

M5115-500 Landscape Specification

19 May 2014

Table of Contents

Title		Page
B91	Buildings in the landscape	3
C20	Demolition	6
E10	Mixing/casting/curing in situ concrete	10
E20	Formwork for in situ concrete	14
E30	Reinforcement for in situ concrete	16
F10	Brick/ block walling	17
F30	Accessories/sundry items for brick/block/stone walling	21
Q10	Kerbs/ edgings/ channels/ paving accessories	23
Q20	Granular sub-bases to roads/pavings	26
Q22	Asphalt roads/ pavings	29
Q25	Slab/brick/sett/cobble pavings	32
Q28	Topsoil and soil ameliorants	37
Q30	Seeding/turfing	43
Q31	External planting	48
Q35	Landscape maintenance	57
Q40	Fencing	71
Q50	Site/street furniture/equipment	77
Z21	Mortars	79

B91 Buildings in the landscape

To be read with Preliminaries/ General conditions.

SYSTEM OUTLINE

- 105 PROPRIETARY SMALL BUILDINGS/ STRUCTURES TIMBER SHEDS FOR GARDENS
- Building type: Timber Shed .
 - Services requirements: Not required.

SYSTEM PERFORMANCE

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

PRODUCTS

- 380 SHED TO REAR GARDENS
- Manufacturer: Tiger Sheds or similar approved.
 - Product reference: Tiger value overlap apex shed.
 - Size: 6x4 ft.
 - Frame: Structural hardwood.
 - Walls/ Cladding:
 - As standard;
 - Timber cladding; and
 - Submit proposals.
 - Roof covering:
 - As standard;
 - Timber cladding;
 - Bitumen sheet; and
 - Submit proposals.
 - Accessibility: In accordance with BS 8300.
 - Accessories/ Special requirements: Concealed vandal-proof fixings.
 - Method of fixing to ground or base: Submit proposals.

MATERIALS

- 460 TIMBER CLADDING TO SHED
- Material: Hardwood and Softwood.
 - Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Finished size: Submit proposals.
 - Treatment: Alkaline Copper Quaternary (ACQ) and Submit proposals.
 - Finish: Stained, as section M60.
 - Colour: Clear.
 - Method of fixing: As manufacturer's recommendations.
 - 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.
- 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.
- 635 INSTALLATION OF TIMBER FLOORING/SURFACING
- Joints: Keep to a minimum, and form 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: 2-5 mm.
- 640 SITE PAINTING AND STAINING
- Timing: Prepare surfaces and apply finishes as soon as possible after installing components.
- 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.

650 MAKING GOOD TREATED TIMBER

- Surfaces exposed by minor cutting and/ or drilling: Treat by immersion or apply two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.
- Heavily worked sections: Re-treat.
- Cutting and machining: Cut and machine timber as much as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, planed, ploughed, etc.

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.

C20 Demolition

To be read with Preliminaries/ General conditions

GENERAL REQUIREMENTS

110 DESK STUDY/ SURVEY

- Scope: Before starting deconstruction/ demolition work, examine available information, and carry out a survey of:
 - the structure or structures to be deconstructed/ demolished,
 - the site on which the structure or structures stand, and
 - the surrounding area.
- Report and method statements: Submit, describing:
 - Form, condition and details of the structure or structures, the site, and the surrounding area.
 - Extent: As drawing M5115-102-D .
 - Type, location and condition of features of historical, archaeological, geological or ecological importance.
 - Type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures, or by noise, vibration and/ or dust generated during deconstruction/ demolition.
 - Identity and location of services above and below ground, including those required for the Contractor's use, and arrangements for their disconnection and removal.
 - Form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal.
 - Form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage.
 - Proposed programme of work, including sequence and methods of deconstruction/ demolition.
 - Details of specific pre-weakening required.
 - Arrangements for protection of personnel and the general public, including exclusion of unauthorized persons.
 - Arrangements for control of site transport and traffic.
 - Special requirements: Site waste management plan development and proposals .
- Format of report: 2 x A4 .

120 EXTENT OF DECONSTRUCTION/ DEMOLITION

- General: Subject to retention requirements specified elsewhere, deconstruct/ demolish structures down to 103-D, 104-D, 105-D, 106-D and 117-D.

130 GROUNDWORKS

- Old foundations, slabs and the like: Break out in locations and to the extents stated.
- Contaminated material: Remove, and carry out remediation required by the Enforcing Authority.

140 BENCH MARKS

- Unrecorded bench marks and other survey information: Give notice when found. Do not remove marks or destroy the fabric on which they are found.

150 **FEATURES TO BE RETAINED**

- General: Keep in place and protect the following:
 - Foundations of structures to be retained;
 - Boundary walls;
 - Gates and gate pillars;
 - Railings; or
 - Trees noted on drawings; protect in accordance with BS 5837
- As shown on drawings 101, 102, 103, 104, 105, 106.

SERVICES AFFECTED BY DECONSTRUCTION/ DEMOLITION

210 **SERVICES REGULATIONS**

- Work carried out to or affecting new and/ or existing services: Carry out in accordance with the byelaws and/ or regulations of the relevant Statutory Authority.

220 **LOCATION OF SERVICES**

- Services affected by deconstruction/ demolition work: Locate and mark positions.
- Mains services marking: Arrange with the appropriate authorities for services to be located and marked.
 - Marking standard: In accordance with National Joint Utilities Group 'Guidelines on the positioning and colour coding of underground utilities' apparatus'.

230 **SERVICES DISCONNECTION ARRANGED BY CONTRACTOR**

- General: Arrange with the appropriate authorities for disconnection of services and removal of fittings and equipment owned by those authorities prior to starting deconstruction/ demolition.

240 **DISCONNECTION OF DRAINS**

- General: Locate, disconnect and seal disused foul and surface water drains.
- Sealing: Permanent, and within the site.

250 **LIVE FOUL AND SURFACE WATER DRAINS**

- Drains and associated manholes, inspection chambers, gullies, vent pipes and fittings:
 - Protect; maintain normal flow during deconstruction/ demolition.
 - Make good any damage arising from deconstruction/ demolition work.
 - Leave clean and in working order at completion of deconstruction/ demolition work.
- Other requirements: Post completion camera survey.

260 **SERVICE BYPASS CONNECTIONS**

- General: Provide as necessary to maintain continuity of services to occupied areas of the site on which the deconstruction/ demolition is taking place and to adjoining sites/ properties.
- Minimum notice to adjoining owners and all affected occupiers: 72 hours, if shutdown is necessary during changeover.

270 **SERVICES TO BE RETAINED**

- Damage to services: Give notice, and notify relevant service authorities and/ or owner/ occupier regarding damage arising from deconstruction/ demolition.
- Repairs to services: Complete as directed, and to the satisfaction of the service authority or owner.

DECONSTRUCTION/ DEMOLITION WORK

- 310 **WORKMANSHIP**
- Standard: Demolish structures in accordance with BS 6187.
 - Operatives:
 - Appropriately skilled and experienced for the type of work.
 - Holding, or in training to obtain, relevant CITB Certificates of Competence.
 - Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of deconstruction/ demolition to be used.
- 320 **GAS OR VAPOUR RISKS**
- Precautions: Prevent fire and/ or explosion caused by gas and/ or vapour from tanks, pipes, etc.
- 330 **DUST CONTROL**
- General: Reduce airborne dust by periodically spraying deconstruction/ demolition works with an appropriate wetting agent. Keep public roadways and footpaths clear of mud and debris.
 - Lead dust: Submit method statement for control, containment and clean-up regimes.
- 340 **HEALTH HAZARDS**
- Precautions: Protect site operatives and general public from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.
- 350 **ADJOINING PROPERTY**
- Temporary support and protection: Provide. Maintain and alter, as necessary, as work proceeds. Do not leave unnecessary or unstable projections.
 - Defects: Report immediately on discovery.
 - Damage: Minimize. Repair promptly to ensure safety, stability, weather protection and security.
 - Support to foundations: Do not disturb.
- 360 **STRUCTURES TO BE RETAINED**
- Extent: As drawings 103-D, 104-D, 105-D, 106-D and 117-D.
 - Parts which are to be kept in place: Protect.
 - Interface between retained structures and deconstruction/ demolition: Cut away and strip out with care to minimize making good.
- 370 **PARTLY DEMOLISHED STRUCTURES**
- General: Leave in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Make secure outside working hours.
 - Temporary works: Prevent overloading due to debris.
 - Access: Prevent access by unauthorized persons.
- 380 **DANGEROUS OPENINGS**
- General: Provide guarding at all times, including outside of working hours. Illuminate during hours of darkness.
 - Access: Prevent access by unauthorized persons.

391 ASBESTOS-CONTAINING MATERIALS – UNKNOWN OCCURRENCES

- Discovery: Give notice immediately of suspected asbestos-containing materials when discovered during deconstruction/ demolition work. Avoid disturbing such materials.
- Removal: Submit statutory risk assessments and details of proposed methods for safe removal.

410 UNFORESEEN HAZARDS

- Discovery: Give notice immediately when hazards such as unrecorded voids, tanks, chemicals, are discovered during deconstruction/ demolition.
- Removal: Submit details of proposed methods for filling, removal, etc.

450 SITE CONDITION AT COMPLETION

- Debris: Clear away and leave the site in a tidy condition.
- Other requirements: Submit interior residual dust lead level report and Submit soil lead content report.

MATERIALS ARISING

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.
- 110 BASIC DESIGNATED CONCRETE FOR FOUNDATIONS AND CONTINUATION OF EXISTING CONCRETE
- Designation: GEN1.
 - Coarse recycled aggregates: Not permitted.
 - Consistence class: Contractor's choice.
 - Additional requirements: Submit proposals.
- 125 SUBSTITUTION OF STANDARDIZED PRESCRIBED CONCRETE FOR DESIGNATED CONCRETE
- General: Conform to BS 8500-2, clause 9.
 - Substitution: In accordance with BS 8500-1, table A.13.
 - Proposals: Submit for each substitution, stating reasons.
 - Site mixing: Permitted as clause 218.

MATERIALS, BATCHING AND MIXING

- 215 READY-MIXED CONCRETE
- Production plant: Currently certified by a body accredited by UKAS to BS EN 45011 for product conformity certification of ready-mixed concrete.
 - Source of ready-mixed concrete: Obtain from one source if possible. Otherwise, submit proposals.
 - Name and address of depot: Submit before any concrete is delivered.
 - Delivery notes: Retain for inspection.
 - Declarations of nonconformity from concrete producer: Notify immediately.
- 218 SITE MIXED CONCRETE
- Batching by mass:
 - Restrictions: Maximum pour size 3m³.
 - Accuracy of measuring devices: To BS EN 206-1, clause 9.6.2.2
 - Tolerances for quantity of constituent material: To BS EN 206-1, table 21.
 - 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): Perform identity test for compressive strength on each affected batch.

312 PROPRIETARY AGGREGATE

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Standard: To BS 8500-2: BS EN 12620.
 - Permitted deviations from standard: Resistance to fragmentation LA50.
- Other requirements: All required tests and checks to ensure suitability.

315 AGGREGATES FOR EXPOSED VISUAL CONCRETE

- Limitations on contaminants: Free from absorbent particles which may cause 'popouts', and other particles such as coal and iron sulfide which may be unsightly or cause unacceptable staining.
- Colour: Consistent.
- Supply: From a single source and maintained throughout the contract.
- Samples: Submit on request.

415 ADMIXTURES

- Calcium chloride and admixtures containing calcium chloride: Do not use.

PROJECT TESTING/ CERTIFICATION

505 PROJECT TESTING OF CONCRETE - GENERAL

- Testing: BS EN 206-1, 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.
- Sampling:
 - Point: At point of placing.
 - Rate: One sample from each batch for consistence and One sample per 12 m³.
- 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: Three.
- 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.

640 CONSTRUCTION JOINTS

- Location of joints: Contractor's choice.
- Preparation of joint surfaces: Submit proposals.

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.

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: Increase curing period by any time during which surface temperature of concrete is less than 5°C.

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

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.

315 SUBSTRUCTURE FORMWORK AND UNDERSLAB INSULATION

- Cutting: Neat and accurate to edges, and around penetrations and downstands.
- Laying: Tightly butted and fully supported on firm, even substrate.
- Vertical faces: Stiffen as necessary to act as shutter.
- Formwork/ insulation surfaces: Protect from indentation by spacers and other items.
- Joints in formwork/ insulation and with edge structure and penetrations: Seal to prevent penetration of concrete.
- Concrete placement: Restrain formwork/ insulation against movement.

