

(iteriad)

Cumberland Hospital Whitehaven PH2

for GRAHAM to North Cumbria
Integrated Care NHS Foundation Trust.

External Works - Hard and Soft
Landscape NBS Specification



WCHPH2-ITR-VV-XX-SP-L-2001 C01
S4 - For Construction Approval

28th June 2022

Iteriad Ltd

North Cumbria Integrated Care NHS Foundation Trust

West Cumberland Hospital Phase 2 External Landscape

S4

WCHPH2-ITR-VV-XX-SP-L-2001

For Construction Approval

C01

28-06-2022

Ph 2 extension to hospital for older adult, mental health, paediatrics and palliative care at West Cumberland Hospital Whitehaven. Public realm, infrastructure, car parking and courtyard gardens.

Contents

B91 Buildings in the landscape UNCHANGED	1
D20 Excavating and filling UNCHANGED	6
Q10 Kerbs/ edgings/ channels/ paving accessories REVISED	11
Q20 Granular sub-bases to roads/pavings UNCHANGED	18
Q21 In situ concrete roads/ pavings/ bases UNCHANGED	19
Q22 Asphalt roads/ pavings UNCHANGED	22
Q23 Gravel/ hoggin/ woodchip/ resin bound roads/ paving/ overlays UNCHANGED	25
Q24 Interlocking brick/block roads/pavings UNCHANGED	28
Q25 Slab/brick/sett/cobble pavings UNCHANGED	32
Q26 Special surfacings/ pavings for sport/ general amenity UNCHANGED	36
Q28 Topsoil and soil ameliorants UNCHANGED	38
Q30 Seeding/turfing UNCHANGED	45
Q31 External planting UNCHANGED	50
Q35 Landscape maintenance UNCHANGED	59
Q40 Fencing UNCHANGED	73
Q41 Barriers/ guardrails UNCHANGED	76
Q50 Site/street furniture/equipment UNCHANGED	82
R13 Land drainage UNCHANGED	85
Z10 Purpose made joinery UNCHANGED	88
Z11 Purpose made metalwork UNCHANGED	89
Z12 Preservative/ fire retardant treatment UNCHANGED	91
Z20 Fixings and adhesives UNCHANGED	93
Z21 Mortars UNCHANGED	95
Z22 Sealants UNCHANGED	99
Z31 Powder coatings UNCHANGED	100

B91

Buildings in the landscape **UNCHANGED**

Clauses

2 To be read with preliminaries/ general conditions

System outline - Not Used

System performance

215 Contractor's design

1. Design responsibility:
 - 1.1. Including: Fabric and structure, fixings between elements, anchorage to supporting structure and functionality.
2. Structural and fire requirement
 - 2.1. Generally: As section B50 or B51.
 - 2.2. Modifications:
 - 2.3. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
3. Functional requirements: Satisfy specified criteria for
4. Additional requirements:
5. Design and production information:
6. Timing of submissions:

217 Structural design provided

1. Description:
2. Requirements
 - 2.1. Generally: As section B50 or B51.
 - 2.2. Additional requirements:
3. Production/ Execution records:

220 Durability

1. Description:
2. Minimum life span
 - 2.1. Fabric
 - 2.1.1.Element:
 - 2.1.2.Duration:
 - 2.2. Finishes:
 - 2.2.1.Item:
 - 2.2.2.Duration:

230 Impact resistance of non-loadbearing vertical surfaces

1. Height of zones: To BS 8200.
2. Hard and soft body impact loads: To BS 8200.
 - 2.1. Location and category:
3. Other requirements:

240 Water penetration

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

Products

340 Cycle shelter

1. Description: to Main Arrival Space
2. Manufacturer: Broxap Street Furniture t: 01782 564411
 - 2.1. Product reference: Broxap Wardale BXMW/WAR
3. Size: 4100mm length with 5 standard Sheffield cycle racks. Two shelters required to total no of 10 cycle stands.
4. Frame: As standard. RAL 7021 Dark Grey colour to match external cladding to new building.
5. Panels: As standard
6. Roof covering: As standard
7. Accessibility: No requirement
8. Accessories/ Special requirements: Cycle racks
9. Method of fixing to ground or base: Proprietary anchored bases

370 Pergola/ Arbour to Main Courtyard Types A and B

1. Manufacturer: [Jacksons Fencing](#)
 - 1.1. Contact details
 - 1.1.1.Address: 209 Stowting Common
Ashford
Kent
TN25 6BN
 - 1.1.2.Telephone: [0800 408 4757](tel:08004084757)
 - 1.1.3.Web: www.jacksons-security.co.uk
 - 1.1.4.Email: sales@jacksons-fencing.co.uk
 - 1.2. Product reference: [Pergola System](#)
2. Shelter description: Softwood pergola
3. Dimensions
 - 3.1. Plan size: Type A = double with four overhead joists. Type B = single with two overhead joists. Refer to detail plan no WCHPH2-ITR-00-XX-DR-L-0026.
 - 3.2. Frame
 - 3.2.1.Material: Softwood
 - 3.2.2.Finish: Pressure treated
4. Configuration: As shown on plan.

385 Oval Steel Framed Weatherproof Pergola Shelter

1. Description: to main courtyard
2. Manufacturer: Bailey Streetscene Ltd t:01625 8559000, external canopies bespoke design. Off site fabrication.
 - 2.1. Product reference: Submit proposals. Workshop drawings to be presented for approval.
3. Size: Two no as per drawing WCHPH2-ITR-00-XX-DR-L-0026 and design intent drawing no.??.
4. Frame: Galvanised Carbon steel, as section G12. Powder coated RAL White tbc.
5. Panels: Not required

6. Roof covering: Glazing plastics
7. Accessibility: No requirement
8. Accessories/ Special requirements: None
9. Method of fixing to ground or base: Base plates bolted to concrete bases

Materials

445 Metal profile

1. Description: weatherproof shelter to main courtyard to B91/385
2. Manufacturer:
 - 2.1. Product reference:
3. Material: Steel to BS 3083 and BS EN 508-1
 - 3.1. Thickness (nominal): Submit proposals
 - 3.2. Profile: Sinusoidal. Submit proposals
 - 3.3. Finish: Submit proposals
 - 3.3.1. Colour: RAL - white
4. Method of fixing: As drawing
5. Additional requirements:

450 Stainless steel

1. Description:
2. Standards
 - 2.1. Properties of stainless steels: To BS EN 10088-1.
3. Grade:
4. Finish:
 - 4.1. Bars, rods and sections for general purposes: To BS EN 10088-3.
 - 4.2. Sheet/ plate and strip for general purposes: To BS EN 10088-2.
5. Method of fixing:
6. Additional requirements:

480 Glazing plastics

1. Description: to cover weather proof shelters in main courtyard
2. Manufacturer: Submit proposals
 - 2.1. Product reference: Submit proposals
3. Standards: To relevant parts of BS 6262-4.
 - 3.1. Impact strength: To BS 5544, BS 6206, BS EN 356 and BS EN 12600.
4. Material: Clear polycarbonate
5. Thickness: 25 mm
6. Finish/ Colour: Clear
7. Perimeters: Rounded/Radiused edges
8. Method of fixing: Stainless steel tamper proof concealed fixings. As section Z20
9. Additional requirements: None

Execution/ erection/ installation

600 Erection/ installation generally

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

605 Jointing/ Fixing generally

1. 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

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

615 Setting components in earth

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

620 Building in to masonry walls

1. Components being built in: Position accurately and support securely. Set in mortar and pointed neatly to match adjacent walling.
2. Temporary support: Maintain for 48 hours (minimum) and prevent disturbance.

625 Electrical and data services

1. Services connection required:
2. Standard: To BS 7671.
3. Coordinate with services trades.

630 Erection of prefabricated buildings/ structures

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

640 Site painting and staining

1. Timing: Prepare surfaces and apply finishes as soon as possible after installing components.

645 Making good galvanized surfaces

1. Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.
 - 1.1. 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.
 - 1.2. Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

650 Making good treated timber

1. 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.
2. Heavily worked sections: Re-treat.
3. Cutting and machining: Cut and machine timber as much as possible before treatment.
4. Extensively processed timber: Retreat timber sawn lengthways, planed, ploughed, etc.

Completion

930 Documentation

1. Contents
 - 1.1. General product information.
 - 1.2. Installation information.
 - 1.3. Inspection and maintenance reports.
2. Number of copies: 4
3. Submission: Contractor's choice

Ω End of Section

D20 Excavating and filling **UNCHANGED**

Clauses

2 To be read with preliminaries/general conditions

Generally/the site

100 Landscape clauses only

1. Please note this D20 specification has been included and updated for landscape clauses only relating to landscape subsoil, topsoils and tree roots information. Please refer to Engineering specification D20 for all other structural/civils formation, foundation, fill, drainage and highways related clauses.

110 Site investigation

1. Report: Refer to engineer section A12

145 Variations in ground water level

1. Give notice: If levels encountered are significantly different from levels in the site investigation report or previously measured.

150 Existing services, features and structures

1. Services: See section A12 for locations.
2. Site features to be retained: See section A12 for details.
3. Structures: See section A34 for details of protection.

Clearance/excavating

164 Tree roots

1. Protected area: Do not cut roots within precautionary protection area.
 - 1.1. Size of area: Circle around each tree of radius 12 times trunk diameter, measured 1.5 m above ground level
2. Excavation in protected area
 - 2.1. Method: By hand
 - 2.2. Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
3. Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
4. Cutting
 - 4.1. Make clean smooth cuts with no ragged edges.
 - 4.2. Pare cut surfaces smooth with a sharp knife.
 - 4.3. Treatment of cut roots: Not required
5. Backfill: As dug material, enriched with amelioration as section Q31

168 Site clearance

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

170 Removing small trees, shrubs, hedges and roots

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

175 Felling large trees

1. Definition: Girth over 600 mm.
2. Identification: Clearly mark trees to be removed.
3. Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.
4. Felling: As close to the ground as possible.
5. Stumps: Remove by stump grinding
6. Work near retained trees: Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

220 Stripping topsoil

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

221 Treating topsoil

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

225 Handling topsoil

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

370 Underground structures in landscape areas

1. Generally: Remove walls, roads, foundations, disused services, drains, manholes and the like to minimum depth.

2. Minimum depth below finished levels
 - 2.1. Grass, ground cover and perennial planting: 500 mm.
 - 2.2. Shrub planting: 750 mm.
 - 2.3. Within 2 m of tree planting: 1000 mm.
3. Walls and slabs remaining: In every 10 m² of wall or slab, make a drainage hole at least 600 mm diameter.

Disposal of materials

410 Excavated topsoil storage

1. Storage: Stockpile in temporary storage heaps: To be agreed at pre construction stage

415 Subsoil and Topsoil

1. The contractor shall approve and satisfy themselves that they consider the topsoil is suitable as a growing medium and take adequate measures to ameliorate the topsoil where required. They should also check and satisfy themselves that the subsoil is adequately draining, free of contaminants and suitable for use.
- 2.
- 3.

420 Topsoil storage heaps

1. Location: To be agreed at pre commencement planning stage
2. Standard: To BS 3882.
3. Height (maximum): 1.5m
4. Protection
 - 4.1. Do not place any other material on top of storage heaps.
 - 4.2. Do not allow construction plant to pass over storage heaps.
 - 4.3. Prevent compaction and contamination.

421 Topsoil storage heap treatment

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

441 Surplus subsoil

1. Excavated material: Stockpile in temporary storage heaps.
2. Retained material: Spread and level surplus subsoil on site.
 - 2.1. Locations: To be agreed at pre-commencement planning stage
 - 2.2. Protected areas: Do not raise soil level within root spread of trees that are to be retained.
3. Remaining material: Remove from site.

450 Water

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

454 Ground water level, springs or running water

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

457 Pumping

1. General: Do not disturb excavated faces or stability of adjacent ground or structures.
2. Pumped water: Discharge without flooding the site or adjoining property.
3. Sumps: Construct clear of excavations. Fill on completion.
 - 3.1. Locations: Submit proposals

Filling

530 Placing fill

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

535 Compaction generally

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

540 Benching in fill

1. Adjacent areas: If, during filling the difference in level between adjacent areas of filling exceeds 600 mm, cut into edge of higher filling to form benches 600 mm minimum width and height equivalent to depth of a layer of compacted filling.
2. New filling: Spread and compact to ensure maximum continuity with previous filling.

610 Compacted filling for landscape areas

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

615 Loose tip filling for landscape areas

1. Filling: Do not firm, consolidate or compact when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

Bioremediation - Not Used

'specification for highway works: earthworks specification' appendices - Not Used

Ω End of Section

Q10

Kerbs/ edgings/ channels/ paving accessories REVISED

Clauses

2 To be read with preliminaries/general conditions.

2 Landscape clauses (A)

1. Landscape related clauses only. Refer to engineers Q10 specification.:

Types of kerbs/edgings and channels

110J Proprietary precast concrete

1. Description: K1, K2, K3 and K3a kerbs
2. Refer to Engineers specification.
3. Standard: To BS EN 1340.
4. Manufacturer: Contractor's choice
5. - Product reference: Contractor's choice
6. Recycled content: Contractor's choice
7. Size (width x height x length): [K1=125 x 255 x 915 mm].
8. Special shapes: [K2 transition, K3 drop kerb and K3a square flush].
9. Finish: [As cast].
10. Colour: [Grey].
11. Bedding: [Fresh concrete races].
12. Joints generally: [Dry, 2-3 mm gap].
13. Sealant movement joints: [Not required].
14. Accessories: [Submit proposals].

112 Precast concrete

1. Description: K4 type pin kerb edges
2. Standard: To BS EN 1340.
3. Recycled content: Contractor's choice
4. Designations: EF Edging, flat top
5. Size (width x height x length): 50 x 150 x 915 mm
6. Special shapes: none
7. Finish: As cast
8. Colour: Grey
9. Bending strength: Refer to engineers specification
10. Weathering resistance: Refer to engineers specification
11. Abrasion resistance: Refer to engineers specification
12. Slip/ skid resistance: Refer to engineers specification
13. Bedding: Fresh concrete races
14. Joints generally: Refer to engineers specification
15. Sealant movement joints: Refer to engineers specification
16. Accessories: Refer to engineers specification

114J Timber edging to footpaths at north side link (Type E1)

1. Softwood board:
 - 1.1. Size: 150 x 38 mm. Use 25mm (type 1a) thick boards to curvilinear paths and hardstanding areas.
 - 1.2. Fixing: Galvanized nails into softwood pegs.
2. Softwood pegs:
 - 2.1. Size: [50 x 50 x 600 mm long].
 - 2.2. Fixing: Drive into ground.
 - 2.3. Centres: [900 mm. Timbers to be cut on site to accommodate smooth curving nature of footways.].
3. Preservative treatment: [As section Z12 and WPA Commodity Specification C4, with 15 year desired service life].
 - 3.1. Type: [Contractor's choice].

115 Precast concrete safety kerbs north road to engineers specification

1. Manufacturer: Refer to Engineer's specification
 - 1.1. Product reference: Titan or Trief type to engineer's specification
2. Size: Refer to Engineer's specification
3. Special shapes: Refer to Engineer's specification
4. Finish: Refer to Engineer's specification
5. Colour: Refer to Engineer's specification
6. Bedding: Refer to Engineer's specification
7. Joints generally: Refer to Engineer's specification
8. Sealant movement joints: Refer to Engineer's specification

170A Linear slot drainage channel systems

1. Manufacturer: ACO
 - 1.1. Product reference: MultiDrain M150D Brickslot
2. Bore: 150 mm
3. Finish: As cast
4. Colour: Natural
5. Accessories: Inspection unit channels
6. Bedding: Fresh concrete races as per engineers specification
7. Joints generally: Drain unions as required
8. Slot to be 10mm Heelguard, made of stainless steel (Grade 304)

184 J Recessed manhole cover in paving

1. Recessed covers to be used in pedestrian areas where there is coloured macadam Q22/111, Soft rubberised surfacing Q26/360A and concrete timber paving Q25/120A.

Supplier: Recessed Manhole Covers Ltd, Wirral , tel: 01151 639 4281 or other similar to Contractors Choice.

Size: Depths to suit paving. Use 80mm depth trays for block paving. Lay paving blocks to suit direction of pattern of surrounding paving and to sit square with paving alignment. No blocks or flags to be cut smaller than half size and securely fixed to prevent tampering or lifting out by Service Users.

Fixing: To manufacturers specification.

Tamper proof fixings to all fittings within external main courtyard

- 2.
- 3.

185 J Recessed manhole cover in grass

1. Recessed covers to be used in grass where it is not possible to locate manhole in adjacent planting or paved area.
Supplier: Recessed Manhole Covers Ltd, Wirral , tel: 0151 639 4281
Size: Depths to suit grass and topsoil growing medium sufficient for successful growth min 100mm depth
Fixing: To manufacturers specification
Tamper proof fixings to all fittings within external spaces
- 2.
- 3.

