SPECIFICATION FOR HARD LANDSCAPE FINISHES

Lu.01

Project:
LUCAN COMMUNITY COLLEGE

Prepared on behalf of

ETB DDL

by

DERMOT FOLEY LANDSCAPE ARCHITECTS

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REVISIONS: **A** 07.01.2020 Volume A.2.4. note added to cover page.
B 27.09.2022 Q10, Q40 REVISED.
C 03.10.2022 Q10, Q40 REVISED.

Specifications included in this document:

Q10 Kerbs/Edges/Channels/Paving Accessories
Q21 In situ concrete roads/ pavings/ bases
Q23 Gravel/hoggin/woodchip roads/ Resin bound roads pavings/ overlays
Q24 Interlocking brick/block roads/pavings
Q40 Fencing
Q50 Site/street furniture/equipment
Q52 Play and sports equipment

Volume A.2.4.

ISSUED FOR: INFORMATION/BILLING/PLANNING/**TENDER**/CONSTRUCTION

10 PART 1 - GENERAL SUMMARY

Employer:

EDB DDL

Landscape Architect Name & Address:

Dermot Foley Landscape Architects, Argus House, Malpas Street, Blackpitts, Dublin 8.
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This specification relates to the proposed works at Lucan Community College, Lucan, Co. Dublin, and should be read in conjunction with documents issued by Dermot Foley Landscape Architects and documents issued by Wejchert Architects, DOBA, KSN and others.

Please note in relation to this tender document; where reference is made to a particular make, source, process, standard, trademark, type or patent that this is not to be regarded as a de facto requirement. In all such cases it should be understood that the reference in question is accompanied by the words “or equivalent”.

CE MARKING: The EU Construction Products Regulation (No. 305/2011 - CPR) requires that construction products that are covered by a harmonised European product standard or are required to conform to a European Technical Assessments should normally have a CE marking. All products specified shall carry the appropriate CE marking as required by the EU Construction Products Regulation (No. 305/2011 - CPR). the CE marking shall include reference of the product standard and the levels or classes of performance being declared against some or all of the characteristics covered by the standard. The CE marking shall be on the product, it's label, packaging or accompanying documentation. Relevant documentary evidence (i.e. an EC Declaration of Conformity, which must contain the following information: manufacturer's details (name and address, etc.); essential characteristics for the product; compliance with appropriated European standards and performance data; if relevant the identification number of the Notified Body; and a legally binding signature on behalf of the manufacturer.) shall be submitted to the CA on request and shall be incorporated into the O&M and H&S manuals upon project completion. All product CE Certificates and Declarations of performance are to be provided before production of shop drawings. Such certificates will be signed, dated and supported by any ancillary certificate where required (i.e. Fire test reports, etc). Copies shall be retained and provided for insertion in to the H&S and O&M manuals. **RELEVANT EN STANDARDS:**
EN 14188-1:2004 - Joint fillers and sealants - Part 1: Specifications for hot applied sealants
EN 14188-2:2004 - Joint fillers and sealants - Part 2: Specifications for cold applied sealants EN 14188-3:2006 - Joint fillers and sealants - Part 3: Specifications for preformed joint seals
EN 1338:2003 - Concrete paving blocks - Requirements and test methods
EN 1339:2003/AC:2006 Concrete paving flags - Requirements and test methods
And others as may be applicable.

Q10 KERBS/EDGINGS/CHANNELS/PAVING ACCESSORIES

To be read with Preliminaries/General conditions.

TYPE(S) OF KERBS/EDGINGS AND CHANNELS

110 PRECAST CONCRETE PIN KERB
Standard: To BS EN 1340:2003
- Installed to: BS7533-6:1999
- Size (width x height x length): 50mm x 150mm x 914mm.
- Edge: No bullnose, flat top.
- Material density: 2300 kg/ m³
- Approximate unit weight: 15kg
- Appearance: hydraulically pressed concrete, solid unit with pimple surface.
- Slip resistance required: Minimum requirement PTV not less than or equal to 40 Wet / Dry and in accordance with BS 5395-1:2010 and BS 8300:2009+A1: 2010, Annex E2, E3, E4 & E5.
- Haunched to engineers detail

115 PRECAST CONCRETE SAFETY KERBS
Does not form part of this specification.

120 STONECHANNELS, EDGINGS OR KERBS
Does not form part of this specification.

125 RECLAIMED STONECHANNELS OR EDGINGS OR KERBS
Does not form part of this specification.

130 CLAY BRICKCHANNELS OR EDGINGS OR KERBS
Does not form part of this specification.

150 CONCRETE BLOCKCHANNELS OR EDGINGS OR KERBS
Does not form part of this specification.

170 LINEAR SLOT DRAINAGE CHANNEL SYSTEMS
Does not form part of this specification. Refer to Structural/Civil Engineer's specification.

180 DRAINAGE CHANNEL SYSTEMS WITH GRATINGS
Does not form part of this specification. Refer to Structural/Civil Engineer's specification.

185 FILTRATION DRAINAGE CHANNELS
Does not form part of this specification. Refer to Structural/Civil Engineer's specification.

190 CARRIAGEWAY KERB AND DRAINAGE CHANNEL SYSTEMS
Does not form part of this specification. Refer to Structural/Civil Engineer's specification.

200 TIMBER EDGING TO DRAINAGE STRIP AT BUILDING INTERFACE:
Softwood board 150mm x 38mm x 4800mm lengths, fixed with 2no./peg galvanized nails to 50mm x 50mm x 750mm long softwood pegs driven into the ground at 1200mm centres.
Preservative treatment: Tanalised or similar approved, pressure treated, as per section Z12 and British Wood Preserving and Damp-Proofing Association Commodity Specification C4.
Type/Desired service life: 20 years.
Alignment: In accordance with landscape architects setting out drawings.
Curves/radii: Notch or kerf using 10mm deep cuts at back of board to ensure radii in accordance with setting out drawings. Ensure that the timber does not split. Install additional stakes, up to 300mm centres where required at curves.

201 TIMBER EDGING:

Softwood board 100mm x 38mm x 4800mm lengths, fixed with 2no./peg galvanized nails to 50mm x 50mm x 750mm long softwood pegs driven into the ground at 1200mm centres.
Preservative treatment: Tanalised or similar approved, pressure treated, as per section Z12 and British Wood Preserving and Damp-Proofing Association Commodity Specification C4.
Type/Desired service life: 20 years.

202 TYPE 1 STEEL EDGING:

Hot dip galvanised to BSEN 1461:2009. 150mm x 150mm SHS. 3mm thick steel in 6m lengths as standard, where required, cut lengths to suit then galvanise. Welded to continuous steel plate 300mm width, 6mm thick. Fixed to concrete foundation with M10 expanding bolts at 500mm centres. Opening for fixings to be predrilled before galvanising. Foundations to Structural/Civil Engineer's specification.

203 TYPE 2 STEEL EDGING:

Hot dip galvanised to BSEN 1461:2009. 80mm x 100mm angle. 5mm thick steel in 6m lengths as standard, where required, cut lengths to suit then galvanise. Fixed to concrete foundation with M10 expanding bolts at 500mm centres. Opening for fixings and overlap bracing joint to be predrilled before galvanising. Foundations to Structural/Civil Engineer's specification.