320 JOINTS IN FORMS

- Requirements including joints in form linings and between forms and completed work:
 - Prevent loss of grout, using seals where necessary.
 - Prevent formation of steps. Secure formwork tight against adjacent concrete.

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

510 STRIKING FORMWORK

- Timing: Prevent any disturbance, damage or overloading of the permanent structure.

521 MINIMUM PERIOD FOR RETAINING FORMWORK/ TEMPORARY SUPPORTS IN POSITION

- Concrete strength at time of formwork removal (minimum):
To BS EN 13670, clauses 5.7 and 8.5, and Annex F.
- Assumptions: Maturity of adjacent elements of structure is at least equal to element under consideration.
 - Before removing formwork: Submit proposals if assumptions will not be realised.
- Method to be used in assessing early age strength of concrete: To BS EN 13670, Annex F.

FORMED FINISHES

605 CONTROL SAMPLES (PART OF THE FINISHED WORK)

- Quality of finish: To match existing.
- Location: Obtain instructions.
- Area (minimum): Extension of existing concrete at Wadsmill Walk.
- Features to be included: n/a.
- Viewing distance (maximum): n/a.
- Approval of appearance: Obtain before proceeding with remainder of the work.

610 BASIC FINISH

- Location: exposed face to match existing in terms of texture, ready for painting. see clause 620.
- Finish: Faces fully compacted and cover to reinforcement provided.

620 PLAIN FINISH

- Location: Surfaces to be direct painted.
- Finish: Even and dense. Arrange formwork panels in a regular pattern as a feature of the surface.
- Permissible deviation of surfaces:
 - Sudden irregularities (maximum): 3 mm.
 - Gradual irregularities (maximum): 3 mm, when measured from the underside of a 1 m straightedge, placed anywhere on surface.
- Variations in colour:
 - Permitted: Those caused by impermeable formwork linings.
 - Not permitted: Those caused by contamination or grout leakage.
- Surface blemishes:
 - Permitted: Blowholes less than 10 mm in diameter and at an agreed frequency.
 - Not permitted: Voids, honeycombing, segregation and other large defects.
- Formwork tie holes: In a regular pattern and filled with matching mortar.

E30 Reinforcement for in situ concrete

To be read with Preliminaries/ General conditions.

110 QUALITY ASSURANCE OF REINFORCEMENT

- Standards:
 - Reinforcement: To BS 4449, BS 4482, BS 4483 or BS 6744.
 - Cutting and bending: To BS 8666.
- Source of reinforcement: Companies holding valid certificates of approval for product conformity issued by the UK Certification Authority for Reinforcing Steels (CARES).

140 PLAIN BAR REINFORCEMENT

- Standard: To BS 4482.
- Strength grade: 250.

150 RIBBED BAR REINFORCEMENT

- Standard: To BS 4449.
- Strength grade: B500B.

310 CUTTING AND BENDING REINFORCEMENT

- General: To schedules and to BS 8666.
- Bending on site, including minor adjustments: Permitted for brick pier reinforcement.

320 PROTECTION OF REINFORCEMENT

- Dropping from height, mechanical damage and shock loading: Prevent.
- Cleanliness of reinforcement at time of pouring concrete: Free from corrosive pitting, loose millscale, loose rust and contaminants which may adversely affect the reinforcement, concrete, or bond between the two.

480 NOMINAL COVER TO REINFORCEMENT

- Top face: 50 mm.
- Formed faces: 90 mm.

F10 Brick/ block walling

To be read with Preliminaries/ General conditions.

TYPES OF WALLING

- 110 CLAY FACING BRICKWORK TO NEW BRICK WALLS
- Bricks: To BS EN 771-1.
 - Manufacturer: Contractor's choice.
 - Product reference: F & S designations to match Existing.
 - Recycled content: Submit proposals.
 - Special shapes: None.
 - Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:0.25:3 cement:lime:sand.
 - Additional requirements: to match existing.
 - Bond: Half lap stretcher.
 - Joints: Bucket handle.
 - Features: None.
- 385 ENGINEERING BRICKWORK UNDER AND 2 COURSE ABOVE GROUNDLEVEL, PLUS COPINGS AND CAPPINGS
- Bricks: To BS EN 771-1.
 - Manufacturer: Contractors choice approved.
 - Product reference: To Match Existing. Contractors choice approved.
 - Type: HD.
 - Mean compressive strength: Greater than or equal to 125 N/mm².
 - Category: I.
 - Water absorption: Equal to or less than 4.5%.
 - Freeze/ Thaw category: F2.
 - Active soluble salts content category: S2.
 - Additional requirements: None.
 - Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:0.25:3 cement:lime:sand.
 - Additional requirements: None.
 - Bond: English.
 - Joints: Flush.

WORKMANSHIP GENERALLY

- 430 CONDITIONING OF CLAY AND CALCIUM SILICATE BRICKS AND CLAY BLOCKS
- Bricks and blocks delivered warm from manufacturing process: Do not use until cold.
 - Absorbent bricks in warm weather: Wet to reduce suction. Do not soak.
- 440 CONDITIONING OF CONCRETE BRICKS/ BLOCKS
- Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
 - Age of nonautoclaved concrete bricks/ blocks: Do not use until at least four weeks old.
 - Avoidance of suction in concrete bricks/ blocks: Do not wet.
 - Use of water retaining mortar admixture: Submit details.

- 500 LAYING GENERALLY
- Mortar joints: Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
 - AAC block thin mortar adhesive and gypsum block adhesive joints: Fill vertical joints. Lay blocks on a full bed.
 - Clay block joints:
 - Thin layer mortar: Lay blocks on a full bed.
 - Interlocking perpend: Butted.
 - Bond where not specified: Half lap stretcher.
 - Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.
- 535 HEIGHT OF LIFTS IN WALLING USING CEMENT GAUGED OR HYDRAULIC LIME MORTAR
- Quoins and advance work: Rack back.
 - Lift height (maximum): 1.2 m above any other part of work at any time.
 - Daily lift height (maximum): 1.5 m for any one leaf.
- 540 HEIGHT OF LIFTS IN WALLING USING THIN JOINT MORTAR GLUE
- Quoins and advance work: Rack back.
 - Lift height (maximum): 1.3 m above any other part of work at any time.
- 545 LEVELLING OF SEPARATE LEAVES USING CEMENT GAUGED OR HYDRAULIC LIME MORTAR
- Locations for equal levelling of cavity wall leaves: As follows:
 - Every course containing vertical twist type ties or other rigid ties.
 - Every third tie course for double triangle/ butterfly ties.
 - Courses in which lintels are to be bedded.
- 560 COURSING BRICKWORK
- Gauge: Four brick courses including bed joints to 300 mm.
- 561 COURSING BRICKWORK WITH EXISTING
- Gauge: Line up with existing brick courses.
- 580 LAYING FROGGED BRICKS
- Single frogged bricks: Frog uppermost.
 - Double frogged bricks: Larger frog uppermost.
 - Frog cavity: Fill with mortar.
- 587 LAYING GYPSUM BLOCKS WITH TONGUES AND GROOVES
- Orientation: Tongued length uppermost.
- 610 SUPPORT OF EXISTING WORK
- Joint above inserted lintel or masonry: Fully consolidated with semidry mortar to support existing structure.
- 615 BRICKWORK TO RECEIVE ASPHALT DPC
- Substrate: Mortar bed finished flush, smooth and level.

620 BLOCK BONDING NEW WALLS TO EXISTING

- Pocket requirements: Formed as follows:
 - Width: Full thickness of new wall.
 - Depth (minimum): 100 mm.
 - Vertical spacing:
 - Brick to brick: 4 courses high at 8 course centres.
 - Block to block: Every other course.
- Pocket joints: Fully filled with mortar.

635 JOINTING

- Profile: Consistent in appearance.

645 ACCESSIBLE JOINTS NOT EXPOSED TO VIEW

- Jointing: Struck flush as work proceeds.

665 POINTING TO ALL WALLING

- Joint preparation: Remove debris. Dampen surface.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:0.25:3 cement:lime:sand.
 - Additional requirements: Coloured mortar to match existing.
- Profile: Bucket handle.

690 ADVERSE WEATHER

- General: Do not use frozen materials or lay on frozen surfaces.
- Air temperature requirements: Do not lay bricks/ blocks:
 - In cement gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
 - In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising.
 - In thin joint mortar glue when outside the limits set by the mortar manufacturer.
- Temperature of walling during curing: Above freezing until hardened.
- Newly erected walling: Protect at all times from:
 - Rain and snow.
 - Drying out too rapidly in hot conditions and in drying winds.

ADDITIONAL REQUIREMENTS FOR FACEWORK

710 THE TERM FACEWORK

- Definition: Applicable in this specification to all brick/ block walling finished fair.
 - Painted facework: The only requirement to be waived is that relating to colour.

740 FINISHED MASONRY WORK REFERENCE PANELS

- General: Before proceeding to construct the following walling types, construct panels as specified. Give notice when panels are dry.
- Selection masonry units: Reasonably representative of the average quality of the whole order to be delivered .
- Panel types:
 - Walling type: All .
 - Location: Contractor's choice .
 - Size: 1.5 x 1.5 m .
 - Other requirements: None .

750 COLOUR CONSISTENCY OF MASONRY UNITS

- Colour range: Submit proposals of methods taken to ensure that units are of consistent and even appearance within deliveries.
- Conformity: Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
- Finished work: Free from patches, horizontal stripes and racking back marks.

760 APPEARANCE

- Brick/ block selection: Do not use units with damaged faces or arrises.
- Cut masonry units: Where cut faces or edges are exposed cut with table masonry saw.
- Quality control: Lay masonry units to match relevant reference panels.
 - Setting out: To produce satisfactory junctions and joints with built-in elements and components.
 - Coursing: Evenly spaced using gauge rods.
- Lifts: Complete in one operation.
- Methods of protecting facework: Submit proposals.

780 GROUND LEVEL

- Commencement of facework: Not less than 150 mm below finished level of adjoining ground or external works level.

800 TOOTHED BOND

- New and existing facework in same plane: Bond together at every course to achieve continuity.

830 CLEANLINESS

- Facework: Keep clean.
- Mortar on facework: Allow to dry before removing with stiff bristled brush.
- Removal of marks and stains: Rubbing not permitted.

F30 Accessories/sundry items for brick/block/stone walling

- 5 CAVITIES
- Concrete fill to base of cavity:
 - Concrete generally: To BS EN 206-1 and BS 8500-2.
 - Designated concrete: GEN1 or Standard mix ST2 with high workability.
 - Extent: Maintain 75 mm between top of fill and external ground level and a minimum of 225 mm between top of fill and ground level dpc.
 - Cleanliness: Keep cavity faces, ties and dpcs free from mortar and debris.
- 7 PERPEND JOINT WEEP HOLES
- Form: Open clear perpend joint.
 - Locations: Through outer leaf, immediately above base of cavity, at cavity trays, stepped dpcs and over openings. 75 mm above top of cavity fill at base of cavity.
 - Provision: At not greater than 1000 mm centres and not less than two over openings.
- 20 CAVITY WALL TIES GENERALLY
- Standard: To BS 1243.
 - Type: Butterfly .
 - Material/ finish: Stainless steel .
 - Sizes: 150 mm .
- 28 FIXING TIES IN MASONRY CAVITY WALLS
- Embedment in mortar beds (minimum): 50 mm.
 - Placement: Sloping slightly downwards towards outer leaf without bending. Drip centred in the cavity and pointing downwards.
 - Spacing: Staggered in alternate courses.
 - Horizontal centres: 750 mm .
 - Vertical centres: 400 mm .
 - Provision of additional ties: Within 225 mm of reveals of unbonded openings At not more than 300 mm centres vertically .
- 39 WALL STARTERS/ CONNECTORS
- Manufacturer: Contractors choice .
 - Product reference: Contractors choice .
 - Material/ finish: Austenitic stainless steel .
 - Sizes: as required .
 - Sealant to external vertical joint: to match mortar .
 - Colour: To match adjacent walling .
 - Joint preparation and sealant application: As section Z22.
- 46 DAMP PROOF COURSE - POLYETHYLENE
- Standard: To BS 6515.
 - Manufacturer: contractors choice .
 - Product reference: contractors choice .
- 62 SITE FORMED DPC/ CAVITY TRAY JUNCTIONS/ STOP ENDS
- Three dimensional changes in shape: Form to provide a free draining and watertight installation.
 - Alternative use of preformed cloaks/ stop ends: Submit proposals.