202A Metal Edging 50mm Type E2A

1. Description: 50mm metal edge to compacted gravel and rubberised surfacing
2. Manufacturer: Kinley Systems t:01580 830688 or Everedge Co t: 01630 417120 or Core Landscape Products t:0800 118 2278
 - 2.1. Product reference: Kinley AluExcel 50mm FLEXIBLE edging for curves or similar approved. Ref:101021 straight and 101020 for curved sections.
3. Size: 50mm high x 2500mm length x 5mm thick
4. Type/ Material: Aluminium
 - 4.1. Finish: Milled
 - 4.2. Colour: Grey
5. Accessories: Connector strip
6. Bedding: Proprietary fixing concrete screws - 5 per 2.5m length - 500mm centres
7. Joints: Connected with Connector strip

202B Metal Edging 75mm Type E2B

1. Description: 75mm metal edge to buff macadam
2. Manufacturer: Kinley Systems t:01580 830688 or Everedge Co t: 01630 417120 or Core Landscape Products t:0800 118 2278
 - 2.1. Product reference: Kinley AluExcel 75mm edging or similar approved. Ref:101024 straight and 101026 for curved sections.
3. Size: 75mm high x 2500mm length x 5mm thick
4. Type/ Material: Aluminium
 - 4.1. Finish: Milled
 - 4.2. Colour: Grey
5. Accessories: Connector strip
6. Bedding: Proprietary fixing steel screws - 5 per 2.5m length - 500mm centres
7. Joints: Connected with Connector strip

204 150mm Metal edging to rehabilitation path. Type E4 REVISED

1. 150mm metal edge to rehabilitation path
2. Kinley Systems t:01580 830688
Product reference: Kinley Borderline 150mm premium edging or similar approved. Straight and curved sections.
3. 150mm high x 2500mm length x 5mm thick.

4. Type: Galvanised steel
Milled
Grey
5. Accessories: Connector strip
6. 300mm fixing stakes @ 833mm centres

206 Raised Metal Edging 200mm Type E6

1. Description: 200mm metal edge to planting beds - wheelchair edge
2. Manufacturer: Kinley Systems t:01580 830688 or Raaft Systems t:020 3146 7879 or Logic systems t:01642 373400
- 2.1. Product reference: Special Verge 300mm bracket edging Ref:straight and flexible curved sections.
3. Size: 300mm high x 2500mm length x 8mm thick
4. Type/ Material: Corten
- 4.1. Finish: Natural
- 4.2. Colour: As manufactured
5. Accessories: Connector strip. Casting-in anchors for anti dig.
6. Bedding: Bracket fixed to concrete footings as per manufacturer details.
Joints: Connected with Connector strip

208 Metal Enclosure Wall to Main Courtyard Type E8

1. Description: curved section metal privacy feature wall to planting beds to palliative care garden and rehabilitation garden areas
Manufacturer: [Raaft Systems t:020 3146 7879 or Logic systems t:01642 373400].
- 1.1. Product reference: [Perimeta Plantereline Bespoke or equal].
2. Size: [height varies to max 726mm height x 6mm thick upstand walls to manufacturers specification. Height to gl is 726mm at high point].
3. Type/ Material: [cor ten].
- 3.1. Finish: [cor ten].
- 3.2. Colour: [cor ten].
4. Accessories: [support braces and brackets to inside edges to manufacturers details].
5. Bedding: [concrete strip footing to manufacturers specification].
6. Joints: [Connected with Connector strip to manufacturers details].
- 2.
- 3.

Roads/paving accessories/ marking/ demarcation

305B Tree grille in paving to car park, west walkway and arrival space

1. Manufacturer: Blueton Ltd t:01324 829661 or similar
- 1.1. Product reference: 1026.03cs. 6 no in total.
2. Size: 1200mm diameter with 600mm opening
3. Material: CorTen Steel
4. Finish: Natural
5. Colour: Natural cor ten finish
6. Bedding/ fixing: to steel frame by manufacturers approved method
7. Accessories: Corten steel frame. aperture for uplighter/aerator/irrigation system. Locking lugs for anti vandal protection.

390 Road marking (light duty)

1. Manufacturer: Contractor's choice
- 1.1. Product reference: Contractor's choice

2. Colour: To Engineers specification
3. Surfaces to receive markings: Clean and dry, loose material removed.
4. Application: Uniform, with no streaks or ragged edges.

395 Road marking (thermoplastic)

1. Standard: Road Safety Markings Association standard specification document for road marking and road studs (StanSpec).
2. Manufacturer: Contractor's choice
 - 2.1. Product reference: Contractor's choice
3. Colour: To Engineer's specification
4. Retroreflectivity to BS EN 1436: To Engineer's specification

Laying

510 Laying kerbs, edgings and channels

1. Cutting: Neat, accurate and without spalling. Form neat junctions.
 - 1.1. Long units (450 mm and over) minimum length after cutting: 300 mm.
 - 1.2. Short units minimum length after cutting: The lower of one third of their original length or 50 mm.
2. 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.
3. 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

1. 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

1. Standard: To BS 8500-2.
2. Designated mix: Not less than GEN0 or Standard mix ST1.
3. Workability: Very low.

540 Cement mortar bedding

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

547 Bedding/ Backing of units on fresh concrete races

1. Standard: To BS 7533-6.

570 Channels

1. Installation: To an even gradient, without ponding or backfall.
2. Lowest points of channels: 6 mm above drainage outlets.

580 Drainage channel systems

1. Installation: To an even gradient, without ponding or backfall. Commence laying from outlets.
2. Silt and debris: Removed from entire system immediately before handover.
3. Washing and detritus: Safely disposed without discharging into sewers or watercourses.

590 Drainage channel systems with built in fall

1. Installation: Top of channels level, installed in correct sequence to form an even gradient without ponding or backfall. Commence laying from outlets.
2. Silt and debris: Removed from entire system immediately before handover.
3. Washings and detritus: Safely disposed without discharging into sewers or watercourses.

600 Radius kerbs/ channels

1. Usage: Radii of 15 m or less.

610 Angle kerbs

1. Usage: Internal and external 90° changes of direction.
2. Cutting of mitres: Not permitted.

620 Accuracy

1. Deviations (maximum)
 - 1.1. Level: ± 6 mm.
 - 1.2. Horizontal and vertical alignment: 3 mm in 3 m.

625 Regularity of paved surfaces

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

630 Narrow mortar joints

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

640 Tooled mortar joints

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

641 Tooled coloured mortar joints

1. Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled and raked out to a depth of 10 mm for pointing.

- 1.1. Joint width: 6 mm.
2. Pointing: Joints refilled and tooled to a neat flush profile.
 - 2.1. Pointing mortar: 1:3 cement:sand.
 - 2.2. Pigment colour: Colour match to kerbs

650 Sealant movement joints

1. Joint filler: Compressible cellular rubber or plastics compatible with specified sealant.
2. Filler installation: Built in as work proceeds, extending through haunching and foundation. Filler positioned accurately to fully support sealant at the recommended depth below exposed faces of units.
3. Joint width: Refer to engineers specification
4. Sealant: Refer to engineers specification
 - 4.1. Colour: Colour match to kerbs
5. Sealant application: As section Z22.

Ω End of Section

Q20

Granular sub-bases to roads/pavings **UNCHANGED**

To be read with preliminaries/ general conditions.

105A Engineers specification

1. Refer to Engineers specification and details for sub bases.

110 Thicknesses of sub-base/ subgrade improvement layers

1. Thicknesses: See sections:
 - 1.1. Q21 In situ concrete roads/pavings/bases;- Q22 Coated macadam/asphalt roads/pavings;- Q23 Gravel/hoggin/woodchip roads/pavings;- Q25 Slab/brick/sett/cobble pavings; and- Q26 Special surfacings/pavings for sport/general amenity.

150 Subgrades for vehicular areas

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

Ω End of Section

Q21

In situ concrete roads/ pavings/ bases **UNCHANGED**

Clauses

2 To be read with preliminaries/ general conditions.

Types of paving

105J Landscape clauses

1. Note: please cross refer with engineers Q21 specification for engineer to verify specific requirements.

General/ preparation

145 Admixtures

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

155 Project testing of concrete - general

1. Testing: To BS EN 206-1, annex B and BS 8500-1, annex B.
2. Recording: Maintain complete correlated records including:
 - 2.1. Concrete designation.
 - 2.2. Sampling, site tests, and identification numbers of specimens tested in the laboratory.
 - 2.3. Location of the parts of the structure represented by each sample.
 - 2.4. Location in the structure of the batch from which each sample is taken.
3. Testing laboratory: Accredited by UKAS or other national equivalent.
4. Tests results
 - 4.1. Submission of reports: Within one day of completion of each test.
 - 4.1.1. Number of copies: 2
 - 4.2. Reports on site: A complete set, available for inspection.
5. Nonconformity: Obtain instructions immediately

265 Timber permanent formwork

1. Side forms: Softwood board.
 - 1.1. Size: 38 x 150mm
 - 1.2. Fixing: Galvanized nails to 50 x 50 x 450 mm long softwood pegs driven into the ground at 1200 mm centres.
2. Preservative treatment: As section Z12 and Wood Protection Association, Industrial wood Preservation Commodity Specification C4.
 - 2.1. Type: Contractor's choice
 - 2.2. Desired service life: 15 years

Laying concrete

310 Transporting concrete

1. General: Avoid contamination, segregation, loss of ingredients, excessive evaporation and loss of workability. Protect from heavy rain.

2. **Entrained air:** Anticipate effects of transport and placing methods in order to achieve specified air content.
3. **Placing:** Use suitable walkways and barrow runs for traffic over reinforcement and freshly placed concrete.

320 Laying concrete generally

1. **Timing:** Place as soon as practicable after mixing and while sufficiently plastic for full compaction. After discharge from the mixer do not add water or retemper.
2. **Temperature of concrete at point of delivery**
 - 2.1. In hot weather (maximum): 30°C.
 - 2.2. In cold weather (minimum): 5°C.
3. **Cold weather**
 - 3.1. Do not use frozen materials.
 - 3.2. Do not place concrete against frozen or frost covered surfaces.
 - 3.3. Do not place concrete when air temperature is below 3°C on a falling thermometer. Do not resume placing until rising air temperature has reached 3°C.
4. **Surfaces on which concrete is to be placed:** Free from debris and standing water.
5. **Placing in final position:** Place in one continuous operation up to construction joints.
 - 5.1. Do not place concrete simultaneously on both sides of movement joints.
6. **Spreading:** Spread and strike off with surcharge sufficient to obtain required compacted thickness.
7. **Adjacent work:** Form neat junctions and prevent damage. Keep clean all channels, kerbs, inspection covers, etc.

330 Compacting

1. **General:** Fully compact concrete to full depth (until air bubbles cease to appear on the surface) especially around reinforcement, cast-in accessories, into corners and at joints.
2. **Poker vibrators:** Do not use to make concrete flow into position. Do not allow to come into contact with fabric reinforcement.
3. **Wet formed joint grooves:** Rectify any irregularities by means of a vibrating float.
4. **Finish:** A dense, even textured surface free from laitance or excessive water.
 - 4.1. **Excess concrete:** Remove from top of groove formers.

340 Manhole cover and gully grating frames

1. **General:** Set frames in independent concrete slabs placed over, but slightly larger than, exterior of manhole shaft or gully pot and any concrete surround.
2. **Positioning of joints in main slab:** Set out so that manhole/ gully slabs are adjacent to a main transverse joint, wherever possible.
3. **Joints:** Separate the independent slabs from main slabs with 25 mm thick joint filler board. Set board 20 mm below top of slab to form a sealing groove.

350 Levels

1. **Lines and levels of finished surface:** Smooth and even, with regular falls to prevent ponding.
2. **Finished surfaces:** Within ± 6 mm of required levels (+6 or -0 mm adjacent to gullies and manholes).

360 Surface regularity

1. **General:** Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straightedge (with feet) placed anywhere on the surface to be not more than 5 mm.

2. Sudden irregularities: Not permitted.

Joists - Not Used

Surface finish - Not Used

Curing/ protection/ finishing

610 Curing

1. General: Immediately after completion of surface treatment prevent evaporation from surface and exposed edges of slabs for a minimum period of seven days.
2. Early curing
 - 2.1. Cover with waterproof sheeting held clear of surface. Seal against draughts at edges and junctions.
 - 2.2. Do not apply sprayed compounds or sheets in direct contact until surface is in a suitable state and will not be marked.
3. Coverings for curing: Contractor's choice of:
 - 3.1. Impervious sheet material.
 - 3.2. Resin based aluminized curing compound containing a fugitive dye and with an efficiency index of 90% when tested to BS 7542.
 - 3.3. Sprayed plastics film.

660 Protection

1. Prevent damage to concrete
 - 1.1. From rain, indentation, physical damage, dirt, staining, rust marks and other disfiguration.
 - 1.2. From thermal shock.
 - 1.3. In cold weather, from freezing expansion of water trapped in pockets, etc.
 - 1.4. By use as a building platform or for storing, mixing or preparing materials.

Ω End of Section

Q22

Asphalt roads/ pavings **UNCHANGED**

Clauses

2 To be read with preliminaries/ general conditions.

Types of paving

105J Landscape clauses

1. Cross refer to Engineer Q22 specification for build ups for roads, car park areas and pedestrian surfaces.

107J Asphalt paving

1. Description: Vehicular areas and car parks
2. Standard: To BS EN 13108-1
3. Refer to engineers specification for build ups.
4. Colour finishes to be standard blacktop.
5. Other requirements: Refer to engineers details

110A Blacktop Macadam Pedestrian Footpaths Paving Type P1

1. Description: Standard blacktop macadam footpaths
2. Standard: To BS EN 13108-1
3. Refer to engineers specification for build ups.
4. Other requirements: Refer to engineers details

111 Coloured finish asphalt paving Paving Type P2

1. Description: To main public realm pedestrian routes, main arrival space and main courtyard areas
2. Standard: To BS EN 13108-1
3. Manufacturer: Tarmac 'Ulticolour' or similar approved
4. Refer to engineers specification for build ups.
5. Colour finish: Buff Quartzite colour, samples to be provided for approval.
6. Other requirements: Contrasting colour Natural Quartzite inset to seats at arrival space. Colour tbc.

Preparatory work/ requirements

195 Hard landscaping materials specification

1. Minimum 'BRE Green Guide to Specification Online' rating: Contractor's choice

220 Bituminous materials generally

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

240 Acceptance of surfaces

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

250 Abutments

1. Vertical edges of manholes, gullies, kerbs and other abutments: Clean and paint with a thin uniform coating of refer to Engineers specification.
2. Finishing: Tamp surface around projections.
 - 2.1. Level: Flush or not more than 3 mm above projections.

Laying

310 Laying generally

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

320 Adverse weather

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

330 Levels

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

340 Flatness/ Surface regularity

1. 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:
 - 1.1. Base: Machine laid, 25 mm
 - 1.2. Binder course: Machine laid, 13 mm
 - 1.3. Surface course: Machine laid, 7 mm
 - 1.4. Where a straightedge cannot be used the surface must be of a comparable standard of accuracy when judged by eye.

351 Contractor's use of pavements

1. Preparation for final surfacing
 - 1.1. Timing: Defer laying until as late as practicable.
 - 1.2. Immediately before laying final surfacing: Clean and make good the base/ binder course. Allow to dry.
 - 1.3. Adhesion: Tack coat to BS 434-1 or BS EN 13808
 - 1.3.1. Application rate: As per engineers specification
 - 1.3.2. Accuracy: Uniform, without puddles.
 - 1.4. Finishing: Allow emulsion to break completely before applying surface.

Completion

395 Slip resistance testing

1. Surfaces to be tested: Refer to engineers specification
 - 1.1. Surface condition: Refer to engineers specification
2. Timing: Refer to engineers specification
3. Period of notice (minimum): 3 working days.
4. Test standard: Refer to engineers specification
 - 4.1. Testing authority: Refer to engineers specification
 - 4.2. Witnessing/ Certification: Arrange for tests to be witnessed/ certified by: Refer to engineers specification.
 - 4.3. Report: Submit.
 - 4.3.1. Format: Refer to engineers specification

Ω End of Section

Q23

Gravel/ hoggin/ woodchip/ resin bound roads/ paving/ overlays UNCHANGED

Clauses

2 To be read with preliminaries/ general conditions.

Types of surfacing

130J Self binding breedon type gravel Paving Type P4

1. Description: To maintenance access strips along building lines
2. Subgrade improvement layer: As section Q20
 - 2.1. Compacted thickness: to engineers specification
3. Geotextile: if required to engineers specification
 - 3.1. Manufacturer: contractors choice
 - 3.1.1. Product reference: Terram 1000
4. Granular sub-base: Type 1 unbound mixture, as section Q20
 - 4.1. Compacted thickness: 150 mm min 1 in 40 fall
5. Surface course: Naturally occurring fine hoggin consisting of sand and gravel, with minimum clay content required to bind the material together, and with no large lumps of clay.
 - 5.1. Size: Minimum of 85% by weight passing a 10 mm BS sieve.
 - 5.2. Maximum particle size: max 20mm down to dust
 - 5.3. Compacted thickness: 75 mm
6. Completion: Compact to produce a firm, regular surface, stable in use.

