

Manchester New Square

252194-LPP-90-SW-L00-SSP-L-0600: Landscape NBS Specification

REVISIONS:

C11	07-10-2020	Final Construction Issue (B3)
C10	10-06-2020	F30/10 amended
C9	13-03-2020	L37/315 amended
C8	17-02-2020	Q25/316 bond added Q25/321 added L37/350 gate added L37/355 added
C7	11-02-2020	Q25/311 added back in
C6	03-02-2020	Added bedding and paving material to slab paving. L37/315 step units changed to concrete Q10/120 omitted F21/125 coping for W03 added
C5	17-01-2020	Q50/190 coffin bollard swapped for socketed
C4	26-06-2019	L37/315 amended
C3	15-05-2019	Q50/190 amended F30/10 amended L37/350 amended
C2	01-03-2019	Q37 added Q25/310 stone sizes updated Q25/716 & 720 mastic detail added L37/350 amended L37/315 amended L37/670 updated F30 added Q31/293 spec amended Q50/220 spec amended L37/160 omitted
C1	27-06-2018	Stage 5 Issued for Construction Q10/200 amended

		Q25/315 added
		Q25/310 and /320 amended
		Q31/506, /510, /513 omitted
		Q31/520 added
		Q31/845 amended
		Q50/211 and /262 omitted
		Q55/120 amended
T2	14-07-2017	Stage 4+ issue
T1	26-05-2017	Outline specification - Stage 4

F21

Natural stone/ashlar walling/dressings

F21 Natural stone/ashlar walling/dressings

To be read with Preliminaries/ General conditions.

TYPES OF WALLING/ DRESSINGS

110 ASHLAR WALLING AS W02, W03 & W06

- Stone: To BS EN 771-6.
 - Petrological family: Sandstone.
 - Type: Woodkirk Sandstone cladding 40 mm thick sizes as shown on drawing 252194-LPP-95-SW-L00-DET-L- 0430
 - Finish: Rubbed.
 - Supplier: Submit proposals.
 - Quality: Free from vents, cracks, fissures, discolouration, or other defects deleterious to strength, durability or appearance. Before delivery to site, season thoroughly, dress and work in accordance with shop drawings prepared by supplier.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: to be approved.
 - Sand: To BS EN 13139; crushed stone with grading to approval.
 - Additional requirements: Coloured mortar to match stone.
- Bond: As shown on drawings.
- Joints: Flush.
 - Width: 5 mm.
 - Pointing: Polysulphide joints where required eg Otto Chemie S70
- Other requirements:
 - Concrete blockwork/insitu structure to wall to engineer's details.
 - New sandstone coping 85 mm thick x approx 500mm wide, copings to have 12mm dia. hole for 10 mm diameter stainless steel dowel to be fixed via epoxy resin into coping and wall top. Permabit dpc in mortar bed underneath coping.

120 ASHLAR WALLING AS AS W01

- Stone: To BS EN 771-6.
 - Petrological family: Sandstone.
 - Type: Woodkirk Sandstone cladding 40 mm thick sizes as shown on drawing 252194-LPP-95-SW-L00-DET-L-0400
 - Finish: Rubbed.
 - Supplier: Submit proposals.
 - Quality: Free from vents, cracks, fissures, discolouration, or other defects deleterious to strength, durability or appearance. Before delivery to site, season thoroughly, dress and work in accordance with shop drawings prepared by supplier.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: to be approved.
 - Sand: To BS EN 13139; crushed stone with grading to approval.
 - Additional requirements: Coloured mortar to match stone.
- Bond: As shown on drawings.
- Joints: Flush.
 - Width: 5 mm.

- Pointing: Polysulphide joints where required eg Otto Chemie S70
- Other requirements:
 - Concrete blockwork/insitu structure to wall to engineer's details.
 - New sandstone coping 125 mm thick x 500mm wide, with anti-skate detail as drawing 252194-LPP-95-SW-L00-DET-L-0401. Copings to have 12mm dia. hole for 10 mm diameter stainless steel dowel to be fixed via epoxy resin into coping and blockwork. Permabit dpc in mortar bed underneath coping.

125 STONE COPING FOR WALL W04 and W03

- Stone: To BS EN 771-6.
 - Petrological family: Sandstone.
 - Type: Woodkirk Sandstone coping. 85 mm thick x 440mm wide approx. x random lengths min. 600mm as drawing 252194-LPP-95-SW-L00-DET-L-0431 (W04). 85 mm thick x 400mm wide (tbc – to match width of wall construction) x 700mm as drawing 252194-LPP-95-SW-L00-DET-L-0430 (W03)
 - Copings to have 12mm dia. hole for 10 mm diameter stainless steel dowel to be fixed via epoxy resin into existing sandstone plinth to towpath. Permabit dpc in mortar bed underneath coping.
 - Finish: Rubbed.
 - Supplier: Submit proposals.
 - Quality: Free from vents, cracks, fissures, discolouration, or other defects deleterious to strength, durability or appearance. Before delivery to site, season thoroughly, dress and work in accordance with shop drawings prepared by supplier.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: to be approved.
 - Sand: To BS EN 13139; crushed stone with grading to approval.
 - Additional requirements: Coloured mortar to match stone.
- Joints: Flush.
 - Width: 8 mm.
 - Pointing: Polysulphide joints where required eg Otto Chemie S70

GENERAL/ PRODUCTION

250 CUTTING AND DRESSING OF STONE

- Timing: After seasoning but before delivery to site.
- Accuracy:
 - Exposed and joint surfaces: Square, true planes free from hollow or rough areas.
 - Dimensions: Maintain specified joint widths.
- Orientation for natural bed of stones: Appropriate to properties of stones and positions in walling/ dressings.

260 IDENTIFICATION OF STONE UNITS

- Marking: Clearly and indelibly on concealed faces to indicate the natural bed and position in the finished work.

