connection to supporting structure: MANUFACTURERS REQUIREMENTS.
- Additional requirements: As manufacturer's recommendation.

EXECUTION/ ERECTION/ INSTALLATION

600 ERECTION/ INSTALLATION GENERALLY

- Frameworks: Assemble and brace, including temporary members required for installation.
- Contact between dissimilar metals: Avoid.
- Fixings: Fully bolt together. Tighten bolts.
- Temporary support: Do not subject members to non-design loadings.

605 JOINTING/ FIXING GENERALLY

- Generally: Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.

610 CONCRETE FOUNDATIONS GENERALLY

- Concrete: To BS 8500-2.
- Mix: Designated concrete not less than GEN 1 or standard prescribed concrete not less than ST2.
- Admixtures: Do not use.
- Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.
- Foundation holes: Neat vertical sides.
- Components: Accurately positioned and securely supported.
- Concrete fill: Compact as filling proceeds.
- Concrete foundations exposed to view: Compact until air bubbles cease to appear on the upper surface, then weather to shed water and trowel smooth.
- Temporary component support: Maintain undisturbed for minimum 48 hours.

615 SETTING COMPONENTS IN EARTH

- Holes: Excavated by appropriate means to be as small as practicable.
- Components: Position accurately and support securely.
- Buried depth (minimum): 250 mm.
- Earth fill: Ram well as filling proceeds.

630 ERECTION OF PREFABRICATED BUILDINGS/ STRUCTURES

- Checking: Five days (minimum) before proposed erection date, check foundations, holding down bolts, etc.
- Inaccuracies or defects in prepared bases or supplied buildings/ structures: Report immediately. Obtain instructions before proceeding.

637 ERECTION OF TENSILE FABRIC ROOFS

- Roof coverings: Secure so that they are free draining and weathertight.
- Deflections and other movements: Make full allowance.

645 MAKING GOOD GALVANIZED SURFACES

- Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.
 - Material: Low melting point zinc alloy repair rods or powders made for this purpose or at least two coats of zinc-rich paint to BS 4652.
 - Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

COMPLETION

930 DOCUMENTATION

- Contents:
 - General product information.
 - Installation information.
 - Inspection and maintenance reports.
- Number of copies: 2.
- Submission: 2 weeks after request by contract administrator.

D

Groundwork

D20

Excavating and filling

D20 Excavating and filling

To be read with Preliminaries/General conditions

GENERALLY/THE SITE

CLEARANCE/EXCAVATING

168 SITE CLEARANCE

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

170 REMOVING SMALL TREES, SHRUBS, HEDGES AND ROOTS

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

180 CHIPPING AND SHREDDING

- General: Permitted, remove arisings from site.

220 STRIPPING TOPSOIL

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

221 TREATING TOPSOIL

- Treatment: Apply a suitable translocated nonresidual herbicide.
- Timing: Not less than two weeks before excavating topsoil.

225 HANDLING TOPSOIL

- Standard: To BS 3882.
- Aggressive weeds:
 - Species: Included in the Weeds Act, section 2 or the appropriate Wildlife and Countryside Act for the relevant jurisdiction.
 - Give notice: Obtain instructions before moving topsoil.
- Contamination: Do not mix topsoil with:
 - Subsoil, stone, hardcore, rubbish or material from demolition work.
 - Other soil or material containing aggressive weeds, sharps, plastics and non soil forming materials and notifiable animal or plant diseases.
 - Oil, fuel, cement or other substances harmful to plant growth.
 - Other classifications of topsoil.
- Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.

244 EXCAVATIONS ADJACENT TO EXISTING FOUNDATIONS

- Prior to commencing excavation:
 - Excavate trial pits adjacent to existing foundations to determine extent and formation levels.
 - Allow for inspection of trial pits.
 - Allow time for amendment of details if required.
Time period: 5 working days .
- Backfill material to new excavation: 244 .

250 PERMISSIBLE DEVIATIONS FROM FORMATION LEVELS

- Beneath mass concrete foundations: ± 25 mm.
- Beneath ground bearing slabs and r.c. foundations: ± 15 mm.
- Embankments and cuttings: ± 50 mm.
- Ground abutting external walls: ± 50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

255 ACCURACY - LINEAR DIMENSIONS

- Permissible deviations from linear dimensions generally: C709 .

260 INSPECTING FORMATIONS

- Give notice: Make advance arrangements for inspection of formations for foundations and filling formations.
 - Notice (minimum): 3 days.
- Preparation: Just before inspection remove the last 150 mm of excavation.
- Trim to required profiles and levels.
 - Loose material: Minor compaction permitted.
- Seal: Within 4 hours of inspection, seal formations with concrete.

265 INSPECTING FORMATIONS IN SAND AND GRAVEL

- Notice for inspection (minimum): 3 days.
- Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels and mechanically compact formation.
- Seal: Within 4 hours of inspection, seal formations with first layer of fill.

267 INSPECTION OF FORMATIONS IN SHRINKABLE SOILS

- Inspect formation: For signs of conducting and fine moisture absorbing roots.
- Give notice: If significant quantities of roots are visible in the formation or in the bottom 75 mm of the walls of the excavation.

270 FOUNDATIONS GENERALLY

- Give notice if:
 - A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings.
 - The formation contains soft or hard spots or highly variable material.

280 TRENCH FILL FOUNDATIONS

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

- 283 FORMATIONS FOR PILE SUPPORTED STRUCTURES
- Excavate: To the design formation level.
 - Compact: As necessary to ensure formation will support weight of concrete without settlement.
 - Blinding to formation: Contractors choice.
- 290 FOUNDATIONS IN MADE UP GROUND
- Depth: Excavate down to a natural formation of undisturbed subsoil.
 - Discrepancy: Give notice if this is greater or less than depth given.
- 310 UNSTABLE GROUND
- Generally: Ensure that the excavation remains stable at all times.
 - Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.
 - Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.
- 320 RECORDED FEATURES
- Recorded foundations, beds, drains, manholes, etc: Treat as clause 335.
 - Contaminated earth: Remove and disinfect as required by local authority.
- 330 UNRECORDED FEATURES
- Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.
- 335 NEW FOUNDATIONS CROSSING OLD FOUNDATIONS OR WALLS
- Break out: The old foundation/ wall where it crosses the new foundation/ wall:
 - Length of breaking out: Width of the new foundation/ wall plus 590mm.
 - Depth of breaking out: As necessary to permit the construction of the new foundation to its design cross section.
 - Disturbed/ softened soil: When the formation for the old foundation/ wall is deeper than the formation of the new foundation.
 - Excavate: Soil that has been disturbed and/ or softened on either side of the old wall/ foundation, and for 50 mm into undisturbed ground on either side.
 - Step up: The formation for the new foundation as necessary on either side of the old foundation/ wall until the formation is at its design level.
 - Size of steps: As clause 285.
 - Backfilling beneath design formation level: Lean mix concrete.
- 337 OLD FOUNDATIONS OR WALLS BENEATH NEW GROUND SUPPORTED SLAB
- Break out: The old foundation/ wall to a depth below the slab formation level of at least 300 mm.
 - Excavate: Soil that has softened on either side of the old wall/ foundation.
 - Backfill: Obtain instructions if depth of fill will be greater than 600 mm, otherwise backfill with compacted hardcore.
- 360 EXCESS EXCAVATION
- Excavation taken wider than required:
 - Backfill: As clause 700.
 - Excavation taken deeper than required:
 - Backfill: With well graded granular material or lean mix concrete.

370 UNDERGROUND STRUCTURES IN LANDSCAPE AREAS

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

DISPOSAL OF MATERIALS

410 EXCAVATED TOPSOIL STORAGE

- Storage: Stockpile in temporary storage heaps Q28/330 .

420 TOPSOIL STORAGE HEAPS

- Location: On site.
- Standard: To BS 3882.
- Height (maximum): 1 meter high.
- 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.

421 TOPSOIL STORAGE HEAP TREATMENT

- Treatment: Apply a suitable herbicide at appropriate times to prevent seeding of weeds .

441 SURPLUS SUBSOIL

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

450 WATER

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

454 GROUND WATER LEVEL, SPRING OR RUNNING WATER

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

457 PUMPING

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

460 PERMANENT DRAINAGE SYSTEM

- Disposal of water from the excavations through system: Permitted.

FILLING

500 PROPOSED FILL MATERIALS

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

510 HAZARDOUS, AGGRESSIVE OR UNSTABLE MATERIALS

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

520 FROST SUSCEPTIBILITY

- General: Except as allowed below, fill must be non frost-susceptible as defined in Highways Agency 'Specification for Highway Works', clause 801.8.
- Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are non frost- susceptible:
 - Fine grained soil with a plasticity index less than 20%.
 - Coarse grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
 - Crushed chalk.
 - Crushed limestone fill with average saturation moisture content in excess of 3%.
 - Burnt colliery shale.
- Frost-susceptible fill: May only be used:
 - At depths below the finished ground surface greater than: 450 mm.
 - Within the external walls of buildings below spaces that will be heated. Protect from frost during construction.
 - Where frost heave will not affect structural elements.

525 TESTING OF SUITABILITY OF FILL MATERIALS BEFORE START OF FILLING

- Laboratory: UKAS accredited laboratory.
- Submit report to: Civil Engineer (two copies).
 - Timing: 21 days before starting filling.
- Samples: Deliver to laboratory as required.
 - Additional requirements: Also deliver 25 kg samples to offices of structural engineer. On request, collect and dispose.
- Tests: As directed.
- Frequency: Submit with tender proposed rate and frequency of testing to demonstrate continuing compliance of imported or reprocessed fill with specified properties.

530 PLACING FILL

- Surfaces of excavations and areas to be filled: Free from loose soil, topsoil, organic material, rubbish and standing water.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.
- Adjacent structures, membranes and buried services:
 - Do not overload, destabilise or damage.
 - Submit proposals for temporary support necessary to ensure stability during filling.
 - Allow 14 days (minimum) before backfilling against in situ concrete structures.
- Layers: Place so that only one type of material occurs in each layer.
- Earthmoving equipment: Vary route to avoid rutting.

535 COMPACTION GENERALLY

- General: Compact fill not specified to be left loose as soon as possible after placing.
- After compaction: Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
- Defective areas: Remove and recompact to full thickness of layer using new material.

550 GEOTEXTILE SHEET

- Manufacturer: Terram.
 - Product reference: terram 1000.
- Type: Woven.
- Polymer type: Contractor's choice.
- Recycled content: Contractor's choice.
- Jointing: Single stitched prayer seam with high tenacity polyester thread.
- Preparation of subgrade: Before laying sheet, remove humps and sharp projections. Fill hollows.
- Protect from:
 - Exposure to light.
 - Contaminants.
 - Materials listed as potentially deleterious by geotextile manufacturer.
 - Wind uplift.

610 COMPACTED FILLING FOR LANDSCAPE AREAS

- Fill: Material capable of compaction by light earthmoving plant.
- Filling: Layers not more than 200 mm thick. Lightly compact each layer to produce a stable soil structure.

