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808-810 High Road, Tottenham

808-810 High Road Stage 5 Landscape NBS
Specification

Revisions

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F10

Brick/ block walling

Types of walling

231 Proposed Wall Type 1

1. **Description:** Referred to as 'Proposed Wall Type 1' on the Landscape General Arrangement drawing. Historic wall to be re-built
2. **Reclaimed bricks:** To match existing
 - 2.1. **Condition:** Sound, free from mortar and deleterious matter.
 - 2.2. **Supplier/ Source:** TBC by Contractor
 - 2.3. **Format:** 215 x 65 x 103 mm
3. **Mortar:** As section Z21.
 - 3.1. **Standard:** Not applicable
 - 3.2. **Mix:** TBC
 - 3.3. **Additional requirements:** Agree brick and mortar colours and specification before construction commences.
Note: Interpretation branding to be incorporated at the opening of the wall.
4. **Bond:** Flemish
5. **Joints:** Bucket handle
6. **Features:** Brick coping course as shown on the proposal drawings

232 Proposed Wall Type 2

1. **Description:** Referred to as 'Proposed Wall Type 2' on the Landscape drawings. Constructed to provide the ramped access to the roof garden.
2. **Reclaimed bricks:** TBC
 - 2.1. **Condition:** Sound, free from mortar and deleterious matter.
 - 2.2. **Supplier/ Source:** TBC
 - 2.3. **Format:** 215 x 65 x 103 mm
3. **Mortar:** As section Z21.
 - 3.1. **Standard:** Not applicable
 - 3.2. **Mix:** TBC
 - 3.3. **Additional requirements:** TBC
4. **Bond:** Stretcher
5. **Joints:** Bucket handle
6. **Features:** Brick header course (using the same bricks as the main wall).

233 Raised Planter Type 1 (Brick Walls)

1. **Description:** Referred to as 'P1' on the Landscape drawings. Constructed to provide planting beds with seating.
2. **Reclaimed bricks:** TBC
 - 2.1. **Condition:** Sound, free from mortar and deleterious matter.
 - 2.2. **Supplier/ Source:** TBC
 - 2.3. **Format:** 215 x 65 x 103 mm
3. **Mortar:** As section Z21.

- 3.1. **Standard:** Not applicable
- 3.2. **Mix:** TBC
- 3.3. **Additional requirements:** TBC
- 4. **Bond:** Stretcher
- 5. **Joints:** Bucket handle
- 6. **Features:** Brick header course (using the same bricks as the main wall).

Testing - Not Used

Workmanship generally

430 Conditioning of clay bricks and blocks

- 1. **Bricks and blocks delivered warm from manufacturing process:** Do not use until cold.
- 2. **Absorbent bricks in warm weather:** Wet to reduce suction. Do not soak.

460 Mortar designations

- 1. **Mix proportions:** For a specified designation select a mix from the following:
 - 1.1. **Designation (i) (BS EN 998-2 M12 equivalent)**
 - 1.1.1. 1:0-¼:3 (Portland cement:lime:sand with or without air entraining additive).
 - 1.1.2. 1:3 (Portland cement:sand and air entraining additive).
 - 1.2. **Designation (ii) (BS EN 998-2 class M6 equivalent)**
 - 1.2.1. 1:½:4-5 (Portland cement:lime:sand with or without air entraining additive).
 - 1.2.2. 1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1.2.3. 1:2½-3½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1.2.4. 1:3-4 (Portland cement:sand and air entraining additive).
 - 1.3. **Designation (iii) (BS EN 998-2 class M4 equivalent)**
 - 1.3.1. 1:1:5-6 (Portland cement:lime:sand with or without air entraining additive).
 - 1.3.2. 1:3½-4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1.3.3. 1:4-5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1.3.4. 1:5-6 (Portland cement:sand and air entraining additive).
 - 1.4. **Designation (iv) (BS EN 998-2 class M2 equivalent)**
 - 1.4.1. 1:2:8-9 (Portland cement:lime:sand with or without air entraining additive).
 - 1.4.2. 1:4½ (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1.4.3. 1:5½-6½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1.4.4. 1:7-8 (Portland cement:sand and air entraining additive).
- 2. **Batching:** Mix proportions by volume.
- 3. **Mortar type:** Continuous throughout any one type of masonry work.

500 Laying generally

- 1. **Mortar joints:** Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.

2. **AAC block thin mortar adhesive and gypsum block adhesive joints:** Fill vertical joints. Lay blocks on a full bed.
3. **Clay block joints**
 - 3.1. **Thin-layer mortar:** Lay blocks on a full bed.
 - 3.2. **Interlocking perpend:** Butted.
4. **Bond where not specified:** Half-lap stretcher.
5. **Vertical joints in brick and concrete block facework:** Even widths. Plumb at every fifth cross joint.

520 Accuracy

1. **Courses:** Level and true to line.
2. **Faces, angles and features:** Plumb.
3. **Permissible deviations**
 - 3.1. **Position in plan of any point in relation to the specified building reference line and/ or point at the same level:** ± 10 mm.
 - 3.2. **Straightness in any 5 m length:** ± 5 mm.
 - 3.3. **Verticality up to 3 m height:** ± 10 mm.
 - 3.4. **Verticality up to 7 m height:** ± 14 mm.
 - 3.5. **Overall thickness of walls:** ± 10 mm.
 - 3.6. **Level of bed joints up to 5 m (brick masonry):** ± 11 mm.
 - 3.7. **Level of bed joints up to 5 m (block masonry):** ± 13 mm.

535 Height of lifts in walling using cement-gauged or hydraulic lime mortar

1. **Quoins and advance work:** Rack back.
2. **Lift height (maximum):** 1.2 m above any other part of work at any time.
3. **Daily lift height (maximum):** 1.5 m for any one leaf.

540 Height of lifts in walling using thin-layer mortar

1. **Quoins and advance work:** Rack back.
2. **Lift height (maximum):** 1.3 m above any other part of work at any time.

635 Jointing

1. **Profile:** Consistent in appearance.

645 Accessible joints not exposed to view

1. **Jointing:** Struck flush as work proceeds.

690 Adverse weather

1. **General:** Do not use frozen materials or lay on frozen surfaces.
2. **Air temperature requirements:** Do not lay bricks/ blocks:
 - 2.1. In cement-gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
 - 2.2. In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising, or as manufacturer's/ supplier's recommendations.
 - 2.3. In thin-layer mortars when outside the limits set by the mortar manufacturer.
3. **Temperature of walling during curing:** Above freezing until hardened.
4. **Newly erected walling:** Protect at all times from:

- 4.1. Rain and snow.
- 4.2. Drying out too rapidly in hot conditions and in drying winds.