LAYING AND JOINTING

300 REFERENCE PANELS

- General: Complete areas of specified walling types and obtain approval of appearance before proceeding.
- Walling type:
 - Location: in situ.
 - Size: bottom three courses.
 - Features:

315 ADVERSE WEATHER

- General: Do not use frozen materials or lay on frozen surfaces.
- Air temperature: Do not lay stones:
 - In cement gauged mortars: At or below 3°C and falling or below 1°C and rising.
 - In hydraulic lime:sand mortars: At or below 5°C and falling or below 3°C and rising.
- Temperature of walling during curing: Above freezing until mortar hardened.
- Newly erected walling: Protect at all times from:
 - Rain and snow.
 - Drying out too rapidly in hot conditions and in drying winds.

325 LAYING GENERALLY

- Stone selection: Do not use units with damaged faces or arrises.
- Accuracy:
 - Courses: Level and true to line.
 - Faces, angles and features: Plumb.
 - Setting out: Achieve satisfactory junctions and joints with adjoining or built-in elements and components.
- Absorbent stones: Dampen in warm weather to reduce suction. Do not soak.
- Mortar joints:
 - Laying: Full bed of mortar with all joints and voids filled.
 - Temporary distance pieces: Lead or stainless steel. Remove when mortar is sufficiently strong.
 - Appearance: Neat and consistent.
- Cleanliness: Keep facework clean. Rubbing and other abrasive or chemical cleaning methods to remove marks and stains not permitted.

330 WALLING BELOW GROUND LEVEL

- Extent of facework below finished level of adjoining ground or external works (minimum): 150 mm.

390 POINTING

- Joint preparation: Rake out to depth of 7-10 mm as work proceeds. Remove debris. Dampen surface.
- Application: Neat and consistent.

F30

*Accessories/Sundry Items for
Brick/Block/Stone Walling*

F30 Accessories/Sundry Items for Brick/Block/Stone Walling

GENERAL

10 STONE CLADDING FIXING RESTRAINTS FOR WALL TO B1 TERRACE AND NORTH FACING ELEVATION OF B1 BELOW LEVEL OF CURTAIN WALLING AND WALL W03

- Manufacturer: Ancon.
- Material: Austenitic Stainless
- Drawing: 252194-LPP-90-SW-L00-DET-L-0408 and 252194-LPP-95-SW-L00-DET-L-0430
- Type: DPB (fixed dowel) restraint with 6mm dia. 60 mm dowel. Dowels to be embedded into stone by a minimum of 20mm. Stone to be restrained at top and bottom in a minimum of four locations, 75mm from edge of stone. M6 resin anchor or an M6 FBNii expansion bolts into wall.
- Ties to conform to BS 8298-2: 2010 "Design and installation of natural stone cladding and lining"

20 STONE CLADDING FIXING RESTRAINTS FOR WALL W01 & BALUSTRADE UPSTANDS

- Manufacturer: Ancon.
- Material: Austenitic Stainless
- Drawing: 252194-LPP-90-SW-L00-DET-L-0408 and 252194-LPP-95-SW-L00-DET-L-0430
- Type: DPB (fixed dowel) restraint with 6mm dia. 60 mm dowel. Dowels to be embedded into stone by a minimum of 20mm. Stone to be restrained at each side of cladding unit 75mm from top edge. M6 resin anchor or an M6 FBNii expansion bolts into wall.
- Ties to conform to BS 8298-2: 2010 "Design and installation of natural stone cladding and lining"

30 STONE CLADDING BASE RESTRAINT FOR CLADDING AS F30/10

- Manufacturer: Ancon.
- Material: Austenitic Stainless
- Drawing: 252194-LPP-90-SW-L00-DET-L-0408 and 252194-LPP-95-SW-L00-DET-L-0430
- Type: Continuous fixed rail CFA/S/15/1.8/M40 fixed with M6 resin anchor or an M6 FBNii expansion bolts.

L37

*External Stair/Ramps/Handrail and Balustrade
Systems*

L37 External stair, ramps, handrail and balustrades systems

GENERAL

150 HANDRAIL SYSTEMS TO STEPS AS B02

- System manufacturer: S3i or similar.
- Material: Stainless steel Grade 316.
 - Cross section: 48.3 mm diameter as drawing 252194-LPP-95-SW-L00-DET-L-0460
 - Finish: Brushed.
- Height (to upper surface of handrail):
 - Above pitch line: As drawing 252194-LPP-95-SW-L00-DET-L-0460.
 - Above landing: As drawing 252194-LPP-95-SW-L00-DET-L-0460

Accessories: End caps and cover plates concealing the fixings.

SYSTEM PERFORMANCE

220 DESIGN OF BALUSTRADE SYSTEM

- Inclusive design: Complete detailed design in accordance with Building Regulations (Eng) Approved Document M.
- Structure and associated features: Complete the detailed design in accordance with BS 8300.
- Structural performance criteria:
 - Horizontal uniformly distributed line loads on balustrade or handrail (maximum): 1.5 kN/m.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

PRODUCTS

315 MANUFACTURED CONCRETE STEP UNIT TO COURTYARD AS K04

- Supplier: Marshalls.
 - Product reference: Conservation solid step units
- Size:
 - Surface width: as shown on drawing 252194-LPP-95-SW-L00-DET-L-0460
 - Going: as shown on drawing 252194-LPP-95-SW-L00-DET-L-0460. Top step 400mm deep, other step units 350mm deep (50mm overlap to each tread).
 - Rise: 150mm.
- Colour: Silver grey
- Finish: As supplied Colour of integral nosing: black.
- Bedding: 40mm mortar bed as Q25/720

350 GLAZED PANELS TO CANALSIDE BALUSTRADE AS B01

- Manufacturer: submit proposals
 - Design: Frameless glass balustrade with steel handrail. 'Easy Glass Max' system
- Material: Stainless steel Grade 316 and 21.8 mm laminate glass panels.
 - Texture: Not required.
 - Manifestation: Not applicable.
 - Colour: Not applicable.
- Size: 1100mm high.
- Fixing: As suppliers details. Either bolted to concrete slab below ground level or cored into substrate.