617 HIGHWAYS AGENCY TYPE 1 UNBOUND MIXTURE

- Fill: To Highways Agency 'Specification for highway works', clauses 801 and 803:
 - Crushed rock (other than argillaceous rock).
 - Crushed concrete.
 - Recycled aggregates.
 - Crushed non-expansive slag.
 - Well-burned non-plastic colliery shale.
- Amendments to requirements in Highways Agency 'Specification for highway works': None.
- Filling: To Highways Agency 'Specification for highway works', clause 802.

- 618 HIGHWAYS AGENCY TYPE 2 UNBOUND MIXTURE
- Fill: To Highways Agency 'Specification for highway works', clauses 801 and 804:
 - Crushed rock (other than argillaceous rock).
 - Crushed concrete.
 - Crushed non-expansive slag.
 - Well-burned non-plastic colliery shale.
 - Natural gravel.
 - Natural sand.
 - Amendments to requirements in Highways Agency 'Specification for highway works': None.
 - Filling: To Highways Agency 'Specification for highway works', clause 802.
- 620 SUBGRADE IMPROVEMENT LAYER (CAPPING)
- Fill: To Highways Agency 'Specification for highway works', Table 6/1, Class 6F1 or 6F2.
 - Filling: Place and compact to Highways Agency Specification for highway works, Table 6/1, clause 612 and clause 613.3, 613.9 and 613.10.
- 626 COMPACTED GENERAL FILL
- Suitable material: Make up shortfall in excavated material with imported material of a similar type.
 - Excavated material: Select suitable material and keep separate.
 - Filling: Spread and level material in layers. As soon as possible thoroughly compact each layer.
 - Required compaction: To suit uses of fill as shown on drawing .
 - Proposals: Well in advance of starting work submit details of proposed:
 - Materials to be used, including quantities of each type.
 - Type of plant.
 - Maximum depth of each compacted layer.
 - Minimum number of passes per layer.
- 640 STARTER LAYER OF COMPACTED FILLING
- Fill: Suitable hard granular material. Compact thoroughly.
 - Thickness: 450 mm .
- 650 PROTECTION OF COMPACTED FILLING
- Temporary protective filling: Before allowing construction traffic, raise level of compacted cohesive soil filling at least 150 mm above formation level using properly compacted temporary filling.
 - Removal: Remove temporary protective filling from site before permanent construction.
- 700 BACKFILLING AROUND FOUNDATIONS
- Under oversite concrete and pavings: Hardcore as clause 710.
 - Under grassed or soil areas: Material excavated from the trench, laid and compacted in 300 mm maximum layers.

710 HARDCORE FILLING

- Fill: Granular material, free from excessive dust, well graded, all pieces less than 75 mm in any direction:
 - Test requirements:
Minimum 10% fines value tested in a soaked condition to BS 812-111 Not required.
Impact value SZ tested to BS EN 1097-2 ???%.
- 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.
 - Crushed non-expansive slag.
 - Gravel or hoggins with not more clay content than is required to bind the material together, and with no large lumps of clay.
 - Well-burned non-plastic colliery shale.
 - Natural gravel.
 - Natural sand.
- Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer.

920 APPENDIX 6/5 - GEOTEXTILES USED TO SEPARATE EARTHWORKS MATERIALS

- Clause 850 .

925 APPENDIX 6/6 - FILL TO STRUCTURES AND FILL ABOVE STRUCTURAL FOUNDATIONS

- Clause 850 .

E

In situ concrete/Large precast concrete

E10

Mixing/casting/curing in situ concrete

E10 Mixing/casting/curing in situ concrete

To be read with Preliminaries/General conditions.

CONCRETE MIXES

101 SPECIFICATION

- Concrete generally: To BS 8500-2.
- Exchange of information: Provide concrete producer with information required by BS 8500-1, clauses 4 and 5.

105 DESIGNATED CONCRETE FOR INSTALATION OF FENCE POST

- Designation: GEN1.
- Fibres: Not required.
- Aggregates:
 - Size (maximum): Contractor's choice.
 - Coarse recycled aggregates: Contractor's choice.
 - Additional aggregate requirements: None.
- Special requirements for cement/ combinations: None.
- Consistence class: Contractor's choice.
- Chloride class: Cl 1.0.
- Admixtures: None.
- Additional mix requirements: None.

MATERIALS, BATCHING AND MIXING

218 SITE MIXED CONCRETE

- Batching by mass:
 - Restrictions: None.
 - Accuracy of measuring devices: To BS EN 206, clause 9.6.2.2
 - Tolerances for quantity of constituent material: To BS EN 206, Table 27.
- Batching by volume:
 - Restrictions: None.
- Mixing: To BS 8000-2.1, subsections 2, 3 and 4.

225 CHANGES TO SPECIFICATION

- Changes to specification of fresh concrete (outside concrete producer's responsibility): Submit proposals .

PROJECT TESTING/ CERTIFICATION

505 PROJECT TESTING OF CONCRETE - GENERAL

- Testing: To BS EN 206, Annex B.
 - Nonconformity: Obtain instructions immediately.
- Recording: Maintain complete correlated records including:
 - Concrete designation.
 - Sampling, site tests, and identification numbers of specimens tested in the laboratory.
 - Location of the parts of the structure represented by each sample.
 - Location in the structure of the batch from which each sample is taken.

508 REGULAR PROJECT TESTING OF CONCRETE

- Tests: Compressive strength.
- Tests for consistence class of self-compacting concrete: Slump flow to BS EN 12350-8.
- Consistence testing period: 4 h.
- Sampling:
 - Point: At point of discharge from delivery truck.
 - Rate: One sample from each batch for consistence.
- Other requirements: Cubes for early age strength testing to be stored under same conditions as concrete in members.

530 TESTS RESULTS

- Submission of reports: Within one day of completion of each test.
 - Number of copies: 2.
- Reports on site: A complete set, available for inspection.

PLACING/ COMPACTION/ CURING AND PROTECTION

630 PREMATURE WATER LOSS

- Requirement: Prevent water loss from concrete laid on absorbent substrates.
 - Underlay: Select from:
 - Polyethylene sheet: 250 micrometres thick.
 - Building paper: To BS 1521, grade B1F.
 - Installation: Lap edges 150 mm.

650 SURFACES TO RECEIVE CONCRETE

- Cleanliness of surfaces immediately before placing concrete: Clean with no debris, tying wire clippings, fastenings or free water.

680 PLACING

- Records: Maintain for time, date and location of all pours.
- Timing: Place as soon as practicable after mixing and while sufficiently plastic for full compaction.
- Temperature limitations for concrete: 30°C (maximum) and 5°C (minimum), unless otherwise specified. Do not place against frozen or frost covered surfaces.
- Continuity of pours: Place in final position in one continuous operation up to construction joints. Avoid formation of cold joints.
- Discharging concrete: Prevent uneven dispersal, segregation or loss of ingredients or any adverse effect on the formwork or formed finishes.
- Thickness of layers: To suit methods of compaction and achieve efficient amalgamation during compaction.
- Poker vibrators: Do not use to make concrete flow horizontally into position, except where necessary to achieve full compaction under void formers and cast-in accessories and at vertical joints.

690 COMPACTING

- General: Fully compact concrete to full depth to remove entrapped air. Continue until air bubbles cease to appear on the top surface.
 - Areas for particular attention: Around reinforcement, under void formers, cast-in accessories, into corners of formwork and at joints.
- Consecutive batches of concrete: Amalgamate without damaging adjacent partly hardened concrete.
- Methods of compaction: To suit consistence class and use of concrete.

810 CURING GENERALLY

- Evaporation from surfaces of concrete: Prevent, including from perimeters and abutments, throughout curing period.
 - Surfaces covered by formwork: Retain formwork in position and, where necessary to satisfy curing period, cover surfaces immediately after striking.
 - Top surfaces: Cover immediately after placing and compacting. If covering is removed for finishing operations, replace it immediately afterwards.
- Surface temperature: Maintain above 5°C throughout the specified curing period or four days, whichever is longer.
- Records: Maintain details of location and timing of casting of individual batches, removal of formwork and removal of coverings. Keep records on site, available for inspection.

811 COVERINGS FOR CURING

- Sheet coverings: Suitable impervious material.
- Curing compounds: Selection criteria:
 - Curing efficiency: Not less than 75% or for surfaces exposed to abrasion 90%.
 - Colouring: Fugitive dye.
 - Application to concrete exposed in the finished work: Readily removable without disfiguring the surface.
 - Application to concrete to receive bonded construction/ finish: No impediment to subsequent bonding.
- Interim covering to top surfaces of concrete: Until surfaces are in a suitable state to receive coverings in direct contact, cover with impervious sheeting held clear of the surface and sealed against draughts at perimeters and junctions.

817 CURING CLASS

- Standard: To BS EN 13670 Curing class 1.

818 CURING PERIODS GENERALLY

- Minimum periods: When not otherwise indicated, to BS EN 13670, Annex F.8.5.

820 CURING PERIODS FOR EXTERNAL CONCRETE

- General: Curing periods are in days (minimum).
 - Definition of 't': The average surface temperature of concrete in degrees Celsius during the curing period.
- Curing periods for concrete made using CEM1 strength class 42.5 or 52.5, or SRPC class 42.5:
 - Drying winds or dry, sunny weather (relative humidity < 50%): 6 days when surface temperature is between 5°C and 10°C.
 - Intermediate conditions (relative humidity between 50 and 80%): 4 days when surface temperature is between 5°C and 10°C.
 - Damp weather, protected from sun and wind (relative humidity >80%): No special requirements.
- Curing periods: For concrete made using cements listed in BS 8500-1, table A.6 except for those listed above and for supersulfated cement:
 - Drying winds or dry, sunny weather (relative humidity < 50%): 10 days when surface temperature is between 5°C and 10°C.
 - Intermediate conditions (relative humidity between 50 and 80%): 6 days when surface temperature is between 5°C and 10°C.
 - Damp weather, protected from sun and wind (relative humidity > 80%): No special requirements.
- Curing periods: For concretes using admixtures or other types of cements/ combinations: Submit proposals.
- Other requirements: None.

840 PROTECTION

- Prevent damage to concrete, including:
 - Surfaces generally: From rain, indentation and other physical damage.
 - Surfaces to exposed visual concrete: From dirt, staining, rust marks and other disfiguration.
 - Immature concrete: From thermal shock, physical shock, overloading, movement and vibration
 - In cold weather: From entrapment and freezing expansion of water in pockets, etc.

E20

Formwork for in situ concrete

E20 Formwork for in situ concrete

To be read with Preliminaries/ General conditions.

GENERALLY/ PREPARATION

110 LOADINGS

- Requirement: Design and construct formwork to withstand the worst combination of the following:
 - Total weight of formwork, reinforcement and concrete.
 - Construction loads including dynamic effects of placing, compacting and construction traffic.
 - Wind and snow loads.