204 TYPE 3 STEEL EDGEING:

3050mm x 125mm x 6mm thick Hot dip galvanised to BSEN 1461:2009, where required, cut lengths to suit then galvanise. Solid round galvanized steel bar fixed to bracket using grub screw fixing by others. Solid round galvanized steel bar fixed into concrete foundations to engineer's specification. Overlap bracket and one pre-drilled hole to be provided at each end of each length of steep plate to allow lengths to be fixed together.
No seams visible. All joints fully welded and filleted. All lead edges radiused to 3mm. Foundations to Structural/Civil Engineer's specification.

210 SETTING OUT AND ALIGNMENT OF TIMBER EDGES:

In accordance with landscape architect's setting out drawings. Curves/radii: Notch or kerf using 10mm deep cuts at back of board to ensure radii in accordance with setting out drawings. Ensure that the timber does not split. Install additional stakes, up to 300mm centres where required at curves.

211 SETTING OUT AND ALIGNMENT OF STEEL EDGES:

In accordance with landscape architect's setting out drawings including all curves/radii. Each steel length to be supplied with a 75mm flange with two openings to be bolted to adjacent length using two galvanised steel bolts at each fixing. No bolts or joints to be visible. Bespoke lengths of galvanised steel to be supplied to comply with the requirements of the setting out drawings and to eliminate cutting on site.

250 MATERIAL SAMPLES

Samples representative of colour and appearance of designated materials. Install sample of 2 no. lengths in location to be agreed. Submit before placing orders. Provide samples of all kerbs, edges, channels and paving accessories for approval.

ROADS/PAVING ACCESSORIES/MARKING/DEMARCATION

305 TREE GRILLES AND SURROUNDS:

Does not form part of this specification.

395 PREFORMED THERMOPLASTIC LINEMARKING (REFER ALSO TO APPENDIX 1):
Type: Preformed thermoplastic shapes, as shown in drawings to be installed as per manufacturer's instructions.
Standard: Road Safety Markings Association standard specification document for road marking and road studs.
Manufacturer: Meon, or similar approved.
Product reference: ThermaMark, or similar approved.
Colour: To be selected from manufacturers standard range.
Dimensions: as per drawings.
Retroreflectivity to BS EN 1436: Class R2.
Slip resistance required: Minimum requirement PTV not less than or equal to 40 Wet / Dry and in accordance with BS 5395-1:2010 and Bs8300:2009+A1: 2010, Annex E2, E3, E4 & E5.

LAYING

500 CUTTING STEEL EDGE:
Do not cut galvanized steel.

520 ADVERSE WEATHER:
Conditions: Do not construct if the temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

620 ACCURACY:
Deviations (maximum):
Level: ± 6 mm.
Horizontal and vertical alignment: 3 mm in 3 m.

Q21 IN-SITU CONCRETE ROADS/PAVINGS/BASES

To be read with Preliminaries/General conditions.

TYPES OF PAVING

115 BRUSH FINISH REINFORCED CONCRETE PAVING:
In-situ concrete to include 50% Ground Granulated Blastfurnace Slag (GGBS).

116 GROUND FINISHED REINFORCED CONCRETE PAVING: (REFER ALSO TO APPENDIX 2)
Aggregate Material: Selected secondary raw material crushed and washed
Source: CE Marked product
Aggregate Size: 5-20mm
Aggregate Colour: Mixed
Pigment: To be selected from on-site samples
Depth of grind: 5mm, allow minimum 4 weeks from pouring concrete to grinding.
Hardener: to be applied to concrete after second grinding process, refer to Appendix 2. Apply using manufacturer instructions.
Sealant: to be applied to concrete after hardener, refer to Appendix 2. Apply using manufacturer instructions.
Sawn crack-inducing joints: to be sawn within 48 hours of pouring concrete in accordance with landscape architects setting out drawings.
Slip resistance: To comply with Clause 571
Setting out: As shown on drawings. Formwork for irregular and curved concrete to be flexible plywood used to construct the form lining to arcs and radii on timber shuttering. Plywood is to be kerfed on one face to allow the timber bend without breaking. A suitable release agent is to be used on all formwork to allow for all formwork to be removed cleanly from concrete.
Expansion joints: To Structural/Civil engineer's specification.
Reinforcing mesh: To Structural/Civil engineer's specification.
Depth of concrete: To Structural/Civil engineer's specification.

GENERAL/PREPARATION

Testing, reinforcement quality assurance, acceptance of sub-base, laying of mesh reinforcement and formwork all to Structural/Civil engineer's specification.

310 TRANSPORTING CONCRETE:
When ready mixed concrete is transported in a truck mixer, water must be added under supervision either on site or at the central batching plant. Under no circumstances must water be added in transit.
Avoid contamination, segregation, loss of ingredients, excessive evaporation and loss of workability. Cover concrete during heavy rain.
Clean equipment immediately after use and whenever cement or aggregate is changed.
Use suitable walkways and barrow runs for traffic over reinforcement and freshly placed concrete.

320 LAYING GENERALLY:
Timing: Place as soon as practicable after mixing and while sufficiently plastic for full compaction. After discharge from the mixer do not add water or retemper.
Temperature of concrete at point of delivery:
- In hot weather (maximum): 30°C.
- In cold weather (minimum): 5°C.
Cold weather:
- Do not use frozen materials.
- Do not place concrete against frozen or frost covered surfaces.
- Do not place concrete when air temperature is below 3°C on a falling thermometer. Do not resume placing until rising air temperature has reached 3°C.
Surfaces on which concrete is to be placed: Free from debris and standing water.
Placing in final position: Place in one continuous operation up to construction joints.

- Do not place concrete simultaneously on both sides of movement joints.
Spreading: Spread and strike off with surcharge sufficient to obtain required compacted thickness.
Adjacent work: Form neat junctions and prevent damage. Keep clean all channels, kerbs, inspection covers, etc.

330 COMPACTING:
Fully compact concrete to full depth (until air bubbles cease to appear on the surface) especially around reinforcement, cast-in accessories, into corners and at joints.
Poker vibrators must not be used to make concrete flow into position and must not come into contact with fabric reinforcement.
Rectify any irregularities at wet formed joint grooves by means of a vibrating float.
Finish with an approved scraping straightedge immediately after completing compaction to produce a dense, even textured surface free from laitance or excessive water.
Remove any excess concrete from top of groove formers.
For exposed aggregate concrete compact in accordance with manufacturer's instructions.

340 MANHOLE COVER/GULLY GRATING FRAMES:
Covers to be galvanised steel recessed tray covers, in-filled with concrete finish. Set frames in independent concrete slabs placed over, but slightly larger than, the exterior of the manhole shaft or gully pot and any concrete surround.
Position joints in main slab so that manhole/gully slabs are adjacent to a main transverse joint, unless specified otherwise.
Separate the independent slabs from main slabs with 25 mm thick joint filler board. Set board 20 mm below top of slab to form a sealing groove.
For load class of covers refer to Structural/Civil engineer's specification.