- Accessories:
 - Stainless steel handrail 42.8mm dia.
 - Pedestrian access gate, site measure approx. 950mm wide height to match adjacent balustrade, to close gap between B1 plinth and canalside balustrade. Integral keylock. Top handrail to match adjacent glass balustrade.

355 CANALSIDE BALUSTRADE AS B04

- Manufacturer: submit proposals
 - Design: Horizontal bar railings as Easyglass Q-Line Cross Bar or similar.
- Material: Stainless steel grade 316.
- Size: 1100mm high to match adjacent glass balustrading as L37/350. Three horizontal bars @ 17.52 mm dia., equally spaced. Top handrail @ 42.8mm dia. At same datum as adjacent glass balustrading handrail.
- Fixing: As suppliers details. Extra strong post to achieve 1.5kN/m loadings. Either bolted to concrete slab below ground level or cored into substrate. Detail tbc with engineer and supplier.

FABRICATION

510 FABRICATION GENERALLY

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

EXECUTION

610 LOADING

- Site activities: Restrict, to ensure that design loads are not exceeded, or submit proposals for temporary supports.

620 CONCRETE FOUNDATIONS GENERALLY

- Standard: To BS 8500-2.
- Concrete: Designated not less than GEN 1 or standard prescribed not less than ST2.
- Admixtures: Do not use.
- Foundation holes: Neat vertical sides.
- Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

650 INSTALLATION GENERALLY

- Fasteners: To section Z20.
- Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
- Temporary support: Do not use finished work as temporary support or strutting for other work.
- Applied finishes: Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as finish manufacturer's recommendation before application.

660 INSTALLATION OF MANUFACTURED STONE ELEMENTS

- Selection: Do not use damaged units.
- Accuracy:
 - Courses: Level and true to line.
 - Faces, angles and features: Plumb.
 - Setting out: Achieve satisfactory junctions and joints with adjoining or built-in elements and components.
- Absorbent units: Dampen in warm weather to reduce suction.
- Dowels: Not required.
- Mortar joints: 6 x 6 mm recess, filled flush with colour matched mortar.
 - Laying: Full bed of mortar with all joints and voids filled.
 - Temporary distance pieces: Lead or stainless steel. Remove when mortar is sufficiently strong.
 - Appearance: Neat and consistent.
- Cleanliness: Keep facework clean. Rubbing and other abrasive or chemical cleaning methods to remove marks and stains, not permitted.
- Cutting of reinforced units: Not permitted.

670 INSTALLATION OF TREAD INSERTS/ NOSINGS

- Treads: Fully cured, sound and level.
- Fixing:
 - Location/ position: as shown on drawing 252194-LPP-95-SW-L00-DET-L-0460
 - Fixings: Black granite inserts to nosings 55 x 55mm, full length of treads.

Q10

Kerbs/ edgings/ channels/ paving accessories

Q10 Kerbs/ edgings/ channels/ paving accessories

To be read with Preliminaries/General conditions.

TYPES OF KERBS/EDGINGS AND CHANNELS

120 STONE CHANNELS TO PRINCESS STREET AS D04 - OMITTED

200 SPECIAL ALUMINIUM EDGING AS K05

- Manufacturer: Kinley Systems.
 - Product reference: Aluexcel 75mm edging
- Size: Bespoke depth to suit available build up depths.
- Type/ Material: Aluminium
- Installation: As supplied with fixing stakes.
- Bedding: Concrete base course.
- Joints: As manufacturer's design.

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.

570 CHANNELS

- Installation: To an even gradient, without ponding or backfall.

- Lowest points of channels: 6 mm above drainage outlets.

600 RADIUS KERBS/CHANNELS

- Usage: Radii of 15 m or less.

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.

Q23

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

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

To be read with Preliminaries/ General conditions.

TYPES OF SURFACING

170 LOOSE GRAVEL OVERLAY AS S13

- Base: none.
 - Preparation: .
- Gravel: Loose laid and raked to uniform thickness:
 - Type: Derby Gold .
 - Source: Long Rake Spar or similar.
 - Colour: as supplied.
 - Size: 10-20 mm.
 - Thickness: 50 mm.

LAYING

320 SAMPLES

- Submit: Representative samples of all chippings.

340 LAYING GENERALLY

- Channels, gullies, etc: Keep clear.
- Finished surfaces:
 - Lines and levels: To prevent ponding.
 - Overall texture: Even.
 - State at completion: Clean.

350 COLD WEATHER WORKING

- Frozen materials: Do not use.
- Freezing conditions: Do not lay pavings.
- Cold bituminous surface dressings: Do not apply when ambient temperature is below 10°C.
- Other dressings or overlays: As manufacturers' recommendations.

380 LAYING GRANULAR SURFACES IN PEDESTRIAN AREAS

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

390 PROTECTION FROM TRAFFIC AND PLANT

- Paved areas: Restrict access to prevent damage.

Q25

Slab/brick/sett/cobble pavings

Q25 Slab/brick/sett/cobble pavings

To be read with Preliminaries/ General conditions.