CONSTRUCTION

310 ACCURACY

- General requirement for formwork: Accurately and robustly constructed to produce finished concrete in the required positions and to the required dimensions.
- Formed surfaces: Free from twist and bow (other than any required cambers).
- Intersections, lines and angles: Square, plumb and true.

330 INSERTS, HOLES AND CHASES

- Positions and details:
 - Dimensioned on drawings provided on behalf of the Employer: Do not change without consent.
 - Undimensioned or from other sources: Submit proposals.
- Positioning relative to reinforcement: Give notice of any conflicts well in advance of placing concrete.
- Method of forming: Fix inserts or box out as required. Do not cut hardened concrete without approval.

STRIKING

FORMED FINISHES

610 BASIC FINISH

- Location: Foundation for fence post and standing stones.
- Finish: Faces fully compacted and cover to reinforcement provided.

E41

Worked finishes to in situ concrete

E41 Worked finishes to in situ concrete

To be read with Preliminaries/ General conditions.

150 FINISHING

- Timing: Carry out at optimum times in relation to setting and hardening of concrete.
- Prohibited treatments to concrete surfaces:
 - Wetting to assist surface working.
 - Sprinkling cement.

320 TROWELLED FINISH

- Surface on completion: Uniform, smooth but not polished, free from trowel marks and blemishes, and suitable to receive specified flooring material.

G

Structural/Carcassing metal/timber

G12

Isolated structural metal members

G12 Isolated structural metal members

To be read with Preliminaries/ General conditions.

PRODUCTS

- 320 STEEL
- Steel: To BS EN 10210-1.
 - Grade: S275J0.
 - Section properties and dimensions: To BS EN 10210-2.
 - Surface condition: Free from heavy pitting and rust, burrs, sharp edges and flame cutting dross.
- 330 PROPRIETARY HOLLOW SECTION SUPPORTS FOR CANOPY SUPPORTS
- Manufacturer: SUPPLY PROPOSALS .
 - Product reference: SUPPLY PROPOSALS .
 - Loading: TO COMPLY WITH SUPPLIERS GUIDELINES .
 - Finish as delivered: Galvanized to BS EN ISO 1461, primed and painted .
 - Other requirements: Align struts for services .
- 350 PROPRIETARY ANCHORS TO FIX CANAOPY SUPPORTS TO CONCRETE FOUNDATIONS
- Manufacturer: SUBMIT PROPOSALS.
 - Product reference: SUBMIT PROPOSALS.
 - Anchor type: Shield expansion anchor.
 - Material: Carbon steel
 - Coating applied by manufacturer: Galvanized.

FABRICATION

- 510 FABRICATION OF STEEL MEMBERS
- Cuts and holes: Accurate and neat.
 - Welding: Metal arc method to BS EN 1011-2.
 - Welded joints: Fully fused, with mechanical properties not less than those of the parent metal.
 - Site welding: Obtain approval.
 - Joints: Location and layout of fastenings as drawing AS REQUIRED FOR INSTALATION IN LINE WITH FABRICATOR GUIDEANCE .

EXECUTION

- 610 INSTALLATION
- Accuracy: Members positioned true to line and level using, if necessary, steel packs of sufficient area to allow full transfer of loads to bearing surfaces.
 - Fixing: Use washers under bolt heads and nuts.
 - Tapered washers: Provide under bolt heads and nuts bearing on sloping surfaces. Match taper to slope angle and align correctly.
- 620 BONDED ANCHORS
- Holes: Clean and free from dust at time of installing anchor.
 - Permeable sleeves: Use in conditions where otherwise the loss of bonding agent would be unacceptably high.
 - Other requirements: TO FOLLOW PRODUCT INSTALLATION GUIDANCE.

650 SHOP PRIMING SUPPORT FOR CANOPY

- Preparation: To BS EN ISO 12944-4. Remove fins, burrs, sharp edges and weld spatter and clean out crevices.
 - Surface finish: Manually cleaned to BS EN ISO 8501-1, grade St 2.
 - Prepared surfaces: Keep in a dry atmosphere and apply first coating without delay.
- Priming:
 - Primer: High build zinc phosphate epoxy.
Number of coats: Two.
Dry film thickness (minimum): 60 micrometres per coat.
 - Application: To BS EN ISO 12944-7.
- Other requirements: Confirm that proposed primer is suitable for use on hand cleaned steel

G20

Carpentry/ timber framing/ first fixing

G20 Carpentry/ timber framing/ first fixing

To be read with Preliminaries/ General conditions.

GENERAL

105 TIMBER PROCUREMENT

- Timber (including timber for wood based products): Obtained from well managed forests/ plantations in accordance with:
 - The laws governing forest management in the producer country or countries.
 - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either:
 - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied, or
 - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.

150 STRENGTH GRADING OF TIMBER

- Grader: A company currently registered under a third party quality assurance scheme operated by a certification body approved by the UK Timber Grading Committee.

160 GRADING AND MARKING OF SOFTWOOD

- Timber of a target/ finished thickness less than 100 mm and not specified for wet exposure: Graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DRY' or 'KD' (kiln dried).
- Timber graded undried (green) and specified for installation at higher moisture contents: Clearly marked as 'WET' or 'GRN'.
- Structural timber members cut from large graded sections: Regraded to approval and marked accordingly.

PRODUCTS

230 STRUCTURAL SOFTWOOD (STRENGTH CLASS NOT SPECIFIED) FOR STRUCTURAL USE GENERALLY

- Species: European redwood.
- Grading standard: To the appropriate standard or rules for the specified grade and so marked.
 - Grade: SS to BS 4978.
- Treatment:
 - Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8.
Design service life: 20 years.
 - Fire retardant treatment: None required.

345 PROPRIETARY STRUCTURAL WOOD COMPOSITE FOR MILLBORD DECK SUPPORTS

- Manufacturer: MILLBORD.
 - Product reference: AS PER SUPPLIERS GUIDANCE.
- Treatment: Not required.
- Finish as delivered: As manufactured.
- Other requirements: NONE.

WORKMANSHIP GENERALLY

- 401 CROSS SECTION DIMENSIONS OF STRUCTURAL SOFTWOOD AND HARDWOOD
- Dimensions: Dimensions in this specification and shown on drawings are target sizes as defined in BS EN 336.
 - Tolerances: The tolerance indicators (T1) and (T2) specify the maximum permitted deviations from target sizes as stated in BS EN 336, clause 4.3:
 - Tolerance class 1 (T1) for sawn surfaces.
 - Tolerance class 2 (T2) for further processed surfaces.
- 402 CROSS SECTION DIMENSIONS OF NON-STRUCTURAL SOFTWOOD
- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
 - Maximum permitted deviations from finished sizes: As stated in BS EN 1313-1:
 - Clause 6 for sawn sections.
- 403 CROSS SECTION DIMENSIONS OF NONSTRUCTURAL HARDWOOD
- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
 - Maximum permitted deviations from finished sizes: As stated in BS EN 1313-2:
 - Clause 6 for sawn sections.
 - Clause NA.3 for further processed sections.
- 420 WARPING OF TIMBER
- Bow, spring, twist and cup: Not greater than the limits set down in BS 4978 or BS EN 14081-1 for softwood, or BS 5756 for hardwood.
- 430 SELECTION AND USE OF TIMBER
- Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.
- 435 NOTCHES, HOLES AND JOINTS IN TIMBER
- Notches and holes:
 - General: Avoid if possible.
 - Sizes: Minimum needed to accommodate services.
 - Position: Do not locate near knots or other defects.
 - In same joist: Minimum 100 mm apart horizontally.
 - Notches in joists:
 - Position: Locate at top. Form by sawing down to a drilled hole.
 - Depth (maximum): 0.15 x joist depth.
 - Distance from supports: Between 0.1 and 0.2 x span.
 - Holes in joists:
 - Position: Locate on neutral axis.
 - Diameter (maximum): 0.25 x joist depth.
 - Centres (minimum): 3 x diameter of largest hole.
 - Distance from supports: Between 0.25 and 0.4 of span.
 - Notches in roof rafters, struts and truss members: Not permitted.
 - Holes in struts and columns: Locate on neutral axis.
 - Diameter (maximum): 0.25 x minimum width of member.
 - Centres (minimum): 3 x diameter of largest hole.
 - Distance from ends: Between 0.25 and 0.4 of span.
 - Scarf joints, finger joints and splice plates: Do not use without approval.

440 PROCESSING TREATED TIMBER

- Cutting and machining: Carry out as much as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thickness, planed, ploughed, etc.
- Surfaces exposed by minor cutting/ drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

450 MOISTURE CONTENT

- Moisture content of wood and wood based products at time of installation: Not more than:
 - Covered in generally unheated spaces: 24%.
 - Covered in generally heated spaces: 20%.
 - Internal in continuously heated spaces: 20%.

510 PROTECTION

- Generally: Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
- Timber and components: Store under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.
- Trussed rafters: Keep vertical during handling and storage.

520 EXPOSED END GRAIN PROTECTION

- Components: Seal exposed end grain of the following before delivery to site:
SUBMIT PROPOSALS.
- Sealer: Clear end grain sealer.

530 PAINTED FINISHES

- Structural timber to be painted: Primed as specified before delivery to site.

540 CLEAR FINISHES

- Structural timber to be clear finished: Keep clean and apply first coat of specified finish before delivery to site.

550 EXPOSED TIMBER

- Planed structural timber exposed to view in completed work: Prevent damage to and marking of surfaces and arrises.

JOINTING TIMBER

570 JOINTING/FIXING GENERALLY

- Generally: Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.

580 FRAMING ANCHORS

- Manufacturer: SUPPLY PROPOSALS.
 - Product reference: SUPPLY PROPOSALS.
- Material/ finish: Galvanized low carbon steel.
- Fasteners: Galvanized or sherardized square twist nails.
 - Size: Not less than size recommended by anchor manufacturer.
- Fixing: Secure using not less than the number of nails recommended by anchor manufacturer.

630 BOLTED JOINTS

- Bolt spacings (minimum): To BS EN 1995-1-1, section 8.5.
- Holes for bolts: Located accurately and drilled to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.
- Washers: Placed under bolt heads and nuts that would otherwise bear directly on timber. Use spring washers in locations which will be hidden or inaccessible in the completed building.
- Bolt tightening: So that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut.
 - Checking: At agreed regular intervals up to Completion. Tighten as necessary.

670 ANTICORROSION FINISHES FOR FASTENERS

- Galvanizing: To BS 7371-6, with internal threads tapped and lightly oiled following treatment.
- Sherardizing: To BS 7371-8, Class 1.
- Zinc plating: To BS EN ISO 4042 and passivated.