175J Gravel Paving Type P3 with cobbles and boulders to main arrival space

1. Description: within planting beds
2. Subgrade improvement layer: [Not required].
3. Compacted thickness: [Not applicable]. Topsoil 450mm depth with weed suppressent fabric laid under gravel/cobbles acting as a mulch layer.
Plants to be planted before lay the weed suppressent around plants
4. Geotextile: [Not required]. Weed suppressent fabric to be open weave to allow for drainage to Q31.
 - 4.1. Manufacturer: [CED Ltd Tel: 01708 867237 or equal].
 - 4.1.1. Product reference: [Aegean White Cobbles, Mixed Glacial Boulders, Golden Flint gravel].
5. Cobbles and Boulders: Loose laid as per drawing
 - 5.1. Type: [White and Grey cobbles and boulders, golden flint gravel].
 - 5.2. Source: [Submit proposals].
 - 5.3. Colour: [White and Grey, golden flint].
 - 5.4. Size: [Cobbles Graded 60-200 mm. Select boulders min dimensions 300mm width x min 450mm length rounded profile. Gravel 14-20mm].
 - 5.5. Thickness: [To manufacturers product specification min 75mm depth].

270 Hard landscaping materials specification

1. Minimum 'BRE Green Guide to Specification Online' rating: Submit proposals

Laying

315 Materials

1. Compatibility: Chippings suitable for use with respective binders/ emulsions/ resin/ epoxy.

320 Samples

1. Submit: Representative samples of all aggregates, gravels and paint samples.

325 Blinding to sub-base

1. Type: Fine hoggin
2. Laying: Compact. Seal interstices. Provide free drainage.
3. Compacted thickness: contractors choice

330 Herbicide to paving Q23/

1. Description: 160
2. Type: Suitable for the application, location and conditions of use.
3. Weeds and moss: Grub up.
4. Application: As section A34, before surfacing.

340 Laying generally

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

350 Cold weather working

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

360 Drainage falls

1. Sealed surfaces
 - 1.1. Falls and cross falls (minimum): 1:40.
 - 1.2. Camber (minimum): 1:50.
2. Unsealed surfaces (minimum): 1:30.

370 Laying granular surfaces in vehicular areas

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

380 Laying granular surfaces in pedestrian areas and cycle tracks

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

390 Protection from traffic and plant

1. Paved areas: Restrict access to prevent damage.

Completion

400 Slip resistance testing

1. Surfaces to be tested: payment
 - 1.1. Surface condition: Dry and wet
2. Timing: As agreed with contract administrator
3. Period of notice (minimum): 3 working days.
4. Test standard: To BS 1134
 - 4.1. Testing authority: An approved laboratory
 - 4.2. Witnessing/ Certification: Arrange for tests to be witnessed/ certified by: Consultant.
 - 4.3. Report: Submit.
 - 4.4. Format: As required under BS 1134

Ω End of Section

Q24

Interlocking brick/block roads/pavings UNCHANGED

Clauses

2 To be read with preliminaries/ general conditions

Types of paving

105J Refer to engineers specification

1. Refer to engineers specification for build ups to permeable paving to car parking spaces.

115 Permeable concrete block paving – total infiltration

1. Description: Type P6 Permeable Flexible Block Paving
2. Subgrade improvement layer: refer to engineer's specification
 - 2.1. Compacted thickness:
3. Geotextile below granular sub-base:
4. Granular sub-base:
 - 4.1. Compacted thickness:
5. Geotextile below laying course
 - 5.1. Manufacturer: refer to engineer's specification
 - 5.1.1. Product reference: Contractor's choice
6. Laying course
 - 6.1. Material:
 - 6.2. Compaction: In accordance with BS 7533-3. Determine by trial the depth of loose bedding material needed to ensure specified bedding course thickness after final compaction of paving.
 - 6.3. Nominal thickness after compaction:
7. Blocks: To BS EN 1338.
 - 7.1. Manufacturer: Contractor's choice
 - 7.1.1. Product reference: Contractor's choice
 - 7.2. Sizes: 200 x 100 x 80 mm
 - 7.3. Special blocks: Reflective coloured marker blocks, Edgings
 - 7.4. Spacer nibs: Required
 - 7.5. Arrises: Chamfered
 - 7.6. Colour/ Finish: Natural
 - 7.7. Recycled content: Submit proposals
 - 7.8. Requirements: refer to manufacturers specification
 - 7.8.1. Freeze/ thaw resistance:
 - 7.8.2. Abrasion resistance:
 - 7.8.3. Slip/ Skid resistance:
8. Jointing
 - 8.1. Material: Single size 5 mm washed aggregate
 - 8.2. Joint width: 6 mm
 - 8.3. Conventional sand jointing:
9. Setting out

- 9.1. Bond: 90° herringbone
- 9.2. Features: White marker blocks defining parking bays

10. Accessories:

160 Hard landscaping materials specification

1. Minimum BRE 'Green Guide to Specification Online' rating: Contractor's choice

Execution

200 Execution generally – concrete block and clay paver paving

1. Standard: In accordance with BS 7533-3.

211 Colour banding

1. General: Unless premixed by manufacturer, select blocks/ pavers/ setts from at least 4 separate packs in rotation, to avoid colour banding.

220 Samples

1. General: Before ordering, submit samples of all blocks/ pavers/ setts that are representative of colour and appearance.

230 Control samples

1. General: Carry out sample area of finished work:
 - 1.1. Location: car park
 - 1.2. Size (minimum): 1.5 x 1.5 m
 - 1.3. Features to be included: Edging and Recessed manhole cover infill
2. Give notice: When ready for inspection.
3. Timing: Obtain approval of appearance before proceeding.

240 Adverse weather

1. General: Do not use frozen materials or lay bedding on frozen or frost covered sub-bases.

325 Drainage holes in existing bases

1. Location: Impervious layers of existing road/ paving.
2. Drainage: Form regular grid of holes, through base and any additional build up, down to sub-base:
 - 2.1. Spacing in both directions:
 - 2.2. Minimum clear opening:
 - 2.3. Do not weaken or excessively disturb road/ paving.
3. Completion
 - 3.1. Remove jagged or protruding edges.
 - 3.2. Fill holes with Ram down to form flush smooth surface.

335 Planing and repairs to existing bases

1. Existing macadam/ asphalt surfaces: Plane to required levels.
2. Repairs:
3. Building up to required levels:

350 Granular layer over existing bases

1. Material:
2. Thickness:
3. Compaction:
4. Blinding:

445 Laying geotextile patches over drainage holes for conventional paving

1. General: Lay geotextile patches on the base, centred over each hole.
 - 1.1. Size of patches:

451 Laying geotextile sheet for permeable paving

1. Jointing:

452 Prepared existing and new bound bases (roadbases)

1. Condition before placing laying course: Sound, clean, free from rutting or major cracking and cleared of sharp stones, projections or debris.

490 Laying permeable paving

1. General:

495 In situ surrounds to obstructions

1. Locations:
2. Material:
3. Shape and size: Rectangular, 100 mm (minimum) all round obstruction.
4. Thickness (minimum): Combined depth of blocks/ pavers/ setts and sand laying course.
5. Colour:
6. Timing: Lay and allow to cure in advance of laying blocks/ pavers/ setts.

500 Regularity of paved surfaces

1. 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)
 - 1.1. Precast concrete paving blocks and clay pavers for flexible pavements: 10 mm.
2. Difference in level between adjacent paving units (maximum): 2 mm.
3. Sudden irregularities: Not permitted.

505 Regularity of paved surfaces

1. 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.
2. Joints between paving units or utility access covers
 - 2.1. 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).
 - 2.2. 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.
 - 2.3. Unfilled joints: difference in level between adjacent units to be no greater than 2 mm.
3. Sudden irregularities: Not permitted.

Completion

600 Sealer/ Stabilizer for new blocks and setts

1. Surface preparation:
2. Sealer/ Stabilizer
 - 2.1. Manufacturer:
 - 2.1.1. Product reference:
 - 2.2. Application: To dry paving.
 - 2.2.1. Method:
 - 2.2.2. Number of coats:
 - 2.2.3. Coverage:

615 Completion of paving

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

620 Slip resistance testing

1. Surfaces to be tested:
 - 1.1. Surface condition:
2. Timing:
3. Period of notice (minimum): 3 working days.
4. Test standard:
 - 4.1. Testing authority:
 - 4.2. Witnessing/ Certification: Arrange for tests to be witnessed/ certified by:
 - 4.3. Report: Submit.
 - 4.3.1. Format:

Ω End of Section

Q25

Slab/brick/sett/cobble pavings UNCHANGED

Clauses

2 To be read with preliminaries/ general conditions.

General

165J Mixed rehabilitation 'challenge' paving to central path in main courtyard. Special Paving Type SP1.

1. Description:

Mix of fixed gravel and fixed uneven laid cobble paving panels with raised hump profile as 'challenge' paving for rehabilitation therapy. Gravel, cobbles and reclaimed setts supplied as Q23/1175J or contractors choice.

2. Existing base: to engineers specification

2.1. Preparation: Fixed laid uneven surface onto concrete base

3. Paving units: Mix gravel, cobbles and setts laid bedded into concrete.

4. Laying course and jointing: random set into concrete in uneven pattern.

5. Overall nominal thickness of concrete bedding layer: 75 mm

6. Cleaning: Cobbles/gravel/setts to be brush cleaned off for finish. Clean with water/ proprietary cleaning fluid to remove dried on concrete for clean finish. Ensure no cleaning fluid contaminates adjoining soil beds or other adjoining paved areas..

190 Hard landscaping materials specification

1. Minimum BRE 'Green Guide to Specification Online' rating: Contractor's choice

System performance

220 Design – concrete flag paving system

1. Design: Complete the design of the concrete slab paving system in accordance with BS 7533-4.

1.1. Site category:

2. Ground conditions: to be advised by engineer

3. Performance criteria: to be advised by engineer

4. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

Products

305 Granular material for layer over existing bases

1. Material: Refer to engineers specification

320 Tactile flags and slabs

1. Description: Crossing points

2. Standard: To DD CEN/TS 15209.

3. Material: Precast concrete. Refer to engineers specification.

3.1. Manufacturer: Contractor's choice

3.1.1. Product reference: Contractor's choice

4. Recycled content: Contractor's choice

5. Nominal sizes: 400 x 400 mm
6. Colour: Buff
7. Type of surface: Blister – type B1

375 Sand/ Fine aggregate for site mixed mortar

1. Description:
2. Standard: To BS EN 12620, designations:
 - 2.1. Flag and slab paving laying course:
 - 2.2. Flag and slab paving jointing:
 - 2.3. Concrete sett paving laying course and jointing:
 - 2.4. Rigid brick paving laying course and jointing:
 - 2.5. Precast concrete and grass or gravel paving:

435 Primer for underside of flags and slabs

1. Description: -
2. Manufacturer: UltraScape or similar approved
 - 2.1. Product reference: Pro-Prime Slurry Primer

440 Ready-mixed mortar

1. Description: -
2. Type: Rapid strength mortar
3. Standard/ Performance requirements: In accordance with BS 7533-4
4. Manufacturer: UltraScape
 - 4.1. Product reference: Pro-Bed HS Fine Bedding Mortar
5. Consistency: Workable

450 Gravel filling

1. Description: For precast concrete paving systems
2. Material:
3. Grading:

Execution

610 Material samples

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

615 Control samples

1. Sample areas: Complete as part of the finished work.
 - 1.1. Types of paving: - Concrete slab deterrent paving;- Concrete sett paving; and- Natural stone cobble paving
 - 1.2. Location: Main entrance area
 - 1.3. Size (minimum): 1.5 x 1.5 m
 - 1.4. Included features: Junction with building facade for concrete deterrent paving
2. Approval of appearance and surface: Obtain before proceeding.

620 Adverse weather

1. General
 - 1.1. 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.
 - 1.2. Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.
2. Paving with mortar joints and/ or bedding
 - 2.1. Protect from frost damage, rapid drying out and saturation until mortar has hardened.
3. Paving laid and jointed in sand:
 - 3.1. Stockpiled bedding sand: Protect from saturation.
 - 3.2. Exposed areas of sand bedding and uncompacted areas of sand bedded paving: Protect from heavy rainfall.
 - 3.3. Saturated sand bedding: Remove and replace, or allow to dry before proceeding.
 - 3.4. 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

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

630 Levels of paving

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

635 Regularity of paved surfaces

1. 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)
 - 1.1. Precast concrete paving blocks and clay pavers for flexible pavements: 10 mm.
 - 1.2. Precast concrete flags or natural stone slabs: 3 mm.
2. Difference in level between adjacent paving units (maximum): 2 mm.
3. Sudden irregularities: Not permitted.

640 Colour banding

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

645 Protection

1. **Cleanliness:** Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
2. **Materials storage:** Do not overload pavings with stacks of materials.
3. **Handling:** Do not damage paving unit corners, arrises, or previously laid paving.
4. **Mortar bedded pavings:** Keep free from traffic after laying:
 - 4.1. **Pedestrian traffic (minimum):** manufacturers recommendation
 - 4.2. **Vehicular traffic (minimum):** manufacturers recommendations
5. **Access:** Restrict access to paved areas to prevent damage from site traffic and plant.

650 Cementitious bases and sub-bases

1. **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

1. **Trenches and excavation of soft or loose spots in subgrade:** Fill and thoroughly compact.
2. **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.
3. **Prepared existing and new bound bases (roadbases):** Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
4. **Sub-base/ Roadbase level tolerances:** To BS 7533-7, Annex A.
5. **Levels and falls:** Accurate and within the specified tolerances.
6. **Drainage outlets:** Within 0-10 mm of the required finished level.
7. **Features in sand bedded paving (including mortar bedded restraints and drainage ironwork):** Complete to required levels; adequately bed and haunch in mortar.
8. **Sub-bases containing cement/ hydraulic binder:** Cure for minimum times specified in BS 7533-4.

715 Laying flag and slab paving – mortar laying course and jointing

1. **Standard generally:** In accordance with BS 7533-4.
2. **Flag installation and cutting:** To Interpave 'Concrete flag paving'.
3. **Laying course**
 - 3.1. **Nominal thickness:** 30 mm before laying paving slabs
4. **Laying and jointing:** open joints - no mortar
5. **Joint width (nominal):** 100mm nom

Completion**915 Completion of paving with dry sand or fine aggregate filled joints**

1. **Sand dressing:** Leave a thin layer of dry jointing sand over the paving, sweep clean before practical completion
2. **Final compaction of the surface course:** In accordance with BS 7533-3.
3. **Vacuum cleaning machines:** Not allowed.

Ω End of Section

Q26 Special surfacings/ pavings for sport/ general amenity

UNCHANGED

Clauses

2 To be read with preliminaries/ general conditions.

Sports surfacing - Not Used

Impact attenuating surfacings for play areas

301 Extent of impact absorbing surfacing

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

360A In situ synthetic soft play surfacing to main courtyard palliative care and rehabilitation niches - PavingType P11

1. Sub-base: As section Q20
 - 1.1. Thickness: As per manufacturers recommendations
2. Base: Coated macadam as section Q22
 - 2.1. Thickness: as per manufacturers recommendations
3. Surface course: Two layer system of Wetpour shock pad: in situ laid polyurethane bound EPDM rubber crumb surface, with coloured surface course layer applied. Hi tensile binder additive required to manufacturers recommendations for this of usage.
 - 3.1. Shockpad thickness: as per manufacturers recommendations
 - 3.2. Coloured surface thickness: as per manufacturers recommendations
 - 3.3. Standard: To BS 7188.
 - 3.4. Manufacturer: Soft Surfaces 01625 445760 or similar
 - 3.4.1. Product reference: Wet Pour EPDM type
 - 3.5. Surface Colour: Various tbc - samples to be provided for final choice by Client.
 - 3.6. Critical fall height when tested to BS EN 1177: 1.8 m
 - 3.7. Health and safety:
 - 3.7.1. Substance known to be toxic or carcinogenic on skin contact or released as vapour or dust during normal use: Not permitted.
4. Submit:
 - 4.1. Resistance to abrasive wear, slip resistance, resistance to indentation and ease of ignition: Evidence of testing to BS 7188.
 - 4.2. Critical fall height: Evidence of testing to BS EN 1177.

Associated accessories

430 Edges

1. Finish: Flush
2. Edge detail: Specialist metal edge as section Q10.202.

Execution - Not Used

Completion

920 Play surface testing

1. Standard: To BS EN 1177 and BS 7188, where applicable.
2. Testing body: A United Kingdom Accreditation Service (UKAS) independent laboratory.
3. Timing: Within ten days of completing the surfacing works.
4. Test results: Submit.

930 Documentation

1. General: For all types of surfacing, provide the following:
 - 1.1. Name and contact details of installer.
 - 1.2. Date of installation.
 - 1.3. Name and contact details of manufacturer.
 - 1.4. Type/ description/ reference of products used.
 - 1.5. Manufacturer's recommended inspection and maintenance procedures to maintain safety and impact absorbing performance.
 - 1.6. Manufacturer's recommended cleaning and maintenance methods, where relevant.
2. Manufacturer's recommended cleaning and maintenance methods, where relevant.

940 Labelling

1. Signs: Provide permanent labelling in approved locations on all types of surfacing stating: - Date of installation;- Manufacturer's name and contact details; and- Product name.