GENERAL

PRODUCTS

311 NATURAL STONE SLABS TO ADOPTED FOOTPATHS AS S06

- Standard: To BS EN 1341.
- Supplier: Marshalls or similar..
 - Product reference: Scoutmoor Sandstone.
 - Quarry: As supplied.
- Petrographical description/ stone type: York Stone.
- Finish: Bush hammered and sawn. See drawing 454.210 for details.
- Sizes: Adopted highway - coursing to match existing footway, 75 mm thick. Standard MCC specification. Within site boundary 50mm thick, coursing to match existing footway.
 - Plan dimension deviation class: P2.
 - Diagonal deviation class: D2.
 - Thickness deviation class: T1.
- Arrises: Square to match existing.
- Breaking strength: Class 6.
- Slip resistance: PTV to BS 7976-2 of 40.
- Skid resistance: No requirement.
- Surface treatment: None.

315 CONCRETE SLAB PAVING AS S01

- Material: Concrete.
 - Manufacturer: Tobermore
 - Product reference: Braemar slabs
- Nominal sizes: 600mm x 300 mm lengths x 80 mm
- Colour: Arran Stone
- Type of surface: Textured and ground finish as shown on drawing 0210

316 CONCRETE SLAB PAVING AS S02 TO VENICE STREET

- Material: Concrete.
 - Manufacturer: Marshalls
 - Product reference: Perfecta slabs (trafficable)
- Nominal sizes: 450mm x 450 mm lengths x 70 mm thick Square Edged
- Colour: Natural
- Bond: Stretcher bond in courses parallel to kerb

320 TACTILE FLAGS AND SLABS TO STEPS IN COURTYARD AS S04

- Standard: To DD CEN/TS 15209.
- Material: As clause 310.
 - Manufacturer: Marshalls
 - Product reference: Textured hazard warning paving
- Nominal sizes: 400mm x 400 mm x 50 mm thick. See drawing 252194-LPP-95-SW-L00-DET-L-0460 for details.
- Colour: Natural textured

- Type of surface: Rib – type R1.

321 TACTILE FLAGS AND SLABS TO WHITWORTH STREET

- Standard: To DD CEN/TS 15209.
- Material: As clause 310.
 - Manufacturer: Marshalls
 - Product reference: Textured hazard warning paving
- Nominal sizes: 400mm x 400 mm x 50 mm thick. As Curtins' drawing 061639-701
- Colour: Buff textured
- Type of surface: Blister

EXECUTION

610 MATERIAL SAMPLES

- Samples representative of colour and appearance of designated materials: Submit before placing orders.
 - Designated materials: Concrete slab paving as S01
Natural stone as S06, S11.

615 CONTROL SAMPLES

- Sample areas: Complete as part of the finished work.
 - Types of paving: Natural stone slab paving .
 - Location: In situ.
 - Size (minimum): 1.5 x 1.5 m.
 - Included features: Stone drainage channel .
- 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.

640 COLOUR BANDING

- General: Unless premixed by manufacturer, select from at least three 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): 2 days.
 - Vehicular traffic (minimum): 7 days.
- Access: Restrict access to paved areas to prevent damage from site traffic and plant.

650 CEMENTITIOUS BASES AND SUB-BASES

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

655 CONDITION OF SUB-BASES/ BASES BEFORE SPREADING LAYING COURSE

- Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
- Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/ laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.
- Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
- Sub-base/ Roadbase level tolerances: To BS 7533-7, Annex A.
- Levels and falls: Accurate and within the specified tolerances.
- Drainage outlets: Within 0-10 mm of the required finished level.
- Features in sand bedded paving (including mortar bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.

- Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS 7533-4.

716 LAYING FLAG AND SLAB PAVING - MORTAR LAYING COURSE AND JOINTING TO PAVING S06

- Standard generally: In accordance with BS 7533-4.
- Flag installation and cutting: To Interpave 'Concrete flag paving'.
- Laying course:
 - Nominal thickness: 40 mm before laying paving slabs.
- Laying and jointing: as manufacturer's recommendations.
 - Expansion Joints: Ottoseal S70 to match paving
- Joint width (nominal): 5 mm or to match existing.

720 LAYING FLAG AND SLAB PAVING - MORTAR LAYING COURSE AND JOINTING TO PAVING S01 & S11

- Standard generally: In accordance with BS 7533-4.
- Flag installation and cutting: To Interpave 'Concrete flag paving'.
- Laying course:
 - Nominal thickness: 40 mm before laying paving slabs.
- Laying and jointing: Streetscape FBC by Larsen.
- Joint width (nominal): 8 mm.
 - Material: [Streetscape FJM by Larsen]
 - Expansion Joints: Ottoseal S70 to match stone

780 LAYING MORTAR BEDDED ACCESSORIES SOLID DRAINAGE CHANNELS

- Foundation: As engineer's details.
 - Size: As engineer's details.
- Bedding:
 - Mortar: Ready mixed.
 - Thickness: 10 mm minimum to 40 mm maximum.
- Laying: Bed units on foundation, and secure with continuous mortar haunching.
 - Keep exposed faces clean and free from mortar.
- Jointing: Dry, closely butted.

800 SAND FOR BEDDING, GENERAL

- Sand complying with BS 7533 Part 3: 2005+A1 2009 Table D.1 and D2.
The sand should be hard, sound and resistant to degradation. Soft sand or calcareous sand should not be used.
- Obtain sand from only one source and ensure that all sand supplied has consistent grading.
- Maintain at an even moisture content which will give maximum compaction during any laying period.

810 SAND FOR JOINTING, GENERAL

- Sand complying with BS 7533 Part 3: 2005+A1 2009 Table D.3.
- Do not use sand that contains organic impurities or stains the blocks.

Q28

Topsoil and soil ameliorants

Q28 Topsoil and soil ameliorants

To be read with Preliminaries/ General conditions.

PRODUCTS

300 PREPARATION MATERIALS GENERALLY

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

310 MATERIALS NOT PERMITTED

- Materials: Peat and Products containing peat.

315 IMPORTED TOPSOIL TO BS 3882 FOR ALL AREAS

- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard: To BS 3882.
- Classification: Multipurpose.
 - Soil textural class to BS 3882, Figure 1: Clay loam.
- Source: Local, within a 30 mile radius.
 - Product reference: Submit proposals.