Additional requirements for facework

760 Appearance

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

780 Ground level

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

790 Putlog scaffolding

- 1. **Use:** Not permitted in facework.

830 Cleanliness

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

Ω End of Section

L37

External stair, ramps, handrail and balustrades systems

General

150 Handrail to steps (ref B2)

1. **Description:** Handrail to the steps.
Reference B2 on the Landscape drawings
Bespoke product.
2. **System manufacturer:** Architectural Street Furnishings part of WB White Foundry
3. **Contact details**
 - 3.1. **Address:** Priory Road
Armytage Road
Brighouse
West Yorkshire
HD6 1PY
 - 3.2. **Telephone:** +44 (0)1484 401414
 - 3.3. **Web:** www.asfco.co.uk
 - 3.4. **Email:** info@asfco.co.uk
4. **Product reference:** Bespoke product
5. **Material:** Powder coated steel. RAL 8014
 - 5.1. **Cross section:** Refer to drawing for design intent. Exact details to be developed by the fabricator.
 - 5.2. **Finish:** Polyester powder-coated, as section Z31
6. **Height (to upper surface of handrail)**
 - 6.1. **Above pitch line:** As shown on the drawings.
 - 6.2. **Above landing:** As shown on the drawings.
7. **Accessories:** Lighting to Integration UK's design and specification. Base plate fixing detail within the coping of the wall: refer to Landscape drawings for proposals.

150A Handrail to ramps (ref B3)

1. **Description:** Handrail to the ramps.
Reference B3 on the Landscape drawings
Bespoke product.
2. **System manufacturer:** Architectural Street Furnishings part of WB White Foundry
3. **Contact details**
 - 3.1. **Address:** Priory Road
Armytage Road
Brighouse
West Yorkshire
HD6 1PY
 - 3.2. **Telephone:** +44 (0)1484 401414
 - 3.3. **Web:** www.asfco.co.uk
 - 3.4. **Email:** info@asfco.co.uk
4. **Product reference:** Bespoke product
5. **Material:** Powder coated steel. RAL 8014
 - 5.1. **Cross section:** Refer to drawing for design intent. Exact details to be developed by the fabricator.
 - 5.2. **Finish:** Polyester powder-coated, as section Z31

6. **Height (to upper surface of handrail)**
 - 6.1. **Above pitch line:** As shown on the drawings.
 - 6.2. **Above landing:** As shown on the drawings.
7. **Accessories:** Lighting to Integration UK's design and specification. Base plate fixing detail within the coping of the wall: refer to Landscape drawings for proposals.

160 Balustrade (ref B1)

1. **Description:** Balustrade to the roof level.
Reference B1 on the Landscape drawings
Bespoke product.
2. **System manufacturer:** Architectural Street Furnishings part of WB White Foundry
3. **Contact details**
 - 3.1. **Address:** Priory Road
Armytage Road
Brighouse
West Yorkshire
HD6 1PY
 - 3.2. **Telephone:** +44 (0)1484 401414
 - 3.3. **Web:** www.asfco.co.uk
 - 3.4. **Email:** info@asfco.co.uk
4. **Product reference:** Bespoke product. Design intent is indicated on the landscape drawings: to be developed by the fabricator.
5. **Guarding**
 - 5.1. **Material:** Steel: powder coated RAL8014
 - 5.2. **Finish:** Polyester powder-coated, as section Z31
6. **Rail**
 - 6.1. **Cross section:** Refer to drawing for design intent. Exact details to be developed by the fabricator.
 - 6.2. **Material:** Steel powder coated RAL8014
 - 6.3. **Finish:** Polyester powder-coated, as section Z31
7. **Height (to upper surface of rail)**
 - 7.1. **Above pitch line:** n/a. Balustrade is set beside a straight run of paving.
 - 7.2. **Above landing:** As shown on the drawings: to provide a 1150mm protection from falls.
8. **Accessories:** Base plate fixing detail within the coping of the wall: refer to Landscape drawings for proposals.

System performance

210 Design

1. **Description:** Design of railings and balustrade systems.
2. **Inclusive design:** Design has been developed in accordance with BS8300 and must remain compliant when the fabricator is finalising the detail proposals.
3. **Structure and associated features:** Complete detailed design to BS EN 1991-1-1
4. **Structural performance criteria**
 - 4.1. **Dead loads (maximum):** With refer to Tisserin Engineers design and specification.
 - 4.2. **Imposed loads (maximum)**
 - 4.2.1. **Activity/ Occupancy loading:** With refer to Tisserin Engineers design and specification.

- 4.2.2. **Point loads (maximum):** With refer to Tisserin Engineers design and specification.
5. **Other performance criteria:** With refer to Tisserin Engineers design and specification.
6. **Proposals:** Submit drawings, technical information, calculations and manufacturers' literature.

Products

315 Natural Stone Steps

1. **Description:** Bespoke natural stone steps for the external staircases.
2. **Manufacturer:** Tectonix
Suite 9 Pure Offices, Brabazon House, Morley, Gildersome, Leeds LS27 7LE
 - 2.1. **Product reference:** Elland Edge
3. **Standard:** To BS EN 771-5.
4. **Size**
 - 4.1. **Surface width:** Refer to the Landscape drawings for the proposals.
 - 4.2. **Going:** Refer to the Landscape drawings for the proposals.
 - 4.3. **Rise:** Refer to the Landscape drawings for the proposals.
5. **Colour:** Buff
6. **Finish:** Tight grained even textured Yorkstone.
 - 6.1. **Slip resistance value of integral tread - water wet (minimum):** To supplier's details.
 - 6.2. **Slip resistance value of integral nosing - water wet (minimum):** To supplier's details.
 - 6.2.1. **Colour of integral nosing:** Manufacturer's standard
7. **Accessories:** Profiles and jointing as indicated on the landscape proposal drawings.

420 Integrated stair nosing

1. **Description:** Rebate to be created within the nosing to achieve a contrast from the main step material.
2. **Standard:** In accordance with BS 8300-1
3. **Manufacturer:** Tectonix or equal approved.
 - 3.1. **Product reference:** To be confirmed: the material needs to contrast appropriately with the specified Elland Edge stone.
4. **Material:** TBC.

Fabrication

510 Fabrication generally

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

Execution

610 Loading

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

620 Concrete foundations generally

1. **Standard:** To BS 8500-2.
2. **Concrete:** Designated not less than GEN 1 or standard prescribed not less than ST2.
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.