Ω End of Section

Q28

Topsoil and soil ameliorants UNCHANGED

Clauses

2 To be read with preliminaries/ general conditions.

System outline

115 Topsoil system for turfing and seeding

1. Description: For grassed verges and banks
2. Composition
 - 2.1. Soil: Site sourced topsoil and Imported topsoil to BS 3882
 - 2.2. Ameliorants: None
 - 2.3. Accessories: None

135 Planting bed topsoil system

1. Description: To shrub planting beds
2. Composition
 - 2.1. Topsoil: Site sourced topsoil and Imported topsoil to BS 3882
 - 2.2. Ameliorants: Sanitised and stabilized composted materials
 - 2.3. Accessories: None

145 Planting pit backfilling topsoil system

1. Description: For tree pits
2. Composition
 - 2.1. Topsoil: Imported topsoil to BS 3882
 - 2.2. Ameliorants: Sanitised and stabilized composted materials
 - 2.3. Accessories: None

146 Plant trench backfilling soil system

1. Description: For hedgerow's
2. Composition:
 - 2.1. Topsoil: Site sourced topsoil and Imported topsoil to BS 3882
 - 2.2. Ameliorants: Sanitised and stabilized composted materials
 - 2.3. Accessories: None

155 Mulching and top dressing system

1. Description: To all planting areas
2. Composition
 - 2.1. Material: 'Mulch 2000' by Melcourt as required

Products

300 Preparation materials generally

1. Purity: Free of pests and disease.

2. **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.
3. **Contamination:** Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
 - 3.1. Corrosive, explosive or flammable.
 - 3.2. Hazardous to human or animal life.
 - 3.3. Detrimental to healthy plant growth.
4. **Subsoil:** In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
5. **Objectionable odour:** None.
6. **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

1. **Materials:** Products containing peat

315 Imported topsoil to BS 3882

1. **Description:** To make up short fall if required
2. **Quantity:** Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
3. **Standard:** To BS 3882.
4. **Classification:** Multipurpose
 - 4.1. Soil textural class to BS 3882, Figure 1: Sandy loam
5. **Source:** Submit proposals
 - 5.1. **Product reference:** Submit proposals

360 Sanitized and stabilized composted materials certified to PAS 100

1. **Description:** For planting beds & tree pits
2. **Standard:** In accordance with PAS 100.
3. **Source:** Submit proposals
 - 3.1. **Product reference:** Submit proposals
4. **Horticultural parameters**
 - 4.1. pH (1:5 water extract): 7.0-8.7.
 - 4.2. Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
 - 4.3. Moisture content (m/m of fresh weight): 35-55%.
 - 4.4. Organic matter content (minimum): 25%.
 - 4.5. Grading (air dried samples): 99% passing 25 mm screen, and 90% passing: 10 mm screen mesh aperture
 - 4.6. Carbon:Nitrogen ratio (maximum): 20:1.
5. **Texture:** Friable.
6. **Objectionable odour:** None.
7. **Compost Certification Scheme certification:** Required
8. **Declaration of analysis:** Submit.
9. **Additional analyses:** Not required
10. **Samples:** Submit details of recent chemical and physical analysis before ordering

Execution

610 Topsoil analysis

1. Soil to be analysed: Imported topsoil if required
2. Soil analyst: Submit proposals
3. Samples: Collect in accordance with BS 3882.
4. Submit
 - 4.1. Declaration of analysis: In accordance with BS 3882, clause 6 and Table 1.
 - 4.2. Additional analysis: Not required
 - 4.3. Report detailing soil analyst's recommendations.
 - 4.4. Suitability: The contractor shall approve and satisfy themselves that they consider the topsoil is suitable as a growing medium and that they approve the recommendations noted in topsoil test results and take adequate measures to ameliorate the topsoil where required. They should also check and satisfy themselves that the subsoil is adequately draining and suitable for use.

620 Importing topsoil

1. Give notice: Before stripping topsoil for transfer to site.
 - 1.1. Notice period: 5 days

625 Sample loads

1. Description: For imported topsoil
2. Deliver to site a sample load: of 5 kg
3. Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
 - 3.1. Notice period: 7 days

630 Documentation for imported topsoil

1. Description: Generally
2. Timing: Submit at handover.
3. Contents
 - 3.1. Full description of all soil components.
 - 3.2. Record of source for all soil components.
 - 3.3. Record drawings showing the location and depth of all soils by type and grade.
 - 3.4. Declaration of analysis: in accordance with BS 3882, clause 6 and Table 1.
4. Number of copies: One

635 Documentation for compost and composted materials

1. Description: For topsoil amelioration
2. Timing: Submit at handover.
3. Contents
 - 3.1. Full description of all compost components.
 - 3.2. Record of source for all compost components.
 - 3.3. Analyst's report for each test carried out.
 - 3.4. Declaration of compliance: in accordance with PAS 100 and BSI PD CR 13456.
 - 3.5. Quality Compost Protocol certification: Required
4. Number of copies: Two

650 Notice

1. Give notice before
 - 1.1. Setting out.
 - 1.2. Spreading topsoil.
 - 1.3. Applying herbicide.
 - 1.4. Applying fertilizer.
 - 1.5. Visiting site during maintenance period.
2. Period of notice: 2 working days

655 Mechanical tools

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

660 Grading subsoil for:

1. Description: Generally
2. Standard: In accordance with BS 8601.
3. General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
4. Areas of thicker topsoil: Excavate locally.
5. Avoid compaction.
6. Excess subsoil: Remove.

665 Subsoil surface preparation for:

1. Description: Generally
2. Standard: In accordance with BS 3882.
3. General: Excavate and/ or place fill to required profiles and levels, as section D20.
4. Loosening
 - 4.1. When ground conditions are sufficiently dry to allow breaking up of soils, loosen thoroughly to specified depth
 - 4.1.1. Light and noncohesive subsoils: 300 mm
 - 4.1.2. Stiff clay and cohesive subsoils: 450 mm
 - 4.1.3. Rock and chalk subgrades: Lightly scarify to promote free drainage.
 - 4.2. Wet conditions: Do not loosen subsoils.
5. Stones: Immediately before spreading topsoil, remove stones larger than 50 mm.
6. Remove from site: Arisings, contaminants and debris

670 Inspecting formations

1. Give notice: Before spreading topsoil for planting beds and hedge trenches.
2. Notice period: 7 days

680 Surplus topsoil to be retained

1. Generally: Spread and level on site:
 - 1.1. Locations: Any areas where topsoil is required for new planting
 - 1.2. Protected areas: Do not raise soil level within root spread of trees that are to be retained.

685 Surplus materials to be removed

1. Topsoil removal from site: Topsoil remaining after completion of all landscaping work

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

690 Topsoil storage heaps

1. Location: Throughout the site
2. Height (maximum): 1.0 m
3. Width (maximum): 3.0 m
 - 3.1. Formation: Loose tip and shape from the side only, without running machinery on the heap at any time.
4. Protection
 - 4.1. Do not place any other material on top of storage heaps.
 - 4.2. Do not allow construction plant to pass over storage heaps.
 - 4.3. Prevent compaction and contamination, by fencing and covering as appropriate.

700 Grading of topsoil

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

705 Handling topsoil

1. Standard: In accordance with BS 3882.
2. Aggressive weeds: Give notice and obtain instructions before moving topsoil.
3. Plant: Select and use plant to minimize disturbance, trafficking and compaction.
4. Contamination: Do not mix topsoil with:
 - 4.1. Subsoil, stone, hardcore, rubbish or material from demolition work.
 - 4.2. Other grades of topsoil.
5. Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
6. 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:

1. Description: For shrub planting beds and new shrub planting areas
2. Standard: In accordance with BS 3882.
3. Temporary roads/ surfacing: Remove before spreading topsoil.
4. Layers
 - 4.1. Depth (maximum): 150 mm.
 - 4.2. Gently firm each layer before spreading the next.
5. Depth after firming and settlement: 450 mm
6. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

710A Spreading topsoil on

1. Description: For grassed reinstatement
2. Standard: In accordance with BS 3882.
3. Temporary roads/ surfacing: Remove before spreading topsoil.

4. Layers:
 - 4.1. Depth (maximum): 150 mm.
 - 4.2. Gently firm each layer before spreading the next.
5. Depth after firming and settlement: 150 mm
6. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

711 Spreading topsoil on

1. Description: For hedge trenches on built up ground
2. Standard: In accordance with BS 3882.
3. Temporary roads/ surfacing: Remove before spreading topsoil.
4. Layers:
 - 4.1. Depth (maximum): 150 mm.
 - 4.2. Gently firm each layer before spreading the next.
5. Depth after firming and settlement: 450 mm
6. Width: 1000mm
7. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

718 Final cultivation

1. Description: For planting beds and hedge trenches
2. Compacted topsoil: Break up to full depth.
3. Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
4. Depth: 450 mm
5. Particle size (maximum): 10 mm
6. Timing: Within a few days before planting
7. Weather and ground conditions: Suitably dry.
8. Surface: Leave regular and even.
9. Levels: 75 mm below adjoining paving or kerbs to allow for depth of mulch
10. Undesirable material brought to the surface
 - 10.1. Remove visible weeds.
 - 10.2. Remove roots and large stones with any dimension exceeding 50 mm.

720 Finished levels of topsoil after settlement

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

810 Applying compost

1. Description: Generally
2. Application rate for trees and shrubs: 0.6 m³/100 m²
 - 2.1. Timing: Apply prior to cultivation.
3. Application rate for grass: N/A
 - 3.1. Timing: Apply prior to cultivation.
4. Application rate for planters: N/A
 - 4.1. Timing: Apply prior to cultivation.
5. Other requirements: None

845 Applying loose mulch

1. Description: For all planting beds
2. Timing: Immediately after planting
3. Preparation: Ensure that soil is thoroughly moistened, applying water where necessary
4. Coverage of mulch (minimum)
 - 4.1. Planting beds (depth): 75 mm depth
 - 4.2. Trees: In a circular area of 500 mm radius measured from the tree stem, 75mm depth
 - 4.3. Container planting: N/A
5. Finished level of mulch: 30 mm below adjacent grassed or paved areas

Completion

905 Applying maintenance fertilizer to soil

1. Description: To planting beds
2. Duration: Carry out the following operations from completion of seeding/ turving until the end of the rectification period.
3. Time of year: During April and May
4. Application: Evenly spread, carefully incorporating below mulch materials.
5. Rate: To manufacturer's recommendations

920 Applying mulch

1. Timing: At end of the rectification period
2. Watering: Ensure that soil is thoroughly moistened prior to mulching, applying water where necessary.
3. Planting beds: Re-mulch.
 - 3.1. Depth (minimum): 75 mm
4. Trees: Remulch.
 - 4.1. Depth (minimum): 75 mm
5. Container planting: Remulch.
 - 5.1. Depth (minimum): N/A

Ω End of Section

Q30

Seeding/turfing **UNCHANGED**

Clauses

2 To be read with preliminaries/general conditions.

General information/requirements

115 Seeded and turfed areas

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

120 Climatic conditions

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

145 Watering

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

150 Water restrictions

1. **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

1. Give notice before
 - 1.1. Setting out.
 - 1.2. Applying herbicide.
 - 1.3. Applying fertilizer.
 - 1.4. Preparing seed bed.
 - 1.5. Seeding or turfing.
 - 1.6. Visiting site during maintenance period.
2. Period of notice: 3 working days

170 Setting out

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

Preparation

210 Herbicide

1. **Description:** For all grassed areas
2. **Type:** Suitable for suppressing perennial weeds.
3. **Timing:** Allow fallow period before cultivation.

- 3.1. Duration: As manufacturer's recommendation

212 Seed bed cleaning before sowing

1. Description: All grassed areas
2. Operations: As seed supplier's recommendations.

250 Soil requirements

1. Type
 - 1.1. Seeded areas: Soil for grass swards, as section Q28
 - 1.2. Turfed areas: Soil for grass swards, as section Q28
 - 1.3. Reinforced grass areas: N/A

Seeding

311 Grass seed

1. Description: For general public and perimeter grassed areas only
2. Supplier: Germinal Ltd
 - 2.1. Mixture reference: A22 Low Maintenance Mix
3. Application rate: 50 g/m²

319 Quality of seed

1. Description: For all grassed seeded areas
2. Freshness: Produced for the current growing season.
3. Certification: Blue label certified varieties.
 - 3.1. Standard: EC purity and germination regulations.
 - 3.2. Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
4. Samples of mixtures: Submit when requested.

330 Sowing

1. General: Establish good seed contact with the root zone.
2. Method: To suit soil type, proposed usage, location and weather conditions during and after sowing
 - 2.1. Distribution: As per manufacturer's recommendations but at least 2 equal sowing's at right angles to each other

335 Grass sowing season

1. Grass seed generally: April to October

340 Pre-emergent herbicide

1. Description: For all grassed areas
2. Standard: Pesticide Safety Directorate approved.
3. Application rate: In accordance with manufacturer's written recommendation.
 - 3.1. Timing: Immediately after sowing.

352 Edges to seeded areas

1. Description: Adjacent to planting beds and tree pits

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

Turfing

400 Cultivated turf

1. Description: For private older adult functional and dementia garden lawns
2. Supplier: Rolawn
 - 2.1. Product reference: Medallion
3. Properties of soil used for turf production: Peat-free, well drained sandy loam

420 Delivery and storage

1. Timing: Lay turf with minimum possible delay after lifting. If delay occurs, lay turf out on topsoil and keep moist.
2. Frosty weather or waterlogged ground: Do not lift turf.
3. Delivery: Arrange to avoid need for excessive stacking.
4. Stacking height (maximum): 1 m.
5. Dried out or deteriorated turf: Do not use.
6. Certification
 - 6.1. Standard: To BS 3969.
 - 6.2. Declaration: Species mix, including percentage of specified species

423 Inspection of turf

1. Description: For lawns
2. Sampling method: To BS 3969.
3. Give notice: Before lifting turf.
 - 3.1. Period of notice: 1 week

430 Turfing generally

1. Time of year: Autumn or early winter
2. Timing of laying
 - 2.1. Spring and summer: Within 18 hours of delivery.
 - 2.2. Autumn and winter: Within 24 hours of delivery.
3. 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.
4. Working access: Planks laid on previously laid turf. Do not walk on prepared bed or newly laid turf.
5. Jointing: Laid with broken joints, well butted up. Do not stretch turf.
6. Edges: Whole turfs, trimmed to a true line.
7. Adjusting levels: Remove high spots and fill hollows with fine soil.
8. Consolidating: Lightly and evenly firm as laying proceeds to ensure full contact with substrate. Do not use rollers.
9. Dressing, brushed well in to completely fill all joints: Mulching and top dressing system, as section Q28

10. **Watering:** Thoroughly water completed turf immediately after laying. Check that water has penetrated into the soil below.

450 Trimming turf

1. **Newly planted tree pits:** Neatly cut away around individual trees.
 - 1.1. **Diameter:** 1000 mm
 - 1.2. **Tree pit surface:** Respread existing mulch

Protecting/cutting

510 Protective fencing

1. **Fencing type:** Contractors choice'
 - 1.1. **Height:** 0.9 m
2. **Erection:** On completion of seeding/ turfing.
3. **Removal:** After grass is well established. Fencing will remain the property of the Contractor

530 First cut of grassed areas

1. **Timing:** When grass is reasonably dry.
 - 1.1. **Height of initial growth:** 50 mm
2. **Preparation**
 - 2.1. **Debris and litter:** Remove.
 - 2.2. **Stones and earth clods larger than 25 mm in any dimension:** Remove
3. **Height of first cut:** 25 mm
4. **Mower type:** Contractor's choice
5. **Arisings:** Remove from site

566 Aluminium edgings - between planting bed & lawn

1. **Manufacturer:** ExcelEdge
 - 1.1. **Product reference:** AllEdge 100mm flexible edging
2. **Fixing:** As manufacturer's recommendations
 - 2.1. **Installation height:** 25 mm upsstand to planting bed, laid flush with grassed lawn when toposil is compacted
3. Refer to Clause Q10.202 for more information

590 Cleanliness

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

Maintenance

610 Failures of seeding/ turfing

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

620 Maintaining

1. Description: General grassed areas
2. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
3. Maximum height of growth at any time: 50 mm
4. Preparation: Before each cut remove all litter and debris.
5. Cutting: As and when necessary to a height of 25 mm.
 - 5.1. Arisings: Remove
6. Bulb planting areas: Do not cut until bulb foliage has died down.
7. Trimming: All edges.
 - 7.1. Arisings: Remove.
8. Weed control: Substantially free of broad leaved weeds.
 - 8.1. Method: Application of a suitable selective herbicide.
9. Stones brought to the surface: Remove regularly.
 - 9.1. Size: Exceeding 25 mm in any dimension.
10. Areas of settlement: Make good.
11. Watering: As necessary to maintain healthy growth

Ω End of Section

Q31

External planting **UNCHANGED**

Clauses

2 To be read with preliminaries/general conditions.

General information/ requirements

105J Approved landscape contractors

1. Landscape sub-contractors intended to be used as supply chain list to be provided for approval with references to the Landscape Architect. All landscape contractors to be on the BALI approved membership register.

112 Site clearance generally

1. **General:** Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
2. **Stones:** Remove those with any dimension exceeding 50 mm.
3. **Contamination:** Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
4. **Vegetation:** Clear surface vegetation in areas shown on drawings using suitable nonresidual herbicide
5. **Large roots:** Grub up and dispose of without undue disturbance of soil and adjacent areas.
6. **Additional requirements:** none

118 Soil conditions

1. **Soil for cultivating and planting:** Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
2. **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

1. **General:** Carry out the work while soil and weather conditions are suitable.
 - 1.1. **Strong winds:** Do not plant.