350 LEVELS:
Lines and levels of finished surface to be smooth and even, with regular falls to prevent ponding. Finished surfaces to be within ±6 mm of required levels (+6 -0 mm adjacent to gullies and manholes).

360 SURFACE REGULARITY:
Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straightedge (with feet) placed anywhere on the surface to be not more than 5 mm. Sudden irregularities not permitted.

380 QUALITY CONTROL:
Standard: BS EN 13877-2.
Tolerance on paving thickness: 5mm.
Control: to Structural/Civil engineer's specification.
Number of cores: to Structural/Civil engineer's specification.
Location: Submit proposals complying with recommendations of clause 5.

JOINTS

400 JOINTS:
All expansion joints, dowel bars, reinforcing to Structural/Civil engineer's specification.

SURFACE FINISH

510 SAMPLE AREA:
Complete minimum 5 no. sample areas for each concrete finish to show optional variation in grind, colour, aggregate size, etc. in an approved location. Liaise with Landscape Architect to select variations required in each sample. Each sample area to be 5m².
Obtain approval of Landscape Architect before proceeding.

570 BRUSHED FINISH:
Does not form part of this specification.

571 GROUND FINISH: (REFER ALSO TO APPENDIX 2)
Slip resistance required: Minimum requirement PTV not less than or equal to 40 Wet / Dry and in accordance with BS 5395-1:2010 and Bs8300:2009+A1: 2010, Annex E2, E3, E4 & E5.

575 RUN-OFF:
Ensure that the solid residues (cement, sand) do not enter drains. Channel the water to a temporary soak-away where the sediment can be removed by shovel. Make a gravel wall at
the side of the concrete to filter the water before it gets to the drains. In all cases the solid residues can be re-used in the base of the next bay before concreting.
Ensure that all building, landscape, planting and other finishes adjacent are protected from
spray, power washing or run-off. Take all necessary precaution to temporarily cover such finishes.

Q23 GRAVEL/HOGGIN/WOODCHIP/RESIN BOUND ROADS/PAVINGS/OVERLAYS

To be read with Preliminaries/General conditions.

TYPE(S) OF SURFACING

110 HARD BINDING/SELF BINDING GRAVEL (REFER ALSO TO APPENDIX 3)

- Granular sub-base: to Structural/Civil engineer's specification.
- Blinding to sub-base: 25 mm dolomitic limestone to seal all interstices but allow free drainage.
- Wearing course: Cream/buff coloured quartz sandstone aggregate.
- Size: Dust-10mm
- Typically 9.5% pass through 63µm sieve
- Majority of grains to be between 0.2mm and 0.5mm. Maximum grain length to be 1mm.
- Apparent particle density : 2.61 mg/m3
- Particle density oven dried : 2.53 mg/m3
- Particle density S.S.D: 2.56 mg/m3
- Water absorption: 1.3%
- Flakiness index : 22
- PSV: 57
- LA coefficient: 17
- LAV: 3.6
- Thickness: 50 mm.
- Laying: Compact all layers as clause 380.
- Other requirements: Certified as pyrite free in accordance with Clause F10/60A.

170 PEA GRAVEL TO BUILDING INTERFACE:

- Granular sub-base: to Structural/Civil engineer's specification.
- Stone: Limestone
- Gravel: Selected washed and graded pea gravel
- Size: 02-06 mm
- Thickness: 100 mm.

175 GRAVEL:

- Granular sub-base: to Structural/Civil engineer's specification.
- Blinding to sub-base: 50 mm dolomitic limestone to seal all interstices but allow free drainage.
- Stone: Limestone
- Gravel: Selected washed and graded pea gravel
- Size: 06-12 mm
- Thickness: 30 mm.

PREPARATION/LAYING

320 SAMPLE(S):

Samples representative of colour and appearance of designated materials. Submit before placing orders. Install sample areas of 'Pea Gravel' and 'Self-binding Gravel' each of 10m², in an approved location. Obtain approval of Landscape Architect before proceeding.

330 HERBICIDE:

- Does not form part of this specification.

340 LAYING GENERALLY:

- Ensure surfacing materials do not block channels, gullies, etc.
- Lines and levels of finished surfaces to be to the specified falls and accuracy to prevent ponding.

- Finished surface to have an even overall texture.
- Leave in a clean state upon completion.

350 COLD WEATHER:
- Do not use frozen materials or lay pavings on frozen or ice covered surfaces.
- Do not apply cold bituminous surface dressings when ambient temperature is below 10 °C.

360 DRAINAGE FALLS:
Unless specified otherwise, not less than 1:80.

380 LAYING GRANULAR SURFACES IN PEDESTRIAN AREAS:
- Maximum permissible deviation from the required levels, falls and cambers: ±12 mm.
- Sub-base: spread and level in 100 mm maximum layers and as soon as possible thereafter compact with a roller weighing not less than 6 tonnes or other equivalent plant. To Structural/Civil engineer's specification.
- Wearing Course: spread and level in 100 mm maximum layers and as soon as possible thereafter compact with a roller weighing not less than 1 tonnes or other equivalent plant. Roll to a consolidated thickness of not less than 50 mm.
- In dry weather lightly water all layers during compaction.

390 PROTECTION FROM TRAFFIC:
- Restrict access to paved areas as necessary to prevent damage from site traffic and plant.

Q24 INTERLOCKING BRICK/BLOCK ROADS/PAVINGS

To be read with Preliminaries/General conditions.

TYPE(S) OF PAVING

115 PRECAST CONCRETE BLOCK PAVING:
Does not form part of this specification.

120 PRECAST CONCRETE BLOCK PAVING:

- Standard: To BS EN 1338:2003
- Strength: Typical tensile splitting strength >3.6MPa
- Material: Hydraulically pressed semi-dry concrete
- Efflorescence: Minimum 12 hour vapour curing
- Installed to: BS7533-3:2005
- Sub-base: to engineers specification.
- Bedding: 50mm (when compacted) 2-5mm crushed rock aggregate
- Jointing: haunched to engineer specification.
- Joints: 5mm
- Size (width x height x length): 100mm x 200mm x 60mm only.
- Laying Pattern: Stack bond
- Cutting: No cutting of units permitted without prior approval from Landscape Architect
- Colour: Red – to match existing brick paving to be retained
- Carbon Footprint: 48-51kgCO^2/m^2
- Slip resistance required: Minimum requirement PTV not less than or equal to 40 Wet / Dry and in accordance with BS 5395-1:2010 and BS 8300:2009+A1: 2010, Annex E2, E3, E4 & E5.

120B MEDIUM FORMAT SECONDARY RAW MATERIAL (EXISTING BRICK) LAID AS PATH:

- Type: Brick reclaimed from existing building walls in courtyards.
- Frost Resistance: Yes
- Sub-base: To Structural/Civil engineer's specification.
- Bedding: As per Clause164, Q25
- Priming Slurry: As per Clause165, Q25
- Jointing: Polymeric sand
- Joints: 4mm
- Size(s): Existing brick module
- Setting out: As shown on drawings. Lay in direction as shown on drawings only.
- Slip resistance required: Minimum requirement PTV not less than or equal to 40 Wet / Dry and in accordance with BS 5395-1:2010 and Bs8300:2009+A1: 2010, Annex E2, E3, E4 & E5.