330 IMPORTED MANUFACTURED TOPSOIL/ GROWING MEDIUM FOR VENICE STREET TREE PITS

- Type: Topsoil.
 - Soil textural class: Friable sandy loam conforming to BS3882, to be dry when backfilling taking place.
- Source: Submit proposals.
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.

331 IMPORTED MANUFACTURED TOPSOIL/ GROWING MEDIUM FOR COURTYARD AREA

- Type: Lightweight growing medium.
 - Manufacturer: Bauder or similar approved.
 - Product reference: Intensive Substrate.
 - Water storage: 35%
 - Weight loading: 1.25 tonnes/m³
- Mineral component: recycled crushed brick and expanded clay shale
Organic component: composted pine bark

EXECUTION

610 TOPSOIL ANALYSIS

- Soil to be analysed: Imported topsoil and Manufactured topsoil.
- Soil analyst: Contractor's choice.
- Samples: Collect in accordance with BS 3882.
- Submit:
 - Declaration of analysis: In accordance with BS 3882, clause 6 and Table 1.
 - Additional analysis: Not required.
 - Report detailing soil analyst's recommendations.

625 SAMPLE LOADS FOR IMPORTED/MANUFACTURED 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 ALL 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, clause 6 and Table 1.
- Number of copies: Two.

650 NOTICE

- Give notice before:
 - Setting out.
 - Spreading topsoil.
 - Applying herbicide.
 - Applying fertilizer.
 - Visiting site during maintenance period.
- Period of notice: 2 working days.

655 MECHANICAL TOOLS

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

660 GRADING SUBSOIL FOR GRASSED AREAS and ORNAMENTAL PLANTING BEDS

- Standard: In accordance with BS 8601.
- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
- Areas of thicker topsoil: Excavate locally.
- Avoid compaction.
- Excess subsoil: Remove.

665 SUBSOIL SURFACE PREPARATION FOR GRASSED AREAS and ORNAMENTAL PLANTING BEDS

- Standard: In accordance with BS 3882.
- General: Excavate and/ or place fill to required profiles and levels, as section D20.
- Loosening:

- When ground conditions are sufficiently dry to allow breaking up of soils, loosen thoroughly to specified depth:
 - Light and noncohesive subsoils: 150 mm.
 - Stiff clay and cohesive subsoils: 300 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Wet conditions: Do not loosen subsoils.
- Stones: Immediately before spreading topsoil, remove stones larger than 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.

700 GRADING OF TOPSOIL

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

705 HANDLING TOPSOIL

- Standard: In accordance with BS 3882.
- Aggressive weeds: Give notice and obtain instructions before moving topsoil.
- Plant: Select and use plant to minimize disturbance, trafficking and compaction.
- Contamination: Do not mix topsoil with:
 - Subsoil, stone, hardcore, rubbish or material from demolition work.
 - Other grades of topsoil.
- Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
- Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit less 3%, to BS 1377-2.

710 SPREADING TOPSOIL ON GRASSED AREAS

- Standard: In accordance with BS 3882.
- Temporary roads/ surfacing: Remove before spreading topsoil.
- Layers:
 - Depth (maximum): 150 mm.
 - Gently firm each layer before spreading the next.
- Depth after firming and settlement: 100 mm.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

711 SPREADING TOPSOIL ON ORNAMENTAL PLANTING BEDS

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

715 LOOSE TIPPING OF TOPSOIL

- Standard: In accordance with BS 3882.
- General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

718 FINAL CULTIVATION FOR ALL AREAS

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
- Depth: 100 mm.
- Particle size (maximum): 10 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;
 - 50 mm above adjoining lawns; and
- Minimum 150 mm below dpc of adjoining buildings.
- Undesirable material brought to the surface:
 - Remove visible weeds.
 - Remove roots and large stones with any dimension exceeding 20 mm.

720 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- In relation to adjoining paving, kerbs or hard surfaces: 25 mm above .
- In relation to dpc of adjoining buildings: Not less than 150 mm below.
- In relation to adjacent grass areas: 50 mm above.
- Seeded areas: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
- Sportsfields: To even levels and within the following permitted deviations:
 - From levels or gradients shown on drawings: ± 75 mm.
 - From line between boning rods 30 m apart: ± 25 mm.
- Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: Included.

845 APPLYING LOOSE MULCH FOR PLANTING BEDS

- Timing: Immediately after planting.
- Preparation: Clear all weeds and ensure soil thoroughly watered.
- Supplier: Melcourt Industries
 - Ornamental bark mulch
- Coverage of mulch (minimum):
 - Planting beds (depth): 50 mm depth.
 - Trees: 50 mm depth.
- Finished level of mulch: 30 mm below adjacent grassed or paved areas.

COMPLETION

920 APPLYING MULCH

- Timing: At end of the rectification period.
- Watering: Ensure that soil is thoroughly moistened prior to mulching, applying water where necessary.
- Planting beds: Re-mulch.

- Depth (minimum): 50 mm.
- Trees: Remulch.
 - Depth (minimum): 50 mm.
- Container planting: Remulch.
 - Depth (minimum): .

Q31

External planting

Q31 External planting

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/ REQUIREMENTS

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: Three working days.

170 SOIL REQUIREMENTS

- Type
 - Planted beds: Planting bed soil system, as section Q28.
 - Tree pits, shrub pits and other backfilling: Plant pit backfilling soil system, as section Q28.

- External container planting: Container planting growing media system, as section Q28.
- Mulch applied after planting: Mulching and top dressing system, as section Q28.

200 PLANTS/ TREES - GENERAL

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

215 PLANTS/ TREES - SPECIFICATION CRITERIA

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

235 CONTAINER GROWN PLANTS/ TREES

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

245 LABELLING AND INFORMATION

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

255 PLANTS/ TREES RESERVED AT SUPPLIER'S PREMISES

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

260 PLANT/ TREE SUBSTITUTION

- Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
 - Price.