125 Times of year for planting

1. **Deciduous trees and shrubs:** Late October to late March.
2. **Conifers and evergreens:** September/ October or April/ May.
3. **Herbaceous plants (including marginal):** September/ October or March/ April.
4. **Container grown plants:** At any time if ground and weather conditions are favourable.
 - 4.1. **Watering and weed control:** Provide as necessary.
5. **Dried bulbs, corms and tubers:** September/ October.
6. **Colchicum (crocus):** July/ August.
7. **Green bulbs:** After flowering in spring.
8. **Wildflower plugs:** Late August to mid November or March/ April.
9. **Aquatic plants:** May/ June or September/ October.

130 Mechanical tools

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

145 Watering

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

150 Water restrictions

1. 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

1. Give notice before
 - 1.1. Setting out.
 - 1.2. Applying herbicide.
 - 1.3. Applying fertilizer.
 - 1.4. Delivery of plants/ trees.
 - 1.5. Planting shrubs.
 - 1.6. Planting trees into previously dug pits.
 - 1.7. Watering.
 - 1.8. Visiting site during maintenance period.
2. Period of notice: Two working days

170 Soil requirements

1. Type
 - 1.1. Planted beds: Planting bed soil system, as section Q28
 - 1.2. Tree pits, shrub pits and other backfilling: Plant pit backfilling soil system, as section Q28
 - 1.3. External container planting: N/A
 - 1.4. Mulch applied after planting: Mulching and top dressing system, as section Q28

200 Plants/ Trees – general

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

215 Plants/ Trees – specification criteria

1. 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

1. Growing medium: With adequate nutrients for plants to thrive until permanently planted.

2. **Plants:** Centred in containers, firmed and well watered.
3. **Root growth:** Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
4. **Hardiness:** Grown in the open for at least two months before being supplied.
5. **Containers:** With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

246 Labelling and information

1. **Standard:** To BS 3936.

250J Approved nursery suppliers for general plants, trees and hedging

1. The following plant nurseries are approved suppliers of plants that comply with the National Plant Specification:
2. Deepdale Trees Ltd (for all semi mature trees, trees, hedging)
3. Tithe Farm
4. Hatley Road,
5. Potton, Sandy
6. Beds SG19 2DX
7. T: 01767 262636
8. mail@deepdale-trees.co.uk
9. deepdale-trees.co.uk
10. Johnsons of Whixley (all general plants, trees, hedging)
11. Gilsthwaite lane
12. Kirk Hammerton
13. Whixley York
14. YO26 8AQ
15. T: 01423 330234
16. nurserymen.co.uk
17. Wyevale Nurseries (all general plants, trees, hedging)
18. Wyevale Way
19. Hereford
20. HR4 7AY
21. T: 01432 845200
22. enquiries@wevale-nurseries.co.uk
23. wevale-nurseries.co.uk
24. JA Jones (all general plants, trees, hedging)
25. 99 Bankfield Lane
26. Southport PR9 7NT
27. T: 01704 228235
28. sales@jajones.co.uk
29. jajones.co.uk
30. Dingle Nurseries (all general plants, trees, hedging)
31. Frochas,
32. Welshpool,
33. Powys SY21 9JD

34. T: 01938 552587

35. info@dinglennurseries.co.uk

36. dinglenurseryandgarden.co.uk

255 Plants/ Trees reserved at supplier's premises

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

260 Plant/ Tree substitution

1. Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Landscape contractor/supplier to advise a substitute as early as possible prior to ordering material if material is not available or that they consider it is not suitable for the site and provide reasons why.
 - 1.1. Price.
 - 1.2. Difference from specified plants/ trees.
2. Approval: Obtain before making any substitution.

265 Plant handling, storage transport and planting

1. Standard: To CPSE 'Handling and establishing landscape plants'.
2. Frost: Protect plants from frost.
3. Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
4. Plant packaging: Black polyethylene bags
5. Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped
6. Planting: Upright or well balanced with best side to front.

280 Treatment of tree wounds

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

290 Surplus material

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

Plant containers - Not Used

Preparation of planting beds/ planting materials

300 Herbicide

1. Description: To clear existing vegetation
2. Locations: All planting areas
3. Type: Suitable for suppressing perennial weeds.
4. Timing: Allow fallow period before cultivation.
 - 4.1. Duration (minimum): As manufacturer's recommendation

305 Weed control

1. Description: For invasive non-native weeds
2. Locations: All planting areas
3. General: Prevent weeds from seeding and perennial weeds from becoming established, by contractor's choice of herbicide & hand removal.

Planting shrubs/ herbaceous plants/ bulbs

400 Random plant layout

1. Description: To all beds
2. Spacing: Evenly, avoiding straight lines
3. Density: As plant schedule

405 Shrub planting pits

1. Timing: Excavate 1-2 days (maximum) before planting.
2. Sizes: 150 mm wider than roots when fully spread and 300 mm deep
3. Pit bottom improvement Break up to a depth of 150 mm, incorporating 25 g of slow release fertilizer per planting pit.

415 Antidesiccant for conifers/ Evergreens

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Contractor's choice
2. Application: Dip before delivering to site. Spray soon after planting.
 - 2.1. Do not apply in wet or frosty weather.
 - 2.2. Ensure full coverage of underside of foliage.

435 Climbing plants used as ground cover

1. Planting
 - 1.1. Canes or other supports: Remove.
 - 1.2. Arrangement: Spread stems.
2. Fixing: Pinned to ground to ensure good contact.

470 Formal hedges

1. Shrubs for hedges: Consistent in species, cultivar and clone to ensure a uniform hedge.
2. Planting: In trenches large enough to take full spread of roots. Set out plants evenly.

471 Naturalized hedges

1. Planting: In trenches large enough to take full spread of roots. Set out plants evenly.

480 After planting

1. Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
2. 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.
3. Top dressing: Mulching and top dressing system, as section Q28
 - 3.1. Depth: 75mm

Planting trees

500 Tree planting

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

502 Antidesiccant for conifers/ Evergreens

1. Manufacturer: Submit proposals
 - 1.1. Product reference: Submit proposals
2. Application: Dip or thoroughly spray before delivering to site. Spray again soon after planting.
 - 2.1. Do not apply in wet or frosty weather.
 - 2.2. Ensure full coverage of underside of foliage.

505A Tree pits and multi stemmed trees generally

1. Sizes: 500 mm wider than, and the same depth as the rootball
2. Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
3. Excavated material: Separate topsoil and subsoil material and stockpile for backfilling
4. Pit bottoms: Excavate with slightly raised centre: Break up base to a depth of 150 mm
 - 4.1. Treatment: Soil ameliorant worked into pit bottoms
5. Pit sides: Scarify.
6. Backfilling material: Plant pit backfilling system as section Q28

506 Tree pits for extra heavy standards

1. Sizes: 1500 mm diameter x 900 mm deep
2. Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
3. Excavated material: Separate topsoil and subsoil material and stockpile for backfilling
4. Pit bottoms: Excavate with slightly raised centre: Break up base to a depth of 150 mm
 - 4.1. Treatment: Soil ameliorant worked into pit bottoms
5. Pit sides: Scarify.
6. Backfilling material: Plant pit backfilling system as section Q28

512 Tree pit irrigation and ventilation accessories

1. Locations: To all extra heavy standard tree pits
2. Manufacturer: Submit proposals
 - 2.1. Product reference: Submit proposals
3. Type: Perforated plastics irrigation pipe with inlet
4. Pipe diameter: 50 mm
5. Ring diameter: as required to form in a circle above and around the sides of the rootball
6. Inlet: Black plastics, with cap
7. Installation
 - 7.1. 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.
 - 7.2. Top cap of inlet: Protruding slightly above finished surround level.
 - 7.3. Backfill material: Carefully compact in layers.

515 Tree pit drainage

1. Locations: To all extra heavy standard tree pits
2. Depth of excavation: Increase from specified size to allow for aggregate layer, with base slightly falling to outlet.
3. Aggregate layer: Clean gravel or broken stone, with no fines, graded 40 to 20 mm.
 - 3.1. Depth: 200 mm
4. Drainage pipes
 - 4.1. Type: Perforated plastics
 - 4.2. Diameter: 80 mm
 - 4.3. Position: Lay around perimeter of pit within aggregate layer.
 - 4.4. Discharge: Connect to land drain or nearest tree pit drainage system to engineers details
5. Geotextile filter
 - 5.1. Manufacturer: Contractor's choice
 - 5.1.1. Product reference: Contractor's choice
 - 5.2. Position: Lay over aggregate before installing tree or backfill.
6. Completed pits: Test for free drainage before planting.

526 Underground guying for:

1. Description: Extra heavy standard, semi mature and multi stemmed specimen trees
2. Manufacturer: Platipus Tree Anchors t; 01737 762300 or other equal and approved
 - 2.1. Product reference: Appropriate to tree size and form. Submit proposals
3. Anchoring system: 3 no drive-in anchors
4. Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

527J Underground guying for

1. Description: Specimen shrubs and small garden trees
2. Manufacturer: Submit proposals
 - 2.1. Product reference: Appropriate to tree size and form. Submit proposals
3. Anchoring system: Submit proposals
4. Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

530 Above ground guying for:

1. Description: Trees to soft landscape perimeter areas only where there are strong prevailing winds
2. Manufacturer: Submit proposals
 - 2.1. Product reference: Submit proposals
3. Guy lines: Polypropylene
4. Anchoring system: 3 no drive-in nylon anchors
5. Installation: Ensure tree is positioned correctly and vertically and that no rubbing occurs with guy lines prior to tightening guy line tensioners.

576 Tree pit surfacing – loose fill

1. Surfacing material: Mulch, as section Q28
2. Area: 1000 mm radius circle
3. Depth: 75 mm

4. Watering: Water soil thoroughly before laying.
5. Installation: Ensure the base of the tree stem is kept free from loose filled material.

Woodland/ matrix/ buffer zone planting

600 Woodland work generally

1. Services: Check for below and above ground services, including land drainage, in the vicinity. Give notice if they may be affected and obtain instructions before proceeding.
2. Safety: Comply with Arboriculture and Forestry Advisory Group Safety leaflets.

605 Existing vegetation/ Weed clearance

1. Surface vegetation clearance: to all planting areas shown on the detailed planting plans, using suitable nonresidual herbicide
2. Arisings: Remove.

617A Removing trees and hedges

1. Identification: Clearly mark trees and hedges to be removed.
2. Work near retained trees: Where canopies overlap, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
3. Arisings: Chip for re-use as mulch on site.
4. Tree stumps: Remove mechanically to a minimum depth of 300 mm below ground level where visible around car park margins - leave stumps in existing woodland

Protecting/ maintaining/ making good defects

710 Maintenance

1. Duration: Carry out the operations in the following clauses from completion of planting until the end of the rectification period.
2. Frequency of maintenance visits: Submit proposals

720 Failures of planting

1. Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs that have failed to thrive.
 - 1.1. Exclusions: Theft or malicious damage after completion.
 - 1.2. Rectification: Replace with equivalent plants/ trees/ shrubs.
2. Replacements: To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
3. Timing of making good: In accordance with an agreed defects rectification programme

730 Protective fencing

1. Fencing type: Contractor's choice
2. Erection: On completion of planting.
3. Removal: After planting is well established

740 Cleanliness

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

750 Planting maintenance generally

1. **Weed control:** Maintain weed free area around each tree and shrub.
 - 1.1. **Diameter (minimum):** The larger of 1 m or the surface of original planting pit.
 - 1.2. **Keep planting beds clear of weeds:** By maintaining full thickness of mulch
2. **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.
3. **Precautions:** Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
4. **Firming up:** Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
5. **Trees:** Spray crown when in leaf during warm weather.
 - 5.1. **Timing:** After dusk.
6. **Tree accessories:** Check condition of stakes, ties, guys, guards and irrigation and ventilation systems.
 - 6.1. **Broken or missing items:** Replace.
 - 6.2. **Loose stakes:** Re-firm in the ground or replace as necessary to provide support to the tree.
 - 6.3. **Loose guys:** Re-firm anchor points and adjust as necessary to provide support to the tree.
 - 6.4. **Ties:** Adjust to accommodate growth and prevent constriction or abrasion.
 - 6.5. **Damage to bark:** Cut back neatly with sharp knife. Prevent further damage.
 - 6.6. **Frequency of checks:** At each scheduled maintenance visit
7. **Watering:** As required for healthy establishment, depending on weather conditions

760 Planting maintenance – pruning

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

780 Maintenance instructions

1. **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 details of any special procedures to be carried out.

790 Final mulching

1. **Timing:** At end of the maintenance period.
2. **Watering:** Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
3. **Planting beds:** Remulch.
4. **Depth (minimum):** 75 mm
5. **Trees:** Remulch.
6. **Depth (minimum):** 75 mm

Ω End of Section

Q35 Landscape maintenance **UNCHANGED**

Clauses

2 To be read with preliminaries/ general conditions.

Generally

110 Notice

1. Give notice before
 - 1.1. Application of herbicide.
 - 1.2. Application of fertilizer.
 - 1.3. Watering.
 - 1.4. Each site maintenance visit.
2. Period of notice: 7 days

130 Reinstatement

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

140 Control of mammalian pests

1. Specialist firms: Submit proposals
 - 1.1. Method: Submit proposals

155 Watering

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

160 Water restrictions

1. 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 arisings

1. General: Unless specified otherwise, dispose of arisings as follows:
 - 1.1. Biodegradable arisings: Remove to recycling facility
 - 1.2. Grass cuttings: Remove to recycling facility
 - 1.3. Tree roots and stumps: Remove from site
 - 1.4. Shrub and tree prunings: Remove to recycling facility
 - 1.5. Litter and nonbiodegradable arisings: Remove from site

180 Chipping or shredding

1. General: Not permitted on site.

181 Mechanical equipment

1. General: Minimize.
2. Prohibited equipment: Chippers
3. Timing: Use of mechanical equipment allowed between the hours of 10:00 am and 4:00 pm only

190 Litter

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

195 Protection of existing grass

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

197 Cleanliness

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

Grassed areas

210 Maintenance of grassed areas

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

220 Grass cutting generally

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

226 Tree stems

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

235 Bulbs and corms in grassed areas

1. Before flowering: Do not cut.
2. Interval between end of flowering and start of grass cutting (minimum): 6 weeks

240 Mowing strips

1. Location: Along the base of walls, fences and hedges,
2. Width (approximate): 150 mm.
3. Operations: Maintain by hand weeding and cultivation

250 Leaf removal

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

255 First cut of

1. Description: All grassed areas
2. Height of initial growth: 50 mm
3. Preparation
 - 3.1. Debris and litter: Remove.
 - 3.2. Stones and earth clods larger than 25 mm in any dimension: Remove
4. Height of first cut: 40 mm
5. Mower type: Cylinder
6. Arisings: Remove

260 Mowing lawns

1. Grass height: Maintain between 25 and 50 mm
2. Arisings: Remove

265 Mowing general areas

1. Grass height: Maintain between 25 and 50 mm
2. Arisings: Remove

285 Top dressing

1. Location: All lawns
2. Timing: Following scarification and aeration
3. Material: Compost/ sand/ loam mix
4. Supplier: Contractor's choice
 - 4.1. Product reference: Contractor's choice
5. Declaration of analysis: Submit.
6. Additional analyses: Not required
7. Samples: Not required
8. Application rate: 1 kg/m²

290 Rolling

1. Location: All lawns
2. Timing: February or March, after first mowing
3. Roller: 100 kg (2 cwt)
4. Operations: Consolidate turf and reduce frost heave.

295 Spiking

1. Location: All lawns
2. Timing: February or March, after rolling
3. Operations: Aerate the soil and improve surface water penetration.
4. Depth (minimum): 75 mm into soil

300 Scarifying

1. Location: All lawns
2. Timing: February or March, before first cut
3. Operations: Relieve thatch conditions and remove dead grass.
4. Depth (maximum): 15 mm into soil
5. Arisings: Remove

309 Edges to seeded areas

1. Location: Planting beds and around newly planted trees.
2. Timing: After seeded areas are well established.
3. Edges: Cut to clean straight lines or smooth curves. Draw back soil to permit edging.
4. Arisings: Remove.

310 Re-forming grass edges

1. Location: All edges
2. Edges: Draw back soil and re-form edges to clean straight lines or smooth flowing curves, sloping slightly back from vertical.

320 Levelling hollows and bumps in turf

1. Standard: To BS 7370-3, clauses 12.4 and 12.5.

325 Relieving surface compaction in turf

1. Standard: To BS 7370-3.
2. Method: Spiking
3. Top dressing: Not required
 - 3.1. Depth: 2-3 mm

330 Selective herbicide

1. Location: Grassed areas
2. Herbicide: Contractor's choice
3. Areas not to be sprayed: Desirable herbaceous plantings

345 Control of Japanese knotweed

1. Operations: Spot treat in June and September during suitable weather conditions and when plants are growing vigorously.
2. Herbicide: In accordance with the Environment Agency 'Managing Japanese knotweed on development sites. The knotweed code of practice'
3. Application: In accordance with the Environment Agency 'Managing Japanese knotweed on development sites. The knotweed code of practice'
4. Arisings: In accordance with the Environment Agency 'Managing Japanese knotweed on development sites. The knotweed code of practice'

350 Fertilizer – spring application

1. Type: Slow release
2. Application rate: 60 g/m²

360 Fertilizer – autumn application

1. Type: Slow release
2. Application rate: 60 g/m²

375 Pest control

1. Location: Ornamental lawns and grassed areas
2. Treatment: Insecticide
 - 2.1. Manufacturer: Contractor's choice
 - 2.1.1. Product reference: Contractor's choice
3. Timing: As manufacturer's recommendation

380 Reinstatement of damaged lawns

1. Damaged turf: Remove to a depth of 30 mm.
2. Preparation: Cultivate substrate to a fine tilth.
3. Reinstatement: Contractor's choice of turfing or topsoiling and reseeding:
 - 3.1. Turfing: Quality and appearance to match existing.
 - 3.2. 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.
4. Protection and watering: Provide as necessary to promote successful germination and/ or establishment.