630 Setting components in concrete

1. **Holes:**
2. **Components:** Accurately positioned and securely supported.
3. **Concrete fill:** Compact as filling proceeds.
4. **Concrete foundations exposed to view:** Finished to weathering profile to shed water and trowel smooth.
5. **Temporary component support:** Maintain undisturbed for minimum 48 hours.

650 Installation generally

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

660 Installation of manufactured stone elements

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

662 Adverse weather

1. **General:** Do not use frozen materials and do not lay on frozen surfaces.
2. **Working limits:** Do not lay blocks/ dressings:
 - 2.1. **Cement gauged mortars:** When the air temperature is at or below 3°C and falling or below 1°C and rising (unless mortar has a temperature of not less than 4°C when laid and work is thoroughly protected).
 - 2.2. **Hydraulic lime:sand mortars:** When the air temperature is at or below 5°C and falling or below 3°C and rising.
3. **Temperature of the work:** Maintain above freezing until mortar has fully set.
4. **Newly erected work:** Protect from precipitation; Prevent rapid drying in hot conditions.
5. **Remedial work:** Rake out and replace mortar damaged by frost.
 - 5.1. **Damaged work:** Rebuild.

680 Site painting and staining

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

Completion

910 Inspection

1. **Timing:** Two weeks prior to date when principal contractor expects work to be practically complete
2. **Period of notice (minimum):** 3 working days.

Ω End of Section

Q10

Kerbs/ edgings/ channels/ paving accessories

Types of kerbs/edgings and channels

180 Linear slot drain

1. **Manufacturer:** Marshalls Civils & Drainage
 - 1.1. **Contact details**
 - 1.1.1. **Address:** Landscape House
Lowfield Business Park
Elland
West Yorkshire
United Kingdom
HX5 9HT
 - 1.1.2. **Telephone:** +44 1179 814500
 - 1.1.3. **Web:** www.marshalls.co.uk/commercial/civils-and-drainage
 - 1.1.4. **Email:** salesemail@marshalls.co.uk
 - 1.2. **Product reference:** Offset Duo Slot Drain

Roads/paving accessories/ marking/ demarcation - Not Used

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.

543 Lime mortar bedding

1. **General:** To section Z21.
2. **Mix:** TBC
3. **Bed thickness:** 12-40 mm.

547 Bedding/ Backing of units on fresh concrete races

1. **Standard:** To BS 7533-6.

560 Haunching dowels

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

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.

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:** Select from list

Ω End of Section

Q25

Slab/ brick/ sett/ cobble pavings

General - Not Used

System performance - Not Used

Products

310A Natural Stone Paving (ref: Type 1)

1. **Description:** Natural Stone Paving as shown on the Landscape proposal drawings.
2. **Standard:** To BS EN 1341.
3. **Supplier:** Tectonix.
Suite 9 Pure Offices, Brabazon House, Morley, Gildersome, Leeds LS27 7LE
 - 3.1. **Product reference:** Elland Edge
 - 3.2. **Quarry:** West Yorkshire
4. **Petrographical description/ stone type:** York Stone
5. **Finish:** Fine sawn.
6. **Sizes:** 600(l)x300(w)x50(d)mm
Cut to suit and as indicated on the Landscape proposal drawings.
 - 6.1. **Plan dimension deviation class:** P2
 - 6.2. **Diagonal deviation class:** D2
 - 6.3. **Thickness deviation class:** T2
7. **Arrises:** Square
8. **Breaking strength:** Class 2
9. **Slip resistance:** PTV to BS 7976-2 of 49
10. **Surface treatment:** To be confirmed by Supplier.

310B Natural Stone Paving (ref: Type 2)

1. **Description:** Natural Stone Paving as shown on the Landscape proposal drawings.
2. **Standard:** To BS EN 1341.
3. **Supplier:** Tectonix.
Suite 9 Pure Offices, Brabazon House, Morley, Gildersome, Leeds LS27 7LE
 - 3.1. **Product reference:** Elland Edge
 - 3.2. **Quarry:** West Yorkshire
4. **Petrographical description/ stone type:** York Stone
5. **Finish:** Textured finish to subtly contrast with the fine sawn stone (Type 1)
6. **Sizes:** 600(l)x200(w)x50(d)mm
Cut to suit and as indicated on the Landscape proposal drawings.
 - 6.1. **Plan dimension deviation class:** P2
 - 6.2. **Diagonal deviation class:** D2
 - 6.3. **Thickness deviation class:** T2
7. **Arrises:** Square
8. **Breaking strength:** Class 2
9. **Slip resistance:** PTV to BS 7976-2 of 49

10. **Surface treatment:** To be confirmed by Supplier.

310C Natural Stone Paving (ref: Type 3)

1. **Description:** Natural Stone Paving as shown on the Landscape proposal drawings.
2. **Standard:** To BS EN 1341.
3. **Supplier:** Tectonix.
Suite 9 Pure Offices, Brabazon House, Morley, Gildersome, Leeds LS27 7LE
 - 3.1. **Product reference:** Elland Edge
 - 3.2. **Quarry:** West Yorkshire
4. **Petrographical description/ stone type:** York Stone
5. **Finish:** Fine sawn.
6. **Sizes:** 200(l)x100(w)x100(d)mm
Cut to suit and as indicated on the Landscape proposal drawings.
 - 6.1. **Plan dimension deviation class:** P2
 - 6.2. **Diagonal deviation class:** D2
 - 6.3. **Thickness deviation class:** T2
7. **Arrises:** Square
8. **Breaking strength:** Class 2
9. **Slip resistance:** PTV to BS 7976-2 of 49
10. **Surface treatment:** To be confirmed by Supplier.

310D Natural Stone Paving (ref: Type 4)

1. **Description:** Natural Stone Paving as shown on the Landscape proposal drawings.
2. **Standard:** To BS EN 1341.
3. **Supplier:** Tectonix.
Suite 9 Pure Offices, Brabazon House, Morley, Gildersome, Leeds LS27 7LE
 - 3.1. **Product reference:** Elland Edge
 - 3.2. **Quarry:** West Yorkshire
4. **Petrographical description/ stone type:** York Stone
5. **Finish:** Fine sawn.
6. **Sizes:** 600(l)x300(w)x30(d)mm
Cut to suit and as indicated on the Landscape proposal drawings.
 - 6.1. **Plan dimension deviation class:** P2
 - 6.2. **Diagonal deviation class:** D2
 - 6.3. **Thickness deviation class:** T2
7. **Arrises:** Square
8. **Breaking strength:** Class 2
9. **Slip resistance:** PTV to BS 7976-2 of 49
10. **Surface treatment:** To be confirmed by Supplier.