- Difference from specified plants/ trees.
- Approval: Obtain before making any substitution.

265 PLANT HANDLING, STORAGE TRANSPORT AND PLANTING

- Standard: To CPSE 'Handling and establishing landscape plants'.
- Frost: Protect plants from frost.
- Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Plant packaging: 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.

290 SURPLUS MATERIAL

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

292 PREFABRICATED PLANT CONTAINERS AS F02

- Manufacturer: Kinley Systems.
 - Product reference: Perimeta Planterline Bespoke.
- Material: Corten steel.
- Dimensions/ Shape: As drawing 252194-LPP-95-SW-L00-DET-L-0410 & 252194-LPP-95-SW-L00-DET-L-0411
- Lining: Not required.
- Accessories: Semi permeable rubber strip at base of planters to prevent staining of paving.

293 PREFABRICATED TREE PLANTER AS F06

- Manufacturer: Logic Street Furniture.
 - Product reference: Edinburgh Round Planter with 360 degree bench.
- Material: 4mm corten steel and FSC hardwood timber bench top 70 x 150 x 400 units.
- Dimensions/ Shape: 3m diameter as drawing 252194-LPP-95-SW-L00-DET-L-0441
- Lining: GeotexPP 300 geotextile.
- Accessories: Semi permeable rubber strip to base of planter.

PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

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.

480 AFTER PLANTING

- Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
- Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
- Top dressing: Mulching and top dressing system, as section Q28 and section Q23.

- Depth: 50 mm.

PLANTING TREES

500 TREE PLANTING

- Standard: Prepare trees and transplant in accordance with BS 8545.

506 TREE PITS TO VENICE STREET

- OMITTED

510 TREE PIT ROOT BARRIERS

- OMITTED

512 TREE PIT IRRIGATION AND VENTILATION ACCESSORIES

- Locations: To all tree pits in courtyard .
- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Type: Perforated plastics irrigation pipe with inlet.
- Pipe diameter: 60 mm.
- Ring diameter: around rootball = plus 200mm.
- Inlet: Black plastics, with cap.
- Installation:
 - Pipe: Lay in loop above root ball with slight fall away from inlet pipe. Trim length to ensure a close fit in the tree pit. Connect both ends of pipe securely into plastics tee junction on inlet.
 - Top cap of inlet: Protruding slightly above finished surround level.
 - Backfill material: Carefully compact in layers.

513 TREE PIT IRRIGATION AND VENTILATION ACCESSORIES

- OMITTED

520 RESERVOIR MAT TO PLANTERS

- Locations: Under all areas to be planted
- Manufacturer: Bauder
 - Product reference: DSE 60 drainage board

526 UNDERGROUND GUYING FOR SEMI MATURE 20-25 CM GIRTH TREES

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Anchoring system: Submit proposals.
- Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

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 use of suitable herbicides.
- Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
- Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
- Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
- Trees: Spray crown when in leaf during warm weather.
 - Timing: After dusk.
- Tree accessories: Check condition of stakes, ties, guys, guards and irrigation and ventilation systems.
 - Broken or missing items: Replace.
 - Loose stakes: Re-firm in the ground or replace as necessary to provide support to the tree.
 - Loose guys: Re-firm anchor points and adjust as necessary to provide support to the tree.
 - Ties: Adjust to accommodate growth and prevent constriction or abrasion.
 - Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
 - Frequency of checks: At each scheduled maintenance visit.
- Watering: As required for healthy establishment, depending on weather conditions. Submit proposals.

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): 50mm.
- Trees: Remulch.
Depth (minimum): 50mm.

Q35

Landscape maintenance

Q35 Landscape maintenance

To be read with Preliminaries/ General conditions.

GENERALLY

110 NOTICE

- Give notice before:
 - Application of herbicide.
 - Application of fertilizer.
 - Watering.
 - Each site maintenance visit.
- Period of notice: 2 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 or bowser.
- 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 from site.
 - Shrub and tree prunings: Remove to recycling facility.
 - Litter and nonbiodegradable arisings: Remove from site.

181 MECHANICAL EQUIPMENT

- General: Minimize.
- Prohibited equipment: Chippers.
- 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.

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: Not required.
- Insecticide: Not required.

SHRUBS/TREES/HEDGES

500 ESTABLISHMENT OF NEW PLANTING

- Duration: One full growing seasons from the date of planting.
- Weed control:
 - Method: Keep planting beds clear of weeds by hoeing and screefing .
 - 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: Contractor's choice to ensure establishment of plants.

502 ESTABLISHMENT OF NEW PLANTING - FERTILIZER

- Time of year: March or April.
- Type: Slow release.
- 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: 2 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: 2 years after planting.

520 REFIRMING OF TREES AND SHRUBS

- Timing: After strong winds, frost heave and other disturbances.
- Refirming: Tread around the base until firmly bedded.

- Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

540 PRUNING GENERALLY

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

555 PRUNING TREES AND SHRUBS

- Standard: To BS 7370-4.
- Special requirements: None.

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: Approved specialist contractor.

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.

620 REMOVAL OF DEAD PLANT MATERIAL

- Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.

630 DEAD AND DISEASED PLANTS

- Removal: Within 1 week of notification.
- Replacement: In the next scheduled round of replacement planting.

645 WEED CONTROL GENERALLY

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

650 HAND WEEDING

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

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.

670 WEED CONTROL WITH SUMMER HERBICIDE

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

690 MAINTENANCE OF LOOSE MULCH

- Thickness (minimum): 50 mm.
 - Top up: At end of defects liability period.
- 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 or herbicide.