381 Reinstatement of worn or damaged lawns

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

Flower beds/ seasonal beddings

460 Beds of perennials or perennials and annuals

1. Plant supports: Stake and tie plants using flower canes.
 - 1.1. Length: 400 mm
 - 1.2. Maintain throughout the growing season.
2. Gaps in planting: Refill by replanting.
3. Watering
 - 3.1. New plants: Before and after planting out.
 - 3.2. Ongoing: As necessary for the continued thriving of all planting.
4. Operations at end of growing season
 - 4.1. Trim: Older flowering stems of herbaceous perennials.
 - 4.2. Remove: Redundant plant supports, litter, debris and arisings.

- 4.3. Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.
- 4.4. Top dress: Apply sanitized and stabilized compost top dressing.

470 Flower beds generally

1. Operations
 - 1.1. Remove: Dead flower heads, fallen leaves, litter and debris.
 - 1.2. Weeds: Thoroughly hand weed.
 - 1.3. Cultivate: Lightly hoe.
 - 1.4. Trim: Clip grass edges.
2. Fungicide: Not required
3. Insecticide: Not required

490 Thinning by removal of surplus plants

1. Plants to be thinned: to be advised by maintenance contractor
2. Standard: BS 7370-4, clause 3.5.17.1.
3. Timing: Thin when foliage of adjacent plants has begun to touch.
4. Roots
 - 4.1. Disturbance to adjacent plants: Minimise.
 - 4.2. Soil: Refill holes with topsoil to leave an even graded surface.
 - 4.3. Mulch: Maintain mulch as original specification.
5. Adjacent plants: Make good any minor damage immediately.
6. Plants for retention: Select plants with a strong healthy habit.
7. Mature planting density: Contractor to present methodology

Shrubs/trees/hedges

500 Establishment of new planting

1. Duration: 1 year
2. Weed control
 - 2.1. Method: Keep planting beds clear of weeds by hoeing and screefing .
 - 2.2. 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.
3. Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
4. Watering: As necessary to maintain healthy growth

502 Establishment of new planting – fertilizer

1. Time of year: March or April.
2. Type: Slow release
3. Spreading: Spread evenly. Carefully lift and replace any mulch materials.
 - 3.1. Application rate: 300 g per m²

510 Tree stakes and ties

1. Inspection/ Maintenance times: As scheduled and immediately after strong winds
2. Stakes
 - 2.1. Replace loose, broken or decayed stakes to original specification.

- 2.2. 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.
3. Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.
 - 3.1. Where chafing has occurred, reposition or replace ties to prevent further chafing.
4. Removal of stakes and ties: During spring when no longer required to support the tree
 - 4.1. Fill stake holes with lightly compacted soil.

515 Tree guy wires

1. Inspection/ Maintenance times: Immediately after strong winds
2. Operations
 - 2.1. Replace or resecure loose or missing guy wires.
 - 2.2. Adjust to suit stem growth and to provide correct and uniform tension.
3. Removal: During spring when no longer required to support the tree

520 Refirming of trees and shrubs

1. Timing: After strong winds, frost heave and other disturbances.
2. Refirming: Tread around the base until firmly bedded.
3. 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

1. Loose or defective guards: Adjust, refix or replace to original specification and to prevent chafing.

530 Tree shelters

1. Loose or defective shelters: Adjust, refix or replace to original specification and to prevent chafing.
2. Removal: During spring when no longer required to protect the tree

535 Tree grilles

1. Operations: Lift grilles, remove weeds, adjust levels as necessary and lightly compact. Refit grilles, refill interstices and lightly compact to correct level.
2. - Material for making up levels and refilling: Horticultural grit

537 Nesting wild birds

1. Survey: Before starting hedge or tree work during the period of February to August (inclusive), carry out a survey by a qualified ecologist and submit report
2. Accidental disturbance: Report immediately.

540 Pruning generally

1. Pruning: In accordance with good horticultural and arboricultural practice.
 - 1.1. Removing branches: Do not damage or tear the stem or bark.
 - 1.2. Wounds: Keep as small as possible and cut cleanly back to sound wood.
 - 1.3. Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
 - 1.4. Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
2. Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance.

3. **Tools:** Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
4. **Disease or infection:** Give notice if detected.
5. **Growth retardants, fungicide or pruning sealant:** Do not use unless instructed.

545 Pruning of excessive overhang

1. **Timing:** Annually
2. **Operations:** Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
3. **Special requirements:** None

550 Pruning of excessive height

1. **Timing:** Annually
2. **Operations:** Remove excessive height as required to maintain good form.

555 Pruning trees and shrubs

1. **Standard:** To BS 7370-4.
2. **Special requirements:** None

570 Formative pruning of young trees

1. **Standard:** Type and timing of pruning operations to suit the plant species.
2. **Time of year:** Do not prune during the late winter/ early spring sap flow period.
3. **Young trees up to 4 m high**
 - 3.1. **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.
 - 3.2. **Remove duplicated branches** and potentially weak or tight forks. In each case cut back to live wood.
4. **Whips or feathered trees:** Do not prune.
5. **Operatives:** Approved specialist contractor

575 Pruning ornamental shrubs

1. **General:** Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
2. **Suckers:** Remove by cutting back level with the source stem or root.

580 Pruning flowering species of shrubs and roses

1. **Time of year**
 - 1.1. **Winter flowering shrubs:** Spring.
 - 1.2. **Shrubs flowering between March and July:** Immediately after the flowering period.
 - 1.3. **Shrubs flowering between July and October:** Back to old wood in winter.
 - 1.4. **Rose bushes:** Early spring to encourage basal growths and a balanced, compact habit.

600 Trimming rapidly establishing hedges

1. **General:** Allow to reach planned height as rapidly as possible.
 - 1.1. **Form:** Trim back lateral branches moderately.

605 Trimming slowly establishing hedges

1. Operations
 - 1.1. **Timing:** Cut back hard in June and September to encourage bushy growth down to ground level.
 - 1.2. **Form:** Allow to reach planned dimensions only by gradual degrees, depending on growth rate and habit.

611 Trimming non-tapering established hedges

1. Time of year: Trim once in July or August
2. Operations
 - 2.1. **Form:** Trim carefully and neatly to regular line and shape with vertical sides.
 - 2.2. **Trim:** Remove current growth rather than old wood.
3. Tools/ Cutting: Suitable mechanical cutters

620 Removal of dead plant material

1. **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

1. **Pruning:** Remove excess growth, to ensure that signs, light fittings, doors and windows are kept clear at all times.
2. **Insecure growth:** Attach to supporting wires or structures using 1 mm diameter black plastics coated steel wire.
3. **Supporting structures:** Check and repair as necessary.

630 Dead and diseased plants

1. **Removal:** As soon as possible
2. **Replacement:** In the next suitable planting season

635 Reinstatement of shrub/ Herbaceous areas

1. **Dead and damaged plants:** Remove.
2. **Mulch/ matting materials**
 - 2.1. Carefully move to one side and dig over the soil, leaving it fit for replanting.
3. Do not disturb roots of adjacent plants.
4. **Replacement plants**
 - 4.1. **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.
 - 4.2. **Additional requirements:** Submit proposals
5. **Dressing: Slow release fertilizer:**
 - 5.1. **Type:** Contractor's choice
 - 5.2. **Application rate:** As manufacturer's recommendations

640 Thinning by removal of surplus plants

1. **Plants to be thinned:** as advised by maintenance contractor
2. **Standard:** BS 7370-4.
3. **Timing:** When foliage of adjacent plants has begun to touch
4. **Roots**

- 4.1. Disturbance to adjacent plants: Minimise.
- 4.2. Soil: Refill holes with topsoil to leave an even graded surface.
- 4.3. Mulch: Maintain mulch as original specification.
- 4.4. Adjacent plants: Make good any minor damage immediately.
5. Plants for retention: Select plants with a strong healthy habit.
6. Mature planting density: Contractor to present methodology

645 Weed control generally

1. Weed tolerance: Weed to clear ground every 2 weeks
2. Adjacent plants, trees and grass: Do not damage.

650 Hand weeding

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

655 Weed cutting by hand or machine

1. Undesirable grass, brambles and herbaceous growth: Cut down cleanly to a maximum height of 50 mm.
2. Herbicides: Give notice before use

657 Herbicide to kill regrowth

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

665 Weed control with winter herbicide

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

670 Weed control with summer herbicide

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

675 Digging over

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

680 Soil aeration

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

685 Soil level adjustment

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

690 Maintenance of loose mulch

1. Thickness (minimum): 50 mm
 - 1.1. Top up: Annually
2. Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
3. Weeding: Remove weeds growing on or in mulch by hand weeding.

695 Fertilizing established trees and shrubs

1. Time of year: After flowering
2. Type of fertilizer: Slow release
3. Application: Spread evenly.
 - 3.1. Rate: 60 g/m²

700 Snow removal from shrubs/ Trees

1. Standard: To BS 7370-4.
2. Plants subject to snow removal: All evergreens
3. Timing: Within 24 hours of snowfall

705 Winter leaf removal

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

Tree work

810 Tree work generally

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

815 Additional work

1. Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

820 Prevention of wound bleeding

1. Standard: To BS 3998.

825 Prevention of disease transmission

1. Standard: To BS 3998.

830 Cleaning out and deadwooding

1. Remove
 - 1.1. Dead, dying, or diseased wood, broken branches and stubs.
 - 1.2. Fungal growths and fruiting bodies.
 - 1.3. Rubbish, windblown or accumulated in branch forks.
 - 1.4. Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
 - 1.5. Other unwanted objects, e.g. tree houses, swings.
 - 1.6. Climbing plants as required.

835 Cutting and pruning generally

1. Tools: Appropriate, well maintained and sharp.
2. Final pruning cuts
 - 2.1. Chainsaws: Do not use on branches of less than 50 mm diameter.
 - 2.2. Hand saws: Form a smooth cut surface.
 - 2.3. Anvil type secateurs: Do not use.
3. Removing branches: Do not damage or tear the stem.
4. 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.
5. Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.
6. Large branches: Remove only with prior approval
 - 6.1. Remove in small sections and lower to ground with ropes and slings.
7. Dead branches and stubs: When removing, do not cut into live wood.
8. Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
9. Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 Crown reduction/ Shaping

1. General: Cut back selectively to lateral or sublateral buds or branches to retain flowing branch lines without leaving stumps.
2. Operations: Reduce crown by 15%

845 Crown lifting

1. Clearances: Remove branch systems to give clearance.
 - 1.1. Height: 2.5 m above footpaths
2. 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

1. Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.
2. Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown.
 - 2.1. Quantity: 15 %
3. Cutting: Make no cuts of more than 25 mm diameter.

3.1. Branches: Cut back to lateral or sublateral buds or branches without leaving stumps.

4. Appearance: Leave a uniform and well balanced structure of branches and foliage.

855 Cutting tree roots

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

860 Removing trees, shrubs and hedges

1. Standards: To BS 3998 and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets.
2. Existing services: Check for below and above ground services. Give notice if they may be affected.
3. Shrubs and smaller trees: Cut down and grub up roots.
4. Tree stumps
 - 4.1. Treatment: Remove mechanically to a minimum depth of 300 mm below ground level
 - 4.2. Removal by winching: Give notice. Do not use other trees as supports or anchors.
5. Protection: Avoid damage to neighbouring trees, plants and property
6. 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.
7. Filling holes
 - 7.1. Material: Use as-dug material and/ or imported soil as required.
 - 7.2. Finishing: Consolidate and grade to marry in with surrounding ground level.

865 Bark damage

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

870 Cavities in trees

1. Investigation: Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay, and give notice.
2. Water filled cavities: Do not drain.

3. Sound wood inside cavities: Do not remove.
4. Cavity openings: Do not cover

Water areas - Not Used

Hard landscape areas/fencing

900 Snow clearance

1. Clearance: When instructed
2. Deicing: To roads, car parks and footpaths
 - 2.1. Material: Grit
 - 2.2. Timing: When freezing precipitation is forecast
 - 2.3. Application rate: Spread evenly at a rate of: 10 g/m²

910 Hard surfaces and gravel areas

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

920 Fencing

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

Ω End of Section

Q40

Fencing UNCHANGED

Clauses

2 To be read with preliminaries/ general conditions.

Fencing systems

125A Open mesh steel panel secured by design fencing generally

1. Manufacturer: CLD Fencing t: 0800 074 2861 (www.cld-fencing.co.uk) Binns Fencing (HMP approved systems) t: 01707 85 555, www.binns-fencing.com or similar
 - 1.1. Product reference: Submit proposals
2. Standard: To BS 1722-14, category 1.
3. Height: 2400 mm
4. Mesh and wire: welded mesh, 75 mm horizontal x 13 mm vertically x 3 mm wire diameter, plastics coated green to BS 1722-16
5. Posts: 100x 60 Galvanized rectangular hollow section, green plastics coated
6. Maximum centres of posts: max 2500 mm to manufacturers specification
7. Method of setting posts: 450 mm square x 750 mm deep holes filled to not less than half the depth with concrete
8. Bottom of fencing: Min gap above ground 50mm
9. Accessories: Lockable. One x double gates 2400mm height to north rear side route to fit 2500mm width footpath access. One x single leaf entrance gate min 1500mm height to fit 1400mm width path at main arrival maintenance path.
10. Conformity: Submit manufacturer's and installer's certificates, to BS 1722-14.
11. Secured by design approved. Locking pad and all fixings to be tamper proof to architects ironmongery schedule
12. Manufacturer to provide all design drawings for all fencing and gates for approval. Fencing contractor shall carry out site levels checks on site and ascertain required fencing elevations prior to presenting shop drawings.

Gates, posts and stiles - Not Used

Accessories - Not Used

Execution

710 Installation generally

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

715 Competence

1. Operatives: Contractors must employ competent operatives.
2. Qualifications: Submit certification of training.

2.1. NHSS Sector Scheme 2A sub categories: (d)

2.2. NHSS Sector Scheme 2C sub categories: Not required

720 Setting posts in concrete

1. Standard: To BS 8500-2.
2. Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.
3. 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.
4. Admixtures: Do not use.
5. Holes: Excavate neatly and with vertical sides.
6. Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
7. Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

730 Exposed concrete foundations

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

770 Site cutting of wood

1. General: Kept to a minimum.
2. Below or near ground level: Cutting prohibited.
3. 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

1. 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.
2. Thickness: Apply sufficient material to provide a zinc coating at least equal in thickness to the original layer.

790 Site painting

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

Completion

910 Cleaning

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

920 Fixings

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

930 Gates

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

Ω End of Section

Q41

Barriers/ guardrails UNCHANGED

Clauses

2 To be read with preliminaries/ general conditions.

3 Landscape Clauses

1. This specification relates landscape clauses only. Please refer engineers specification for vehicle impact barriers, entry barriers to car park and safety barriers to retaining walls/embankments
- 2.
- 3.

Types of barriers/ guardrails

110 Pedestrian restraint systems in metal

1. Standard: To BS 7818. To Engineer's specification
2. Manufacturer: Contractor's choice
 - 2.1. Product reference: Contractor's choice
3. Height above datum (minimum): engineers specification
4. Rails and posts
 - 4.1. Material/ Protection: engineers specification
5. Infill
 - 5.1. Class
 - 5.2. Type: engineers specification
 - 5.3. Material/ Protection: engineers specification
6. Surface finish: engineers specification
 - 6.1. Colour/ Texture:
 - 6.2. Minimum film thickness:
7. Foundations: engineers specification
8. Fixings:
 - 8.1. Material for fixings: Similar material or coating to the connected items, or isolating washers/ bushes provided to prevent bimetallic corrosion.
 - 8.2. Resistance to vandalism: engineers specification
9. Other requirements: engineers specification
10. Performance verification: Submit a certificate of the restraint system's conformity to BS 7818, issued by a United Kingdom Accreditation Service (UKAS) independent laboratory, prior to ordering materials.
11. Production inspection of posts:

130 Timber Knee Rail Protective Barriers

1. Description: timber knee rail to perimeter areas
2. Standard: By Jacksons Fencing t:0800 408 2236 or similar
3. Height above datum: standard min 400mm
4. Material/ Protection: Softwood selected from BS EN 942, Table NA 1, preservative treated, as section Z12
5. Surface finish: Diamond Rail

- 5.1. Colour/ Texture: as natural timber
6. Fixings/ Foundations: posts set into concrete foundation as per manufacturer specification. Min 300 x 300 x 600 mm deep concrete
7. Other requirements:

140 Metal vehicle safety parapets

1. Standard: To BS 6779-1. To engineer's specification
2. Manufacturer: Contractor's choice
 - 2.1. Product reference: Contractor's choice
3. Designation: engineers specification
4. Post and rail
 - 4.1. Material/ Protection: engineers specification
 - 4.2. Surface finish: engineers specification
 - 4.2.1.Colour/ Texture: engineers specification
 - 4.2.2.Minimum film thickness:
5. Infill
 - 5.1. Type: engineers specification
 - 5.2. Material/ Protection: engineers specification
 - 5.3. Surface finish: engineers specification
 - 5.3.1.Colour/ Texture:
 - 5.3.2.Minimum film thickness:
6. Attachment method
 - 6.1. Anchorage type: engineers specification
 - 6.1.1.Type of holding-down bolts: engineers specification
7. Resistance to vandalism: engineers specification
8. Performance verification: Submit a certificate of conformity to BS 6779-1, issued by a United Kingdom Accreditation Service (UKAS) independent laboratory prior to ordering materials.
9. Production inspection of parapet posts:
10. Testing: Static destructive test parapet posts to BS 6779-1 clause 9.4.3. Submit results.