140 PRECAST CONCRETE REINFORCED GRASS UNIT:
Does not form part of this specification.

LAYING

210 LAYING GENERALLY:
Ensure that sub-bases are suitably accurate and to specified gradients before laying paving.
Cut blocks/pavers neatly and accurately without spalling to give neat junctions at edge restraints and changes in bond.

220 SAMPLES:
Samples representative of colour and appearance of designated materials: 'Concrete Block Paving'. Submit before placing orders.

230 CONTROL SAMPLE(S):
Complete sample area(s), being part of the finished work, in approved location(s) as follows and obtain approval of appearance before proceeding: separate sample areas of ‘Concrete Block Paving’ of 10m², in an approved location.

240 ADVERSE WEATHER:
Do not use frozen materials or lay bedding on frozen or frost covered sub-bases.

242 ADVERSE WEATHER (SAND BEDDED AND JOINTED PAVING):
Protect stockpiled bedding material to ensure it does not become saturated.
Protect exposed areas of sand bedding and uncompacted areas of paving from heavy rainfall.
Remove and replace any sand bedding which becomes saturated before laying paving, or allow to dry before proceeding.
When conditions are damp, brush in as much jointing sand as possible and minimize site traffic over the paving. As soon as paving is dry, top up joints and complete the compaction.

250 ACCEPTANCE OF BASE:
Before starting work ensure that:
The sub-base surface is sound, clean, and close-textured enough to prevent loss of sand bedding into it during compaction and use.
The levels and falls of the sub-base are as detailed, and within the specified tolerance.
Drainage outlets are within +0 to -10 mm of the required finished level.
Edge restraints, manhole covers, drainage outlets and the like are complete, to the required levels, and adequately bedded and haunched in mortar that has reached sufficient strength.
Haunching to gullies, manhole covers and the inside face of edge restraints is vertical so that pavings do not 'ride up' when compacted.
All sub-bases and concrete haunching to Structural/Civil Engineer’s engineer’s specification.

255G GEOTEXTILE SHEET EDGING STRIP:
Does not form part of this specification. Refer to Structural/Civil Engineer’s specification.

257G GEOTEXTILE PATCHES OVER DRAINAGE PERFORATIONS:
Does not form part of this specification. Refer to Structural/Civil Engineer’s specification.

258G GEOTEXTILE SHEET:
Does not form part of this specification. Refer to Structural/Civil Engineer’s specification.

265 MORTAR BEDDED EDGE RESTRAINT:
Always start laying from an edge restraint.

268 TOOLED MORTAR JOINTS:
Does not form part of this specification

300 LAYING BEDDING:
Determine by trial on site the depth of loose bedding material needed to ensure the specified thickness after final compaction of paving.
Maintain a prepared area of bedding not less than 1 m and not more than 3 m in advance of the laying face at all times, and not more than 1 m at the conclusion of any working period.
Do not leave areas of bedding exposed; proceed with laying blocks/pavers immediately.
Do not deliver bedding materials to working area over uncompacted paving. Prevent

disturbance to the bedding course by pedestrian or wheeled traffic.
Fill, rescreed and recompact any parts of the bedding layer disturbed by removal of screed rails or trafficking.

305 LAYING BEDDING (PRECOMPACTED):
Spread bedding material in one loose layer. Compact with a plate compactor and level the surface by screeding.

306 LAYING BEDDING (PARTIALLY PRECOMPACTED):
Spread, in a loose uncompacted layer, approximately the required final thickness of bedding material and compact with a plate compactor. Spread a further loose layer approximately 15 mm thick, and screed to levels.

307 LAYING BEDDING (POSTCOMPACTED):
Spread bedding material in one loose uniform layer and screed to levels.

310 LAYING PRECAST PERMEABLE BLOCKS/PAVERS:
Commence from an edge restraint. Unless specified otherwise, lay blocks/pavers hand tight with no joint. Place blocks/pavers squarely with minimum disturbance to bedding. Supply blocks/pavers to laying face over newly laid paving but stack at least 1 m back from laying face. Do not allow plant to traverse areas of uncompacted paving. Continually check alignment of pavers with string lines as work proceeds to ensure maintenance of accurate bond.
Infill at edge restraints as work proceeds. Wherever the type of bond and angle of edging permit, avoid very small infill pieces at edges by breaking bond on the next course in from the edge, using cut blocks/pavers.

311 LAYING PRECAST CONCRETE BLOCK PAVING IN LAWN WITH IRREGULAR WIDE JOINTS::
Install as shown on drawings.
Laid on mortar bed on compacted sub-base all to engineer’s detail.
Ensure all edges to each individual paving block haunched, and mortar joints scraped out to leave 75mm depth joint at base of paving units for backfilling with topsoil.

312 LAYING PRECAST CONCRETE GRASSCRETE BLOCKS:
Laid on 50mm depth 0-3mm sand, over sub-base to Structural/Civil engineer’s specification.
Backfill with growing medium 70% washed horticultural sand 30% topsoil to Q30.

315 OBSTRUCTIONS:
After laying full paving units, trim blocks/pavers neatly around drainage fittings and other obstructions, with no joints and without reducing the thickness of the blocks/pavers.
Where this is not possible, form a rectangular in-situ surround of grade C35 air entrained concrete, maximum aggregate size 10 mm, to BS 5328, with a minimum thickness of the combined depth of blocks/pavers and sand bedding, and a minimum width of 100 mm all round the obstruction, colour matched to approval.

320 CUT BLOCKS/PAVERS:
With a masonry saw only.

342 BEDDING LAYER TOLERANCES:
After final compaction:
50 mm nominal thickness: +15/-20 mm.
30 mm nominal thickness: +12/-0 mm.

345 LEVELS OF PAVING:
Permissible deviation from specified levels to be ± 6 mm generally. Set paving 6-10 mm above gullies and 3-6 mm above surface drainage channels.

380G REMEDIAL WORK:
During the Contract and Maintenance Period:
Any areas of paving which settle must be relaid as specified. Where early trafficking leads to settlement of the jointing sand, refill the joints as specified.

505 REGULARITY:
Sudden irregularities not permitted.
Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straight edge placed anywhere on the surface to be not more than 10 mm.
The difference in level between adjacent blocks/pavers to be not more than 2 mm.

COMPLETION

600 1010 CERTIFICATION REQUIRED UPON COMPLETION OF THE WORKS:
The following certification is required upon completion of the works and shall be supplied in writing to show compliance with specification, to be incorporated into the H&S manuals and O&M manuals. Compliance with clause P12 / 50A - CE Marking, Compliance with clause F10 / 60A - Pyrite Testing, Compliance with clause P12 / 620 - Slip Resistance testing.

640 COLOUR BANDING:
- Unless premixed by manufacturer select from at least three separate packs in rotation to avoid colour banding.

Q26 SPECIAL SURFACING/ PAVINGS FOR SPORT/ GENERAL AMENITY

To be read with Preliminaries/ General conditions.