HARD LANDSCAPE AREAS/FENCING

910 HARD SURFACES AND GRAVEL AREAS

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

Q37

Attenuation

Q37 Blue roofs

To be read with Preliminaries/General conditions

GENERAL

PRODUCTS

345 STORMWATER DRAINAGE LAYER

- Manufacturer: Alderburgh
Product reference: Aquadrain 50
- Material: Polypropylene
Depth: 50mm
- Infill: none

335 SEPARATION LAYER

- Manufacturer: Alderburgh .
Product reference: Tuflex

360 PROTECTION MEMBRANCE

- Manufacturer: Alderburgh .
Product reference: Geotex 300PP
- Material: Non woven polyethylene sheet .

EXECUTION

710 INSTALLATION GENERALLY

- Preparation: Clear all surfaces of debris.
Timing: After certification of waterproof membrane integrity.
Surface condition: Visually inspect waterproof membrane, report any damage.
- Faults in waterproof membrane: Report.
- Contamination: Do not use materials detrimental to healthy plant growth.
- Storage: Do not overload.
Point loads: Avoid.
- Outlets: Do not block.
Outlet grilles: Installed.

720 ADVERSE WEATHER

- Unfinished work: Secure from damage and wind uplift.
- Conditions: Do not install or work with frozen materials.

755 SEPARATION LAYER INSTALLATION

- Joints: Minimize.
Overlaps (minimum): 500 mm .
- Upstands: Extend to top of growing medium.

Q50

Site/street furniture/equipment

Q50 Site/street furniture/equipment

To be read with Preliminaries/ General conditions.

190 BOLLARDS TO COURTYARD AS F01a and F01b

- Manufacturer: Kent
 - Product reference: F01a Stainless steel removeable hidden lock socket KDT 101/3
F01b Stainless steel domed bollard KFTB 101/3
- Material:
 - Finish as delivered: Stainless steel, satin finish. Smooth steel plate to lid.
 - Colour: None.
- Height above ground: 900 mm
- Sectional size: 101 mm diameter.
- Top: Domed
- Method of fixing: Refer to drawing 252194-LPP-95-SW-L00-DET-L-0217

SITE AND STREET FURNITURE

211 CYCLE STANDS AS F03

- Manufacturer: Furnitubes or similar.
 - Product reference: FIN600.
- Type: Single stands 800 mm high x 780 mm long.
- Material: Grade 316 Stainless steel 60mm dia.
 - Finish: Satin polished
 - Colour: None.
- Accessories: None.
- Method of fixing: Root, 300 mm below ground, set in concrete base.

220 BENCHES TO WALL TOP AS F07

- Manufacturer: Logic Street Furniture or similar.
 - Product reference: Wearmouth Wall Topper
- Material: FSC certified hardwood timber.
 - Finish: As manufactured.
 - Colour: None.
- Size: As drawing 252194-LPP-95-SW-L00-DET-L-0401
- Accessories/ Special requirements: Stainless steel armrests to either end.
- Method of fixing: Bolted through walls to supplier's details.

250 DECORATIVE FEATURE BOULDERS AS F08

- Supplier: Long Rake Spar or similar.
 - Product reference: Scottish boulders.
- Material: Granite.
 - Size: 500-700mm

262 TREE GRILLES TO VENICE STREET AS F05

- OMITTED

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, as Engineer's details.
- 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.

560 SITE PAINTING

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

Z10

Purpose made joinery

Z10 Purpose made joinery

To be read with Preliminaries/ General conditions.

110 FABRICATION

- Standard: To BS 1186-2.
- Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.
 - Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
- Joints: Tight and close fitting.
- Assembled components: Rigid. Free from distortion.
- Screws: Provide pilot holes.
 - Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: Provide clearance holes.
 - Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.
 - Adhesives: Compatible with wood preservatives applied and end uses of timber.

120 CROSS SECTION DIMENSIONS OF TIMBER

- General: Dimensions on drawings are finished sizes.
- Maximum permitted deviations from finished sizes:
 - Softwood sections: To BS EN 1313-1:-
Clause 6 for sawn sections.
 - Hardwood sections: To BS EN 1313-2:-
Clause 6 for sawn sections.
Clause NA.3 for further processed sections.

130 PRESERVATIVE TREATED WOOD

- Cutting and machining: Completed as far as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thickened, planed, ploughed, etc.
- Surfaces exposed by minor cutting and/ or drilling: Treat as recommended by main treatment solution manufacturer.

140 MOISTURE CONTENT

- Wood and wood based products: Maintained within range specified for the component during manufacture and storage.

250 FINISHING

- Surfaces: Smooth, even and suitable to receive finishes.
 - Arrises: Eased unless shown otherwise on drawings.
- End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Z11

Purpose made metalwork

Z11 Purpose made metalwork

To be read with Preliminaries/ General conditions.

PRODUCTS

310 MATERIALS GENERALLY

- Grades of metals, section dimensions and properties: To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.
- Prefinished metal: May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.
- Fasteners: To appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

FABRICATION

515 FABRICATION GENERALLY

- Contact between dissimilar metals in components: Avoid.
- Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
 - Moving parts: Free moving without binding.
- Corner junctions of identical sections: Mitre.

520 COLD FORMED WORK

- Profiles: Accurate, with straight arrises.

FINISHING

710 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK

- Standard: To BS EN ISO 8501-3.
 - Preparation grade: P2.
- Butt joints: Smooth, and flush with adjacent surfaces.
- Fillet joints: Neat.
- Grinding: Grind smooth where indicated on drawings.

745 PREPARATION FOR APPLICATION OF COATINGS

- General: Complete fabrication, and drill fixing holes before applying coatings.
- Paint, grease, flux, rust, burrs and sharp arrises: Remove.