310E Natural Stone Paving (ref: Type 5)

1. **Description:** Natural Stone Paving as shown on the Landscape proposal drawings.
2. **Standard:** To BS EN 1341.
3. **Supplier:** Tectonix.
Suite 9 Pure Offices, Brabazon House, Morley, Gildersome, Leeds LS27 7LE

- 3.1. **Product reference:** Elland Edge
- 3.2. **Quarry:** West Yorkshire
- 4. **Petrographical description/ stone type:** York Stone
- 5. **Finish:** Fine sawn.
- 6. **Sizes:** 600(l)x200(w)x30(d)mm
Cut to suit and as indicated on the Landscape proposal drawings.
 - 6.1. **Plan dimension deviation class:** P2
 - 6.2. **Diagonal deviation class:** D2
 - 6.3. **Thickness deviation class:** T2
- 7. **Arrises:** Square
- 8. **Breaking strength:** Class 2
- 9. **Slip resistance:** PTV to BS 7976-2 of 49
- 10. **Surface treatment:** To be confirmed by Supplier.

310F Single Running Course Natural Stone Paving

- 1. **Description:** Natural Stone Paving as shown on the Landscape proposal drawings.
- 2. **Standard:** To BS EN 1341.
- 3. **Supplier:** Tectonix.
Suite 9 Pure Offices, Brabazon House, Morley, Gildersome, Leeds LS27 7LE
 - 3.1. **Product reference:** Elland Edge
 - 3.2. **Quarry:** West Yorkshire
- 4. **Petrographical description/ stone type:** York Stone
- 5. **Finish:** Fine sawn.
- 6. **Sizes:** 200(l)x100(w)x30(d)mm
Cut to suit and as indicated on the Landscape proposal drawings.
 - 6.1. **Plan dimension deviation class:** P2
 - 6.2. **Diagonal deviation class:** D2
 - 6.3. **Thickness deviation class:** T2
- 7. **Arrises:** Square
- 8. **Breaking strength:** Class 2
- 9. **Slip resistance:** PTV to BS 7976-2 of 49
- 10. **Surface treatment:** To be confirmed by Supplier.

310G Natural Stone Uprand

- 1. **Description:** Natural Stone Paving as shown on the Landscape proposal drawings.
- 2. **Standard:** To BS EN 1341.
- 3. **Supplier:** Tectonix.
Suite 9 Pure Offices, Brabazon House, Morley, Gildersome, Leeds LS27 7LE
 - 3.1. **Product reference:** Elland Edge
 - 3.2. **Quarry:** West Yorkshire
- 4. **Petrographical description/ stone type:** York Stone
- 5. **Finish:** Fine sawn.
- 6. **Sizes:** refer to drawing 0960-RFM-XX-00-DR-L-8002 Paving Details - Sheet 2 of 2
 - 6.1. **Plan dimension deviation class:** P2

- 6.2. **Diagonal deviation class:** D2
- 6.3. **Thickness deviation class:** T2
- 7. **Arrises:** Square
- 8. **Breaking strength:** Class 2
- 9. **Slip resistance:** PTV to BS 7976-2 of 49
- 10. **Surface treatment:** To be confirmed by Supplier.

320 Tactile flags and slabs

- 1. **Description:** Natural Stone Tactile Corduroy Paving
- 2. **Standard:** To DD CEN/TS 15209.
- 3. **Material:** Natural stone
 - 3.1. **Manufacturer:** Tectonix.
Suite 9 Pure Offices, Brabazon House, Morley, Gildersome, Leeds LS27 7LE
 - 3.1.1. **Product reference:** Elland Edge
- 4. **Recycled content:** Not applicable
- 5. **Nominal sizes:** 400(l)x400(w)x50(d)mm
- 6. **Colour:** Buff, to provide a suitable contrast with the adjacent paving.
- 7. **Type of surface:** Rib – type R1

325 Brick paving for the Historic Wall

- 1. **Description:** Brick paving for the threshold detailing at the opening of the reconstructed Historic Wall.
- 2. **Manufacturer:** Reclaimed from site. If unavailable: to match the Architect's proposals.
- 3. **Sizes:** As indicated on the Landscape Proposal drawings.

Execution

610 Material samples

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

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/ fine aggregate**
 - 3.1. **Stockpiled laying course sand/ fine aggregate:** Protect from saturation.
 - 3.2. **Exposed areas of unbound laying course and uncompacted areas of unbound paving:** Protect from heavy rainfall.
 - 3.3. **Saturated unbound laying course:** Remove and replace, or allow to dry before proceeding.
 - 3.4. **Laying dry sand/ fine aggregate 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.

637 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.

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):** 24 hours
 - 4.2. **Vehicular traffic (minimum):** 14 days
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 unbound 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.

810 Pedestal installation

1. **Surface to accept pedestals:** Clean and free of debris.
2. **Setting out:** Mark centre-point of pedestal on substrate surface, with perpendicular guidelines to ensure square layout.
 - 2.1. **Orientation:** Align parallel with adjacent features.
 - 2.2. **Spacing:** Refer to the Landscape drawings.
3. **Movement tolerance at perimeter of paver system (maximum):** 5 mm.

Completion

930 Slip resistance testing

1. **Surfaces to be tested:** All paving.
 - 1.1. **Surface condition:** Dry and wet
2. **Timing:** Two weeks prior to handover, but after initial cleaning
3. **Period of notice (minimum):** 3 working days.
4. **Test standard:** To BS 7976-2
 - 4.1. **Testing authority:** A UKAS accredited laboratory
 - 4.2. **Witnessing/ Certification:** Arrange for tests to be witnessed/ certified by: Contract administrator.
 - 4.3. **Report:** Submit.
 - 4.3.1. **Format:** As required under BS 7976

Ω End of Section

Q28

Topsoil and soil ameliorants

System outline

105 Container planting growing media system

1. **Description:** For all planters on the roof podium.
Intensive Roof Garden Substrate
190GT3551-PRO
Green-Tech Phone
01423 332100
SALES@GREEN-TECH.CO.UK
2. **Composition**
 - 2.1. **Growing media:** To depth of planter with slight mounding locally for feature shrubs to increase depth
 - 2.2. **Ameliorants:** Fertilizer to be incorporated

135 Planting bed topsoil system

1. **Description:** For all shrub and herbaceous planting areas which are located outside the podium area
2. **Composition**
 - 2.1. **Topsoil:** Imported topsoil to BS 3882
 - 2.2. **Ameliorants:** Organic materials
 - 2.3. **Accessories:** None

155 Mulching and top dressing system

1. **Description:** For all planted areas.
2. **Composition**
 - 2.1. **Material:** Melcourt Ornamental Bark Mulch.