ERECTION AND INSTALLATION

721 EXPANSION ANCHORS

- Manufacturer: SUPPLY PROPOSALS.
 - Product reference: SUPPLY PROPOSALS.
- Size: SUPPLY PROPOSALS.
- Material/ finish: ZINC PLATED COBONATED STEEL.
- Spacing/ edge distance (minimum): AS REQUIRED.
 - Obtain instructions if specified spacing or edge distance cannot be achieved.
- Installation holes: Drilled to diameter and depth recommended by manufacturer. Clean and free from dust.
- Installation/ tightening: To manufacturer's instructions.

760 TEMPORARY BRACING

- Provision: As necessary to maintain structural timber components in position and to ensure complete stability during construction.

770 ADDITIONAL SUPPORTS

- Provision: Position and fix additional studs, noggings and/ or battens to support edges of sheet materials, and wall/ floor/ ceiling mounted appliances, fixtures, etc. shown on drawings.
- Material properties: Additional studs, noggings and battens to be of adequate size and have the same treatment, if any, as adjacent timber supports.

784 JOISTS GENERALLY

- Centres: Equal, and not exceeding designed spacing.
- Bowed joists: Installed with positive camber.
- End joists: Positioned approximately 50 mm from masonry walls.

786 JOISTS ON HANGERS

- Hangers: Bedded directly on and hard against supporting construction. Do not use packs or bed on mortar.
- Joists: Cut to leave not more than 6 mm gap between ends of joists and back of hanger. Rebated to lie flush with underside of hangers.
- Fixing to hangers: A nail in every hole.

840 STRUTTING TO FLOOR JOINTS

- Type: One of the following:
 - Herringbone strutting: At least 38 x 38 mm softwood.
 - Solid strutting: At least 38 mm thick softwood and at least three quarters of joist depth.
 - Proprietary metal strutting: OF APPROVED TYPE.
- Fixing: Between joists as follows:
 - Joist spans of 2.5 to 4.5 m: One row at centre span.
 - Joist spans over 4.5 m: Two rows equally spaced.
 - Strutting must not project beyond top and bottom edges of joists.
- Outer joists: Blocked solidly to perimeter walls.

Q

Paving/Planting/Fencing/Site furniture

Q10

Kerbs/ edgings/ channels/ paving accessories

Q10 Kerbs/ edgings/ channels/ paving accessories

To be read with Preliminaries/General conditions.

TYPES OF KERBS/EDGINGS AND CHANNELS

110 PROPRIETARY PRECAST CONCRETE EDGINGS to foot path

- Standard: To BS EN 1340.
- Manufacturer: Contractor's choice.
- - Product reference: Contractor's choice.
- Recycled content: 3% (minimum) to BS EN ISO 14021.
- Designations: EF Edging, flat top.
- Size (width x height x length): 50 x 150 x 915 mm.
- Special shapes: none.
- Finish: As cast.
- Colour: Natural.
- Bedding: Fresh concrete races.
- Joints generally: Tooled mortar .
- Sealant movement joints: Not required.
- Accessories: None.

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.

550 KERB DOWELS

- Dowels: Steel bar to BS 4482.
 - Size: 12 mm diameter, 150 mm long.
- Installation of dowels: Vertically into foundation while concrete is plastic.
 - Centres: To suit holes in kerbs.
 - Projection: 75 mm.
- Grouting of holes in kerbs: Filled with 1:3 cement:sand mortar finished flush.

560 HAUNCHING DOWELS

- Dowels: Steel bar to BS 4482.
 - Size: 12 mm diameter, 150 mm long.
- Installation of dowels: Vertically into foundation while concrete is plastic.
 - Centres: 450 mm.
 - Distance from back face of kerb: 50 mm.
 - Projection: 75 mm.
- Haunching: Rectangular cross section, cast against formwork, fully enclosing and protecting dowels.

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.

630 NARROW MORTAR JOINTS

- Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled, tightly butted and surplus mortar removed immediately.
 - Joint width: 3 mm.

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: 6 mm.
- Sealant: Silicone.
 - Colour: Natural.
- Sealant application: As section Z22.

Q20

Granular sub-bases to roads/pavings

Q20 Granular sub-bases to roads/pavings

To be read with Preliminaries/ General conditions.

110 THICKNESSES OF SUB-BASE/ SUBGRADE IMPROVEMENT LAYERS

- Thicknesses: See sections:
 -
 - Q22 Coated macadam/asphalt roads/pavings;
 - Q23 Gravel/hoggin/woodchip roads/pavings;
 - Q25 Slab/brick/sett/cobble pavings; and
 - Q26 Special surfacings/pavings for sport/general amenity.

130 HERBICIDES

- Type: Residual.
- Application: To subgrade of
 - footpath;
 - recreation area;
 - play area; and
 - sports surface.

140 EXCAVATION OF SUBGRADES

- Final excavation to formation or subformation level: Carry out immediately before compaction of subgrade.
- Soft spots and voids: Give notice.
- Old drainage and service trenches: Give notice.
- Wet conditions: Do not excavate or compact when the subgrade may be damaged or destabilized.

145 PREPARATION AND COMPACTION OF SUBGRADES

- Timing: Immediately before placing sub-base.
- Soft or damaged areas: Excavate and replace with sub-base material, compacted in layers 300 mm (maximum) thick.
- Compaction: Thoroughly, by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads/ pavings when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

150 SUBGRADES FOR VEHICULAR AREAS

- Preparation and treatment: To Highways Agency 'Specification for highway works', clauses 616 and 617.

170 GEOTEXTILE FILTER/ SEPARATOR MEMBRANE set below foot path seating area and deck

- Manufacturer: Terram .
 - Product reference: Terram 1000 .
- 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: After preparation and compaction of subgrades.
 - Period of notice: 2 working days.
- 200 SUBGRADE IMPROVEMENT LAYER (CAPPING)
- Material: To Highways Agency 'Specification for highway works', table 6/1, Class 6F3.
 - Standard: Placed and compacted to Highways Agency 'Specification for highway works', table 6/1, clauses 612 and 613.3, 613.8, 613.9, 613.10 and 613.13.
- 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 hoggins 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.
- 213 BLINDING PROTECTION FOR MEMBRANES
- Location: Above impermeable membrane .
 - Material: Approved fine material .
 - Thickness (minimum): Sufficient to fill interstices and cover all stones.
 - Compaction: Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
 - Permissible deviations on surface level: +0 -25 mm.
- 215 COARSE GRADED AGGREGATE FOR PERMEABLE PAVING - HYDRAULICALLY BOUND.
- Material: Hard crushed rock.
 - Standard: To BS EN 13242 and paving manufacturers recommendations.
 - Aggregate size: 4/40.
 - Grading: Category Gc 85-15 + GTc 20/17.5.
 - Other properties: As Interpave 'Guide to the design, construction and maintenance of concrete block permeable pavements edition 6', table 13.
 - Testing:
 - Materials: Provide suppliers' certificates for grading and specified properties.
 - Sub-base: Not required.
 - Laying: Lay as indicated in engineers specification thick layers and lightly compact to ensure maximum density and aggregate interlock without crushing individual particles or unacceptably reducing the void ratio.
 - Protection: Prevent damage by traffic and contamination by mud and soil.

- 220 FROST SUSCEPTIBLE GRANULAR MATERIAL
- Definition (non frost susceptible material): To Highways Agency 'Specification for highway works' clause 801.8.
 - Depth of frost susceptible material below final surface of paving (minimum): 350 mm.
 - Testing: Test materials used if required and supply certificates.
- 225 PLACING OF MATERIAL WITH HIGH SULFATE CONTENT
- Standard: To Highways Agency 'Specification for highway works', clauses 801.2 and 801.3.
 - Separation distance (minimum): 500 mm.
- 230 PLACING GRANULAR MATERIAL GENERALLY
- Preparation: Loose soil, rubbish and standing water removed.
 - Structures, membranes and buried services: Ensure stability and avoid damage.
- 240 LAYING GRANULAR SUB-BASES FOR VEHICULAR AREAS
- General: Spread and levelled in layers. As soon as possible thereafter compact each layer.
 - Standard: To Highways Agency 'Specification for highway works' clause 802.
 - At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place: Take particular care to compact fully.
- 241 LAYING GRANULAR SUB-BASES FOR VEHICULAR AREAS
- Proposals: Well in advance of starting work submit details of:
 - Maximum depth of each compacted layer.
 - Type of plant.
 - Minimum number of passes per layer.
 - General: Spread and levelled in layers. As soon as possible thereafter compact each layer.
 - At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place: Take particular care to compact fully.
 - Defective areas: Remove loose, segregated or otherwise defective areas to the full thickness of the layer and lay and compact new material.
 - Sub-base surface after compaction and immediately before overlaying: Uniformly well closed and free from loose material, cracks, ruts or hollows.
- 250 LAYING GRANULAR SUB-BASES FOR PEDESTRIAN AREAS
- 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.
- 310 ACCURACY
- Permissible deviation from required levels, falls and cambers (maximum):
 - Subgrades:
 - Roads and parking areas: +20 -30 mm.
 - Footways and recreation areas: ± 20 mm.
 - Sub-bases:
 - Roads and parking areas: ± 20 mm.
 - Footways and recreation areas: ± 12 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.

Q22

Asphalt roads/ pavings

Q22 Asphalt roads/ pavings

To be read with Preliminaries/ General conditions.

TYPES OF PAVING

115 ASPHALT CONCRETE PAVING TO FOOTWAYS

- Standard: To BS EN 13108-1.
- Subgrade improvement layer: Highways Agency Type 1 unbound mixture, as section Q20.
 - Compacted thickness: 200 mm.
- Geotextile: Sheet.
 - Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Granular sub-base: Highways Agency Type 1 unbound mixture, as section Q20.
 - Compacted thickness: 100 mm.
- Binder course: Contractor's choice.
 - Paving grade: Not applicable.
 - Compacted thickness: 40 mm.
- Surface course: AC 4 fine surf.
 - Paving grade: 40/60.
 - Slip/ Skid resistance: PTV to BS 7976-2 of 40 (water) wet.
 - Compacted thickness: 20-30 mm nominal, 15 mm minimum at any point.
- Reclaimed content:
 - Standard: To BS EN 13108-8.
 - Value (maximum): Surface course 10%, other courses 50%.
- Surface treatment: Not required.
- Other requirements: Not require.

195 HARD LANDSCAPING MATERIALS SPECIFICATION

- Minimum 'BRE Green Guide to Specification Online' rating: A.

PREPARATORY WORK/ REQUIREMENTS

210 TIMBER EDGING TO FOOTWAY

- Softwood board:
 - Size: 38 x 150 mm.
 - Fixing: Galvanized nails into softwood pegs.
- Softwood pegs:
 - Size: 50 x 50 x 450 mm long.
 - Fixing: Drive into ground.
 - Centres: 900 mm.
- Preservative treatment: To provide a 15 year service life.
 - Type: Copper Azole (CuAz).

220 BITUMINOUS MATERIALS GENERALLY

- Suppliers names: Submit.
 - Timing (minimum): Two weeks before starting work.
- Test certificates: At the time of delivery for each manufacturing batch submit certificate:
 - Confirming compliance with this specification and the relevant standard.
 - Stating full details of composition of mix.