780 GALVANIZING

- Standard: To BS EN ISO 1461.
- Preparation:
 - Vent and drain holes: Provide in accordance with BS EN 14713-1 and -2. Seal after sections have been drained and cooled.
 - Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
 - Welding slag: Remove.
 - Component cleaning: To BS EN ISO 8501-3.
 - Grade: St 2.

Z20

Fixings and adhesives

Z20 Fixings and adhesives

To be read with Preliminaries/ General conditions.

PRODUCTS

310 FASTENERS GENERALLY

- Materials: To have:
 - Bimetallic corrosion resistance appropriate to items being fixed.
 - Atmospheric corrosion resistance appropriate to fixing location.
- Appearance: Submit samples on request.

340 MASONRY FIXINGS

- Light duty: Plugs and screws.
- Heavy duty: Expansion anchors or chemical anchors.

350 PLUGS

- Type: Proprietary types to suit substrate, loads to be supported and conditions expected in use.

EXECUTION

610 FIXING GENERALLY

- Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
- Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.
- Appearance: Fixings to be in straight lines at regular centres.

620 FIXING THROUGH FINISHES

- Penetration of fasteners and plugs into substrate: To achieve a secure fixing.

Z31

Powder coatings

Z31 Powder coatings

To be read with Preliminaries/ General conditions.

120 POWDER COATING MATERIALS

- Manufacturer: Obtain from one only of the following: .
- Selected manufacturer: Submit details before commencement of powder coating including:
 - Name and contact details.
 - Details of accreditation schemes.
 - Technical data of product including current Agrément certificates.

210 WORKING PROCEDURES

- Comply with the follow following standards.
 - Aluminium components: To BS 6496 or BS EN 12206-1.
 - Steel components: To BS EN 13438.
 - Safety standards: To British Coatings Federation 'Code of safe practice - Application of thermosetting powder coatings by electrostatic spraying'.

220 POWDER COATING APPLICATORS

- Applicator requirements:
 - Approved by powder coating manufacturer.
 - Currently certified to BS EN ISO 9001.
 - Comply with quality procedures, guarantee conditions, standards and tests required by powder coating manufacturer.
 - Applicator to use only one plant.
 - Selected applicator: Submit details before commencement of powder coating including:
 - Name and contact details.
 - Details of accreditation schemes.

230 CONTROL SAMPLES

- Sequence: Prior to ordering materials for the works, obtain approval of appearance for:
 - Powder coated samples: Of various grades and forms of background metal to be used, showing any colour, texture and gloss variation.
 - Fabrication samples: Showing joint assembly, how powder coating is affected and how any cut metal edges are finished and protected.
- Samples to include the following information:
 - Product reference.
 - Colour.
 - Reference number.
 - Name.
 - Gloss level.

250 COMPONENT DESIGN

- Condition of components to be powder coated:
 - To comply with relevant recommendations of BS 4479-1, -3, and -4.
 - Of suitable size to fit plant capacity.
 - Of suitable thickness to withstand oven curing.

320 PRETREATMENT OF STEEL COMPONENTS

- Condition of components to be pretreated:
 - Free from corrosion and damage.

- All welding and jointing completed and finish off as specified.
 - Free from impurities including soil, grease, oil.
 - Suitable for and compatible with the pretreatment process.
- Conversion coating requirements: To BS EN 13438.
- Rinsing requirements: Use demineralized water. Drain and dry.

430 EXTENT OF POWDER COATINGS

- Application: To visible component surfaces, and concealed surfaces requiring protection. Coated surfaces will be deemed 'significant surfaces' for relevant BS 6496 or BS EN 13438 performance requirements.

435 APPLICATION OF POWDER COATINGS

- Surfaces to receive powder coatings: Free from dust or powder deposits.
- Powder colours: Obtain from one batch of one manufacturer.
- Commencement of powder coating: To be continuous from pretreatment.
- Jig points: Not visible on coated components.
- Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
- Stripping and recoating of components: Only acceptable by prior agreement of powder coating manufacturer. Stripping, pretreatment and powder coating are to be in accordance with manufacturer's requirements.
- Overcoating of components: Not acceptable.

440 PERFORMANCE AND APPEARANCE OF POWDER COATINGS

- For aluminium components:
 - Standard: To BS 6496 or BS EN 12206-1.
- For steel components:
 - Standard: To BS EN 13438.
- Visual inspection after powder coating: Significant surface viewing distances to be as specified in the relevant Standard, unless specified otherwise.
- Colour and gloss levels: To conform with approved samples.

460 STEEL FABRICATIONS

- Unit assembly: Wherever practical, before powder coating.
- Exposure of uncoated background metal: Not acceptable.
- Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

470 FIXINGS

- Exposed metal fixings: Powder coat together with components, or coat with matching repair paint system applied in accordance with the powder coating manufacturer's recommendations.

480 DAMAGED COMPONENTS - REPAIR/ REPLACEMENT

- Before delivery to site: Check all components for damage to powder coatings. Replace damaged components.
- Site damage: Submit proposals for repair or replacement.

510 PROTECTION

- Powder coated surfaces of components: Protect from damage during handling and installation, or by subsequent site operations.
- Protective coverings: Must be:

- Resistant to weather conditions.
 - Partially removable to suit building in and access to fixing points.
- Protective tapes in contact with powder coatings: Must be:
 - Low tack, self adhesive and light in colour.
 - Applied and removed in accordance with tape and powder coating manufacturers' recommendations. Do not use solvents to remove residues as these are detrimental to the coating.
- Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

535 DOCUMENTATION

- Submit the following information for each batch of powder coated components:
 - Supplier.
 - Trade name.
 - Colour.
 - Type of powder.
 - Method of application.
 - Batch and reference number.
 - Statutory requirements.
 - Test certificates.
 - Maintenance instructions.

540 COMPLETION

- Protection: Remove.
- Cleaning and maintenance of powder coatings: Carry out in accordance with procedures detailed in powder coating manufacturer and applicator guarantees.