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:** Peat

315 Imported topsoil to BS 3882

1. **Description:** To all planting areas which do not use the green roof substrate growing medium.
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:** Contractor's choice.
Submit proposals to Client and Contract Administrator. This soil will need to be tested, by the Contractor, at an approved laboratory.
 - 5.1. **Product reference:** Submit proposals to Client and Contract Administrator.

330 Imported subsoil

1. **Description:** To all planting areas which do not use the green roof substrate growing medium.
2. **Type:** Container planting medium
 - 2.1. **Soil textural class:** Sandy loam.
To BS 8601: 2013- Soil B with 55% sand, 30% silt and 15% clay is in the “sandy loam” textural class.
3. **Source:** Contractor's choice.
Submit proposals to Client and Contract Administrator. This soil will need to be tested, by the Contractor, at an approved laboratory.
4. **Manufacturer:** Contractor's choice.
Submit proposals to Client and Contract Administrator.

401 Organic fertilizers

1. **Description:** For all planting areas which do not use the green roof substrate.
2. **Manufacturer/ source:** Contractor's choice
 - 2.1. **Product reference:** Submit proposals

Execution

610 Topsoil and subsoil analysis

1. **Soil to be analysed:** All topsoil and subsoil.
2. **Soil analyst:** Soil samples shall be sent to an independent soil science testing facility (UKAS and MCERTS accredited) with a request for each sample to be analysed strictly in accordance with relevant Testing Schedule given in clauses 1.6D-F and reported in accordance with the requirements of clauses 1.6H.
An approved soil science testing facility is:
Tim O'Hare Associates LLP
Howbery Park
Wallingford
Oxfordshire OX10 8BA
Tel: +44 (0) 1491 822653 www.toha.co.uk
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:** Sufficient time should be allowed for sourcing and testing the proposed topsoil(s) to meet the requirements of this soil specification.
At least 4 weeks is recommended for sourcing soils so that the necessary testing can be undertaken to demonstrate compliance with the specification.
The Contractor shall provide soil laboratory test certificates required to the Contract Administrator for review and approval.
All testing will be at the expense of the Contractor. The Contract Administrator or Project Designer may request additional testing on imported manufactured soils in order to attain results that more closely meet the specifications requirements.
Any requests for soil substitutions from the specified soils shall require proof of non-availability by providing 3 soil suppliers on their letterhead testifying to non-availability of specified soil.
- 4.3. Report detailing soil analyst's recommendations.

625 Sample loads

1. **Description:** For imported soils.
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 soils

1. **Description:** For all imported soil.
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:** 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:** 1 week

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.

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 the moisture content is greater than the plastic limit.

710 Spreading topsoil on:

1. **Description:** All 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. **Crumb structure:** Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

718 Final cultivation

1. **Description:** All planting areas
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:** 100 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:** refer to the Landscape Proposal drawings.
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:** 50mm from top of planter or adjacent edge (depending on planting area location).

2. **In relation to adjacent grass areas:**
3. **Adjoining soil areas:** Marry in.
4. **Thickness of turf or mulch:** Mulch layer is 50mm depth.

840 Applying mycorrhizal inoculant

1. **Description:** To all tree pits and planting beds
2. **Depth:** To manufacturer's/ supplier's recommendations

845 Applying loose mulch

1. **Description:** Applied to all planting areas.
2. **Timing:** Immediately after planting
3. **Preparation:** Clear all weeds. Ensure that soil is thoroughly moistened, applying water where necessary
4. **Coverage of mulch (minimum)**
 - 4.1. **Planting beds (depth):** 50 mm depth
 - 4.2. **Trees:** 50 mm depth
5. **Finished level of mulch:** 30-50mm below the top of the planter or edge level.

Completion

920 Applying mulch

1. **Timing:** Top up as required at each Maintenance/Scheduled visit.
2. **Watering:** Ensure that soil is thoroughly moistened prior to mulching, applying water where necessary.
3. **Planting beds:** Re-mulch.
 - 3.1. **Depth (minimum):** 50 mm
4. **Trees:** Remulch.
 - 4.1. **Depth (minimum):** 50 mm

Ω End of Section

Q31

External planting

General information/ requirements

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:** Three 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:** Container planting growing media system, as section Q28
 - 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 provenance
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).

225 Bulbs/ Corms/ Tubers

1. **Condition:** Firm, entire, not dried out or shrivelled.
2. **Health:** Free from pests, diseases and fungus.
3. **Handling:** Remove from packaging immediately.
4. **Storage:** Permitted only when necessary.
 - 4.1. **Location:** Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit.
 - 4.2. **Duration:** Minimum period.
 - 4.3. **Temperature:** 18-21°C.

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.

245 Labelling and information

1. **General:** Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:
 - 1.1. Full botanical name.

- 1.2. Total number.
- 1.3. Number of bundles.
- 1.4. Part bundles.
- 1.5. Supplier's name.
- 1.6. Employer's name and project reference.
- 1.7. Plant specification, in accordance with scheduled National Plant Specification categories.

246 Labelling and information

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

260 Plant/ Tree substitution

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

292 Prefabricated plant containers

1. **Manufacturer:** Kinley Systems OEA.
 - 1.1. **Product reference:** See Q50 227

Preparation of planting beds/ planting materials

385 Mulch to all planting beds

1. **Description:** Mulch layer to be applied to all planting beds as shown on the Landscape drawings.
2. **Manufacturer:** Melcourt
 - 2.1. **Product reference:** Ornamental Bark Mulch
3. **Timing:** Lay immediately after planting of the bed has been completed.
4. **Watering:** Water soil thoroughly before laying.

Planting shrubs/ herbaceous plants/ bulbs

401 Regular plant layout

1. **Description:** Refer to Landscape Proposal drawings for description, density and spacing.

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.

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:** 50 mm

Planting trees

500 Tree planting

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

515 Tree pit drainage

1. **Locations:** To all tree pits as shown on the Landscape drawings.
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:** As shown on the Landscape drawings: 200mm depth where space permits.
4. **Geotextile filter**
 - 4.1. **Manufacturer:** Submit proposals
 - 4.1.1. **Product reference:** Submit proposals
 - 4.2. **Position:** Lay over aggregate before installing tree or backfill.
5. **Completed pits:** Test for free drainage before planting.