66 INSTALLATION OF HORIZONTAL DPCS

- Placement: In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles.
- Width: At least full width of masonry leaf. Edges of dpc not covered with mortar or projecting into cavity.
- Overlying construction: Immediately cover with full even bed of mortar to receive next masonry course.
- Overall finished joint thickness: As close to normal as practicable.
- Ground level dpcs joint with damp proof membrane: Continuous and effectively sealed.
- Low level dpcs in external walls: Install not less than 150 mm above adjoining finished ground level.
- Sill dpcs form and placement: In one piece and turned up at the back when the sill is in contact with inner leaf.
- Dpcs crossing cavity: Provide support to prevent sagging.

68 SEALING DPCS GENERALLY

- Overlaps and junctions: Seal with Adhesive recommended by dpc manufacturer .

76 MOVEMENT JOINTS WITH SEALANT

- Joint preparation and sealant application: As section Z22.
- Filler: Closed cell polyethylene foam .
 - Placement: Build in as work proceeds ensuring no projections into cavities and to correct depth to receive sealant system.
- Sealant: ISO 11600-F-20LM .
 - Colour: To match adjoining brickwork .

Q10 Kerbs/ edgings/ channels/ paving accessories

To be read with Preliminaries/General conditions.

TYPES OF KERBS/EDGINGS AND CHANNELS

- 110 PROPRIETARY PRECAST CONCRETE CONSERVATION KERBS
- Standard: To BS EN 1340.
 - Manufacturer: Marshalls.
 - - Product reference: 255x145mm Conservation Kerb.
 - Recycled content: Submit proposals.
 - Designations: n/a.
 - Size (width x height x length): 255 x 145 x 915mm.
 - Special shapes: n/a.
 - Finish: As cast.
 - Colour: Silver Grey.
 - Bedding: Fresh concrete races.
 - Joints generally: Dry, 2-3 mm gap.
 - Sealant movement joints: Not required.
 - Accessories: None.
- 110A PROPRIETARY PRECAST CONCRETE CONSERVATION EDGINGS
- Standard: To BS EN 1340.
 - Manufacturer: Marshalls.
 - - Product reference: 50 x15 x 915mm Conservation Edge.
 - Recycled content: Submit proposals.
 - Designations: EF Edging, flat top.
 - Size (width x height x length): 50 x 150 x 915mm.
 - Special shapes: n/a.
 - Finish: As cast.
 - Colour: Silver Grey.
 - Bedding: Fresh concrete races.
 - Joints generally: Dry, 2-3mm gap.
 - 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.
- 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.
- 570 CHANNELS
- Installation: To an even gradient, without ponding or backfall.
 - Lowest points of channels: 6 mm above drainage outlets.
- 580 DRAINAGE CHANNEL SYSTEMS
- Installation: To an even gradient, without ponding or backfall. Commence laying from outlets.
 - Silt and debris: Removed from entire system immediately before handover.
 - Washing and detritus: Safely disposed without discharging into sewers or watercourses.
- 590 DRAINAGE CHANNEL SYSTEMS WITH BUILT IN FALL
- Installation: Top of channels level, installed in correct sequence to form an even gradient without ponding or backfall. Commence laying from outlets.
 - Silt and debris: Removed from entire system immediately before handover.
 - Washings and detritus: Safely disposed without discharging into sewers or watercourses.
- 610 ANGLE KERBS
- Usage: Internal and external 90° changes of direction.
 - Cutting of mitres: Not permitted.
- 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.

Q20 Granular sub-bases to roads/pavings

To be read with Preliminaries/ General conditions.

- 130 HERBICIDES
- Type: Contact, non-selective.
 - Application: To subgrade of footpath.
- 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.
- 170 GEOTEXTILE FILTER/ SEPARATOR MEMBRANE FOR PAVINGS
- Manufacturer: Contractor's choice .
 - Product reference: contractors choice .
 - 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;
 - For inspection of granular sub-base material before spreading; and
 - On completion of compaction of sub-base.
 - Period of notice: 2 working days.
- 210 HIGHWAYS AGENCY TYPE 1 UNBOUND MIXTURE FOR SUB-BASE
- Material: Type 1 unbound mixture to Highways Agency 'Specification for highway works', clauses 801 and 803.
 - Recycled aggregate: Not 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 and below impermeable membrane.
- Material: Fine material approved by the membrane manufacturer.
- 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.

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.

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 .

320 SURFACES TO RECEIVE SAND BEDDING FOR PAVING TO SECTIONS Q24 and Q25.

- Blind surface: As necessary before compaction to ensure that surface is tight and dense enough to prevent laying course sand being lost into it during construction or use.
- Material: Approved fine material.

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

To be read with Preliminaries/ General conditions.

TYPES OF PAVING

110 ASPHALT CONCRETE PAVING TO DRIVEWAYS

- Standard: To Highways Agency (HA) 'Specification for highway works'.
- Subgrade improvement layer: Not required.
 - Compacted thickness: Not applicable.
- Granular sub-base: Highways Agency Type 1 unbound mixture, as section Q20.
 - Compacted thickness: 220 mm.
- Base: Dense asphalt concrete to HA clause 906.
 - Paving grade: 100/150.
 - Compacted thickness: 100 mm, nominal.
- Binder course: Dense asphalt concrete to HA clause 906.
 - Paving grade: 100/150.
 - Compacted thickness: 50-100 mm nominal, 40 mm minimum at any point.
- Surface course: AC 6 dense surf.
 - Paving grade: 100/150.
 - Compacted thickness: 30-40 mm nominal, 25 mm minimum at any point.
- Reclaimed content:
 - Standard: To BS EN 13108-8.
 - Value (maximum): Submit proposals.
- Surface treatment: Not required.
- Other requirements: n/a.

115 ASPHALT CONCRETE PAVING TO FOOTWAYS

- Standard: To BS EN 13108-1.
- Subgrade improvement layer: Not required.
 - Compacted thickness: Not applicable.
- Granular sub-base: Highways Agency Type 1 unbound mixture, as section Q20.
 - Compacted thickness: 150 mm.
- Binder course: AC 20 dense bin.
 - Paving grade: 100/150.
 - Compacted thickness: 45-75 mm nominal, 40 mm minimum at any point.
- Surface course: AC 6 dense surf.
 - Paving grade: 100/150.
 - Compacted thickness: 25 mm.
- Reclaimed content:
 - Standard: To BS EN 13108-8.
 - Value (maximum): Contractor's choice.
- Surface treatment: to match existing.
- Other requirements: n/a.

PREPARATORY WORK/ REQUIREMENTS

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 cold applied thixotropic bitumen emulsion.
- 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 and Machine laid, 25 mm.
 - Binder course: Hand laid, 13 mm and Machine laid, 13 mm.
 - Surface course: Hand laid, 10 mm and Machine laid, 7 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: 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.

360 UNCOATED CHIPPINGS FOR SURFACE TREATMENT

- Chippings: Clean aggregate to BS EN 13043 and PD 6682-2, size 2.8/6.3, grading category Gc85/15.
 - Type/ Source: to match existing.
 - Colour: to match existing.
- Binder:
 - Cutback bitumen to BS EN 12591 or bitumen emulsion to BS 434-1.
 - Do not use cut-back bitumen at temperatures below 15°C.
 - Do not use modified binders without prior approval.
- Application:
 - Binder application rate: In accordance with TRL Road Note 39. Adjust rate for modified binders in accordance with manufacturer's instructions.
 - Coverage: 100–105% shoulder to shoulder to BS 598-1.
 - Compaction: Roll. Do not crush chippings.
- Completion:
 - Before trafficking, remove excess chippings.
 - Carry out further removal of loose chippings disturbed by traffic as necessary.

COMPLETION

Q25 Slab/brick/sett/cobble pavings

To be read with Preliminaries/ General conditions.

GENERAL

120 CONCRETE FLAG PAVING SYSTEM TO FRONT GARDENS

- Subgrade improvement layer: Not required.
 - Compacted thickness: Not applicable.
- Granular sub-base: Highways Agency Type 1 unbound mixture, as section Q20.
 - Compacted thickness: 100 mm.
- Base: Not required.
 - Thickness: Not required.
- Laying course: 30mm Sharp Sand.
 - Accessories: Geotextile sheet below laying course.
- Paving units: Concrete flags.
- Jointing: Sand.
 - Bond: Straight line.
- Accessories: Sealer/ stabilizer and Submit proposals.

150 CONCRETE SETT PAVING SYSTEM BALSAM CLOSE FRONTAGES

- Subgrade improvement layer: Contractor's choice.
 - Compacted thickness: Contractor's choice.
- Granular sub-base: Highways Agency Type 1 unbound mixture, as section Q20.
 - Compacted thickness: 100 mm.
- Base: Not required.
 - Thickness: Not required.
- Laying course: Fine aggregate.
 - Accessories: Geotextile sheet below laying course.
- Paving units: Concrete setts.
- Jointing: Fine aggregate.
 - Bond: square.
- Accessories: Sealer/ stabilizer and Submit proposals.

150A CONCRETE SETT PAVING SYSTEM VEHICULAR BLOCK

- Subgrade improvement layer: Contractor's choice.
 - Compacted thickness: Contractor's choice.
- Granular sub-base: Highways Agency Type 1 unbound mixture, as section Q20.
 - Compacted thickness: As per Engineer's design.
- Base: As per Engineer's design.
 - Thickness: As per Engineer's design.
- Laying course: As per Engineer's design.
 - Accessories: As per Engineer's design.
- Paving units: Tobermore Tegular Heather 80mm.
- Jointing: As per Engineer's design.
 - Bond: Random lengths in regular courses with staggered joints.
- Accessories: Sealer/ stabilizer and Submit proposals.

PRODUCTS

305 GRANULAR MATERIAL FOR LAYER OVER EXISTING BASES

- Material: Highways Agency Type 1 unbound mixture, as section Q20.

315 CONCRETE FLAGS TO FRONT GARDENS

- Standard: To BS EN 1339.
 - Manufacturer: Marshalls.
 - Product reference: Consevation Textured Concrete Paving FL8650500. Or Similar
 - Approved by Landscape Architect.
- Recycled content: Submit proposals.
- Colour: Silver Grey.
 - Finish: as produced.
 - Nominal sizes: 400x400x65mm.
- Arrises: Square.
- Water absorption and freeze/ thaw resistance class: as manufactured.
- Bending strength class: as manufactured.
- Abrasion resistance class: as manufactured.
- Slip/ Skid resistance: as manufactured.
- Breaking load class: as manufactured.

335 CONCRETE SETTS BALSAM CLOSE FRONTAGES

- Manufacturer: Marshalls.
 - Product reference: PV300635F (Silver Grey) & PV300835F (Charcoal).
- Recycled content: as manufactured.
- Colour: silver grey and charcoal.
- Finish: Exposed aggregate.
- Sizes: 160x160x60mm.
- Slip/ Skid resistance: as manufactured.
- Integral accessories: None.

365 GEOTEXTILE SHEET BELOW SAND LAYING COURSE

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Recycled content: Submit proposals.

390 SAND FOR FLEXIBLE LAYING COURSE AND JOINTING OF CONCRETE FLAG PAVING TO FRONT GARDENS.

- Standard: To BS 7533-4, unbound construction laying course and jointing material.
- Purity: Free from deleterious salts, contaminants, lime and cement.
- Procurement: Obtain from one source and ensure consistent grading.

EXECUTION

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: Kerb.
- Approval of appearance and surface: Obtain before proceeding.

620 ADVERSE WEATHER

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

625 LAYING PAVINGS - GENERAL

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

630 LEVELS OF PAVING

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

635 REGULARITY OF PAVED SURFACES

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

637 REGULARITY OF PAVED SURFACES

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

640 COLOUR BANDING

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

645 PROTECTION

- Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
- Materials storage: Do not overload pavings with stacks of materials.
- Handling: Do not damage paving unit corners, arrises, or previously laid paving.
- Mortar bedded pavings: Keep free from traffic after laying:
 - Pedestrian traffic (minimum): 7 days.
 - Vehicular traffic (minimum): 28 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.