240 ACCEPTANCE OF SURFACES

- Surface: Sound, clean and suitably close textured.
- Level tolerances: To BS 594987.
- Kerbs and edgings: Complete, adequately bedded and haunched and to the required levels.

250 ABUTMENTS

- Vertical edges of manholes, gullies, kerbs and other abutments: Clean and paint with a thin uniform coating of hot applied 40/60 paving grade bitumen.
- Finishing: Tamp surface around projections.
 - Level: Flush or not more than 3 mm above projections.

LAYING

310 LAYING GENERALLY

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

320 ADVERSE WEATHER

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

330 LEVELS

- Permissible deviation from the required levels, falls and cambers (maximum): In accordance with BS 594987, clause 5.2.

340 FLATNESS/ SURFACE REGULARITY

- Deviation of surface: Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straightedge placed anywhere on the surface to be not more than:
 - Base: Hand laid, 25 mm.
 - Binder course: Hand laid, 13 mm.
 - Surface course: Hand laid, 10 mm.
 - Where a straightedge cannot be used the surface must be of a comparable standard of accuracy when judged by eye.

350 CONTRACTOR'S USE OF PAVEMENTS

- Before use:
 - Timing: allow newly laid sections to cool before trafficking.
 - Open-grained surface: Fill with 0/4 mm size coated grit. Remove surplus.
 - Finish: Uncoated chipping and binder surface treatment.
- 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.
 - Adhesion: Bond coat.
Application rate: As manufacturer's recommendation.
Accuracy: Uniform, without puddles.
 - Finishing: Allow emulsion to break completely before applying surface.

351 CONTRACTOR'S USE OF PAVEMENTS

- 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.
 - Adhesion: Tack coat to BS 434-1 or BS EN 13808.
Application rate: As manufacturer's recommendation.
Accuracy: Uniform, without puddles.
 - Finishing: Allow emulsion to break completely before applying surface.

Q23

**Gravel/ Hoggins/ Woodchip/ Resin bound roads/ paving/
overlays**

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

To be read with Preliminaries/ General conditions.

TYPES OF SURFACING

160 LOOSE GRAVEL TO FORM CHANNEL ROUND BUILDING

- Subgrade improvement layer: Not required.
 - Compacted thickness: 50.
- Geotextile: Not required.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Granular sub-base: Not required.
 - Compacted thickness: Not required .
- Blinding to sub-base: Not required.
- Gravel: Loose laid and raked to uniform thickness.
 - Type: SUBMIT PROPOSALS .
 - Source: Submit proposals.
 - Colour: Buff.
 - Size: 6 mm single size.
 - Thickness: 75 mm.

LAYING

310 TIMBER EDGING

- Softwood board:
 - Size: 150 x 38 mm.
 - Fixing: Galvanized nails into softwood pegs.
- Softwood pegs:
 - Size: 50 x 50 x 450 mm long.
 - Fixing: Drive into ground.
 - Centres: 900 mm.
- Preservative treatment: Copper Azole (CuAz).

320 SAMPLES

- Submit: Representative samples of all chippings.

325 BLINDING TO SUB-BASE

- Type: Coarse sand.
- Laying: Compact. Seal interstices. Provide free drainage.
- Compacted thickness: 15 mm.

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.

370 LAYING GRANULAR SURFACES IN VEHICULAR AREAS

- Permissible deviation from required levels, falls and cambers (maximum): ± 20 mm.
- General: Spread and level in 150 mm maximum layers. As soon as possible compact each layer.
- Dry weather: Lightly water layers during compaction.

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

Q25 Slab/brick/sett/cobble pavings

To be read with Preliminaries/ General conditions.

GENERAL

- 120 CONCRETE FLAG PAVING SYSTEM For seating area
- Subgrade improvement layer: Not required.
 - Compacted thickness: 300 mm.
 - Granular sub-base: Highways Agency Type 1 unbound mixture, as section Q20.
 - Compacted thickness: 250 mm.
 - Base: Concrete as section Q21.
 - Thickness: 200 mm.
 - Laying course: Site mixed mortar.
 - Accessories: Geotextile sheet below laying course.
 - Paving units: Concrete flags.
 - Jointing: Site mixed mortar.
 - Bond: Half lap staggered.
 - Accessories: None.

SYSTEM PERFORMANCE

PRODUCTS

- 305 GRANULAR MATERIAL FOR LAYER OVER EXISTING BASES
- Material: Highways Agency Type 1 unbound mixture, as section Q20.
- 315 CONCRETE FLAGS FOR SEATING AREA
- Standard: To BS EN 1339.
 - Manufacturer: Charcon.
 - Product reference: STONE MASTER .
 - Recycled content: 50%.
 - Colour: 4 SHADES OF BUFF USE EQUAL AMOUNTS OF EACH.
 - Finish: Exposed aggregate.
 - Nominal sizes: 800X 200X 80.
 - Arrises: PENCIL.
 - Water absorption and freeze/ thaw resistance class: 3.
 - Bending strength class: 3.
 - Abrasion resistance class: 3.
 - Slip/ Skid resistance: USRV of greater than 40.
 - Breaking load class: 45.
- 365 GEOTEXTILE SHEET - BELOW SAND LAYING COURSE
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Recycled content: Contractor's choice.
- 370 CEMENT FOR SITE MIXED MORTAR CLAUSE 695
- Standard: As section Z21.

375 SAND/ FINE AGGREGATE FOR SITE MIXED MORTAR Seating area

- Standard: To BS EN 12620, designations:
 - Flag and slab paving laying course: See Clause 695.
 - Flag and slab paving jointing: BS 7533-4.
 - Concrete sett paving laying course and jointing: not required.
 - Rigid brick paving laying course and jointing: not required.
 - Precast concrete and grass or gravel paving: 0/2 (MP)..

EXECUTION

610 MATERIAL SAMPLES

- Samples representative of colour and appearance of designated materials: Submit before placing orders.
 - Designated materials: Concrete slab paving .

615 CONTROL SAMPLES

- Sample areas: Complete as part of the finished work.
 - Types of paving: Concrete slab paving.
 - Location: Contractors choice.
 - Size (minimum): 1.5 x 1.5 m.
 - Included features: None.
- 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.

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): 24 hours.
 - Vehicular traffic (minimum): 7 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.

- 675 LAYING GEOTEXTILE SHEET EDGING STRIPS
- Location: Immediately below sand laying course, abutting features which interrupt the laying course, including:
 - Perimeters/ Edge restraints/ Kerbs.
 - Other types of paving.
 - Drainage fittings, e.g. channels and manholes.
 - Edge detail: Turn sheet up to a height not less than thickness of sand bedding to form an upstand fitted neatly against features.
 - Width: 750 mm.
 - Jointing: Lap by 300 mm.
- 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: 750 mm.
 - Jointing: Lap by 300 mm.
- 695 SITE MIXED MORTAR - LAYING COURSE FOR CONCRETE FLAG PAVING
- Mix: 1:3 cement:sand.
 - Consistency: Stiff plastic.
 - Admixtures: None.
- 710 LAYING FLAG AND SLAB PAVING - 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: 25 mm.
 - 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: BS 7533-4..
 - Joint width (nominal): 5-10 mm.
- 760 LAYING PRECAST CONCRETE AND GRAVEL PAVING
- Laying: Tamp down into lightly compacted laying course.
 - Nominal thickness of laying course after compaction: 15 mm.
 - Filling: Allow to settle and refill level with surface.
- 785 TOOLED JOINTS IN MORTAR BEDDED UNITS
- Joints: Completely filled with bedding mortar as work proceeds.
 - Joint width: 6 mm.
 - Finish: Neat flush profile.

805 CLEANING EXISTING BLOCKS AND SETTS

- Area: seating area.
- Application:
 - Method: Brush and High pressure washer.
 - Dosage: As cleaning solution manufacturer's recommendations.
- Sand jointed paving: Do not displace jointing sand during cleaning process.

COMPLETION

915 COMPLETION OF PAVING WITH DRY SAND OR FINE AGGREGATE FILLED JOINTS

- Sand dressing: Not required.
- Final compaction of the surface course: In accordance with BS 7533-3.
- Vacuum cleaning machines: Not allowed.

Q26

Special surfacings/ pavings for sport/ general amenity

Q26 Special surfacings/ pavings for sport/ general amenity

To be read with Preliminaries/ General conditions.

SPORTS SURFACING

150 SUITABILITY OF BASE/ SUB-BASE

- Preparation: Before starting work ensure the following:
 - Accuracy: Base/ sub-base will permit specified flatness/ regularity of finished surfacing.
 - Falls/ camber: Accurately incorporated in the base/ sub-base.

IMPACT ABSORBING SURFACINGS FOR PLAY AREAS

300 EXTENT OF IMPACT ABSORBING SURFACING

- General: Lay to the impact areas shown in the relevant parts of BS EN 1176.

301 EXTENT OF IMPACT ABSORBING SURFACING

- General: Lay impact absorbing surfacing as indicated on drawings.

350 SYNTHETIC GRASS SURFACING

- Sub-base: As section Q20.
 - Thickness: 200 mm.
- Base: Coated macadam as section Q22.
 - Thickness: 80 mm.
- Impact absorbing layer: EPDM rubber mats and/ or tiles.
 - Standard: To BS 7188.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Critical fall height when tested to BS EN 1177: 1.0 m.
 - Submit:
 - Resistance to indentation and ease of ignition: Evidence of testing to BS 7188.
- Surface course: Synthetic grass surface.
 - Standard: To BS 7044-4.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Health and safety:
 - Substance known to be toxic or carcinogenic on skin contact or released as vapour or dust during normal use: Not permitted.
 - Ignitability:
 - Radius of ignition to BS 4790 (maximum): 35 mm.
 - Uniformity:
 - Level difference (maximum): 2 mm.
 - Separation at joints (maximum): 2 mm.
- Submit:
 - Critical fall height: Evidence of testing to BS EN 1177.

ASSOCIATED ACCESSORIES

- 410 FLUSH EDGING TO SURFACING TYPE Q26/ to edge of synthetic grass area
- Material: Softwood boards.
 - Size: 150 mm x 38 mm.
 - Fixings: Screws.
 - Pegs: 50 mm x 50 mm x 450 mm long.
 - Centres: 1200 mm.
 - Treatment: As section Z12 and equivalent to the Wood Protection Association (WPA) Commodity Specification C3.
 - Type: Copper Azole (CuAz).

EXECUTION

- 710 SYNTHETIC SPORTS TURF INSTALLATION
- Installation: Lay in continuous lengths across the width of the pitch with no cross joints.
 - Joints:
 - Level differences (maximum): 2 mm.
 - Separation at joints and seams (maximum): 2 mm.
 - Uniformity: No seams or textural variations which might cause a ball to be deflected from its true path.