526 Underground guying system for trees

1. **Description:** Underground guying system for all Standard size and Multi-Stem Trees. This includes the specimen shrub on the roof podium planter.
2. **Manufacturer:** GreenBlue Urban Ltd

2.1. Contact details

- 2.1.1. **Address:** Northpoint
Compass Park
Junction Road
Bodiam
East Sussex
TN32 5BS
- 2.1.2. **Telephone:** +44 (0)1580 830800
- 2.1.3. **Web:** www.greenblue.com
- 2.1.4. **Email:** hello@greenblueurban.com

2.2. Product reference: ArborGuy - AnchorPlate (SASAP04A)

- 3. **Tensioning devices:** Galvanized steel cables and ratchet tensioner.
- 4. **Anchors**
 - 4.1. **Type:** Galvanized mild steel deadman anchors.
 - 4.2. **Number:** 3.
- 5. **Components:** 6 x 1100 mm galvanized steel wire and 35 mm x 8 m webbing strap.
- 6. **Depth:** 600 mm RootSpace depth.

Woodland/ matrix/ buffer zone planting - Not Used

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:** In accordance with the agreed maintenance schedule

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

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 weeding and 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

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):** 50 mm
5. **Trees:** Remulch.
6. **Depth (minimum):** 50 mm

Ω End of Section

Q35

Landscape maintenance

Generally

105 Maintenance objectives

1. **Location:** All planted areas.
 - 1.1. **Duration:** 12 months following Practical Completion.
2. **Aims:** To ensure the successful establishment of all plants.
To keep the areas neat and tidy.
Particular attention and action must be given to soil and mulch levels: these must be topped up to the correct level upon each maintenance visit.
The maintenance standards must, at all times, reflect the high quality status of the landscape.
3. **Restrictions:** Give notice to the Client and Contract Administrator before each visit to confirm any restrictions. Sarabande may use the landscape for events which will at times prevent access.
4. **Results:** An established planting scheme, as designed.

110 Notice

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

130 Reinstatement

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

155 Watering

1. **Supply:** To be confirmed by the Client and Contract Administrator.
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 to ensure all plants fully establish, with regard to the various species which have different requirements for watering.

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. **Shrub and tree prunings:** Remove to recycling facility
 - 1.3. **Litter and nonbiodegradable arisings:** Remove from site

181 Mechanical equipment

1. **General:** Minimize.
2. **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.

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 - Not Used

Flower beds/ seasonal beddings

460 Beds of perennials or perennials and annuals

1. Plant supports: Stake and tie plants using Bamboo canes.
 - 1.1. **Length:** To suit plant height. Ensure protective cap is fitted to all canes to avoid injury.
 - 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.
2. **Fungicide:** Not required
3. **Insecticide:** Not required

Shrubs/ trees/ hedges

500 Establishment of new planting

1. **Duration:** 12 months following Practical Completion
2. **Weed control**
 - 2.1. **Method:** Keep planting beds clear of weeds by Maintaining full thickness of mulch.
 - 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 schedule and when instructed

515 Tree guy wires

1. **Inspection/ maintenance times:** At each planned maintenance/scheduled visit.
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:** Two years after planting

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.

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.

600 Trimming rapidly establishing hedges

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

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.

630 Dead and diseased plants

1. **Removal:** As soon as possible
2. **Replacement:** Within two weeks

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:** None
5. **Dressing:** Slow-release fertilizer:
 - 5.1. **Type:** Organic
 - 5.2. **Application rate:** As manufacturer's recommendations

645 Weed control generally

1. **Weed tolerance:** Weed to clear ground every two 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.

675 Digging over

1. **General:** Dig over beds. Do not damage existing plants, bulbs and roots.
 - 1.1. **Depth of dig (minimum):** 150 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.

690 Maintenance of loose mulch

1. **Thickness (minimum):** 50 mm
 - 1.1. **Top up:** As required, at each maintenance/scheduled visit.
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.

Green walls - Not Used

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. **Standard:** To BS 3998.

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.

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 if unavoidable
 - 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.

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.

Water areas - Not Used

Hard landscape areas/ fencing

915 Paving sealant

1. **Type:** To manufacturer's guidance and specification.
2. **Manufacturer:** Confirm with Tectonix or the agreed supplier.
 - 2.1. **Product reference:** Confirm with Tectonix or the agreed supplier.
3. **Application method:** As manufacturer's recommendations
 - 3.1. **Coats:** As manufacturer's recommendations
 - 3.2. **Coverage:** As manufacturer's recommendations

930 Graffiti removal

1. **Method:** Refer to agreed Landscape Maintenance Plan for requirements.

Ω End of Section

Q50

Site/ street furniture/ equipment

Gates, barriers and parking controls - Not Used

Site and street furniture

225 Seats A

1. **Description:** Referred to on the Landscape drawings as 'Seating type 1'.
Top mounted to the brick planter walls, with backrest and armrest
2. **Manufacturer:** Woodscape.
Business Park Shadsworth, 1 Sett End Rd W, Blackburn BB1 2QJ
 - 2.1. **Product reference:** Bespoke product.
3. **Material:** Very Durable Hardwood as described in BS EN 350-2. FSC certified with full chain of custody.
Timber to be suitable for Service Class 3, having been wet graded according to BS 5756: 1997 Timber to be graded at strength class D60 or greater, as described in BS 338: 1995 Structural timber strength classes.
 - 3.1. **Finish:** Planed and sanded, micro bevel edge to all sides, Natural timber finish, no stain or synthetic finishes to be applied. All timber to be free from cracks, defects and signs of infestation.
 - 3.2. **Colour:** Natural appearance.
4. **Size:** As shown on drawings.
Timber sizes are shown on Detail Landscape drawings.
5. **Accessories/ Special requirements:** -Potential requirement for additional walling to support the full depth of the seat: to be confirmed in discussion with Woodscape.

-Any metal framing elements to be colour coded to RAL8014
6. **Method of fixing:** Fixing details to Woodscape's proposals.

225 Seats B

1. **Description:** Referred to on the Landscape drawings as 'Seating type 2'.
Free standing with backrest and armrests.
2. **Manufacturer:** Woodscape.
Business Park Shadsworth, 1 Sett End Rd W, Blackburn BB1 2QJ
 - 2.1. **Product reference:** Bespoke.
3. **Material:** Steel framing structure, legs and armrests Timber: Very Durable Hardwood as described in BS EN 350-2. FSC certified with full chain of custody. Timber to be suitable for Service Class 3, having been wet graded according to BS 5756: 1997 Timber to be graded at strength class D60 or greater, as described in BS 338: 1995 Structural timber strength classes.
 - 3.1. **Finish:** Powder coated steel.
Timber: Planed and sanded, micro bevel edge to all sides, Natural timber finish, no stain or synthetic finishes to be applied. All timber to be free from cracks, defects and signs of infestation.
 - 3.2. **Colour:** All metal elements RAL8014
Natural finish for timber.
4. **Size:** Indicated on Detail Landscape drawing.
5. **Method of fixing:** Fixing details to the ground to be confirmed by Woodscape.