660 DRAINAGE HOLES IN EXISTING BASES

- Location: Impervious layers of existing road/ paving.
- Drainage: Form regular grid of holes, through base and any additional build up, down to sub-base:
 - Spacing in both directions: 500 mm.
 - Minimum clear opening: 50 mm.
 - Do not weaken or excessively disturb road/ paving.
- Completion: Remove jagged or protruding edges. Fill voids with 2-8 mm pea gravel Ram down to form flush smooth surface.

665 PLANING AND REPAIRS TO EXISTING BASES

- Existing macadam/ asphalt surfaces: Plane to required levels.
- Repairs: Cut out to remove ruts and cracks over 25 mm wide and Cut out depressions, fill to match existing surface and compact.
- Building up existing surfaces to required levels: Regulate using asphalt concrete to BS EN 13108-1.

- 670 LAYING GRANULAR LAYER OVER EXISTING BASES
- Thickness 100 mm.
 - Compaction: Laying granular sub-bases for pedestrian areas, as section Q20.
 - Blinding: As section Q20.
- 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: 500 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: 500 x 500 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: 500 mm.
 - Jointing: Lap by 300 mm.
- 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: 30 mm.
 - Joint width: 2-5 mm.
- 800 APPLYING SEALER/ STABILIZER TO BLOCKS AND SETTS
- Surface preparation:
 - Ensure sand joints are completely dry and free from contamination;
 - Fill joints; and
 - Sweep clear of loose sand before sealing.
 - Application: To dry paving.
Method: Brush.
Number of coats: 2.
Coverage: As sealer manufacturer's recommendations.

COMPLETION

- 915 COMPLETION OF PAVING WITH DRY SAND OR FINE AGGREGATE FILLED JOINTS
- Sand dressing: Leave a thin layer of dry jointing sand over the paving until opened to public access.
 - Final compaction of the surface course: In accordance with BS 7533-3.
 - Vacuum cleaning machines: Not allowed.

Q28 Topsoil and soil ameliorants

To be read with Preliminaries/ General conditions.

SYSTEM OUTLINE

110 NATURALLY OCCURRING TOPSOIL SYSTEM FOR FLOWERING SHRUBS AND GRASSED AREAS

- Topsoil: Imported topsoil to BS 3882.
- Ameliorants:
 - Aggregates;
 - Minerals ;
 - Organic materials;
 - Sanitized and stabilized compost ; and
 - Composted materials.
- Accessories: None.

PRODUCTS

300 PREPARATION MATERIALS GENERALLY

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

305 PERMITTED MATERIALS

- Materials:
 - Composted animal manures;
 - Composted food waste;
 - Composted green waste;
 - Composted green/ food waste certified to PAS 100; and
 - Composted mixes of food and green waste.
- Give notice: before ordering or using.
- Declaration of compliance: Required.

310 MATERIALS NOT PERMITTED

- Materials: Peat and Products containing peat.

- 315 IMPORTED TOPSOIL TO BS 3882
- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
 - Standard: To BS 3882.
 - Classification: Multipurpose.
 - Grade: Within the parameters of 'sandy loam' textural class.
 - Source: Submit proposals.
 - Product reference: Submit proposals.
- 355 ORGANIC MATERIALS FOR TOPSOIL MANUFACTURE
- Type: Manure.
 - Source: Contractor's choice.
 - Product reference: Contractor's choice.
- 360 SANITIZED AND STABILIZED COMPOSTED MATERIALS CERTIFIED TO PAS 100 FOR FLOWERING SHRUBS AND GRASSED AREAS
- Standard: In accordance with PAS 100.
 - Source: Submit proposals.
 - Product reference: Submit proposals.
 - Horticultural parameters:
 - pH (1:5 water extract): 7.0-8.7.
 - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
 - Moisture content (m/m of fresh weight): 35-55%.
 - Organic matter content (minimum): 25%.
 - Grading (air dried samples): 99% passing 25 mm screen, and 90% passing 10 mm screen mesh aperture.
 - Carbon:Nitrogen ratio (maximum): 20:1.
 - Texture: Friable.
 - Objectionable odour: None.
- 390 FERTILIZERS TO BE INCORPORATED INTO TOPSOIL AND MANUFACTURED TOPSOIL FOR FLOWERING SHRUBS AND GRASSED AREAS
- Type: Organic fertilizer.
 - Source: Submit proposals.
 - Product reference: Submit proposals.

EXECUTION

610 TOPSOIL ANALYSIS

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

620 IMPORTING TOPSOIL

- Give notice: Before stripping topsoil for transfer to site.
 - Notice period: 2 days.

625 SAMPLE LOADS FOR IMPORTED TOPSOIL

- Deliver to site a sample load: of not less than 5 m³.
- Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
 - Notice period: 2 days.

630 DOCUMENTATION FOR IMPORTED TOPSOIL FOR SHRUB BEDS AND GRASSED AREAS

- 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, Annex E.
- Number of copies: 2.

635 DOCUMENTATION FOR COMPOST AND COMPOSTED MATERIALS FOR IMPORTED SOIL IMPROVERS

- 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: 2.

- 650 NOTICE
- Give notice before:
 - Setting out.
 - Spreading topsoil.
 - Applying herbicide.
 - Applying fertilizer.
 - Visiting site during maintenance period.
 - Period of notice: Two working days.
- 655 MECHANICAL TOOLS
- Restrictions: Do not use within 100 mm of tree and plant stems.
- 660 GRADING SUBSOIL
- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
 - Loosening:
 - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
 - Areas of thicker topsoil: Excavate locally.
 - Avoid over compaction.
- 665 SUBSOIL SURFACE PREPARATION
- General: Excavate and/ or place fill to required profiles and levels, as section D20.
 - Loosening:
 - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
 - Stones: Immediately before spreading topsoil, remove stones larger than 50 mm.
 - Remove from site: Arisings, contaminants and debris and Builders rubble.
- 670 INSPECTING FORMATIONS
- Give notice: Before spreading topsoil for lawn areas and planting beds.
 - Notice period: 7 days.
- 675 PREPARATION OF UNDISTURBED TOPSOIL
- Standard: In accordance with BS 4428.
 - Grading and cultivation: Category A.
 - Hard ground: Break up thoroughly.
 - Clearing: Remove visible roots and large stones with a diameter greater than 50 mm.
 - Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
 - Fallow period (minimum): One month.
 - Weed control: At appropriate times re-cultivate at fortnightly intervals to suppress weed growth.
- 680 SURPLUS TOPSOIL TO BE RETAINED
- Generally: Spread and level on site:
 - Locations: Any areas where topsoil is required for new planting.
 - Protected areas: Do not raise soil level within root spread of trees that are to be retained.

685 SURPLUS MATERIALS TO BE REMOVED

- Topsoil: Remove 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.

695 CULTIVATION

- 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): 5 mm.
 - Timing: Within a few days before planting.
 - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: 25 mm above adjoining paving or kerbs.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 50 mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

700 GRADING OF TOPSOIL

- Topsoil condition: Reasonably dry and workable.
- Contours: Smooth and flowing, with falls for adequate drainage.
 - Hollows and ridges: Not permitted.
- Finished levels after settlement: 25 mm above adjoining paving, kerbs, manholes etc.
- Give notice: If required levels cannot be achieved by movement of existing soil.

705 HANDLING TOPSOIL

- 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

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

- 715 LOOSE TIPPING OF TOPSOIL
- General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.
- 720 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT
- Above adjoining paving or kerbs: 20 mm.
 - Below dpc of adjoining buildings: Not less than 150 mm.
 - Shrub areas: Higher than adjoining grass areas by 25 mm.
 - Within root spread of existing trees: Unchanged.
 - Adjoining soil areas: Marry in.
 - Thickness of turf or mulch: Included.
- 820 APPLYING GENERAL FERTILIZER FOR FLOWERING SHRUBS
- Locations: All planting areas.
 - Application: Spread evenly, carefully incorporating below mulch materials.
 - Timing: Immediately before cultivation.
 - Application rate: 25 g/m².
 - Other requirements: N/A.
- 825 APPLYING FERTILIZER TO PROPOSED GRASS AREAS TO FRONT GARDENS.
- Locations: Lawns.
 - Application: Before final cultivation and three to five days before seeding/ turfing.
 - Coverage:
 - Spread evenly, in transverse directions.
 - Rate: 70 g/m².

COMPLETION

- 905 APPLYING MAINTENANCE FERTILIZER
- Time of year: March or April.
 - Application: Evenly spread, carefully incorporating below mulch materials.
 - Rate: 25 g/m².

Q30 Seeding/turfing

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/REQUIREMENTS

115 SEEDED AND TURFED AREAS

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

120 CLIMATIC CONDITIONS

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

145 WATERING

- Quantity: Wet full depth of topsoil.
- Application: Even and without displacing seed, seedlings or soil.
- Frequency: As necessary to ensure the establishment and continued thriving of all seeding/turfing.

150 WATER RESTRICTIONS

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

160 NOTICE

- Give notice before:
 - Setting out.
 - Applying herbicide.
 - Applying fertilizer.
 - Preparing seed bed.
 - Seeding or turfing.
 - Visiting site during maintenance period.
- Period of notice: 2 working days.

170 SETTING OUT

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

PREPARATION

210 HERBICIDE FOR ALL GRASSED AREAS

- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
 - Duration: As manufacturer's recommendation.

212 SEED BED CLEANING BEFORE SOWING ALL GRASSED AREAS

- Operations: As seed supplier's recommendations..

222 TOPSOIL DEPTH FOR SEEDING/TURFING

Minimum depth of topsoil to be 150mm

280 FINAL CULTIVATION

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

SEEDING

310 GRASS SEED FOR ALL GRASSED AREAS

- Mixture: 35% Chewings fescue, 35% Slender red fescue, 20% Smooth stalked meadow grass, 10% Brown top bent.
- Application rate: 34–50 g/m².

319 QUALITY OF SEED FOR ALL GRASSED AREAS

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

330 SOWING

- General: Establish good seed contact with the root zone.
- Method: Manually broadcast, raked and rolled.
 - Distribution: 2 equal sowings at right angles to each other and diagonally to main axis.

335 GRASS SOWING SEASON

- Grass seed generally: April to June or August to October.

340 PRE-EMERGENT HERBICIDE FOR ALL GRASSED AREAS

- Standard: Pesticide Safety Directorate approved.
- Application rate: In accordance with manufacturer's written recommendation.
 - Timing: Immediately after sowing.

350 TURF EDGING TO SEEDED AREAS ADJCENT TO FOOTPATH

- Standard: To BS 3969, with no perennial ryegrass.
 - Seed mix: Similar to seeded area.
- Timing: Before sowing.
- Preparation: Rake back a 750 mm wide margin around prepared seed beds.
 - Level of seed bed: Married in with turf.
- Placement: Single row laid end to end and trimmed to a line.
- Watering: On completion.

352 EDGES TO SEEDED AREAS ADJACENT TO PLANTING BEDS AND TREE PITS

- Timing: After seeded areas are well established.
- Edges: Clean straight lines or smooth curves.
 - Mulch and soil: Draw back to permit edging.
- Arisings: Remove.
- Completion: Respread soil and mulch.

TURFING

400 CULTIVATED TURF FOR ALL GRASSED AREAS

- Supplier: Contractor's choice.
 - Product reference: Contractor's choice.
- Properties of soil used for turf production: Well drained sandy loam.

410 TURF TO BS 3969 FOR ALL GRASSED AREAS

- Standard: To BS 3969, free from undesirable grasses and weeds.
 - Grade: General purpose utility turf with no perennial ryegrass.
- Source: Submit proposals.
- Herbicide treatment: Apply not less than four weeks and not more than three months before lifting.

420 DELIVERY AND STORAGE

- Timing: Lay turf with minimum possible delay after lifting. If delay occurs, lay turf out on topsoil and keep moist.
- Frosty weather or waterlogged ground: Do not lift turf.
- Delivery: Arrange to avoid need for excessive stacking.
- Stacking height (maximum): 1 m.
- Dried out or deteriorated turf: Do not use.

423 INSPECTION OF TURF

- Give notice: Before lifting turf for all grassed areas.