IMPACT ABSORBING SURFACINGS FOR PLAY AREAS

300 EXTENT OF IMPACT ABSORBING SURFACING (REFER ALSO TO APPENDIX 4)
General: Lay to the impact areas shown in the relevant parts of BS EN 1176 as indicated on drawings.

310 BARK SURFACING
Does not form part of this specification.

320 WOODCHIP SURFACING
Does not form part of this specification.

330 SAND SURFACING
Does not form part of this specification.

340 IMACT ABSORBING MESH AND MAT FOR GRASS AREAS IN PLAY AREA:
Does not form part of this specification.

341 WET POUR IMPACT ABSORBING SURFACE IN PLAY AREA: (REFER ALSO TO APPENDIX 4)
Standard: to BS 1176, BS 1177 and BS 7188.
Type: EPDM rubber granules mixed with resin on site to produce a wet pour, seamless, permeable impact absorbing play surface.
Depth: Up to 150mm depth for a critical fall height of 3m, or less for lower critical fall heights. To be co-ordinated with selected play equipment and its Critical Fall Height.
Colour: Colour to be confirmed with Landscape Architect prior to ordering
Sub-base: to Structural/Civil engineer's specification.
Warranty: 5 years minimum.
Critical fall height: Before installing ensure the product matches and is appropriate for the critical fall height of play equipment.

350 SYNTHETIC GRASS SURFACING
Does not form part of this specification.

415 RAISED EDGING TO SURFACING TYPE
Does not form part of this specification.

420 LINE MARKINGS TO SURFACING TYPE
Does not form part of this specification.

430 EDGES:
Pressure treated timber edge as per Q10 201 and galvanized steel edge as per Q10 203

440 STUMP BOXES TO CRICKET WICKETS
Does not form part of this specification

COMPLETION

910 SPORTS SURFACE TESTING:
Does not form part of this specification.

920 PLAY SURFACE TESTING:
Standard: To BS EN 1177 and BS 7188, where applicable.
Testing body: A United Kingdom Accreditation Service (UKAS) independent laboratory.
Timing: Within ten days of completing the surfacing works.

Test results: Submit to landscape architect.

930 DOCUMENTATION

General: For all types of surfacing, provide the following:

- Name and contact details of installer.
- Date of installation.
- Name and contact details of manufacturer.
- Type/ description/ reference of products used.
- Manufacturer's recommended inspection and maintenance procedures to maintain safety and impact absorbing performance.
- Manufacturer's recommended cleaning and maintenance methods, where relevant.

940 LABELLING

Signs: Provide permanent labelling in approved locations on all types of surfacing stating:

- Critical fall height;
- Date of installation;
- Manufacturer's name and contact details; and
- Product name.

Q40 FENCING

To be read with Preliminaries/ General conditions.

FENCING SYSTEMs

100 CHAINLINK FENCING TO SPORTS COURTS
(REFER ALSO TO APPENDIX 5)

Type: Woven chainlink fence with a 50mm x 50mm diamond shaped aperture and varying thickness of wire, finished in galvanised wire and galvanised with plastic coating. Plastic coating to selected RAL colours to be approved by Landscape Architect before fabrication.
Standard: to BS 1722 - 10
Height: 2400mm above ground level.
Post System: 48 O.D galvanised post subsequently electrostatically powder coated in a plant complying to EN 1722 Part 16
Post size: 80mm diameter hollow galvanized steel section with 6mm wall thickness.
Panel width: 3000mm
Fixings: Line wire and tying wire
Method of setting posts: Erect posts plumb and level in concrete footings set 100mm below ground level. All bases and footings to Structural/Civil engineer's specification. Note drawings show design intent only. Specialist to be appointed to provide design, supply and installation service and submit certificates as required.
Approval: Submit fabrication drawings to Landscape Architect for approval.
Manufacturer to have demonstrable experience of similar fabrication and to be approved by Landscape Architect.
Period of notice (minimum): 5 working days.

110 CLEFT CHESTNUT PALE FENCING (REFER ALSO TO APPENDIX 6)

Standard: To BS 1722-4.
Type: Supplied in 10m rolls of three horizontal strands of galvanized wire woven around vertical pales of split sweet chestnut.
Height: 900mm above ground
Posts and struts: 50mm x 50mm sawn timber
Treatment: pressure treated.
Maximum centres of posts: 2m.
Straining posts: stays at 10m centres and changes of direction and at all ends.
Turning posts: At corners and lateral changes of direction.
Contour posts: At acute variations in level.
Intermediate posts: 15 m on spring steel line wires, 10 m on high tensile mesh fences.
Method of setting posts:
All posts, struts and stays: Driven to a minimum depth of 600 mm.
Accessories:
Fixings: Galvanized steel fencing staples at 300mm centres on all posts. Minimum 2 per post.
Conformity: Submit manufacturer's and installer's certificates, to BS 1722-4.

120 GALVANISED STEEL POST AND TIMBER FENCE TO SNU PLAY AREA:

Standard: To BS1722
Height: 1800mm above datum
Type: Planed Cedar timbers 100mm x 25mm x 1750mm with 17mm spacings between timbers fixed to galvanized steel frame. Timber to use a 'hit and miss' arrangement. Galvanized steel frame to consist of 100mm x 100mm x 2000mm SHS upright posts, connected by 3no. 50mm x 50mm x 2350mm SHS. 100mm x 100mm upright posts to be fixed into a steel base, fixed to a concrete footing below ground and to be hot dipped galvanised to BS EN9 ISO 1461 after fabrication. All holes pre-drilled prior to galvanization.
Preservative treatment: Tanalised or similar approved, pressure treated, as per section Z12 and British Wood Preserving and Damp-Proofing Association Commodity

Specification C4.
Type/Desired service life: 20 years.
Fixings: Anti Vandal Bolts.
Method of setting posts: Erect steel supports in concrete footings to Structural/Civil engineer's specification.
Accessories : None
Conformity: Submit manufacturers and installer certificates to BS 1722.
Fixings/ Foundations: Root fixed to concrete footings. No surface fixings. All foundations to be minimum 150mm below finished landscape levels or deeper to allow installation of proposed hard and soft landscape finishes in accordance with specifications. Refer to Structural/Civil engineer's specification.
Approval: Submit fabrication drawings to Landscape Architect for approval.
Period of notice (minimum): 5 working days.

130 GALVANISED STEEL PALISADE FENCE (TO REPLACE EXISTING IF DAMAGED):
Standard: To BS1722 - 12
Height: 2400mm above datum
Type: Galvanized steel post and panel palisade fence.
Posts: 100 x 55 RSJ hot dipped galvanised post to BS EN9 ISO 1461:2009 after fabrication. Posts Centre: 2750mm.
Panels: 17 No 2.5mm thick pales with triad head bolted to angle rail with 87mm gaps.
Rail: 2 no 2730mm 45 x 45 x 5 Angle
Fixings: Anti Vandal Bolts.
Method of setting posts: Erect steel supports plumb and level in concrete footings to Structural/Civil engineer's specification.
Accessories : None
Conformity: Submit manufacturers and installer certificates to BS 1722.
Fixings/ Foundations: Root fixed to concrete footings. No surface fixings. All foundations to be minimum 150mm below finished landscape levels or deeper to allow installation of proposed hard and soft landscape finishes in accordance with specifications. Refer to Structural/Civil engineer's specification.
Approval: Submit fabrication drawings to Landscape Architect for approval.
Period of notice (minimum): 5 working days.