227 Raised Planters - Type 2

1. **Description:** Referred to on the Landscape drawings as 'Raised Planter Type 2'.
Pre-fabricated steel planter system. One of the planters includes an integrated seat.

2. **Manufacturer:** Raaft
 - 2.1. **Contact details**
 - 2.1.1. **Address:** 117-121 St John Street
Clerkenwell
London
United Kingdom
EC1V 4JA
 - 2.1.2. **Telephone:** +44 (0)20 3146 7879
 - 2.1.3. **Web:** <https://www.raaftsystems.com/>
 - 2.1.4. **Email:** sales@raaftsystems.com
 - 2.2. **Product reference:** Planterline - Straight Planter Walls
3. **Material:** Steel, powder coated.
 - 3.1. **Finish:** Polyester powder-coated, as section Z31
 - 3.2. **Colour:** RAL 8014
4. **Size:** As shown on the drawings
5. **Accessories/ Special requirements:** Rounded edges.
6. **Method of fixing:** To be confirmed by Woodscape. As drawing ???

230 Tree pot

1. **Manufacturer:** Urbis Design
The Airfield
Full Sutton
York
YO41 1HS
 - 1.1. **Product reference:** Radius Planter
2. **Material:** As fabricated
 - 2.1. **Finish:** Smooth
 - 2.2. **Colour:** RAL8014
3. **Size:** 93cm diameter x 80cm height
300 Ltr Volume
50cm base diameter
86kg
4. **Method of fixing:** Sat on 50mm gravel base layer

250 Bin Store

1. **Manufacturer:** Bespoke - Contractors Choice
2. **Material:** Steel frame clad with softwood timber
 - 2.1. **Finish:** Stained
 - 2.2. **Colour:** Timbers stained to RAL
All metal elements powder coated to RAL
(To be confirmed by landscape architect)
3. **Size:** 1730mmW x 2680mmL x 1200mmH
4. **Method of fixing:** Root fixed

Installation

510 Concrete foundations generally

1. **Standard:** To BS 8500-2.
2. **Concrete:** To Tisserin Engineer's design and specification. If information is not available: Contractor to submit proposals to Tisserin for confirmation.
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.

Ω End of Section

Z11

Purpose made metalwork

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.

320 Steel long and flat products

1. **Hot rolled structural steels (excluding structural hollow sections and tubes):** To BS EN 10025-1.
2. **Fine grain steels, including special steels:** To BS EN 10025-3 and -4.
3. **Steels with improved atmospheric corrosion resistance:** To BS EN 10025-5.

330 Steel plate, sheet and strip

1. **Plates and wide flats, high yield strength steel:** To BS EN 10025-6.

340 Hot rolled steel plate, sheet and strip

1. **Flat products, high yield strength for cold forming:** To BS EN 10149-1, -2 and -3.
2. **Carbon steel sheet and strip for cold forming:** To BS EN 10111.
3. **Narrow strip, formable steel and steel for general engineering purposes:** To BS 1449-1.8 and BS 1449-1.14.

350 Cold rolled steel plate, sheet and strip

1. **Steel sections:** To BS EN 10162.
2. **Flat products, high yield strength micro-alloyed steels for cold forming:** To BS EN 10268.
3. **Carbon steel flat products for cold forming:** To BS EN 10130 and BS EN 10131.
4. **Uncoated carbon steel narrow strip for cold forming:** To BS EN 10139 and BS EN 10140.
5. **Narrow strip steel for general engineering purposes:** To BS EN 10132-1, -2, and -3.
6. **Carbon steel flat products for vitreous enamelling:** To BS EN 10209.

360 Coated steel flat products

1. **Hot dip zinc coated carbon steel sheet and strip for cold forming:** To BS EN 10346 and BS EN 10143.
2. **Hot dip zinc coated structural steel sheet and strip:** To BS EN 10143 and BS EN 10346.
3. **Hot dip zinc-aluminium (za) coated sheet and strip:** To BS EN 10346.
4. **Hot dip aluminium-zinc (az) coated sheet and strip:** To BS EN 10346.
5. **Organic coated flat products:** To BS EN 10169.

370 Steel structural hollow sections (SHS)

1. **Non alloy and fine grain steels, hot finished:** To BS EN 10210-1 and -2.
2. **Non-alloy and fine grain steels, cold formed welded:** To BS EN 10219-2.
3. **Weather resistant steels, hot finished:** To BS 7668.

380 Other steel sections

1. **Equal flange tees:** To BS EN 10055.
2. **Equal and unequal angles:** To BS EN 10056-1 and -2.
3. **Wire, carbon steel for general engineering purposes:** To BS 1052.
4. **Wire and wire products, general:** To BS EN 10218-2.
5. **Tubes**
 - 5.1. **Seamless circular:** To BS EN 10297-1.
 - 5.2. **Seamless cold drawn:** To BS EN 10305-1.
 - 5.3. **Welded and cold sized square and rectangular:** To BS EN 10305-5.
 - 5.4. **Welded circular:** To BS EN 10296-1.
 - 5.5. **Welded cold drawn:** To BS EN 10305-2.
 - 5.6. **Welded cold sized:** To BS EN 10305-3.

400 Stainless steel products

1. **Chemical composition and physical properties:** To BS EN 10088-1.
2. **Sheet, strip and plate:** To BS EN 10088-2.
3. **Semi-finished products bars, rods and sections:** To BS EN 10088-3.
4. **Wire:** To BS EN 1088-3.
5. **Tubes**
 - 5.1. **Welded circular:** To BS EN 10296-2.
 - 5.2. **Seamless circular:** To BS EN 10297-2.

410 Aluminium alloy products

1. **Designations**
 - 1.1. **Designation system, chemical composition and forms:** To BS EN 573-1, -2, -3 and -5.
 - 1.2. **Temper designations:** To BS EN 515.
2. **Sheet, strip and plate:** To BS EN 485-1 to -4.
3. **Cold drawn rods, bars and tubes:** To BS EN 754-1 and -2.
4. **Extruded rods, bars, tubes and profiles:** To BS EN 755-1 and -2.
5. **Drawn wire:** To BS EN 1301-1, -2 and -3.
6. **Rivet, bolt and screw stock:** To BS 1473.
7. **Structural sections:** To BS 1161.