427 WEED SUPPRESSION MEMBRANE FOR ALL GRASSED AREAS

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Laps: Minimum 100 mm side and end laps.
- Laying sequence: After final cultivation and immediately before turfing.
- Anchoring: Sufficient topsoil or sand spread evenly over membrane to prevent wind uplift.

428 COMPOST DRESSING FOR TURF

- Type: Sanitized and stabilized compost.
- Supplier: Contractor's choice.
 - Product reference: Contractor's choice.
- Standard: To PAS 100.
- Horticultural parameters:
 - pH (1:5 water extract): 7.0-8.7.
 - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
 - Moisture content (m/m of fresh weight): 35-55%.
 - Organic matter content (minimum): 25%.
 - Grading (air dried samples): 100% passing screen mesh aperture of 5 mm.
 - Carbon:Nitrogen ratio (maximum): 20:1.
- Texture: Friable.
- Objectionable odour: None.
- Composting Association certification: Required.
- Declaration of analysis: Submit.
- Additional analyses: Not required.
- Samples: Supply 5 kg sample before ordering.
- Application rate: 3 kg/m².
- Timing: Apply prior to cultivation.

430 TURFING GENERALLY

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

450 TRIMMING TURF

- Newly planted tree pits: Neatly cut away around individual trees.
 - Diameter: 800 mm.
 - Tree pit surface: Mulch.

PROTECTING/CUTTING

510 PROTECTIVE FENCING

- Fencing type: As section Q40.
 - Height: 1.1 m.
- Erection: On completion of seeding/ turfing.
- Removal: After grass is well established. Fencing will remain the property of the Contractor.

530 FIRST CUT OF GRASSED AREAS

- Timing: When grass is reasonably dry.
 - Height of initial growth: 75 mm.
- Preparation:
 - Debris and litter: Remove.
 - Stones and earth clods larger than 25 mm in any dimension: Remove
- Height of first cut: 40 mm.
- Mower type: Contractor's choice.
- Arisings: Remove from site.

590 CLEANLINESS

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

MAINTENANCE

610 FAILURES OF SEEDING/TURFING

- Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
- Defective materials or workmanship: Areas that have failed to thrive.
 - Exclusions: Theft or malicious damage.
- Method of making good: Recultivation and reseeded/ returfing.
- Timing of making good: The next suitable planting season.

620 MAINTAINING GENERAL GRASSED AREAS

- Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
- Maximum height of growth at any time: 75 mm.
- Preparation: Before each cut remove all litter and debris.
- Cutting: As and when necessary to a height of 50 mm.
 - Arisings: Remove.
- Bulb planting areas: Do not cut until bulb foliage has died down.
- Trimming: All edges.
 - Arisings: Remove.
- Weed control: Substantially free of broad leaved weeds.
 - Method: Application of a suitable selective herbicide.
- Stones brought to the surface: Remove regularly.
 - Size: Exceeding 25 mm in any dimension.
- Areas of settlement: Make good.
- Watering: When require to ensure health of grass.

680 MAINTENANCE FERTILIZER FOR ALL GRASSED AREAS EXCEPT WILDFLOWER MEADOWS

- Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
- March application: 15:10:10 Spring turf fertilizer at 35 g/m².
- September application: 5:10:10 Autumn turf fertilizer at 50 g/m².

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 scrub to ground level by flail mowing and remove arisings; retain and protect trees indicated on drawings.
 - Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
 - Additional requirements: n/a.
- 118 SOIL CONDITIONS
- Soil for cultivating and planting: Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
 - Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.
- 120 CLIMATIC CONDITIONS
- General: Carry out the work while soil and weather conditions are suitable.
 - Strong winds: Do not plant.
- 125 TIMES OF YEAR FOR PLANTING
- Deciduous trees and shrubs: Late October to late March.
 - Conifers and evergreens: September/ October or April/ May.
 - Herbaceous plants (including marginal): September/ October or March/ April.
 - Container grown plants: At any time if ground and weather conditions are favourable.
 - Watering and weed control: Provide as necessary.
 - Dried bulbs, corms and tubers: September/ October.
 - Colchicum (crocus): July/ August.
 - Green bulbs: After flowering in spring.
 - Wildflower plugs: Late August to mid November or March/ April.
 - Aquatic plants: May/ June or September/ October.
- 130 MECHANICAL TOOLS
- Restrictions: Do not use within 100 mm of tree and plant stems.
- 145 WATERING
- Quantity: Wet full depth of topsoil.
 - Application: Even and without damaging or displacing plants or soil.
 - Frequency: As necessary to ensure establishment and continued thriving of planting.
- 150 WATER RESTRICTIONS
- General: If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.

- 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: Two working days.
- 165 PREPARATION, PLANTING AND MULCHING MATERIALS
- General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
 - Certification of source, analysis, suitability for purpose and absence of harmful substances: Submit.
 - Certified materials:
 - Composted animal manures;
 - Composted food waste;
 - Composted horticultural waste; and
 - Sanitized and stabilized compost.
 - Give notice before ordering or using.
- 200 PLANTS/ TREES - GENERAL
- Condition: Materially undamaged, sturdy, healthy and vigorous.
 - Appearance: Of good shape and without elongated shoots.
 - Hardiness: Grown in a suitable environment and hardened off.
 - Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
 - Budded or grafted plants: Bottom worked.
 - Root system and condition: Balanced with branch system.
 - Standard: The National Plant Specification.
 - Species: True to name.
 - Origin/ Provenance: British grown.
Definition: Origin and Provenance have the meaning given in the National Plant Specification.
- 215 PLANTS/ TREES - SPECIFICATION CRITERIA
- Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification.
- 216 PLANTS/ TREES - SPECIFICATION CRITERIA
- Name, forms, dimensions and other criteria: To the relevant part of BS 3936.
- 225 BULBS/ CORMS/ TUBERS
- Condition: Firm, entire, not dried out or shrivelled.
 - Health: Free from pests, diseases and fungus.
 - Handling: Remove from packaging immediately.
 - Storage: Permitted only when necessary.
 - Location: Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit.
 - Duration: Minimum period.
 - Temperature: 18-21°C.

- 235 CONTAINER GROWN PLANTS/ TREES
- Growing medium: With adequate nutrients for plants to thrive until permanently planted.
 - Plants: Centred in containers, firmed and well watered.
 - Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
 - Hardiness: Grown in the open for at least two months before being supplied.
 - Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.
- 245 LABELLING AND INFORMATION
- General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:
 - Full botanical name.
 - Total number.
 - Number of bundles.
 - Part bundles.
 - Supplier's name.
 - Employer's name and project reference.
 - Plant specification, in accordance with scheduled National Plant Specification categories.
 - Additional information: Submit on request:
 - Country of origin;
 - Date supplied and consignment details or reference;
 - Impact of pest/ disease;
 - Name or designation of rootstock of budded or grafted plants;
 - Potting dates;
 - Propagation method and dates;
 - Pruning dates; and
 - Type of container.
- 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 HTA 'Handling and establishing landscape plants'.
 - Frost: Protect plants from frost.
 - Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
 - Plant packaging: Coextruded polyethylene bags with black interior and white exterior.
 - Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
 - Planting: Upright or well balanced with best side to front.

280 TREATMENT OF TREE WOUNDS

- Cutting: Keep wounds as small as possible.
 - Cut cleanly back to sound wood using sharp, clean tools.
 - Leave branch collars. Do not cut flush with stem or trunk.
 - Set cuts so that water will not collect on cut area.
- Fungicide/ Sealant: Do not apply unless instructed.

285 PROTECTION OF EXISTING GRASS

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

290 SURPLUS MATERIAL

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

PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

300 HERBICIDE TO CLEAR OVERGROWN BEDS

- Locations: All planting areas.
- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
 - Duration (minimum): One week.

305 WEED CONTROL FOR INVASIVE NON-NATIVE WEEDS

- Locations: All planting areas.
- General: Prevent weeds from seeding and perennial weeds from becoming established, by hand weeding.

375 CULTIVATION

- Compacted topsoil: Break up to full depth.
- Cultivation: Loosen, aerate and break up soil into particles of 2-8 mm.
 - Depth: 600mm.
 - Timing: Within a few days before planting.
 - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: 25 mm above adjoining paving or kerbs.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 50 mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

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: Wide enough to accommodate roots when fully spread and 75 mm deeper than root system.
 - Pit bottom improvement Break up to a depth of 150 mm, incorporating 25 g of slow release fertilizer per planting pit.
 - Backfilling material: Reuse excavated material..
- 415 ANTIDESICCANT FOR CONIFERS/ EVERGREENS
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Application: Dip before delivering to site. Spray soon after planting.
 - Do not apply in wet or frosty weather.
 - Ensure full coverage of underside of foliage.
- 417 MYCORRHIZAL INOCULANT
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Application: Apply to roots of bare root plants before planting and backfilling.
- 435 CLIMBING PLANTS USED AS GROUND COVER
- Planting:
 - Canes or other supports: Remove.
 - Arrangement: Spread stems.
 - Fixing: Pinned to ground to ensure good contact.
- 445 PLANTING BULBS/ CORMS/ TUBERS
- Depth: Top of bulb/ corm/ tuber at a depth of approximately twice its height, base in contact with bottom of hole.
 - Backfilling: Finely broken soil. Lightly firm to existing ground level.
 - Naturalized planting in existing grassed areas:
 - Scattering: Random. Plant bulbs/ corms/ tubers where they fall.
 - Planting: Neatly remove a plug of turf and replace after planting.
- 455 PLANTING WILD FLOWER PLUGS
- Handling: Keep plants watered and in shade until planted. Do not allow to dry out.
 - Preparation: Remove brambles, coarse and invasive weeds from planting sites.
 - Planting in grass: Close mow to approximately 50 mm. Remove arisings.
 - Planting sites: Bare soil patches of 150-300 mm diameter, between tufts of grass. If such patches do not occur as a result of mowing long grass, remove grass and weeds to create two planting sites per m², of 150-300 mm diameter.
 - Planting: Into a hole to suit plug size and shape. Create a cleft at bottom of hole to improve rooting. Gently firm plant into hole.
- 470 FORMAL HEDGES
- Shrubs for hedges: Consistent in species, cultivar and clone to ensure a uniform hedge.
 - Planting: In trenches large enough to take full spread of roots. Set out plants evenly.
- 471 NATURALIZED HEDGES
- Planting: In trenches large enough to take full spread of roots. Set out plants evenly.

- 472 FENCING SUPPORT FOR NEW HEDGES
- Type: Timber post and general pattern wire mesh.
 - Standard: To BS 1722-2.
 - Height: 600 mm.
 - Timing: Before planting hedge.
 - Support: Lightly secure hedge plants to fence wires at appropriate intervals.
- 476 SHRUB, HERBACEOUS AND BULB BACKFILLING MATERIAL FOR FLOWERING SHRUB PITS
- Composition: Previously prepared mixture of topsoil excavated from pit and additional topsoil as required:
 - Ameliorant/ Conditioner: Coarse grained, washed river sand with neutral pH.
 - Application rate: To manufacturer's/ supplier's recommendations.
 - Fertilizer: Organic.
 - Application rate: To manufacturer's/ supplier's recommendations.
- 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: Sanitized and stabilized compost.
 - Depth: 50 mm.
- 485 MULCHING PLANTING BEDS
- Material: Coarse grade bark mulch.
 - Purity: Free of pests, disease, fungus and weeds.
 - Recycled content: Submit proposals.
 - Preparation: Clear all weeds. Water soil thoroughly.
 - Coverage: 50 mm depth.
 - Finished level of mulch: 30 mm below adjacent grassed or paved areas.

PLANTING TREES

- 500 ANTIDESICCANT FOR CONIFERS/ EVERGREENS
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Application: Dip in or thoroughly spray before delivering to site. Spray again soon after planting.
 - Do not apply in wet or frosty weather.
 - Ensure full coverage of underside of foliage.
- 505A TREE PITS IN SOFT GROUND
- Sizes: As tree pit detail drawing.
 - Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
 - Pit bottoms: With slightly raised centre. Break up to a depth of 200 mm.
 - Treatment: Soil ameliorant worked into pit bottoms.
 - Pit sides: Scarify.
 - Backfilling material: Tree backfilling material.
 - Accessories:
 - Tree pit drainage layer as drawing
 - Perforated plastics irrigation/ ventilation pipe; and
 - Underground guying to BS 4043.