GATES, POSTS AND STILES

200 VECHICULAR GATE TO CHAINLINK FENCE
Type: Double leaf gate with chainlink mesh panel infill. 2no. hinged gate 2450mm height x 2902mm width with integrated lock. Both gates to be openable and closable by hand, by one person. To be capable of being 'locked open' and 'locked closed'.
Standard: To BS 1722 - 1
Width of opening: 5952mm combined open width when both gates opened
Height: 2500mm above ground
Frame: Square Hollow Section galvanized to BS EN ISO 1461 after fabrication and polyester powder coated to BS EN 13438. Structure to others design.
Mesh Aperture: 50mm x 50mm diamond shaped aperture.
Method of setting posts: Erect posts plumb and level in concrete footings set 100mm below ground level. All bases and footings to Structural/Civil engineer's specification. Note drawings show design intent only. Specialist to be appointed to provide design, supply and installation service and submit certificates as required.
Approval: Submit fabrication drawings to Landscape Architect for approval. Manufacturer to have demonstrable experience of similar fabrication and to be approved by Landscape Architect.
Period of notice (minimum): 5 working days.

205 PEDESTRIAN GATE TO CHAINLINK FENCE
Type: Single leaf gate with chainlink mesh panel infill. 1no. hinged gate 2450mm height x 1500mm width with integrated lock. Gate to be openable and closable by hand, by

one person. To be capable of being 'locked open' and 'locked closed'.
Standard: To BS 1722 - 1
Width of opening: 1600mm open width when both gates opened
Height: 2500mm above ground
Frame: SHS galvanized to BS EN ISO 1461 after fabrication and polyester powder coated to BS EN 13438. Structure to others design.
Mesh Aperture: 50mm x 50mm diamond shaped aperture.
Method of setting posts: Erect posts plumb and level in concrete footings set 100mm below ground level. All bases and footings to Structural/Civil engineer's specification. Note drawings show design intent only. Specialist to be appointed to provide design, supply and installation service and submit certificates as required.
Approval: Submit fabrication drawings to Landscape Architect for approval. Manufacturer to have demonstrable experience of similar fabrication and to be approved by Landscape Architect.
Period of notice (minimum): 5 working days.

220 PEDESTRIAN GATE TO GALVANISED STEEL POST AND TIMBER FENCE TO SNU PLAY AREA:
Standard: To BS1722
Type: Single leaf gate with planed Cedar timbers 100mm x 25mm x 1750mm with 17mm spacings
between timbers fixed to galvanized steel frame with integrated lock. Timber to use a 'hit and miss'
arrangement. Galvanized steel frame to consist of 50mm x 50mm SHS to be hot dipped galvanized to BS EN9 ISO 1461 after fabrication. Gate to be hung from hinges (to fabricators detail) fixed to galvanised steel bracket fixed to external wall. Gate to be openable and closable by hand, by one person. To be capable of being 'locked open' and 'locked closed'.
Preservative treatment: Tanalised or similar approved, pressure treated, as per section Z12 and British Wood Preserving and Damp-Proofing Association Commodity Specification C4.
Type/Desired service life: 20 years.
Fixings: Anti Vandal Bolts.
Height: 1800mm above datum
Width of opening: 1600mm open width when both gates opened.
Method of setting posts: Erect steel supports in concrete footings to Structural/Civil engineer's specification.
Accessories : None
Conformity: Submit manufacturers and installer certificates to BS 1722.
Fixings/ Foundations: Root fixed to concrete footings. No surface fixings. All foundations to be minimum 150mm below finished landscape levels or deeper to allow installation of proposed hard and soft landscape finishes in accordance with specifications. Refer to Structural/Civil engineer's specification.
Approval: Submit fabrication drawings to Landscape Architect for approval.
Period of notice (minimum): 5 working days.

230 GALVANISED STEEL PALISADE PEDESTRIAN GATE (TO MATCH EXISTING AND PROPOSED PALISADE FENCE):
Standard: To BS1722 - 12
Height: 2400mm above datum or to match existing fence height as required.
Type: Galvanized steel post palisade gate.
Width Between Posts: 1200mm
Infill: 7 No. 68mm Standard Palisade Pales
Frame: 60 x 60mm SHS Mitred corners with fully welded joints Infill to be affixed to frame by full welds, to be supplied with drop bolts and receivers, adjustable hangers, and locking system to take clients padlock or alternative device as required.
Fixings: Anti Vandal Bolts.
Method of setting posts: Erect steel supports plumb and level in concrete footings to Structural/Civil engineer's specification.
Accessories : None

Conformity: Submit manufacturers and installer certificates to BS 1722.
Fixings/ Foundations: Root fixed to concrete footings. No surface fixings. All foundations to be minimum 150mm below finished landscape levels or deeper to allow installation of proposed hard and soft landscape finishes in accordance with specifications. Refer to Structural/Civil engineer's specification.
Approval: Submit fabrication drawings to Landscape Architect for approval.
Period of notice (minimum): 5 working days.

ACCESSORIES

Does not form part of this specification.

EXECUTION

710 INSTALLATION GENERALLY
Set out and erect: in accordance with landscape architect's drawings.
Alignment: Straight lines or smoothly flowing curves.
Tops of posts: Following profile of the ground. Finished at angle where specified.
Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
Fixings: All components securely fixed.

715 COMPETENCE
Operatives: Contractors must employ competent operatives.
Qualifications: Submit certification of training.

720 SETTING POSTS IN CONCRETE
Does not form part of this specification. Refer to Structural/Civil Engineer's specification.

730 EXPOSED CONCRETE FOUNDATIONS
Does not form part of this specification.

740 SETTING POSTS IN EARTH
Does not form part of this specification.

750 DRIVEN POSTS
Damage to heads: Replace posts damaged by stones or other objects below ground.
Repair: Neatly finish post tops after installation.

760 NAILED WOOD RAILS
As per Q40 210.

765 CLEFT WOOD RAILS
Does not form part of this specification.

766 ARRIS RAILS
Does not form part of this specification.

770 SITE CUTTING OF WOOD
General: Kept to a minimum.
Below or near ground level: Cutting prohibited.
Treatment of surfaces exposed by minor cutting and drilling: resealed with a timber preservative solution to ensure that a satisfactory preservative envelope is maintained.

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

the original layer.

790 SITE PAINTING
Does not form part of this specification.

COMPLETION

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

920 FIXINGS
All components: Tighten.
Timing: Before handover.

Q50 SITE/STREET FURNITURE/EQUIPMENT

To be read with Preliminaries/ General conditions.