420 Copper alloy products

1. **Sheet, strip, plate and circles for general purposes:** To BS EN 1652.
2. **Sheet and strip for building purposes:** To BS EN 1172.
3. **Rods:** To BS EN 12163.
4. **Profiles and rectangular bars:** To BS EN 12167.
5. **Wire:** To BS EN 12166.
6. **Tubes:** To BS EN 12449.

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.

525 Adhesive bonding

1. **Preparation of surfaces of metals to receive adhesives**
 - 1.1. Degrease.
 - 1.2. Abrade mechanically or chemically etch.
 - 1.3. **Prime:** To suit adhesive.
2. **Adhesive bond:** Form under pressure.

530 Stainless steel fabrication

1. **Guillotining or punching:** Do not use for metal thicknesses greater than 10 mm.
2. **Thermal cutting**
 - 2.1. **Carbonation in the heat affected zone:** Remove, after cutting.
3. **Bending**
 - 3.1. **Plates or bars:** Cold bending radius not less than material thickness.
 - 3.2. **Tubes:** Cold bending radius not less than 2 x tube diameter.
4. **Welding:** In addition to general welding requirements:
 - 4.1. Protect adjacent surfaces from weld spatter.
 - 4.2. Pickle all welds before post fabrication treatments.
5. **Protection:** Provide protection to fabricated components during transit and on site.

555 Brazing

1. **Standard:** To BS EN 14324.
2. **Testing**
 - 2.1. **Destructive testing:** To BS EN 12797.
 - 2.2. **Nondestructive testing:** To BS EN 12799.

Finishing

710 Finishing welded and brazed joints visible in complete work

1. **Standard:** To BS EN ISO 8501-3.
 - 1.1. **Preparation grade:** P1
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.

750 Liquid organic coating for aluminium alloy components

1. **Standard:** To BS 4842.

760 Zinc and cadmium plating of iron and steel surfaces

1. **Zinc plating:** To BS EN ISO 2081.
2. **Cadmium plating:** To BS EN ISO 2082.

770 Chromium plating

1. **Standard:** To BS EN ISO 1456.

780 Galvanizing

1. **Standard:** To BS EN ISO 1461.
2. **Preparation**
 - 2.1. **Vent and drain holes:** Provide in accordance with BS EN ISO 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 2½

790 Vitreous enamelling

1. **Standard:** To BS EN ISO 28722.
2. **Substrate metal:** Steel to BS EN 10209.

Completion

910 Documentation

1. **Submit**
 - 1.1. Manufacturer's maintenance instructions.
 - 1.2. Guarantees, warranties, test certificates, record schedules and log books.

920 Completion

1. **Protection:** Remove.
2. **Cleaning and maintenance:** Carry out in accordance with procedures detailed in fabricators' guarantees.

Ω End of Section

Z21

Mortars

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.
2. Portland slag cement, CEM II/B-S.
3. Portland fly ash cement, CEM II/B-V.
 - 3.1. **Strength class:** 32.5, 42.5 or 52.5.
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. **Type:** To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
6. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
 - 6.1. **Strength class:** 32.5, 42.5 or 52.5.
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:** To 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.

200 Storage of cement gauged mortar materials

1. **Sands and aggregates:** Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.
2. **Factory made ready-mixed lime:sand/ ready to use retarded mortars:** Keep in covered containers to prevent drying out or wetting.
3. **Bagged cement/ hydrated lime:** Store off the ground in dry conditions.

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 890, 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):** 30 days

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.

350 Storage of lime:sand mortar materials

1. **Sands and aggregates:** Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.
2. **Ready prepared nonhydraulic lime putty:** Prevent drying out and protect from frost.
3. **Nonhydraulic lime:sand mortar:** Store on clean bases or in clean containers that allow free drainage. Prevent drying out or wetting and protect from frost.
4. **Bagged hydrated hydraulic lime:** Store off the ground in dry conditions.

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):** Seven days

380 Ready to use nonhydraulic lime:sand mortars

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals
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):** Seven days

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

Z31

Powder coatings

To be read with preliminaries/ general conditions.

120 Powder coating materials

1. Manufacturer: Obtain from one only of the following: Specified supplier or approved equivalent.
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: Powder coating. Application of coating powders by electrostatic spraying'.
 - 1.4. **Health and safety guidance:** Health and Safety Executive 'Reducing risk associated with using coating powders - employers' web page.

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. **Selected applicator:** Submit details before commencement of powder coating including:
 - 1.4.1. Name and contact details.
 - 1.4.2. 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.
 - 1.3. Where manual application is required, controlled samples should be coated and inspected for colour and gloss stability.
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.

235 Independent inspection at plant

1. **Requirement:** Contractors/ suppliers of the following designated components must commission an approved Independent Inspection Authority to carry out acceptance inspections to confirm that powder coating application complies with this specification.
 - 1.1. **Designated components:** All
2. **Acceptance inspections:** Carry out for each variation of colour and finish of each component work package at applicator's plant prior to any fabrication of units, in accordance with the following:
 - 2.1. Where three or more production runs are required for application of coatings, not less than three acceptance inspections must be carried out in accordance with BS 6001-1, general inspection level 2, with an acceptance quality limit of 1%.
 - 2.2. Where less than three production runs are required for application of coatings, one acceptance inspection must be carried out in accordance with BS 6001-2, with a limiting quality of 5% where the probability of acceptance is 10%.
3. **Components failing inspection:** Reprocess or replace and reinspect.
4. **Inspection reports:** Independent Inspection Authority must submit copies.

240 Qualicoat quality assurance system

1. **Requirement:** Powder and coating application to the following designated components is to be tested and approved in accordance with the Qualicoat system.
 - 1.1. **Designated components:** All

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 and 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 and 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. Components to be installed on site in order of application.
5. **Jig points:** Not visible on coated components.
6. **Curing:** Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
7. **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.
8. **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.

520 Protection in hazardous locations

1. Minimum thickness of 60 microns across significant and/ or primary surfaces.
2. Minimum thickness of 25 microns on non-significant and/ or secondary faces ensuring a coherent film layer.
3. All cut edges, drilled holes and mitres to be fully sealed.
4. **Cleaning:** Carried out once every three to twelve months (dependent on proximity to pollutant).

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 any protective coverings.
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

Department, Leeds Dock, Leeds
T 0113 245 4695

Beehive Mill, Jersey Street, Manchester
T 0161 397 4953

5 Rose Street, Edinburgh
T 0131 354 1876

E info@re-formlandscape.com
www.re-formlandscape.com

re-form
landscape architecture