505B TREE PITS IN HARD PAVED AREAS

- Sizes: 1200 mm x 1200 mm x 750 mm deep.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Pit bottoms: With slightly raised centre. Break up to a depth of 200 mm.
 - Treatment: Soil ameliorant worked into pit bottoms.
- Pit sides: Scarify.
- Backfilling material: Amsterdam tree soil.
- Accessories:
 - Underground guying;
 - Tree pit drainage layer;
 - Perforated plastics irrigation/ ventilation pipe;
 - Root barrier; and
 - Underground guying to BS 4043.
 - Tree grille and frame.

510 TREE PIT ROOT BARRIERS

- Locations: Wherever the installed rootball will be within 2.0 m of a building foundation.
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Depth of top of root barrier below finished soil level: 50 mm.
- Installation: With sides vertical.

525 SEMIMATURE TREES

- Standard: Prepare roots and transplant to BS 4043.
- Backfilling material: As clause 585.
- Support: As tree pit detail drawing.
- Protection: Not required.

535 STAKING GENERALLY

- Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
 - Preservative treatment: To provide a 20 year service life.
- Nails: To BS 1202-1, galvanized, minimum 25 mm long and with 10 mm diameter heads.
- Stake size (minimum): 50 mm diameter.

545 LONG SINGLE STAKING FOR HEAVY STANDARD TREES

- Staking: Position stake close to tree on windward side and drive vertically at least 300 mm into bottom of pit before planting.
 - Backfilling: Consolidate material around stake.
- Height of stakes: Cut off just below lowest branch of tree.
- Ties: Expanding ties.
- Tying: Secure tree firmly but not rigidly to stake with at least two ties. Use three ties if necessary to prevent tree touching stake.
 - Position: Top tie within 25 mm of top of stake and lower tie approximately halfway down.

555 SHORT SINGLE STAKING FOR PINES AND FEATHERED TREES

- Staking: Position stake close to tree on windward side and drive vertically at least 300 mm into bottom of pit before planting.
 - Backfilling: Consolidate material around stake
- Height of stakes: Cut to approximately 600 mm above ground level.
- Ties: Expanding ties.
- Tying: Secure tree firmly but not rigidly to stake with at least two ties within 25 mm of top of stake.

586 TREE BACKFILLING MATERIAL

- Composition: Previously prepared mixture of topsoil excavated from pit and additional topsoil as required.
- Ameliorant/ Conditioner: Coarse grained, washed river sand with neutral pH.
 - Application rate: To manufacturer's/ supplier's recommendations.
- Fertilizer: Organic.
 - Application rate: To manufacturer's/ supplier's recommendations.

590 MULCHING TREES

- Material: Coarse grade bark mulch.
 - Purity: Free of pests, disease, fungus and weeds.
 - Recycled content: Submit proposals.
- Preparation: Clear all weeds. Water soil thoroughly.
- Coverage: 50 litres per tree position, 75 mm depth.
- Finished level of mulch: 30 mm below adjacent grassed or paved areas.

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

710 MAINTENANCE

- Duration: Carry out the operations in the following clauses from completion of planting until the end of the rectification period.
- Frequency of maintenance visits: 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: During the next suitable planting season.

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 hoeing, hand weeding and maintaining 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.
- Staking: Check condition of stakes, ties, guys and guards.
 - Broken or missing items: Replace.
 - Rubbing: Prevent.
 - Ties: Adjust to accommodate growth.
 - Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
 - Frequency of checks: Every two weeks.
- 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.
- Watering: As required to ensure health of plants.

755 PLANTING MAINTENANCE - FERTILIZER

- Time of year: March or April.
- Fertilizer: Organic.
 - Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: 40 g/m².

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): 75 mm.
- Trees: Remulch.
Depth (minimum): 75 mm.

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 days.
- 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: Remove to recycling facility.
 - Tree roots and stumps: Remove to recycling facility.
 - Shrub and tree prunings: Remove to recycling facility.
 - Litter and nonbiodegradable arisings: Remove from site.
- 175 DISPOSAL OF ARISING
- General: Unless specified otherwise, dispose of arisings as follows: Remove to recycling facility.
- 180 CHIPPING OR SHREDDING
- General: Not permitted on site.
- 181 MECHANICAL EQUIPMENT
- General: Minimize.
 - Prohibited equipment: Leaf blowers.
 - Timing: Use of mechanical equipment allowed between the hours of 10:00 am and 4:00 pm only.

190 LITTER

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

195 PROTECTION OF EXISTING GRASS

- General: Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on grass.

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.

GRASSED AREAS

210 MAINTENANCE OF GRASSED AREAS

- General: Maintain turf in a manner appropriate to the intended use.
- Soil and grass:
 - Condition: Maintain a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt.
 - Waterlogging and compaction: Prevent.
 - Damage: Repair trampling, abrasion or scalping.
- Ornamental lawns: Maintain reasonably free from moss, excessive thatch, weeds, frost heave, worm casts and mole hills.
 - Edges: Neat and well defined, in clean straight lines or smooth flowing curves.
- Litter and fallen leaves: Remove regularly to maintain a neat appearance.

211 MAINTENANCE OF GRASSED AREAS

- Standard: To BS 7370-3. Carry out maintenance appropriate to each category of turf, as follows:
 - Objectives: To BS 7370-3, table 6.
 - Programme: To BS 7370-3, clause 11.
 - Mowing methods: To BS 7370-3, table 3.

220 GRASS CUTTING GENERALLY

- Before mowing: Remove litter, rubbish and debris.
- Finish: Neat and even, without surface rutting, compaction or damage to grass.
- Edges: Leave neat and well defined. Neatly trim around obstructions.
- Adjoining hard areas: Sweep clear and remove arisings.
- Drought or wet conditions: Obtain instructions.

225 TREE STEMS

- Precautions: Do not use mowing machinery closer than 100 mm to tree stems. Use nylon filament rotary cutters and other hand held mechanical tools carefully to avoid damage to bark.

226 TREE STEMS

- Precautions: Do not allow nylon filament rotary cutters and other mechanical tools closer than 100 mm to the stem of any tree.
 - Operations close to stems: Complete using hand tools.

235 BULBS AND CORMS IN GRASSED AREAS

- Before flowering: Do not cut.
- Interval between end of flowering and start of grass cutting (minimum): Six weeks.

- 240 MOWING STRIPS
- Location: Around each tree trunk.
 - Width (approximate): 150 mm.
 - Operations: Maintain by hand weeding and cultivation.
- 250 LEAF REMOVAL
- Operations: Collect fallen leaves.
 - Special requirements: Remove by hand raking.
 - Disposal: Remove from site for recycling.
- 255 FIRST CUT OF ALL GRASSED AREAS
- Height of initial growth: 75 mm.
 - Preparation:
 - Debris and litter: Remove.
 - Stones and earth clods larger than 25 mm in any dimension: Remove
 - Height of first cut: 40 mm.
 - Mower type: Contractor's choice.
 - Arisings: Remove to recycling facility.
- 285 TOP DRESSING
- Location: All lawns.
 - Timing: November.
 - Material: Compost/ sand/ loam mix.
 - Supplier: Contractor's choice.
 - Product reference: Contractor's choice.
 - Declaration of analysis: Submit.
 - Additional analyses: Not required.
 - Samples: Supply 5 kg sample before ordering.
 - Application rate: 7-8 mm depth.
- 290 ROLLING
- Location: All lawns.
 - Timing: February or March, after first mowing.
 - Roller: 100 kg (2 cwt).
 - Operations: Consolidate turf and reduce frost heave.
- 309 EDGES TO SEEDED AREAS
- Location: Planting beds and around newly planted trees.
 - Timing: After seeded areas are well established.
 - Edges: Cut to clean straight lines or smooth curves. Draw back soil to permit edging.
 - Arisings: Remove.
- 310 RE-FORMING GRASS EDGES
- Location:
 - All edges;
 - Path edges;
 - Planting bed edges;
 - Service access cover edges; and
 - Where damage occurs.
 - Edges: Draw back soil and re-form edges to clean straight lines or smooth flowing curves, sloping slightly back from vertical.

- 311 RE-FORMING GRASS EDGES
- Location:
 - All edges;
 - Paths;
 - Planting beds;
 - Service access covers; and
 - Where damage occurs.
 - Standard: To BS 7370-3.
 - Finishing: Damaged parts of turned turf replaced with sound turf.
 - Support: Not required.
- 320 LEVELLING HOLLOWS AND BUMPS IN TURF
- Standard: To BS 7370-3, clauses 12.4 and 12.5.
- 325 RELIEVING SURFACE COMPACTION IN TURF
- Standard: To BS 7370-3.
 - Method: Spiking.
 - Top dressing: Fine sand.
 - Depth: 2-5 mm.
- 330 SELECTIVE HERBICIDE
- Location: All lawns.
 - Herbicide: Suitable for suppressing perennial weeds.
 - Areas not to be sprayed: Bulb and corm planted areas when in leaf.
- 340 SPOT WEEDKILLING IN ROUGH GRASS AREAS
- Herbicide: Suitable for suppressing perennial weeds.
 - Operations: Spot treat
 - all broad leaved weeds;
 - docks (*Rumex* spp);
 - injurious weed species listed in the Weeds Act 1959 and Wildlife and Countryside Act 1981;
 - Japanese knotweed (*Fallopia* spp);
 - nettles (*Urtica* spp);
 - ragworts (*Senecio* spp);
 - thistles (*Cirsium* spp); and
 - willowherb (*Epilobium* spp).
- 345 CONTROL OF JAPANESE KNOTWEED
- Operations: Spot treat in June and September during suitable weather conditions and when plants are growing vigorously.
 - Herbicide: In accordance with the Environment Agency 'Code of Practice for the management, destruction and disposal of Japanese knotweed'.
 - Application: In accordance with the Environment Agency 'Code of Practice for the management, destruction and disposal of Japanese knotweed'.
 - Arisings: In accordance with the Environment Agency 'Code of Practice for the management, destruction and disposal of Japanese knotweed'.
- 350 FERTILIZER - SPRING APPLICATION
- Type: Organic.
 - Application rate: 100 g/m².

360 FERTILIZER - AUTUMN APPLICATION

- Type: Organic.
- Application rate: 100 g/m².

380 REINSTATEMENT OF DAMAGED LAWNS

- Damaged turf: Remove to a depth of 40 mm.
- Preparation: Cultivate substrate to a fine tilth.
- Reinstatement: Contractor's choice of returving or topsoiling and reseeding:
 - Returving: Quality and appearance to match existing.
 - Reseeding: Fill with fine topsoil to BS 3882 multi purpose class, free from stones, debris and weeds. Reseed with a seed mix to match existing grass in quality and appearance.
- Protection and watering: Provide as necessary to promote successful germination and/ or establishment.

381 REINSTATEMENT OF WORN OR DAMAGED LAWNS

- Worn or damaged areas: Make good by returving or reseeding:
 - Returving standard: To BS 7370-3, Clause 12.2.
 - Reseeding standard: To BS 7370-3, Clause 12.6.
- Turf or seed: To match existing in appearance and quality.
- Protection and watering: Provide as necessary to promote successful germination and/ or establishment.

FLOWER BEDS/ SEASONAL BEDDINGS

450 PLANTING BEDS OF ANNUALS

- Clearance: Remove previous season's bedding, including all bulbs, litter and debris.
- Preparation: Dig over beds using a spade or hand held mechanical cultivator:
 - Annual weeds: Bury.
 - Perennial weeds: Carefully dig out.
- Fertilizer: Either in autumn or spring spread and incorporate Organic fertilizer .
 - Application rate: As manufacturer's recommended rate.
- Annual bedding plants:
 - Standard: To BS 3936-7.
 - Setting out: Plant out To approved layout, including edging plants, main layer, specimen or pot plants, corms, bulbs or tubers.
- Watering: Keep plants watered as necessary before planting out and water in after planting.
- Failed planting: Replant as necessary any plants, or areas of plants, that have failed to thrive.