190 Vehicle access point barriers to car park

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Contractor's choice
2. Boom
 - 2.1. Span: Submit proposals.
 - 2.2. Type: Vertical lifting pole
 - 2.3. Operation: Powered
 - 2.4. Control system: Induction loop
 - 2.5. Colour: Red and white
3. Fixings/ Foundations: To manufacturers and engineer's specification
4. Other requirements: To be confirmed

240 Handrail systems

1. Description: to tops of new and existing retaining walls at south end of car park
2. System manufacturer: Contractor's choice

3. Material: Galvanised Carbon steel
 - 3.1. Cross section:
 - 3.2. Finish: Not required
4. Height above ground surface (to upper surface of handrail)
 - 4.1. Upper handrail:
 - 4.2. Lower handrail:
5. Accessories:

241 Handrails to Rehabilitation Garden in Main courtyard

1. Description: Hardwood handrails and stainless steel posts and frame.

System manufacturer: Submit proposals

Material: Hardwood handrail with stainless steel posts and frame.

Cross-section:

Finish:

Height above ground surface (to upper surface of handrail)

Upper handrail: 900mm to allow for ease of grip for rehabilitation

Lower handrail: 600mm

Accessories: none

- 2.
- 3.

Performance/ inspection/ testing

300 Contractor's structural design

1. Design responsibility: To engineers specification
2. Requirement
 - 2.1. Generally: As section B51. Submit drawings and schedules in accordance with the designated code of practice and to satisfy the performance criteria specified in section B51.
 - 2.1.1. Modifications:
 - 2.2. Additional requirements:
3. Member sizes and locations:
4. Design and production information:
5. Timing of submissions:

305 Production inspection of posts

1. General: At place of fabrication, at rate of
- 1.1. Weld defect levels: As stipulated in Highways England 'Manual of contract documents for highway works' Volume 1 'Specification for highway works' Series 400.

310 Testing sports ground barriers

1. Requirement: Test erected barriers in accordance with SGSA's 'Guide to safety at sports grounds'.
2. Testing authority: United Kingdom Accreditation Service (UKAS) independent laboratory.

3. Test records: Submit, including barrier identity, location, test date, and all results/ comments.

320 Testing vehicle fence post foundations

1. Test post foundations: Install after completion of finished ground.
 - 1.1. Locations:
2. Loading tests: Provide testing equipment and carry out tests in accordance with BS 7669-3 annex B.
 - 2.1. Results: Submit one week prior to fence erection.
 - 2.2. Completion: Remove test posts and foundations and make good finished ground.

325 Testing vehicle fence post foundations

1. Test post foundations: Install after completion of finished ground.
 - 1.1. Locations:
2. Loading tests: Make available a vehicle of minimum 5 tonnes while tests are being carried out under supervision of
 - 2.1. Completion: Remove test posts and foundations and make good finished ground.

330 Verification of anchorages

1. Description:
2. Certification: Four weeks prior to installation, submit certificates from a United Kingdom Accreditation Service (UKAS) independent laboratory, stating that for tests in accordance with BS 5080-1, anchorages are capable of resisting the
3. Tolerance: Certification must include the maximum tolerance of hole size and evidence that load can be supported when anchor is installed in holes having these tolerances.

340 Site testing anchorages in drilled holes

1. Description:
2. Test parapet posts: Install on site.
3. Loading tests: To BS 5080-1.
 - 3.1. Frequency of testing:
4. Anchorage loadings: Incrementally in tension to 10% above the nominal tensile load determined in accordance with
 - 4.1. Load holding periods
 - 4.1.1. Incremental loads: Not less than 30 seconds.
 - 4.1.2. Test loads: Not less than 5 minutes.
 - 4.2. Readings: Take after applying load and at the end of the time intervals stated.
 - 4.3. Movement: Total not to exceed 1 mm during test.
 - 4.3.1. Any evidence of slip during loading shall constitute failure.
5. Test results: Submit prior to full parapet installation.

Installation

405 Competence

1. Operatives: Contractors must employ competent operatives.
2. Qualifications: Submit certification of training.
 - 2.1. UKAS Sector Scheme 2A sub categories:
 - 2.2. UKAS Sector Scheme 2C sub categories:

410 Work on or adjacent to highways

1. **Requirement:** Comply with the Department for Transport's 'Safety at street works and road works. A code of practice'. Retain a copy of this document on site at all times during the course of the works.

420 Alignment

1. **Erection:** Fences/ barriers to present a flowing alignment. Tops of posts to follow ground profile.
2. **Tolerance:** ± 30 mm of prescribed alignment and, within any 10 m length, ± 15 mm from the straight or required radius.

430 Erection generally

1. **Protection:** Coat all internal and external surfaces of aluminium and steel posts below and up to 150 mm above ground level, with two coats of bituminous paint to BS 6949 type 2, unless other applied surface finish is specified.
2. **Prevention of electrolytic corrosion:** Isolate dissimilar metals.
3. **Steel components:** Do not drill, cut or weld after galvanizing.

440 Erection of vehicle safety parapets

1. **Standard:** To BS 6779
2. **Expanding anchorages:** Do not use in drilled holes.
3. **Holding down bolts:** Stainless steel to BS EN ISO 3506 grade A4-80.
4. **Cast-in or drilled anchorages within 80 mm of the upper surface of any plinth or coping:** Stainless steel to BS EN 10088, grades 1.4401 (316S31) or 14436 (316S33).
5. **Drilled holes:** Avoid concrete reinforcement. Size within tolerance specified by anchorage manufacturer. Clean out prior to insertion of the fixing.
6. **Packers under base plates:** Corrosion resistant metal.
 - 6.1. Support parapet with aluminium packers and remove prior to grouting.
7. **Voids:** Fill with a non-setting passive filler to prevent the collection of water.
8. **Steel anchorage threads:** Coat with grease to provide protection for a minimum of 18 months under cover or 6 months in exposed situations.

450 Erection of vehicle safety fences

1. **Standard:** To BS 7669-3.
2. **Erector requirements**
 - 2.1. Operate Quality Management System, certified by a United Kingdom Accreditation Service (UKAS) independent laboratory.
 - 2.2. Comply with the 'Sector scheme 2B. For the design, supply, installation, maintenance and repair of vehicle restraint systems'.
 - 2.3. Hold valid registration card, issued by National Fencing Training Authority, for types of fences to be erected.
3. **Completion:** Before handover, check fixings for tightness without overstressing.

460 Erection of concrete vehicle safety barriers

1. **Standard:** To BS EN 1317.
2. **Precast barriers:** Bed on cement mortar regulating layer 10 - 15 mm thick capable of transmitting the loads involved, safely and without undue deformation. Bedding layer to be void free and resistant to water penetration.

470 Driving posts

1. Heads of posts: Protect to prevent damage when driving.

480 Concrete foundations for posts

1. Excavations: To have vertical sides. Dispose of all arisings. Blind excavation bottoms with a 50 mm layer of concrete.
2. Concrete mix: To BS 8500-2, Designated mix not less than GEN 4 or Standard mix not less than ST5. Do not use admixtures.
3. Placing concrete: Fill holes to the specified depth and fully compact. Do not backfill for at least four days.
4. Temporary support to posts: Provide for a at least four days after placing concrete.

490 Damage repair to galvanized surfaces

1. Areas of repair: Minor damage, including fixings and fittings.
 - 1.1. Total area of repair not to exceed 0.5% of total surface area.
 - 1.2. Each area not to exceed 1000 mm².
2. Renovation: Use low melting point zinc alloy repair rods or powders or at least two coats of zinc-rich paint to BS 4652.

500 Preservative treated timber

1. Surfaces exposed by minor cutting and drilling: Treat with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.

510 Preparation for site painting

1. Preparation and application: As soon as possible after installation of barriers/ guardrails.

Completion

900 Documentation

1. Contents
 - 1.1. General product information.
 - 1.2. Installation information.
 - 1.3. Inspection and maintenance reports.
2. Number of copies:
3. Submission:

Ω End of Section

Q50

Site/street furniture/equipment **UNCHANGED**

Clauses

2 To be read with preliminaries/ general conditions.

Gates, barriers and parking controls

155 Parking meter

1. Description: Main entrance foyer area
2. Manufacturer: Contractor's choice
 - 2.1. Product reference: Contractor's choice
3. Type: To be confirmed
4. Finish as delivered: As manufactured
 - 4.1. Colour:
5. Colour:
6. Accessories/ Features:

190A Vehicle Impact Bollards to drop off and entrance area

1. Description: Non-illuminated
2. Manufacturer: Broxap t:
 - 2.1. Product reference: Semi Domed Sheffield Type BX47/Semi Domed
3. Material: Stainless steel
 - 3.1. Finish as delivered: As manufactured
 - 3.2. Colour: As manufactured
 - 3.3. Grade: 316 Grade for coastal environments
 - 3.4. Reflective band: yes white reflective band
4. Height above ground: 1000mm
5. Sectional size: 204mm diameter
6. Top: semi domed
7. Special features: two types of bollard: Fixed bollards to drop off area (Type A) and bollards to arrival space to be drop type with plate (Type B).
8. Method of fixing: Root fixed, min 400 mm below ground, set in concrete base

Site and street furniture

210 Cycle stands

1. Manufacturer: Broxap or similar and approved
 - 1.1. Product reference: 'Sheffield' Cycle Stands to fit shelter as per B91/340
2. Type: Single stands
3. Material: Galvanised steel
 - 3.1. Finish: Satin Hot-dip galvanized to BS EN ISO 1461
 - 3.2. Colour: None
4. Accessories: None
5. Method of fixing: Root, 300 mm below ground, set in concrete base

220 Benches Type B2

1. Description: To west walkway, arrival and main courtyard
2. Manufacturer: Factory Furniture t:01367 242731 www.factoryfurniture.co.uk or submit proposals for similar approved
 - 2.1. Product reference: Wood BLOC Benches without arm rests/backrests
3. Material: Timber
 - 3.1. Finish: Manufacturer design
 - 3.2. Colour: Manufacturer design
4. Size: 1950mm length
5. Accessories/ Special requirements: Manufacturer design
6. Method of fixing: Fixed to ground. Manufacturer design

240 Litter bins

1. Description: to public realm and car park areas
2. Manufacturer: Factory Furniture t:01367 242731 www.factoryfurniture.co.uk or submit proposals for similar approved.
 - 2.1. Product reference: WoodBLOC Litter Bin
3. Material: Timber and Stainless steel.
 - 3.1. Finish: as manufactured
 - 3.2. Colour: as manufactured
4. Accessories/ Special requirements: GRP liner
5. Method of fixing: Proprietary anchored bases.

320 Flag pole

1. Description: opposite DDA car parking area at main car park entrance
2. Manufacturer: Contractor's choice
 - 2.1. Product reference: Contractor's choice
3. Height: 8 m
4. Material: Mild steel
 - 4.1. Finish: Hot-dip galvanized to BS EN ISO 1461
 - 4.2. Colour: tbc To BS 4800, 00 E 55 white
5. Accessories: External halyard
6. Method of fixing: pole to be root fixed below ground to concrete foundation to engineer's specification

Installation

510 Concrete foundations generally

1. Standard: To BS 8500-2.
2. Concrete: Standard prescribed, not less than ST2 unless otherwise stated on construction detail drawings
3. Admixtures: Do not use.
4. Foundation holes: Neat vertical sides.
5. Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

515 Setting components in concrete

1. Holes: as construction detail drawings
2. Components: Accurately positioned and securely supported.
3. Concrete fill: Fully compacted as filling proceeds.
4. Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
5. Temporary component support: Maintain undisturbed for minimum 48 hours.

530 Preservative treated timber

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

550 Damage to galvanized surfaces

1. Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.
 - 1.1. 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.
 - 1.2. Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

560 Site painting

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

Ω End of Section

R13

Land drainage **UNCHANGED**

Clauses

2 To be read with preliminaries/general conditions.

Generally

100 Existing drains and watercourses

1. **Setting out:** Before starting work, check invert levels and positions of existing drainage against drawings. Report any discrepancies.
2. **Drains to be retained:** Protect. Maintain normal operation.

106 In situ concrete (general)

1. **Standard:** To BS 8500-2.
 - 1.1. **Concrete:** to engineers specification

Drains

206A Drainage generally

1. Refer to engineers specification for all drainage systems.

211 Filter drains with pipe

1. **Trench**
 - 1.1. **Depth:** To engineers specification
 - 1.2. **Width:** To engineers specification
2. **Pipe bedding:** To engineers specification
 - 2.1. **Recycled content of granular material:** Contractor's choice
3. **Pipes:** To engineers specification
 - 3.1. **Manufacturer:** Contractor's choice
 - 3.1.1. **Product reference:** Contractor's choice
 - 3.2. **Sizes:** DN 100
 - 3.3. **Recycled content of plastics pipes:** None required
 - 3.4. **Perforations:** Down
4. **Pipe surround and backfill**
 - 4.1. **Material:** Granular surround and backfill - surface water drains
 - 4.2. **Recycled content of granular material:** None required
 - 4.3. **Level:** For grassed areas - to 150mm below ground level and cover with rootzone. For planted areas to 100mm below ground level and cover with bark planting mulch

350 Laying pipes

1. **Weather conditions:** Lay pipes in good weather using methods suitable for the site conditions.
 - 1.1. **Plastics pipes:** Do not lay or backfill at temperatures lower than 5°C.
 - 1.2. **Soil structure:** Prevent compaction, smearing, top ponding, rutting and damage.
2. **General:** Lay to line and gradient on a firm bed free from loose soil to give a free-draining installation without backfalls. Do not lay on soil backfill or in slurry.

3. Drains closer than 6 m to trees or hedges: Unperforated pipes with positively sealed joints and as-dug backfill.
4. Junctions between branches and mains: Purpose made components.
5. Upper ends of drain runs: Plug to prevent ingress of soil or animals.
6. Backfilling: Do not damage, distort or displace pipes.

Culverts - Not Used

Excavating/ beddings/ surrounds/ backfill

500 Topsoiling

1. Filter drains: Do not lay until soiling operations, including spreading and grading of topsoil, have been completed.
2. Segregation: Carefully remove topsoil when forming trenches and prevent mixing with subsoil.

505 Excavation

1. Pipe gradients: Between 1 in 200 and 1 in 80.
2. Subsoil: Remove from site or to approved locations at end of each day and before pipe laying. Do not disperse on topsoiled areas.
 - 2.1. Approved locations: to be agreed on site

515 Existing live land drains

1. Drains exposed by excavation: Mark positions.
2. Cutting out: Carefully break back piped drains to an undisturbed section.
3. Reconnection: Connect exposed drain to new work.
4. Record drawing: Show position of exposed system and new connections. Submit copy.

520 Formation for beds or pipes

1. Timing: Excavate to formation immediately before laying beds or pipes.
2. Hard spots: Remove rock projections, boulders, etc. Replace with consolidated bedding material.
3. Soft spots: Tamp in bedding material.
4. Inspection: Give notice of completed excavated formation for each section of the work.
 - 4.1. Period of notice (minimum): 5 working days

525 Granular beds

1. Compacted thickness (minimum): 50 mm.
 - 1.1. Laying pipes: Scoop out locally at couplings and sockets and lay pipes digging slightly into bed and resting uniformly on their barrels.

530 Granular surround and backfill – subsoil drains

1. Material: Clean gravel, broken stone, hard clinker or slag, with no fines, graded 40 to 10 mm or approved recycled material.
2. Covering: Cap to granular material
 - 2.1. Cap to granular material: Refer to engineers specification

540 Granular surround and backfill – surface water drains

1. Material: Clean gravel, broken stone, hard clinker or slag, with no fines, graded 75 to 20 mm or approved recycled material.

546 Selected as-dug surround and backfill

1. **Material:** Selected as-dug, free from vegetable matter, rubbish, frozen soil, large lumps of clay and material retained on a 40 mm sieve.
2. **Placing material around sides of pipes and against fin drains:** Carefully pack. Prevent damage or disruption to pipelines or fin drains and compact thoroughly.

555 Granular backfilling to drains with pipes

1. **General:** Not applicable to narrow trenches where a backfill is placed continuously by machine.
2. **Placing:** in maximum 300 mm thick layers, with mechanical compaction from 300 mm above crown of pipe, up to finished ground level.
 - 2.1. **Surround and backfill material:** Do not heap in the trench before spreading.
 - 2.2. **Packing:** Carefully pack material around the sides of the pipe. Prevent damage or disruption to pipelines and compact thoroughly.