COMPLETION

- 920 PLAY SURFACE TESTING
- Standard: To BS EN 1177 and BS 7188, where applicable.
 - Testing body: A United Kingdom Accreditation Service (UKAS) independent laboratory.
 - Timing: Within ten days of completing the surfacing works.
 - Test results: Submit.
- 930 DOCUMENTATION
- General: For all types of surfacing, provide the following:
 - Name and contact details of installer.
 - Date of installation.
 - Name and contact details of manufacturer.
 - Type/ description/ reference of products used.
 - Manufacturer's recommended inspection and maintenance procedures to maintain safety and impact absorbing performance.
 - Manufacturer's recommended cleaning and maintenance methods, where relevant.

Q28

Topsoil and soil ameliorants

Q28 Topsoil and soil ameliorants

To be read with Preliminaries/ General conditions.

SYSTEM OUTLINE

- 105 CONTAINER PLANTING GROWING MEDIA SYSTEM FOR PLANTERS
- Composition:
 - Soil: Imported topsoil to BS 3882.
 - Ameliorants: Sanitized and stabilized composted materials and Fertilizer to be incorporated into topsoil.
 - Accessories: Mycorrhizal inoculant.
- 145 PLANT PIT BACKFILLING SOIL SYSTEM FOR CONTAINER PLANTING
- Composition:
 - Topsoil: Imported topsoil to BS 3882.
 - Ameliorants: Sanitized and stabilized composted materials and Fertilizer.
 - Accessories: Mycorrhizal inoculant.
- 155 MULCHING AND TOP DRESSING SYSTEM FOR EXTERNAL CONTAINER PLANTING
- Composition:
 - Material: Minerals.

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.
- 305 PERMITTED MATERIALS
- Materials: Composted animal manures.
 - Give notice: before ordering or using.
 - Declaration of compliance in accordance with BS EN 13650: Required.
- 310 MATERIALS NOT PERMITTED
- Materials: Products containing peat and River and canal dredgings.

- 315 IMPORTED TOPSOIL TO BS 3882 FOR CONTAINER PLANTING
- 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.
 - Soil textural class to BS 3882, Figure 1: Sandy loam.
 - Source: Submit proposals.
 - Product reference: Submit proposals.
- 345 AGGREGATES FOR CONTAINER PLANTING
- Source: Submit proposals.
 - Product reference: Submit proposals.
 - Reference, description and grading:
 - Sand: Not required.
 - Grit: 10 mm washed granite chippings.
 - Crushed materials: Not required.
 - Other aggregates or particles: Not required .
 - Recycled content: Submit proposals.
- 355 ORGANIC MATERIALS FOR CONTAINER PLANTING
- Type: Manure.
 - Source: Submit proposals.
 - Product reference: Submit proposals.
- 380 MYCORRHIZAL INOCULANT To all plants in the planters
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- 401 ORGANIC FERTILIZERS FOR CONTAINER PLANTING
- Manufacturer/ source: Submit proposals.
 - Product reference: Submit proposals.
 - Standard: In accordance with The EC Fertilisers (England and Wales) Regulations 2006.
 - Purpose: General purpose fertilizer.
 - Type: Blood and bone.
 - Availability to plants: Slow release.

EXECUTION

- 605 SITE INVESTIGATION
- Report: See section A11.
- 610 TOPSOIL ANALYSIS
- Soil to be analysed: Imported topsoil.
 - Soil analyst: Provide an informed opinion on quality of soil .
 - Samples: Collect in accordance with BS 3882.
 - Submit:
 - Declaration of analysis: In accordance with BS 3882, clause 6 and Table 1.
 - Additional analysis: Chemical analysis and Chemical contaminants.
 - Report detailing soil analyst's recommendations.
- 620 IMPORTING TOPSOIL
- Give notice: Before stripping topsoil for transfer to site.
 - Notice period: 5 days.

- 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: 7 days.
- 630 DOCUMENTATION FOR IMPORTED TOPSOIL FOR CONTAINER PLANTING
- 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.
- 635 DOCUMENTATION FOR COMPOST AND COMPOSTED MATERIALS FOR COMPOST
- Timing: Submit at handover.
 - Contents:
 - Full description of all compost components.
 - Record of source for all compost components.
 - Analyst's report for each test carried out.
 - Declaration of compliance: in accordance with PAS 100 and BSI PD CR 13456.
 - Quality Compost Protocol certification: Required.
 - Number of copies: One.
- 650 NOTICE
- Give notice before:
 - Setting out.
 - Spreading topsoil.
 - Applying herbicide.
 - Applying fertilizer.
 - Visiting site during maintenance period.
 - Period of notice: 1 week.
- 660 GRADING SUBSOIL FOR Planters
- 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 Planters
- 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: Not applicable.
 - Stiff clay and cohesive subsoils: Not applicable.
 - 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 20 mm.
 - Remove from site: Arisings, contaminants and debris.

670 INSPECTING FORMATIONS

- Give notice: Before spreading topsoil for planting beds.
- Notice period: 10 days.

685 SURPLUS MATERIALS TO BE REMOVED

- Topsoil removal from site: Topsoil remaining after completion of all landscaping work.
- Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

690 TOPSOIL STORAGE HEAPS

- Location: Throughout the site.
- Height (maximum): 1.0 m.
- Width (maximum): 2.0 m.
 - Formation: Loose tip and shape from the side only, without running machinery on the heap at any time.
- 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.

700 GRADING OF TOPSOIL

- Topsoil condition: Reasonably dry and workable.
- Contours: Smooth and flowing, with falls for adequate drainage.
 - Hollows and ridges: Not permitted.
- Give notice: If required levels cannot be achieved by movement of existing soil.

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 ORNAMENTAL PLANTING BEDS

- 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: 150mm.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 LOOSE TIPPING OF TOPSOIL

- Standard: In accordance with BS 3882.
- 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.

718 FINAL CULTIVATION FOR CONTAINER PLANTING

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
- Depth: 150 mm.
- Particle size (maximum): 2-8 mm.
- Timing: Within a few days before planting.
- Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: As section D20.
- Undesirable material brought to the surface:
 - Remove visible weeds.
 - Remove roots and large stones with any dimension exceeding 10 mm.

720 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- In relation to adjoining paving, kerbs or hard surfaces: 25 mm below .
- In relation to dpc of adjoining buildings: Not less than not required.
- In relation to adjacent grass areas: not required .
- Seeded areas: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
- Sportsfields: To even levels and within the following permitted deviations:
 - From levels or gradients shown on drawings: ± 75 mm.
 - From line between boning rods 30 m apart: ± 25 mm.
- Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: Included.

805 APPLYING SOIL AMELIORANT To Planters

- Type:
 - Aggregates ;
 - Minerals; and
 - Organic materials.
- Locations: All planting areas.
- Fully incorporate into topsoil to a depth of 150 mm.
- Application: Spread evenly.
 - Timing: Apply prior to cultivation.
 - Rate: $0.6 \text{ m}^3/100 \text{ m}^2$.
- Timing: Prior to cultivation.
- Other requirements: None.

810 APPLYING COMPOST To planters

- Application rate for trees and shrubs: $0.6 \text{ m}^3/100 \text{ m}^2$.
 - Timing: Apply prior to cultivation.
- Application rate for grass: Not applicable .
 - Timing: Apply prior to cultivation.
- Application rate for planters: 25 mm thick layer.
 - Timing: Apply prior to cultivation.
- Other requirements: None.

820 APPLYING GENERAL FERTILIZER To Planters

- Application: Spread evenly, carefully incorporating below mulch materials.
 - Timing: Immediately before cultivation.
 - Application rate: 25 g/m^2 .
 - Other requirements: None.

840 APPLYING MYCORRHIZAL INOCULANT To All plants .

- Depth: To maintain contact with root system.

COMPLETION

- 905 APPLYING MAINTENANCE FERTILIZER TO SOIL TO CONTAINER PLANTING
- Duration: Carry out the following operations from completion of seeding/ turfing until practical completion.
 - Time of year: During April and May.
 - Application: Evenly spread, carefully incorporating below mulch materials.
 - Rate: 25 g/m².
- 920 APPLYING MULCH
- Timing: Ensure gravel mulch is raked and even at end of Practical completion .
 - Watering: Ensure that soil is thoroughly moistened prior to mulching, applying water where necessary.
 - Planting beds: Re-mulch.
 - Depth (minimum): 50 mm.
 - Trees: Remulch.
 - Depth (minimum): 50 mm.
 - Container planting: Remulch.
 - Depth (minimum): 50 mm.

Q31

External planting

Q31 External planting

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/ REQUIREMENTS

112 SITE CLEARANCE GENERALLY

- General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
- Stones: Remove those with any dimension exceeding 50 mm.
- Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Vegetation: Clear surface vegetation in areas shown on drawings using suitable nonresidual herbicide.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Additional requirements: Remove remnants of old fence posts and mesh.

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.

146 WATERING

- Quantity: Wet full depth of topsoil.
- Application: Even and without damaging or displacing plants or soil.
- Frequency: Weekly and When instructed.

150 WATER RESTRICTIONS

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

160 NOTICE

- Give notice before:
 - Setting out.
 - Applying herbicide.
 - Applying fertilizer.
 - Delivery of plants/ trees.
 - Planting shrubs.
 - Planting trees into previously dug pits.
 - Watering.
 - Visiting site during maintenance period.
- Period of notice: One week.

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.

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).

216 PLANTS/ TREES - SPECIFICATION CRITERIA

- Name, forms, dimensions and other criteria: To the relevant part of BS 3936.

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: Date supplied and consignment details or reference.

246 LABELLING AND INFORMATION

- Standard: To BS 3936.

255 PLANTS/ TREES RESERVED AT SUPPLIER'S PREMISES

- Types/ Species: As plant schedule.
- Predelivery inspection: Give notice.
- Labelling: Identify inspected plants/ trees as reserved for use on this project.

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: Black polyethylene bags.
- 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.

PLANT CONTAINERS

PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

305 WEED CONTROL FOR INVASIVE NON-NATIVE WEEDS

- Locations: Whole site.
- General: Prevent weeds from seeding and perennial weeds from becoming established, by contractor's choice of herbicide.

385 MULCH MATTING/ GEOTEXTILE FABRIC TO SHRUB PLANTING

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Type: Woven polypropylene.
- Recycled content: Submit proposals.
- Timing: Lay before planting.
- Watering: Water soil thoroughly before laying.
- Laying: In close contact with soil surface. Lap or butt joints as recommended by manufacturer, with no gaps.
- Planting: Cut neat slits or flaps. Refit closely around plant stems.
- Overlay: Mulching planting beds.

PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

400 RANDOM PLANT LAYOUT TO ALL BEDS

- Spacing: Evenly, avoiding straight lines.
- Density: As plant schedule.

405 SHRUB PLANTING PITS

- Timing: Excavate 1-2 days (maximum) before planting.
- Sizes: As plant schedule.
- Pit bottom improvement Break up to a depth of 150 mm, incorporating soil ameliorant/conditioner at 50 g/m².