460 BEDS OF PERENNIALS OR PERENNIALS AND ANNUALS

- Plant supports: Stake and tie plants using
 - bamboo canes;
 - flower canes;
 - pea sticks; and
 - peony rings.
 - Length: To suit plant height.
 - Maintain throughout the growing season.
- Gaps in planting: Refill by replanting.
- Watering:
 - New plants: Before and after planting out.
 - Ongoing: As necessary for the continued thriving of all planting.
- Operations at end of growing season:
 - Trim: Older flowering stems of herbaceous perennials.
 - Remove: Redundant plant supports, litter, debris and arisings.
 - Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.
 - Top dress: Apply sanitized and stabilized compost top dressing.

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.

490 THINNING BY REMOVAL OF SURPLUS PLANTS

- Plants to be thinned: As requested.
- Standard: BS 7370-4, clause 3.5.17.1.
- Timing: Thin 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 schedule.

SHRUBS/TREES/HEDGES

500 ESTABLISHMENT OF NEW PLANTING

- Duration: One year.
- Weed control:
 - Method: Keep planting beds clear of weeds by hoeing, screefing and maintaining mulch.
 - 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: As required to ensure health of trees/plants.

- 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: As manufacturer's recommendations.
- 510 TREE STAKES AND TIES
- Inspection/ Maintenance times: As scheduled and immediately after strong winds.
 - Stakes:
 - Replace loose, broken or decayed stakes to original specification.
 - If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
 - Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.
 - Where chafing has occurred, reposition or replace ties to prevent further chafing.
 - Removal of stakes and ties: Two years after planting.
 - Fill stake holes with lightly compacted soil.
- 515 TREE GUY WIRES
- Inspection/ Maintenance times: Immediately after strong winds.
 - Operations:
 - Replace or resecure loose or missing guy wires.
 - Adjust to suit stem growth and to provide correct and uniform tension.
 - Removal: In spring.
- 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.
- 525 TREE GUARDS
- Loose or defective guards: Adjust, refix or replace to original specification and to prevent chafing.
- 535 TREE GRILLES
- Operations: Lift grilles, remove weeds, adjust levels as necessary and lightly compact. Refit grilles, refill interstices and lightly compact to correct level.
 - - Material for making up levels and refilling: 6 mm to dust granite aggregate.

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 As instructed.

555 PRUNING TREES AND SHRUBS

- Standard: To BS 7370-4.
- Special requirements: Growth retardants not permitted.

570 FORMATIVE PRUNING OF YOUNG TREES

- Standard: Type and timing of pruning operations to suit the plant species.
- Time of year: Do not prune during the late winter/ early spring sap flow period.
- Young trees up to 4 m high:
 - Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader.
 - Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
- Whips or feathered trees: Do not prune.
- Operatives: Member of the Arboricultural Association.

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.

- 600 TRIMMING RAPIDLY ESTABLISHING HEDGES
- General: Allow to reach planned height as rapidly as possible.
 - Form: Trim back lateral branches moderately.
- 605 TRIMMING SLOWLY ESTABLISHING HEDGES
- Operations:
 - Timing: Cut back hard in June and September to encourage bushy growth down to ground level.
 - Form: Allow to reach planned dimensions only by gradual degrees, depending on growth rate and habit.
- 610 TRIMMING TAPERING ESTABLISHED HEDGES
- Time of year: Trim once in July or August.
 - Operations:
 - Form: Trim carefully and neatly to regular line and shape, with the width at the top less than that at the base.
 - Trim: Remove current growth rather than old wood.
 - Tools/ Cutting: With secateurs.
- 611 TRIMMING NONTAPERING ESTABLISHED HEDGES
- Time of year: Trim once in July or August.
 - Operations:
 - Form: Trim carefully and neatly to regular line and shape with vertical sides.
 - Trim: Remove current growth rather than old wood.
 - Tools/ Cutting: With secateurs.
- 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.
- 625 CLIMBING PLANTS
- Pruning: Remove excess growth, to ensure that signs, light fittings, doors and windows are kept clear at all times.
 - Insecure growth: Attach to supporting wires or structures using Stainless steel wire.
 - Supporting structures: Check and repair as necessary.
- 630 DEAD AND DISEASED PLANTS
- Removal: As soon as possible.
 - Replacement: In the next suitable planting season.
- 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: As manufacturer's recommendations.

- 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 schedule.
- 642 THINNING BY TRANSPLANTING 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 schedule.
- 645 WEED CONTROL GENERALLY
- Weed tolerance: Weed to clear ground every two weeks.
 - 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 50 mm.
 - Herbicides: Do not 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.
- 670 WEED CONTROL WITH SUMMER HERBICIDE
- Type: Suitable foliar acting herbicide.
 - Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

675 DIGGING OVER

- General: Dig over beds. Do not damage existing plants, bulbs and roots.
 - Depth of dig (minimum): 100 mm.

680 SOIL AERATION

- Compacted soil surfaces:
 - Prick up: To aerate the soil of root areas and break surface crust.
 - Size of lumps: Reduce to crumb and level off.
 - Damage: Do not damage plants and their roots.

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): 75 mm.
 - Top up: Twice per year.
- Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
- Weeding: Remove weeds growing on or in mulch by hand weeding.

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: All evergreens.
- Timing: Within 24 hours of snowfall.

705 WINTER LEAF REMOVAL

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

TREE WORK

810 TREE WORK GENERALLY

- Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
- Protection: Avoid damage to neighbouring trees, plants and property.
- Standards: To BS 3998 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.
- Removing branches: Cut as Arboricultural Association Leaflet 'Mature tree management'. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
- Appearance: Leave trees with a well balanced natural appearance.
- Chain saw work: Operatives must hold a Certificate of Competence.
- Tree work: To be carried out by an approved member of the Arboricultural Association.

- 815 ADDITIONAL WORK
- Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.
- 820 PREVENTION OF WOUND BLEEDING
- Standard: To BS 3998, clause 8.
- 825 PREVENTION OF DISEASE TRANSMISSION
- Standard: To BS 3998, clause 9 and Appendix B.
- 830 CLEANING OUT AND DEADWOODING
- Remove:
 - Dead, dying, or diseased wood, broken branches and stubs.
 - Fungal growths and fruiting bodies.
 - Rubbish, wind blown or accumulated in branch forks.
 - Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
 - Other unwanted objects, e.g. tree houses, swings.
 - Climbing plants as schedule.
- 835 CUTTING AND PRUNING GENERALLY
- Tools: Appropriate, well maintained and sharp.
 - Final pruning cuts:
 - Chainsaws: Do not use on branches of less than 50 mm diameter.
 - Hand saws: Form a smooth cut surface.
 - Anvil type secateurs: Do not use.
 - Removing branches: Do not damage or tear the stem.
 - Wounds: Keep as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.
 - Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.
Large branches: Remove only if unavoidable.
 - Remove in small sections and lower to ground with ropes and slings.
 - Dead branches and stubs: When removing, do not cut into live wood.
 - Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
 - Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.
- 840 CROWN REDUCTION/ SHAPING
- General: Cut back selectively to lateral or sublateral buds or branches to retain flowing branch lines without leaving stumps.
 - Operations: Reduce crown by 15%.
- 845 CROWN LIFTING
- Clearances: Remove branch systems to give clearance.
 - Height: 2.5 m above footpaths.
 - Removing branches: Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sublateral buds or branches. Do not leave stumps.

850 CROWN THINNING

- Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.
- Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown.
 - Quantity: 20 %.
- Cutting: Make no cuts of more than 50 mm diameter.
 - Branches: Cut back to lateral or sublateral buds or branches without leaving stumps.
- Appearance: Leave a uniform and well balanced structure of branches and foliage.

855 CUTTING TREE ROOTS

- Excavating: Use hand tools only.
- Protected area: Do not cut roots within an area which is the larger of:
 - The branch spread of the tree.
 - An area with a radius of half the tree's height, measured from the trunk.
- Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.
- Cutting:
 - Cutting: Make clean smooth cuts with a hand saw.
 - Wounds: Minimize. Avoid ragged edges.
 - Finishing: Pare cut surfaces smooth with a sharp knife.
- Backfilling:
 - Protection: Cover cut roots with clean sharp sand.
 - Material: Backfill with original topsoil.

860 REMOVING TREES, SHRUBS AND HEDGES

- Standards: To BS 3998, Appendix A and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets.
- Existing services: Check for below and above ground services. Give notice if they may be affected.
- Shrubs and smaller trees: Cut down and grub up roots.
- Tree stumps:
 - Removal: Remove mechanically to a minimum depth of 300 mm below ground level.
 - Removal by winching: Give notice. Do not use other trees as supports or anchors.
- Protection: Avoid damage to neighbouring trees, plants and property.
- Work near retained trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
- Filling holes:
 - Material: Use as-dug material and/ or imported soil as required.
 - Finishing: Consolidate and grade to marry in with surrounding ground level.

865 BARK DAMAGE

- Wounds:
 - Do not attempt to stop sap bleeding.
 - Bark: Remove ragged edges using a sharp knife.
 - Wood: Remove splintered wood from deep wounds.
 - Size: Keep wounds as small as possible.
- Liquid or flux oozing from apparently healthy bark: Give notice.

870 CAVITIES IN TREES

- Investigation: Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay, and give notice.
- Water filled cavities: Do not drain.
- Sound wood inside cavities: Do not remove.
- Cavity openings: Do not cover.

HARD LANDSCAPE AREAS/FENCING

900 SNOW CLEARANCE

- Clearance: On reaching a depth of 5 mm.
- Deicing: To footpaths.
 - Material: Grit.
 - Timing: When freezing precipitation is forecast.
 - Application rate: Spread evenly at a rate of As manufacturer's recommendations.

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.

915 PAVING SEALANT

- Type: Acrylic.
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Application method: Brush.
 - Coats: As manufacturer's recommendations.
 - Coverage: As manufacturer's recommendations.

920 FENCING

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

930 GRAFFITI REMOVAL

- Method: Air abrasion.
- Subsequent treatment: Transparent, two part, anti-graffiti coating.
 - Finish: Matt.

Q40 Fencing

To be read with Preliminaries/ General conditions.

FENCING SYSTEMS

- 310A EXISTING CLOSE BOARDED FENCING AND GATES TO BE REFURBISHED
- Standard: To BS 1722-5, type appropriate for tanalised softwood.
 - Height: As on site.
 - All Wood: Tanalised Softwood.
 - Treatment: Sand down to remove existing stain. Repair/replace any broken areas of fencing using suitable external timber..
 - Finish: Sadolin fencing wood stain or similar approved
- 311 CLOSE BOARDED FENCING
- Manufacturer: Fabricated on site
 - Standard: To BS 1722-5, type appropriate for tanalised softwood.
 - Height: 1800mm & 2100mm.
 - Wood: Tanalised Softwood.
 - Treatment: To provide a 30 year service life.
 - Finish: Exterior wood stain.
 - Softwood facing boards 120 x 20mm fixed to horizontal rails 120 x 30mm fixed to posts.
 - Facing board capping:
 - Twice weathered capping strip fixed to top of facing boards to fully protect facing boards.
 - Gravelboards 120 x 15mm
 - Treatment: [To provide a 30 year service life].
 - Posts:
 - Size: 100x100mm
 - Treatment and finish to match panels.
 - Top to be cut on 1 face. (refer to detail drawing)
 - Centres of posts (maximum): 2.4 m.
 - Method of setting posts: Refer to drawing no. M5115-305-D. .
 - Conformity: Submit manufacturer's and installer's certificates, to BS 1722-5.

312 CLOSE BOARDED FENCING WITH TRELLIS

- Manufacturer: Fabricated on site.
- Standard: To BS 1722-5, type appropriate for tanalised softwood.
- Height: 1800 mm.
- Wood: Tanalised Softwood.
 - Treatment: To provide a 30 year service life.
 - Finish: Exterior wood stain.
- Softwood facing boards 120 x 20mm (40 x 20mm every third board) fixed to horizontal boards 120 x 30mm fixed to posts.
- Gravelboards 120 x 20mm
 - Treatment: [To provide a 30 year service life].
- Trellis: Trellis frame 100 x 30mm (top frame to be cut to point as per weather capping elsewhere) fixed to posts with galvanised screws. Verticals 50 x 10mm fixed to frame. Laths 50 x 10mm fixed to verticals.
- posts: Wood.
 - Size: 100x100mm
 - Treatment and finish to match panels.
 - Top to be cut to point on 2 faces. (refer to drawing M5115-306-D)
- Centres of posts (maximum): 2.4 m.
- Method of setting posts: Refer to drawing no. M5115-306-D.
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-5.