565 Backfilling with as-dug material

1. **General:** Not applicable to narrow trenches where a backfill is placed continuously by machine.
2. **Material:** As excavated from the trench.
3. **Placing and compaction:** Maximum 300 mm thick layers, up to finished ground level. Compact each layer before placing the next.
4. **Heavy compactors:** Do not use before there is 600 mm of material over pipes.

Ancillary constructions and work

610A Inspection chambers and soakaways

1. Refer to engineers specification.

640 Cast iron access covers and seating

1. **Covers:** Grey cast iron or ductile cast iron.
 - 1.1. **Standard:** To BS EN 124.
 - 1.2. **Manufacturer:** Contractor's choice
 - 1.2.1. **Product reference:** Contractor's choice
 - 1.3. **Types:** Refer to engineers specification
 - 1.4. **Sizes:** Refer to engineers specification
2. **Seating:** Either:
 - 2.1. **Brickwork:** Refer to engineers specification, or
 - 2.2. **Precast concrete cover frame units,** to BS 5911-3.
3. **Bedding and haunching of frame**
 - 3.1. **Solidly in 1:3 cement:sand mortar** over whole area.
 - 3.2. **Centrally over opening,** top level and square with joints in surrounding finishes.
 - 3.3. **Cut back top of haunching** to 30 mm below top of surface material.

800 Cleaning

1. **General:** Thoroughly flush out the whole of the installation with clean water to remove silt and debris immediately before handover.
2. **Washings and detritus:** Dispose of safely. Do not discharge into sewers or watercourses.

Ω End of Section

Z10

Purpose made joinery **UNCHANGED**

To be read with preliminaries/ general conditions.

110 Fabrication

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

120 Cross section dimensions of timber

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

130 Preservative treated wood

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

140 Moisture content

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

250 Finishing

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

Ω End of Section

Z11

Purpose made metalwork UNCHANGED

Clauses

2 To be read with preliminaries/ general conditions.

To be read with preliminaries/ general conditions.

310 Materials generally

1. Grades of metals, section dimensions and properties: To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.
2. Prefinished metal: May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.
3. 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

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

520 Cold formed work

1. Profiles: Accurate, with straight arrises.

Finishing

710 Finishing welded and brazed joints visible in complete work

1. Standard: To BS EN ISO 8501-3.
 - 1.1. Preparation grade: in accordance with manufacturers recommendations
2. Butt joints: Smooth, and flush with adjacent surfaces.
3. Fillet joints: Neat.
4. Grinding: Grind smooth where indicated on drawings.

745 Preparation for application of coatings

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

780 Galvanizing

1. Standard: To BS EN ISO 1461.
2. Preparation
 - 2.1. Vent and drain holes: Provide in accordance with BS EN 14713-1 and -2. Seal after sections have been drained and cooled.
 - 2.2. Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.

- 2.3. Welding slag: Remove.
- 2.4. Component cleaning: To BS EN ISO 8501-3.
- 2.5. Grade: St 2

Products - Not Used

Ω End of Section

Z12

Preservative/ fire retardant treatment **UNCHANGED**

To be read with preliminaries/ general conditions.

110 Treatment application

1. Timing: After cutting and machining timber, and before assembling components.
2. Processor: Licensed by manufacturer of specified treatment solution.
3. Operatives:
4. Certification: For each batch of timber provide a certificate of assurance that treatment has been carried out as specified.

120 Commodity specifications

1. Standard: In accordance with the Wood Protection Association (WPA) publication 'Industrial wood preservation specification and practice'.

130 Preservative treatment solution strengths/ treatment cycles

1. General: Select to achieve specified service life and to suit treatability of specified wood species.

140 Copper-organic preservative treatment

1. Solution
 - 1.1. Manufacturer:
 - 1.1.1. Product reference:
 - 1.2. Colour:
 - 1.3. Application: High pressure impregnation.
2. Moisture content of wood
 - 2.1. At time of treatment: Not more than 28%.
 - 2.2. After treatment: Timber to be surface dry before using.

150 Water-based organic preservative treatment

1. Solution
 - 1.1. Manufacturer:
 - 1.1.1. Product reference:
 - 1.2. Application: High pressure impregnation.
2. Moisture content of wood
 - 2.1. At time of treatment: Not more than 28%.
 - 2.2. After treatment: Timber to be surface dry before use.

160 Organic solvent preservative treatment

1. Solution
 - 1.1. Manufacturer:
 - 1.1.1. Product reference:
 - 1.2. Application: Double vacuum + low pressure impregnation, or immersion.
2. Moisture content of wood
 - 2.1. At time of treatment: As specified for the timber/ component at time of fixing.
 - 2.2. After treatment: Timber to be surface dry before use.

165 Water-based microemulsion preservative treatment

1. Solution
 - 1.1. Manufacturer:
 - 1.1.1. Product reference:
 - 1.2. Application: Double vacuum + low pressure impregnation.
2. Moisture content of wood
 - 2.1. At time of treatment: As specified for the timber/ component at time of fixing.
 - 2.2. After treatment: Timber to be surface dry before use.

167 Boron compound preservative treatment

1. Solution
 - 1.1. Manufacturer:
 - 1.1.1. Product reference:
 - 1.2. Application: High pressure impregnation.
2. Moisture content of wood
 - 2.1. At time of treatment: Not more than 28%.
 - 2.2. After treatment: Timber to be surface dry before using.

180 Recycled treated timber

1. Usage:

210 Flame-retardant treatment

1. Standard: In accordance with the Wood Protection Association (WPA) publication 'Industrial flame retardant treatment of wood and wood-based panel products'.
2. Solution type:
 - 2.1. Manufacturer:
 - 2.1.1. Product reference:
 - 2.2. Application: Vacuum + pressure impregnation.
3. Moisture content of wood
 - 3.1. At time of treatment:
 - 3.2. After treatment: Timber to be redried slowly at temperatures not exceeding 60°C to minimize distortion and degradation.

610 Making good to preservative treatment on site

1. Preservative solution: Compatible with off-site treatment.
2. Application: In accordance with preservative manufacturer's recommendations.

620 Making good to flame-retardant treatment on site

1. Fire retardant: Compatible with off-site treatment.
2. Application: In accordance with fire retardant manufacturer's recommendations.

Ω End of Section

Z20

Fixings and adhesives **UNCHANGED**

Clauses

2 To be read with preliminaries/ general conditions.

Products

310 Fasteners generally

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

320 Packings

1. Materials: Noncompressible, corrosion proof.
2. Area of packings: Sufficient to transfer loads.

340 Masonry fixings

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

350 Plugs

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

390 Adhesives

1. Standards
 - 1.1. Hot-setting phenolic and aminoplastic: To BS 1203.
 - 1.2. Thermosetting wood adhesives: To BS EN 12765.
 - 1.3. Thermoplastic adhesives: To BS EN 204.

410 Powder actuated fixing systems

1. Types of fastener, accessories and consumables: As recommended by tool manufacturer.

Execution

610 Fixing generally

1. 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.
2. Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.
3. Appearance: Fixings to be in straight lines at regular centres.

620 Fixing through finishes

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

630 Fixing packings

1. **Function:** To take up tolerances and prevent distortion of materials and components.
2. **Limits:** Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.
3. **Locations:** Not within zones to be filled with sealant.

640 Fixing cramps

1. **Cramp positions:** Maximum 150 mm from each end of frame sections and at 600 mm maximum centres.
2. **Fasteners:** Fix cramps to frames with screws of same material as cramps.
3. **Fixings in masonry work:** Fully bed in mortar.

670 Pelleted countersunk screw fixing

1. **Finished level of countersunk screw heads:** Minimum 6 mm below timber surface.
2. **Pellets:** Cut from matching timber, match grain and glue in to full depth of hole.
3. **Finished level of pellets:** Flush with surface.

690 Using powder actuated fixing systems

1. **Powder actuated fixing tools:** To BS 4078-2 and Kitemark certified.
2. **Operatives:** Trained and certified as competent by tool manufacturer.

700 Applying adhesives

1. **Surfaces:** Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
2. **Support and clamping during setting:** Provide as necessary. Do not mark surfaces of or distort components being fixed.
3. **Finished adhesive joints:** Fully bonded. Free of surplus adhesive.

Ω End of Section

Z21

Mortars UNCHANGED

Clauses

2 To be read with preliminaries/ general conditions.

Cement gauged mortars

110 Cement gauged mortar mixes

1. **Specification:** Proportions and additional requirements for mortar materials are specified elsewhere.

120 Sand for site made cement gauged masonry mortars

1. **Standard:** To BS EN 13139.
2. **Grading:** 0/2 (FP or MP).
 - 2.1. **Fines content** where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5-6):
 - 2.1.1. **Lower proportion of sand:** Use category 3 fines.
 - 2.1.2. **Higher proportion of sand:** Use category 2 fines.
3. **Sand for facework mortar:** Maintain consistent colour and texture. Obtain from one source.

131 Ready-Mixed lime:sand for cement gauged masonry mortars

1. **Standard:** To BS EN 998-2.
2. **Lime:** Nonhydraulic to BS EN 459-1.
 - 2.1. **Type:** CL 90S.
3. **Pigments for coloured mortars:** To BS EN 12878.

135 Site made lime:sand for cement gauged masonry mortars

1. **Permitted use:** Where a special colour is not required and in lieu of factory made ready-mixed material.
2. **Lime:** Nonhydraulic to BS EN 459-1.
 - 2.1. **Type:** CL 90S.
3. **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

1. **Cement:** To BS EN 197-1 and CE marked.
 - 1.1. **Types:** Portland cement, CEM I.
 - 1.1.1. **Portland limestone cement, CEM II/A-L or CEM II/A-LL.**
 - 1.1.2. **Portland slag cement, CEM II/B-S.**
 - 1.1.3. **Portland fly ash cement, CEM II/B-V.**
 - 1.2. **Strength class:** 32.5, 42.5 or 52.5.
2. **Portland slag cement, CEM II/B-S.**
3. **Portland fly ash cement, CEM II/B-V.**
 - 3.1. **Strength class:**
4. **White cement:** To BS EN 197-1 and CE marked.

- 4.1. Type: Portland cement, CEM I.
- 4.2. Strength class: 52.5.
5. Sulfate resisting Portland cement
 - 5.1. Types: To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
 - 5.1.1. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
 - 5.2. Strength class: 32.5, 42.5 or 52.5.
6. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
 - 6.1. Strength class:
7. Masonry cement: To BS EN 413-1 and CE marked.
 - 7.1. Class: MC 12.5.

180 Admixtures for site made cement gauged mortars

1. Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
2. Other admixtures: Submit proposals.
3. Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

190 Retarded ready to use cement gauged mortar

1. Standard: BS EN 998-2.
2. Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.
 - 2.1. Type: CL 90S.
3. Pigments for coloured mortars: To BS EN 12878.
4. Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
 - 4.1. Retempering: Restore workability with water only within prescribed time limits.

210 Making cement gauged mortars

1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
 - 1.1. Mix proportions: Based on dry sand. Allow for bulking of damp sand.
2. Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
 - 2.1. Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
3. Working time (maximum): Two hours at normal temperatures.
4. Contamination: Prevent intermixing with other materials.

Lime:sand mortars

310 Lime:sand mortar mixes

1. Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

320 Sand for lime:sand masonry mortars

1. Type: Sharp, well graded.
 - 1.1. Quality, sampling and testing: To BS EN 13139.
 - 1.2. Grading/ Source: As specified elsewhere in relevant mortar mix items.

330 Ready prepared lime putty

1. Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.

1.1. Maturation: In pits/ containers that allow excess water to drain away.

1.2. Density of matured lime putty: 1.3-1.4 kg/litre.

2. Maturation period before use (minimum):

335 Ready prepared lime putty

1. Manufacturer:

1.1. Product reference:

2. Maturation period before use (minimum):

340 Pozzolanic additives for nonhydraulic lime:sand mortars

1. Manufacturer/ Supplier:

1.1. Product reference:

2. Mixing: Mix thoroughly into mortar during knocking up.

345 Admixtures for hydraulic lime:sand mortars

1. Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.

2. Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

360 Making lime:sand mortars generally

1. Batching: By volume. Use clean and accurate gauge boxes or buckets.

2. Mixing: Mix materials thoroughly to uniform consistency, free from lumps.

3. Contamination: Prevent intermixing with other materials, including cement.

370 Site prepared nonhydraulic lime:sand mortars

1. Mixing: Mix materials thoroughly by compressing, beating and chopping. Do not add water.

1.1. Equipment: Roller pan mixer or submit proposals.

2. Maturation period before use (maximum):

380 Ready to use nonhydraulic lime:sand mortars

1. Manufacturer:

1.1. Product reference:

2. Materials: Select from:

2.1. Lime putty slaked directly from quicklime to BS EN 459-1 and mixed thoroughly with sand.

2.2. Quicklime to BS EN 459-1 slaked directly with sand.

3. Maturation period before use (maximum):

390 Knocking up nonhydraulic lime:sand mortars

1. Knocking up before and during use: Achieve and maintain a workable consistency by compressing, beating and chopping. Do not add water.

1.1. Equipment: Roller pan mixer or submit proposals.

400 Making hydraulic lime:sand mortars

1. Mixing hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix.

1.1. Water quantity: Only sufficient to produce a workable mix.

2. Working time: Within limits recommended by the hydraulic lime manufacturer.

Ω End of Section

Z22

Sealants UNCHANGED

Clauses

2 To be read with preliminaries/general conditions.

Products

310 Joints

1. Description:
2. Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

Execution

610 Suitability of joints

1. Presealing checks
 - 1.1. Joint dimensions: Within limits specified for the sealant.
 - 1.2. Substrate quality: Surfaces regular, undamaged and stable.
2. Joints not fit to receive sealant:

620 Preparing joints

1. Surfaces to which sealant must adhere
 - 1.1. Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
 - 1.2. Clean using materials and methods recommended by sealant manufacturer.
2. Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
3. Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
4. Protection: Keep joints clean and protect from damage until sealant is applied.

630 Applying sealants

1. Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
2. Environmental conditions: Do not dry or raise temperature of joints by heating.
3. Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.
4. Sealant profiles
 - 4.1. Butt and lap joints: Slightly concave.
 - 4.2. Fillet joints: Flat or slightly convex.
5. Protection: Protect finished joints from contamination or damage until sealant has cured.

Ω End of Section

Z31

Powder coatings **UNCHANGED**

To be read with preliminaries/ general conditions.

120 Powder coating materials

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

210 Working procedures

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

220 Powder coating applicators

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

225 Guarantees

1. Powder coating manufacturer and applicator guarantees
 - 1.1. Submit sample copies before commencement of powder coating.
 - 1.2. Submit signed project specific copies on completion of work.

230 Control samples

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

2.5. Gloss level.

250 Component design

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

310 Pretreatment of aluminium components

1. Condition of components to be pretreated
 - 1.1. Free from corrosion and damage.
 - 1.2. All welding and jointing completed and finish off as specified.
 - 1.3. Free from impurities including soil, grease, oil.
 - 1.4. Suitable for and compatible with the pretreatment process.
2. Conversion coating requirements
 - 2.1. Chromate system: To BS 6496 or BS EN 12206-1.
 - 2.2. Chromate-free system: To BS EN 12206-1. Submit details before using.
3. Rinsing requirements: Use demineralized water. Drain and dry.

320 Pretreatment of steel components

1. Condition of components to be pretreated
 - 1.1. Free from corrosion and damage.
 - 1.2. All welding and jointing completed and finish off as specified.
 - 1.3. Free from impurities including soil, grease, oil.
 - 1.4. Suitable for and compatible with the pretreatment process.
2. Conversion coating requirements: To BS EN 13438.
3. Rinsing requirements: Use demineralized water. Drain and dry.

430 Extent of powder coatings

1. 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

1. Surfaces to receive powder coatings: Free from dust or powder deposits.
2. Powder colours: Obtain from one batch of one manufacturer.
3. Commencement of powder coating: To be continuous from pretreatment.
4. Jig points: Not visible on coated components.
5. Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
6. 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.
7. Overcoating of components: Not acceptable.

440 Performance and appearance of powder coatings

1. For aluminium components

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

450 Aluminium alloy fabrications

1. Units may be assembled
 - 1.1. Before powder coating.
 - 1.2. From components powder coated after cutting to size.
 - 1.3. Where approved, from components powder coated before cutting to size.
2. Exposure of uncoated background metal: Not acceptable.
3. Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

460 Steel fabrications

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

470 Fixings

1. 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 or replacement

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

510 Protection

1. Powder coated surfaces of components: Protect from damage during handling and installation, or by subsequent site operations.
2. Protective coverings: Must be:
 - 2.1. Resistant to weather conditions.
 - 2.2. Partially removable to suit building in and access to fixing points.
3. Protective tapes in contact with powder coatings: Must be:
 - 3.1. Low tack, self adhesive and light in colour.
 - 3.2. 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.
4. Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

535 Documentation

1. Submit the following information for each batch of powder coated components
 - 1.1. Supplier.
 - 1.2. Trade name.

- 1.3. Colour.
- 1.4. Type of powder.
- 1.5. Method of application.
- 1.6. Batch and reference number.
- 1.7. Statutory requirements.
- 1.8. Test certificates.
- 1.9. Maintenance instructions.

540 Completion

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

Ω End of Section



Specification created using NBS Chorus

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