GATES, BARRIERS AND PARKING CONTROLS

120 STEEL GATE AND GATE POSTS
Does not form part of this specification.

160 TURNSTILE AT SECURITY BARRIER
Does not form part of this specification.

190 BOLLARDS
Does not form part of this specification..

191 REMOVABLE BOLLARDS
Does not form part of this specification.

SITE AND STREET FURNITURE

210 STEEL CYCLE STANDS
Material/finish/colour: Marine grade 316 stainless steel to BS EN 10088-2 and to BS EN 10088-3, bead blasted, using stainless steel shot to achieve 'honed' finish.
Size: 800mm x 900mm height above ground
Number of cycles: 2no. per stand
Method of fixing: Root fixed to concrete foundations with M10 expanding bolts. No surface fixings. All foundations to be minimum 150mm below finished landscape levels or deeper to allow installation of proposed hard and soft landscape finishes in accordance with specifications. Refer to Structural/Civil engineer's specification.
Approval: Submit fabrication drawings to Landscape Architect for approval.
Period of notice (minimum): 5 working days.

220 PRECAST CONCRETE SEAT TYPE A (REFER ALSO TO APPENDIX 7)
Type: Precast concrete seat
Size: 3000mm length x 600mm width x 350 height (300mm height above ground)
1 in 120 crossfall to top face of wall for drainage
15mm chamfer to all edges
Concrete: Sawn cut to achieve exposed aggregate finish to a silver standard. A C28/35 D10 design mix in accordance with i.s EN 206. Concrete shall contain 50% ggbs. Aggregates shall be naturally sourced gravel round in texture riverbed aggregate. Concrete shall include steel reinforcement to others design.
No adjustments , alterations shall be made to the material, mix, workability, cement content or W/C ration once supply has commenced. Acrylic sealer Shall be applied to concrete surface.
Finish: Surface and side profiles of wall to have slip resistant finish with minimum requirement PTV not less than or equal to 40 Wet / Dry and in accordance with BS 5395-1:2010 and BS 8300:2009+A1: 2010, Annex E2, E3, E4 & E5..
Reinforcing mesh: To Structural/Civil engineer's specification.
Each unit to incorporate 3 no. lifting sling locations.
Fixings/ Foundations: Fixings / bedding to engineers detail. No surface fixings. All foundations to be minimum 50mm below finished landscape levels or deeper to allow installation of proposed hard and soft landscape finishes in accordance with specifications. Refer to Structural/Civil engineer's specification.
Note drawings show design intent only. Specialist to be appointed to provide design, supply and installation service and submit certificates as required.
Approval: Submit fabrication drawings to Landscape Architect for approval.
Manufacturer to have demonstrable experience of similar fabrication and to be approved by Landscape Architect.

Period of notice (minimum): 5 working days.

221 PRECAST CONCRETE SEAT TYPE B (REFER ALSO TO APPENDIX 7)

Type: Precast concrete seat
Size: 2300mm length x 600mm width x 350 height (300mm height above ground)
1 in 120 crossfall to top face of wall for drainage
15mm chamfer to all edges
Concrete: Sawn cut to achieve exposed aggregate finish to a silver standard. A C28/35 D10 design mix in accordance with i.s EN 206. Concrete shall contain 50% ggbs. Aggregates shall be naturally sourced gravel round in texture riverbed aggregate. Concrete shall include steel reinforcement to others design.
No adjustments , alterations shall be made to the material, mix, workability, cement content or W/C ration once supply has commenced. Acrylic sealer Shall be applied to concrete surface.
Finish: Surface and side profiles of wall to have slip resistant finish with minimum requirement PTV not less than or equal to 40 Wet / Dry and in accordance with BS 5395-1:2010 and BS 8300:2009+A1: 2010, Annex E2, E3, E4 & E5..
Reinforcing mesh: To Structural/Civil engineer's specification.
Each unit to incorporate 2 no. lifting sling locations.
Fixings/ Foundations: Fixings / bedding to engineers detail. No surface fixings. All foundations to be minimum 50mm below finished landscape levels or deeper to allow installation of proposed hard and soft landscape finishes in accordance with specifications. Refer to Structural/Civil engineer's specification.
Note drawings show design intent only. Specialist to be appointed to provide design, supply and installation service and submit certificates as required.
Approval: Submit fabrication drawings to Landscape Architect for approval.
Manufacturer to have demonstrable experience of similar fabrication and to be approved by Landscape Architect.
Period of notice (minimum): 5 working days.

240 LITTER & RECYCLING BINS

Does not form part of this specification.

260 STAINLESS STEEL TRELLIS SYSTEM TO BUILDING FAÇADE:

Type: Stainless steel support structure, 4mm stainless steel wire rope, all wires finished with a tensioner at each end, with spacers, wall anchors with internal, wire rope, and dome nuts, all at 600mm centres,
Size: 10no. runs of vertical wire, at 1000mm centres
Material/finish/colour: Stainless steel wire rope and all fittings to be stainless steel
Approval: submit samples to Landscape Architect for approval.
Period of notice (minimum): 5 working days.

400 SAMPLES:

Provide minimum samples for all site furniture. For all concrete furniture provide min. 5no samples to show optional variation in concrete colour, aggregate, etc. in an approved location. Liaise with Landscape Architect to select variations required in each sample. Obtain approval of Landscape Architect before proceeding with fabrication.

INSTALLATION

510 CONCRETE FOUNDATIONS GENERALLY:

Does not form part of this specification. Refer to Structural/Civil engineer's specification.

515 SETTING COMPONENTS IN CONCRETE

Refer to Structural/Civil engineer's specification.
Foundations to be minimum 50mm below finished landscape levels or deeper to allow installation of proposed hard and soft landscape finishes in accordance with specifications.
All fittings and furniture to be root fixed. No surface fixing.

520 SETTING IN EARTH

Does not form part of this specification.

530 PRESERVATIVE TREATED TIMBER

Treatment of surfaces exposed by minor cutting and drilling: resealed with a timber preservative solution to ensure that a satisfactory preservative envelope is maintained.

540 BUILDING IN TO MASONRY WALLS

Does not form part of this specification.

545 ERECTION OF TIMBER AND PREFABRICATED STRUCTURES

Does not form part of this specification. Refer to Structural/Civil engineer's specification.

550 DAMAGE TO GALVANIZED SURFACES

Areas of repair: Minor damage, including fixings and fittings.
Total area of repair not to exceed 0.5% of total surface area.
Each area not to exceed 1000mm².
Renovation: Use low melting point zinc alloy repair rods or powders or at least two coats of zinc-rich paint to BS 4652.
Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

560 SITE PAINTING

Does not form part of this specification

Q52 PLAY AND SPORTS EQUIPMENT

To be read with Preliminaries/ General conditions.

GENERAL

115 PLAYGROUND:
Standard: To BS EN 1176 and BS EN 1177.
Equipment: As per Q52 320 and 330.
Surfacing: In situ wetpour, as per Q26.
Containment: Q40 120.
Planting: As per Q31
Furniture: As per Q50

125 BASKETBALL COURT:
Standard: BS EN 1270:2005.
Equipment: As per Q52 520.
Surfacing: Does not form part of this specification. Refer to Civil/Structural Engineer's Specification.
Containment: As per Q40 100.