313 FRONT GARDEN DIVIDER FENCE

- Manufacturer: Fabricated on site.
- Standard: To BS 1722-5, type appropriate for tanalised softwood.
- Height: 1000 mm.
- Wood: Tanalised Softwood.
 - Treatment: To provide a 30 year service life.
 - Finish: Exterior wood stain.
- Softwood facing boards 120 x 20mm fixed to horizontal rails 120 x 30mm fixed to posts.
- Facing board capping:
 - Twice weathered capping strip fixed to top of facing boards to fully protect facing boards.
- Posts: Intermediate timber post for runs over 2m in length. Concrete foundation. Timber panels fixed via timber battons fixed to timber intermediate post.
 - Size: 100x100mm
 - Treatment and finish to match panels.
- Centres of posts (maximum): 2.4 m.
- Method of setting posts: Refer to drawing no. M5115-302-D.
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-5.

- 314 CLOSE BOARDED FENCE PANEL FOR 2.1M BRICK WALLS
- Manufacturer: Fabricated on site.
Standard: To BS 1722-5, type appropriate for tanalised softwood.
 - Height: 1555 mm.
 - Wood: Tanalised Softwood.
 - Treatment: To provide a 30 year service life.
 - Finish: Exterior wood stain.
 - Softwood facing boards 120 x 20mm fixed to horizontal boards 120 x 20mm (40 x 20mm every third board) fixed to posts
 - Facing board capping:
 - Twice weathered capping strip fixed to top of facing boards to fully protect facing boards.
 - Conformity: Submit manufacturer's and installer's certificates, to BS 1722-5.
 - Method of fixing to brick piers:
 - Timber batton fixed to brick piers using 3 no. suitable countersunk screws and raw plugs.
 - 3 no. horizontal rails 120 x 30mm fixed to battons.
 - Facing boards fixed to horizontal rails.
- 340 STEEL VERTICAL BAR FENCING
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Standard: To BS 1722-9.
 - Height: 1000 mm.
 - Verticals: 15 mm square bar, square to view. blunt top.
 - Centres of verticals: 100.
 - Posts: RHS, 80 x 80 x 3 mm.
 - Finish: Hot dip galvanized to BS EN ISO 1461 and Powder coated to BS 1722-16.
Colour: Black Gloss.
 - Centres of posts (maximum): 2.8 m.
 - Method of setting posts/ stays/ legs: Posts embedded 450 mm with minimum 100 mm concrete cover, intermediate supports in rammed earth.
 - Accessories: Single leaf pedestrian gate.
 - Conformity: Submit manufacturer's and installer's certificates, to BS 1722-9.
- 341 EXISTING STEEL VERTICAL BAR FENCING AND GATES TO BE REFURBISHED
- Standard: To BS 1722-9.
 - Height: as existing.
 - Verticals: n/a.
 - Centres of verticals: n/a.
 - Posts: n/a.
 - Finish: Wire brush to remove existing paint
replace any broken sections of metal railings / gates
replace any areas of damaged galvanised metal
rub down and remove sharp edges and burrs
wash and prime
paint with 2 coats of suitable external paint.
Colour: Black Gloss.
 - Centres of posts (maximum): 2.8 m.
 - Method of setting posts/ stays/ legs: n/a.
 - Accessories: n/a.
 - Conformity: Submit manufacturer's and installer's certificates, to BS 1722-9.

GATES, POSTS AND STILES

550 WOOD GATES AND POSTS

- Manufacturer: Contractor's choice.
- Standard: To BS 5709.
- Wood: Tanalised Softwood.
- Treatment: As section Z12 and Wood Protection Association Commodity Specification C3.
 - Type: To provide a 30 year service life.
 - Finish: Submit proposals.
- Adhesive: Synthetic resin to BS EN 301, type 1.
- Workmanship: As section Z10.
- Fittings: Two tee hinges, return spring and a ring latch.
 - Finish: Hot dip galvanized to BS EN ISO 1461.
- Method of fixing: Concrete foundation, 450 mm square x 600 mm deep.
- Accessories: None.

560 STEEL GATES AND POSTS

- Manufacturer: Contractor's choice.
- Standard:
 - Domestic gates: To BS 4092-1.
 - Steel palisade gates: To BS 1722-12.
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Materials and workmanship: As section Z11.
- Finish: Hot dip galvanized to BS EN ISO 1461 and Powder coated to BS 1722-16.
 - Colour: Black Gloss.
- Jointing: Welded.
- Fittings: Two self closing adjustable hinges and a thumb latch.
- Finish: Hot dip galvanized to BS EN ISO 1461 and Powder coated to BS 1722-16.
- Method of fixing: Concrete foundation, 450 mm square x 600 mm deep.
- Accessories: None.

561 STEEL Communal gates and posts

- Manufacturer: Contractor's choice.
- Standard:
 - Domestic gates: To BS 4092-1.
 - Steel palisade gates: To BS 1722-12.
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Materials and workmanship: As section Z11.
- Finish: Hot dip galvanized to BS EN ISO 1461 and Powder coated to BS 1722-16.
 - Colour: Black Gloss.
- Jointing: Welded.
- Fittings: Two self closing adjustable hinges, cushioned slam plate..
- Finish: Hot dip galvanized to BS EN ISO 1461 and Powder coated to BS 1722-16.
- Method of fixing: Concrete foundation, 450 mm square x 600 mm deep.
- Accessories: Locking mechanism.

570 GATES

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Sizes: 1000 mm clear opening.
- Posts: Wood & Steel.
- Finish as delivered: Wood: sawn. Steel: Powder coated to BS 1722-16.
- Fittings: Two tee hinges, return spring and a thumb latch.
 - Finish: Hot dip galvanized to BS EN ISO 1461 and Powder coated to BS 1722-16.
- Method of fixing: As stated previously.
- 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:
 - (a);
 - (b);
 - (c);
 - (d);
 - (e);
 - (f); and
 - (g).
 - NHSS Sector Scheme 2C sub categories: (a) and (b).

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.

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.

930 GATES

- Hinges, latches and closers: Adjust to provide smooth operation. Lubricate where necessary.
 - Timing: Before handover.

Q50 Site/street furniture/equipment

To be read with Preliminaries/ General conditions.

SITE AND STREET FURNITURE

- 260 TREE GUARDS FOR TREES IN HARD PAVED AREAS
- Manufacturer: broxap.
 - Product reference: Riviere square hole BX 434-4.
 - Material: Cast iron.
 - Finish: As manufactured.
 - Colour: Black.
 - Size: Diameter to suit tree grille.
 - Accessories/ Special requirements: Concealed, vandal proof fixings.
 - Method of fixing: Bolted to tree grille frame.
- 262 TREE GRILLES CAST IRON SQUARE TREE GRILLE FOR HARD PAVED AREAS
- Manufacturer: Broxap.
 - Product reference: Riviere square hole BX 434-3.
 - Material: Cast iron.
 - Finish: As manufactured.
 - Colour: Black.
 - Size: 1200 mm square in 2 pieces, internal apperture 500mm.
 - Accessories/ Special requirements:
 - Concealed, vandal proof fixings;
 - Heavy duty frame with fishtail anchors;
 - Irrigation hole with cover; and
 - Tree guard support brackets.
 - Method of fixing: Bolted to frame, anchored to in situ concrete base.
- 330 ROTARY CLOTHES DRIER
- Manufacturer: Brabantia or similar approved.
 - Product reference: B-100222 or similar approved.
 - Size: 50 m drying length.
 - Arms: 4.
 - Method of fixing: Galvanized steel socket in concrete base.

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.

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.

Z21 Mortars

To be read with Preliminaries/ General conditions.

CEMENT GAUGED MORTARS

- 110 CEMENT GAUGED MORTAR MIXES
- Specification: Proportions and additional requirements for mortar materials are specified elsewhere.
- 120 SAND FOR SITE MADE CEMENT GAUGED MASONRY MORTARS
- Standard: To BS EN 13139.
 - Grading: 0/2 (FP or MP).
 - Fines content where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5-6):
 - Lower proportion of sand: Use category 3 fines.
 - Higher proportion of sand: Use category 2 fines.
 - Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.
- 131 READY-MIXED LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS
- Standard: To BS EN 998-2.
 - Lime: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
 - Pigments for coloured mortars: To BS EN 12878.
- 135 SITE MADE LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS
- Permitted use: Where a special colour is not required and in lieu of factory made ready-mixed material.
 - Lime: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
 - Mixing: Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.
- 160 CEMENTS FOR MORTARS
- Cement: To BS EN 197-1 and CE marked.
 - Types: Portland cement, CEM I.
 - Portland limestone cement, CEM II/A-L or CEM II/A-LL.
 - Portland slag cement, CEM II/B-S.
 - Portland fly ash cement, CEM II/B-V.
 - Strength class: 32.5, 42.5 or 52.5.
 - White cement: To BS EN 197-1 and CE marked.
 - Type: Portland cement, CEM I.
 - Strength class: 52.5.
 - Sulfate resisting Portland cement:
 - Types: To BS 4027 and Kitemarked.
 - To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
 - Strength class: 32.5, 42.5 or 52.5.
 - Masonry cement: To BS EN 413-1 and CE marked.
 - Class: MC 12.5.

- 180 ADMIXTURES FOR SITE MADE CEMENT GAUGED MORTARS
- Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
 - Other admixtures: Submit proposals.
 - Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.
- 190 RETARDED READY TO USE CEMENT GAUGED MASONRY MORTARS
- Standard: BS EN 998-2.
 - Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
 - Pigments for coloured mortars: To BS EN 12878.
 - Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
 - Retempering: Restore workability with water only within prescribed time limits.
- 210 MAKING CEMENT GAUGED MORTARS
- Batching: By volume. Use clean and accurate gauge boxes or buckets.
 - Mix proportions: Based on dry sand. Allow for bulking of damp sand.
 - Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
 - Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
 - Working time (maximum): Two hours at normal temperatures.
 - Contamination: Prevent intermixing with other materials.

LIME:SAND MORTARS

- 310 LIME:SAND MORTAR MIXES
- Specification: Proportions and additional requirements for mortar materials are specified elsewhere.
- 320 SAND FOR LIME:SAND MASONRY MORTARS
- Type: Sharp, well graded.
 - Quality, sampling and testing: To BS EN 13139.
 - Grading/ Source: As specified elsewhere in relevant mortar mix items.
- 330 READY PREPARED LIME PUTTY
- Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.
 - Maturation: In pits/ containers that allow excess water to drain away.
 - Density of matured lime putty: 1.3-1.4 kg/litre.
 - Maturation period before use (minimum): 30 days.
- 335 READY PREPARED LIME PUTTY
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Maturation period before use (minimum): 30 days.
- 340 POZZOLANIC ADDITIVES FOR NONHYDRAULIC LIME:SAND MORTARS
- Manufacturer/ Supplier: Contractor's choice.
 - Product reference: Contractor's choice.
 - Mixing: Mix thoroughly into mortar during knocking up.

- 345 ADMIXTURES FOR HYDRAULIC LIME:SAND MORTARS
- Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
 - Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.
- 360 MAKING LIME:SAND MORTARS GENERALLY
- Batching: By volume. Use clean and accurate gauge boxes or buckets.
 - Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
 - Contamination: Prevent intermixing with other materials, including cement.
- 370 SITE PREPARED NONHYDRAULIC LIME:SAND MORTARS
- Mixing: Mix materials thoroughly by compressing, beating and chopping. Do not add water.
 - Equipment: Roller pan mixer or submit proposals.
 - Maturation period before use (maximum): Seven days.
- 380 READY TO USE NONHYDRAULIC LIME:SAND MORTARS
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Materials: Select from:
 - Lime putty slaked directly from quicklime to BS EN 459-1 and mixed thoroughly with sand.
 - Quicklime to BS EN 459-1 slaked directly with sand.
 - Maturation period before use (maximum): Seven days.
- 390 KNOCKING UP NONHYDRAULIC LIME:SAND MORTARS
- Knocking up before and during use: Achieve and maintain a workable consistency by compressing, beating and chopping. Do not add water.
 - Equipment: Roller pan mixer or submit proposals.
- 400 MAKING HYDRAULIC LIME:SAND MORTARS
- Mixing hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix.
 - Water quantity: Only sufficient to produce a workable mix.
 - Working time: Within limits recommended by the hydraulic lime manufacturer.