480 AFTER PLANTING

- Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
- Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
- Top dressing: Mulching and top dressing system, as section Q28.
 - Depth: 50 mm.

PLANTING TREES

500 TREE PLANTING

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

505 TREE PITS

- Sizes: As plant schedule.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Excavated material: Separate topsoil and subsoil material and stockpile for backfilling.
- Pit bottoms: Excavate with slightly raised centre: Break up base to a depth of 200 mm.
 - Treatment: Soil ameliorant worked into pit bottoms.
- Pit sides: Scarify.
- Backfilling material: Excavated material from tree pit, installed to original soil profiles in accordance with BS 8545.

566 TREE PROTECTION

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Type: Spiral.
- Material: Plastics mesh.
- Size: 0.6 m high x 130 mm diameter.
- Colour: Green.
- Support: as per drawing.
- General: Ensure that protection methods do not impede natural movement of trees or restrict growth.

576 TREE PIT SURFACING - LOOSE FILL

- Surfacing material: Mulch, as section Q28.
- Area: 1000 x 1000 mm square.
- Depth: 75 mm.
- Watering: Water soil thoroughly before laying.
- Installation: Ensure the base of the tree stem is kept free from loose filled material.

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

710 MAINTENANCE

- Duration: Carry out the operations in the following clauses from completion of planting until ractical completion.
- Frequency of maintenance visits: Fortnightly during growing season.

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: In accordance with an agreed defects rectification programme.

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.

750 PLANTING MAINTENANCE GENERALLY

- Weed control: Maintain weed free area around each tree and shrub.
 - Diameter (minimum): The larger of 1 m or the surface of original planting pit.
 - Keep planting beds clear of weeds: By maintaining full thickness of mulch.
- Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
- Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
- Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
- Trees: Spray crown when in leaf during warm weather.
 - Timing: After dusk.
- Tree accessories: Check condition of stakes, ties, guys, guards and irrigation and ventilation systems.
 - Broken or missing items: Replace.
 - Loose stakes: Re-firm in the ground or replace as necessary to provide support to the tree.
 - Loose guys: Re-firm anchor points and adjust as necessary to provide support to the tree.
 - Ties: Adjust to accommodate growth and prevent constriction or abrasion.
 - Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
 - Frequency of checks: Every two weeks.
- Watering: As required for healthy establishment, depending on weather conditions.

760 PLANTING MAINTENANCE - PRUNING

- General: Prune to promote healthy growth and natural shape.
 - Dead, dying, diseased wood and suckers: Remove.
 - Timing: As appropriate to the species.
 - Trees: Favour a single central leading shoot.
- Arisings: Remove.

780 MAINTENANCE INSTRUCTIONS

- General: Before end of the maintenance period, submit printed instructions recommending procedures to be established by the Employer for maintenance of the planting work for one full year: Provide a schedule of any ongoing maintenance problems experienced during the rectification period.

790 FINAL MULCHING

- Timing: At end of the maintenance period.
- Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
- Planting beds: Remulch.
Depth (minimum): 50 mm.
- Trees: Remulch.
Depth (minimum): 50 mm.

Q35

Landscape maintenance

Q35 Landscape maintenance

To be read with Preliminaries/ General conditions.

GENERALLY

110 NOTICE

- Give notice before:
 - Application of herbicide.
 - Application of fertilizer.
 - Watering.
 - Each site maintenance visit.
- Period of notice: 2 weeks.

130 REINSTATEMENT

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

155 WATERING

- Supply: Potable mains water.
- Quantity: Wet full depth of topsoil .
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to rootzone.
- Frequency: As necessary for the continued thriving of all planting.

160 WATER RESTRICTIONS

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

170 DISPOSAL OF ARISING

- General: Unless specified otherwise, dispose of arisings as follows:
 - Biodegradable arisings: Remove to recycling facility.
 - Grass cuttings: not applicable.
 - Tree roots and stumps: not applicable.
 - Shrub and tree prunings: Remove to recycling facility.
 - Litter and nonbiodegradable arisings: Remove from site.

180 CHIPPING OR SHREDDING

- General: Not permitted on site.

190 LITTER

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

197 CLEANLINESS

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

250 LEAF REMOVAL

- Operations: Collect fallen leaves.
- Special requirements: Remove by hand raking.
- Disposal: Remove from site for recycling.

330 SELECTIVE HERBICIDE

- Location: Planters.
- Herbicide: Suitable for suppressing perennial weeds.
- Areas not to be sprayed: Desirable herbaceous plantings.

FLOWER BEDS/ SEASONAL BEDDINGS

470 FLOWER BEDS GENERALLY

- Operations:
 - Remove: Dead flower heads, fallen leaves, litter and debris.
 - Weeds: Thoroughly hand weed.
 - Cultivate: Lightly hoe.
 - Trim: Clip grass edges.
- Fungicide: Apply once during summer as instructed.
- Insecticide: Apply once during summer as instructed.

SHRUBS/TREES/HEDGES

500 ESTABLISHMENT OF NEW PLANTING

- Duration: 2 years.
- Weed control:
 - Method: Keep planting beds clear of weeds by maintaining full thickness of mulch and use of suitable herbicides.
 - Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
- Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
- Watering: When instructed.

502 ESTABLISHMENT OF NEW PLANTING - FERTILIZER

- Time of year: March or April.
- Type: Organic .
- Spreading: Spread evenly. Carefully lift and replace any mulch materials.
 - Application rate: 200 g per transplant.

520 REFIRMING OF TREES AND SHRUBS

- Timing: After strong winds, frost heave and other disturbances.
- Refirming: Tread around the base until firmly bedded.
- Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

540 PRUNING GENERALLY

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

- 545 PRUNING OF EXCESSIVE OVERHANG
- Timing: Annually.
 - Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
 - Special requirements: Allow ground cover plants to partially overlap paths and lawns.
- 550 PRUNING OF EXCESSIVE HEIGHT
- Timing: Annually.
 - Operations: Remove excessive height 2 m.
- 555 PRUNING TREES AND SHRUBS
- Standard: To BS 7370-4.
 - Special requirements: None.
- 575 PRUNING ORNAMENTAL SHRUBS
- General: Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
 - Suckers: Remove by cutting back level with the source stem or root.
- 580 PRUNING FLOWERING SPECIES OF SHRUBS AND ROSES
- Time of year:
 - Winter flowering shrubs: Spring.
 - Shrubs flowering between March and July: Immediately after the flowering period.
 - Shrubs flowering between July and October: Back to old wood in winter.
 - Rose bushes: Early spring to encourage basal growths and a balanced, compact habit.
- 620 REMOVAL OF DEAD PLANT MATERIAL
- Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.
- 630 DEAD AND DISEASED PLANTS
- Removal: As soon as possible.
 - Replacement: In the next scheduled round of replacement planting.
- 635 REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS
- Dead and damaged plants: Remove.
 - Mulch/ matting materials:
 - Carefully move to one side and dig over the soil, leaving it fit for replanting.
 - Do not disturb roots of adjacent plants.
 - Replacement plants:
 - Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
 - Additional requirements: Submit details and cost of plants before ordering.
 - Dressing: Slow release fertilizer:
 - Type: Organic.
 - Application rate: 50 g/m².

640 THINNING BY REMOVAL OF SURPLUS PLANTS

- Plants to be thinned: Shrub beds.
- Standard: BS 7370-4.
- Timing: When foliage of adjacent plants has begun to touch.
- Roots:
 - Disturbance to adjacent plants: Minimise.
 - Soil: Refill holes with topsoil to leave an even graded surface.
 - Mulch: Maintain mulch as original specification.
 - Adjacent plants: Make good any minor damage immediately.
- Plants for retention: Select plants with a strong healthy habit.
- Mature planting density: as shedule.

645 WEED CONTROL GENERALLY

- Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm high.
- Adjacent plants, trees and grass: Do not damage.

650 HAND WEEDING

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

655 WEED CUTTING BY HAND OR MACHINE

- Undesirable grass, brambles and herbaceous growth: Cut down cleanly to a maximum height of 25 mm.
- Herbicides: Give notice before use.

657 HERBICIDE TO KILL REGROWTH

- Type: Suitable foliar acting herbicide to kill regrowth.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

665 WEED CONTROL WITH WINTER HERBICIDE

- Type: Suitable residual soil acting herbicide.
- Time of year: Unless otherwise agreed, complete before end of March.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

685 SOIL LEVEL ADJUSTMENT

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

690 MAINTENANCE OF LOOSE MULCH

- Thickness (minimum): 50 mm.
 - Top up: Annually.
- Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
- Weeding: Remove weeds growing on or in mulch by herbicide treatment.

695 FERTILIZING ESTABLISHED TREES AND SHRUBS

- Time of year: After flowering.
- Type of fertilizer: Organic.
- Application: Spread evenly.
 - Rate: 70 g/m².

700 SNOW REMOVAL FROM SHRUBS/ TREES

- Standard: To BS 7370-4.
- Plants subject to snow removal: As instructed.
- Timing: When instructed.

705 WINTER LEAF REMOVAL

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

WATER AREAS

HARD LANDSCAPE AREAS/FENCING

910 HARD SURFACES AND GRAVEL AREAS

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

920 FENCING

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

Q40
Fencing

Q40 Fencing

To be read with Preliminaries/ General conditions.

FENCING SYSTEMS

410 PURPOSE MADE FENCING Timber Fence

- Standard: To BS 1722- 2 except as varied on drawings and below.
- Height: 1800 mm.
- Materials: Wood.
 - Finish: Copper Azole (CuAz) and To provide a 30 year service life.
 - Colour: Self finish.
- Centres of posts (maximum): 2400mm.
- Method of setting posts: As drawing concrete foundation.
- Accessories: None.

GATES, POSTS AND STILES

550 WOOD POSTS

- Manufacturer: Submit proposals.
- Standard: To BS 5709.
- Wood: Softwood.
- Treatment: As section Z12 and Wood Protection Association Commodity Specification C3.
 - Type: To provide a 30 year service life.
 - Finish: Exterior wood stain, as section M60.
- Adhesive: Synthetic resin to BS EN 301, type 1.
- Workmanship: As section Z10.
- Fittings: NONE.
 - Finish: Hot dip galvanized to BS EN ISO 1461.
- Method of fixing: Concrete foundation, 450 mm square x 600 mm deep.
- Accessories: None.

570 GATES

- Manufacturer: gate to main courtyard.
 - Product reference: As per drawing .
- Sizes: 1830 mm clear opening.
- Posts: Wood.
- Finish as delivered: Wood stain as section M60.
- Fittings: Two hook and band hinges, return spring and a padbolt with padlock.
 - Finish: Hot dip galvanized to BS EN ISO 1461.
- Method of fixing: Posts set in 450 mm square x 600 mm deep concrete.
- Accessories: None.

ACCESSORIES

EXECUTION

710 INSTALLATION GENERALLY

- Set out and erect:
 - Alignment: Straight lines or smoothly flowing curves.
 - Tops of posts: Following profile of the ground.
 - Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
 - Fixings: All components securely fixed.

715 COMPETENCE

- Operatives: Contractors must employ competent operatives.
- Qualifications: Submit certification of training.
 - NHSS Sector Scheme 2A sub categories: Not required.
 - NHSS Sector Scheme 2C sub categories: Not required.

720 SETTING POSTS IN CONCRETE

- Standard: To BS 8500-2.
- Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.
- Alternative mix for small quantities: 50 kg Portland cement to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
- Admixtures: Do not use.
- Holes: Excavate neatly and with vertical sides.
- Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
- Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

730 EXPOSED CONCRETE FOUNDATIONS

- Filling: Compact until air bubbles cease to appear on the upper surface.
- Finishing: Weathered to shed water and trowelled smooth.

760 NAILED WOOD RAILS

- Length (minimum): Two bays, with joints in adjacent rails staggered.
- Fixing: Nail each length of rail to each post with two 100 mm galvanized nails.
- Rails with split ends: Replace.

766 ARRIS RAILS

- Fixing:
 - Rail end section: Shaped to adequately fill the post mortice or recess.
 - Recessed posts: Rails bolted to each post.
 - Top rails: Fixed at both ends using One 8 mm diameter bolt .
- Rails with split ends: Replace.

770 SITE CUTTING OF WOOD

- General: Kept to a minimum.
- Below or near ground level: Cutting prohibited.
- Treatment of surfaces exposed by minor cutting and drilling: Two flood coats of solution recommended for the purpose by main treatment solution manufacturer.

780 MAKING GOOD GALVANIZED SURFACES

- Treatment of minor damage (including on fasteners and fittings): Low melting point zinc alloy repair rods or powders made for this purpose, or at least two coats of zinc-rich paint to BS 4652.
- Thickness: Apply sufficient material to provide a zinc coating at least equal in thickness to the original layer.

790 SITE PAINTING

- Timing: Prepare surfaces and apply finishes as soon as possible after fixing.

COMPLETION

910 CLEANING

- General: Leave the works in a clean, tidy condition.
- Surfaces: Clean immediately before handover.

920 FIXINGS

- All components: Tighten.
 - Timing: Before handover.

Q50

Site/street furniture/equipment

Q50 Site/street furniture/equipment

To be read with Preliminaries/ General conditions.

GATES, BARRIERS AND PARKING CONTROLS

110 WOOD GATE AND GATE POSTS

- Manufacturer: AS PER DETAILS SUPPLIED.
 - Product reference: AS PER DETAILS SUPPLIED .
- Standard: To BS 5709.
- Wood: Softwoods.
 - Quality: To BS EN 942, Class J40.
- Treatment: As Wood Protection Association 'Industrial Wood Preservation. Specification and Practice'.
 - Type: To provide a 15 year service life.
- Adhesive: Synthetic resin to BS EN 301, type 1.
- Fittings and accessories: Two hook and band hinges, return spring and padbolt with padlock.
- Method of setting posts: Concrete foundation.

110A TRACTOR TIRE TUNNEL AND LOG WALL PLAY FEATURE BETWEEN TWO COURT YARD AREAS

- Manufacturer: AS PER DETAILS SUPPLIED.
 - Product reference: AS PER DETAILS SUPPLIED .
- Standard: To BS 5709.
- Wood: Mixed homegrown hardwoods .
 - Quality: To BS EN 942, Class J40.
- Treatment: As Wood Protection Association 'Industrial Wood Preservation. Specification and Practice'.
 - Type: To provide a 15 year service life.
- Adhesive: CEMENT, SAND AND HYDRATED LIME MIXED WITH SAWDUST .
- Fittings and accessories: 3 X PRESSURE WASHED RECYCLED TRACTOR TYRES SIZE 11.2-24 SET IN PLACE AS PER DRAWING .
- Method of setting posts: Concrete foundation.

190 BOLLARDS TIMBER BOLLARDS TO FRONT OF CENTRE

- Manufacturer: AS PER DRAWING.
 - Product reference: SQUARE BOLLARD POINT PROFILE .
- Material: Wood.
 - Finish as delivered: Wood stain, as section M60 and As manufactured.
 - Colour: None.
- Height above ground: 1100 mm.
- Sectional size: 200 X 200 mm square.
- Top: POINTED.
- Special features: Red and white reflective band, 150 mm high at top of bollard.
- Method of fixing: Root, 300 mm below ground, set in concrete base.

SITE AND STREET FURNITURE

220 BENCHES L SHAPED BENCH IN QUIET SEATING AREA

- Manufacturer: AS PER SUPPLIED DETAILS .
 - Product reference: AS PER SUPPLIED DETAILS .
- Material: PRESSURE TREATED EXTERIOR GRADE TANALIZED SOFT WOOD .
 - Finish: NATURAL FINISH .
 - Colour: None.
- Size: AS PER DETAILS .
- Accessories/ Special requirements: None.
- Method of fixing: Benches fixed level.

INSTALLATION

510 CONCRETE FOUNDATIONS GENERALLY

- Standard: To BS 8500-2.
- Concrete: Designated, not less than GEN 1.
- 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: 250 x 250 x minimum 300 mm deep.
- 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.

520 SETTING IN EARTH

- Holes: As small as practicable.
- Components being fixed: Accurately positioned and securely supported.
- Buried depth (minimum): 300 mm.
- Earth refill: Well rammed as filling proceeds.

530 PRESERVATIVE TREATED TIMBER

- Surfaces exposed by minor cutting and drilling: Treated by immersion or with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.
- Heavily worked sections: Re-treat.

540 BUILDING IN TO MASONRY WALLS

- Components being built in: Accurately positioned and securely supported. Set in mortar and pointed neatly to match adjacent walling.
- Temporary support: Maintain for 48 hours (minimum) and prevent disturbance.

545 ERECTION OF TIMBER AND PREFABRICATED STRUCTURES

- Checking: 5 days (minimum) before proposed erection date, check foundations, holding down bolts, etc.
- Inaccuracies or defects in prepared bases or supplied structures: Report immediately. Obtain instructions before proceeding.

550 DAMAGE TO GALVANIZED SURFACES

- Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.
 - Material: Low melting point zinc alloy repair rods or powders made for this purpose or at least two coats of zinc-rich paint to BS 4652.
 - Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

560 SITE PAINTING

- Timing: Prepare surfaces and apply finishes as soon as possible after fixing.

Q55

External decks, boardwalks and bridges

Q55 External decks, boardwalks and bridges

To be read with Preliminaries/ General conditions.

TENDERING

- 10 INFORMATION TO BE PROVIDED WITH TENDER
- General structural requirements in accordance with clause B51/15.

GENERAL

- 110 DECK TO THE REAR OF NURSERY ROOM 2
- Base preparation: Remove projections and debris and lay A LEAN LEVEL CONCRETE SCREED IN LINE WITH MILLBOARD SPECIFICATION .
 - Structure, other than surfacing: Composite and Structural timber composites.
 - Fasteners: Adjustable post base IN LINE WITH SUPPLIERS DETAILS.
 - Post setting: Not required.
 - Surfacing: Deck boards.
 - Method of attachment: AS PER SUPPLIERS GUIDELINES .
 - Guarding: Not required.
 - Edge protection: As drawing .
 - Accessories: NONE.

SYSTEM PERFORMANCE

- 215 CONTRACTOR'S DESIGN
- Design responsibility: TO INSTALL DECK IN LINE WITH MILLBOARD DESIGN GUIDELINES .
 - Including: Fabric and structure, fixings between elements, anchorage to supporting structure and functionality.
 - Requirements:
 - Generally: As section: B50.
 - Modifications: None.
 - Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
 - Functional requirements: Satisfy specified criteria for Durability of fabric.
 - Additional requirements: Location, size and acceptable loading on anchorages to be checked for suitability with design and detailing of supporting structure.
 - Design and production information: TO BE PROVIDED A WEEK PRIOR TO INSTALATION .
 - Timing of submissions: As Preliminaries section A31.

PRODUCTS

- 370 COMPOSITE SECTIONS FOR DECK STRUCTURE GENERALLY
- Manufacturer: MILLBOARD.
 - Product reference: PLAS PRO.
 - Colour: STANDARD FINISH .

- 380 DECK BOARDS TO DECK
- Manufacturer: MILLBOARD.
 - Product reference: PLAS PRO.
 - Material: Composite.
 - Treatment: Not required.
 - Profile: Plain.
 - Finished size: 300MM.
 - Length: To suit deck design.
 - Finish: LIMED OAK FINISH.
 - Features: SLOW SPEED CUTTING REQUIRED.
- 395 SUPPORT PEDESTALS TO SUPPORT DECKING MATERIALS
- Manufacturer: MILLBOARD.
 - Product reference: MILLBOARD SELF LEVELING PEDISTAL DETAIL .
 - Type: Telescopic.
 - Material: Recycled polypropylene.
 - Dimensions: AS DRAWING.
 - Accessories: Not required.

FABRICATION

- 510 FABRICATION GENERALLY
- Design: Complete the detailed design and obtain approval prior to commencing fabrication.
 - Shop drawings: Submit.
 - Structural calculations: Submit.
 - Frameworks: Assemble and brace, including temporary members required for installation.
 - Contact between dissimilar metals: Avoid.
 - Fixings: Fully bolt together. Tighten bolts.
 - Temporary support: Do not subject members to non-design loadings.

EXECUTION

- 610 LOADING
- Site activities: Restrict, to ensure that design loads are not exceeded, or submit proposals for temporary supports.
- 620 CONCRETE FOUNDATIONS GENERALLY
- Standard: To BS 8500-2.
 - Mix: Designated concrete not less than GEN 1 or standard prescribed concrete not less than ST2.
 - Admixtures: Do not use.
 - Foundation holes: Neat vertical sides.
 - Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.
- 655 ERECTION OF PREFABRICATED TIMBER STRUCTURES ON PREPARED BASES
- Survey: Five days (minimum) before proposed erection date. Check foundations, holding down bolts, etc.
 - Inaccuracies or defects in prepared bases or supplied structures: Report immediately. Obtain instructions before proceeding.

657 INSTALLATION OF PEDESTALS

- Ensure that surface to accept pedestals is clean and free of debris.
- Setting out: Mark centre-point of pedestal on substrate surface, with guidelines to ensure square layout.
 - Orientation: Align parallel with adjacent features.
 - Spacing: To suit paving material and dimensions.
 - Additional pedestals: Submit proposals.
- Overall movement tolerance (maximum): 3 mm.

665 INSTALLATION GENERALLY

- Fasteners and methods of fixing: As section Z20.
- Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
- Temporary support: Do not use stairs, walkways or balustrades as temporary support or strutting for other work.

670 INSTALLATION OF SURFACING

- Heading joints: Kept to a minimum, and formed only as butt joints situated over joists.
- Length: Each board must span not less than two bays between joists with joints in adjacent boards staggered.
- Gaps between boards: 4-6 mm.