SYSTEM PERFORMANCE

210 DESIGN OF PLAYGROUND:
Standard: To BS EN 1176 and BS EN 1177.

215 DESIGN OF BASKETBALL COURT:
Standard: BS EN 1270:2005.

PRODUCTS

320 CLIMBER
Standard: To BS EN 1176-1.
Age range: 6-15
Materials: Galvanised steel and synthetic fibre rope.
Length: 3790mm x 3980mm
Height: 2920mm
Features: Vandal resistant. Allows for balancing and climbing.
Method of Fixing: below ground fixed to concrete footings to engineer's specification.

321 SPINNER
Standard: To BS EN 1176-1.
Age range: 6-15
Materials: Galvanised steel and plastics.
Length: 3230mm x 2680mm
Height: 2280mm
Features: Vandal resistant. Allows for turning, spinning and balancing.
Method of Fixing: below ground fixed to concrete footings to engineer's specification.

520 BASKETBALL HOOP
Standard: In accordance with BS EN 1270.
Type: Basketball goal with pole, backboard, hoop and net.
Overall height: 3680mm
Height to net: 3050mm

Pole: Galvanised and powdercoated 102mm diameter pole.
Ring: Solid steel ring 460mm diameter.
Net: Synthetic fabric net.
Method of fixing: below ground fixed to concrete footings to engineer's specification.

EXECUTION

710 PLAY EQUIPMENT INSTALLATION GENERALLY
Standard: To manufacturer's written instructions provided in accordance with BS EN 1176-1.

720 CONCRETE FOUNDATIONS GENERALLY
Does not form part of this specification. Refer to Structural/Civil Engineer's specification.

725 SETTING COMPONENTS IN CONCRETE
Holes: 250 x 250 x minimum 300 mm deep.
Components: Accurately positioned and securely supported.
Concrete fill: Fully compacted as filling proceeds.
Concrete foundations exposed to view: No foundations to be exposed to view.
Fix plumb and level in 25n concrete bases minimum size 350 x 350 x 600mm or as recommended by supplier, set 100mm below ground level. All bases and footings to Structural/Civil engineer's specification.
Temporary component support: Maintain undisturbed for minimum 48 hours.

730 SETTING COMPONENTS IN EARTH
Holes: As small as practicable.
Components being fixed: Accurately positioned and securely supported.
Buried depth (minimum): 450 mm.
Earth refilling: Well rammed as filling proceeds.

740 PRESERVATIVE TREATED TIMBER
Surfaces exposed by minor cutting and drilling: Treated by immersion or with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.

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

760 SITE PAINTING
Does not form part of this specification.

COMPLETION

910 INSPECTION
Standard: In accordance with equipment manufacturer's maintenance and inspection instructions.
Timing: 2 weeks prior to date when work is expected to be practically complete.
Period of notice (minimum): 3 working days.

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

930 TESTING
Standard: To BS EN 1176-1.

940 LABELS
Standard: n/a.
Labels: Provide permanent labelling on all types of play equipment.
Location: Where visible when erected on site.

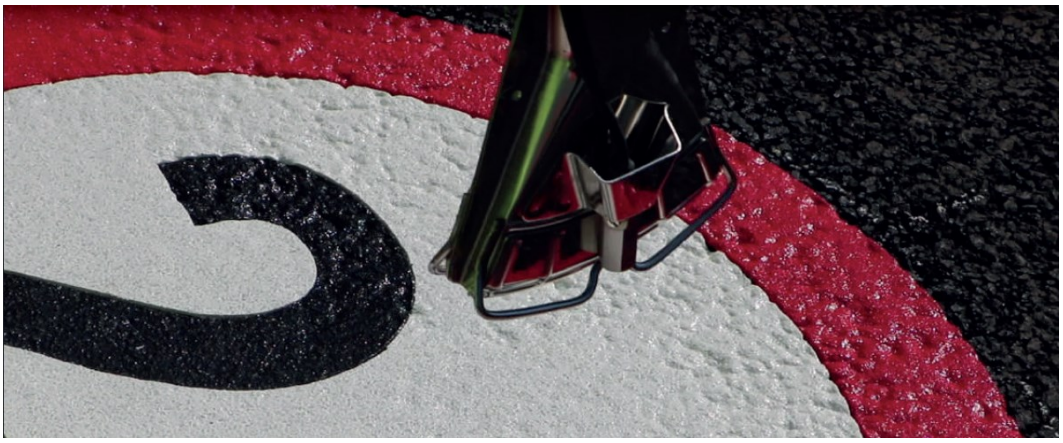
950 DOCUMENTATION
Standard: To BS EN 1176-1.
Contents:
Copies of test reports.
General product information.
Installation information.
Inspection and maintenance information.
Number of copies: 2.
Submission: 2 weeks prior to date when work is expected to be practically complete.

960 SPARES
Does not form part of this specification.

970 OPERATING TOOLS
Tools: Supply tools required for operation, maintenance and cleaning purposes.

980 RETENSIONING ROPES
Timing: As required.
Period of notice (minimum): 1 week.

APPENDIX 1: ILLUSTRATION OF PREFORMED THERMOPLASTIC LINEMARKING (Q10)



APPENDIX 2: ILLUSTRATION OF GRINDED CONCRETE (Q21)

APPENDIX 2: DATA SHEETS FOR EXPOSED AGGREGATE CONCERETE (Q21)

TECHNICAL DATA SHEET

[redacted]

[redacted]

Antistain protection for precast or in-situ concrete surfaces

Description

[redacted] protects concrete surfaces from most types of stains:

- motor oils,
- foods,
- moss proliferation.

It prevents staining that occurs when soils penetrate into the porous concrete.

Applications

All precast or in-situ concrete surfaces:

- smooth exposed aggregate or granulated slabs,
- self-locking paving,
- exposed aggregate or sand-blasted concrete,
- pervious concrete,
- natural stone with sufficient porosity (carry out trials before use).

Advantages

: Safety sheet without any risk phrase or safety symbol on the final product, according to the CLP regulation of 01/06/2015.
Forms a film on concrete resistant to abrasion and repels vegetable and fatty soils for a protection against stains.
Quick and easy removal of stains by avoiding incrustation in the pores of the concrete.
Prevents the growth of micro vegetation.
Brightens the natural colour of the concrete.
Limit the risk of efflorescences which affect the aesthetics of concrete.
Excellent UV resistance.

Directions for use

On site:

It is recommended to leave the support dry naturally 2 to 3 weeks before cleaning and application of [redacted] should be applied with a sprayer, on dry or slightly damp surfaces.
- Apply [redacted] between + 5 °C and + 35 °C Low porosity pavements: one coat is sufficient.
- Do not apply in wet weather.
- High porosity pavements (self-locking paving, pervious concrete): apply another coat after complete drying of the first coat.
- Low porosity pavements: only one coat.

If it rains before [redacted] has dried, a light whitening may appear which will later disappear.- Dry to the touch and resistant to rain:

- 2-3 h at 20 °C, 60% RH,
- 5-6 h at 10 °C, 60% RH, depending on the support.
- Light traffic after about 12 hours.

In factory:
Apply on concrete that is at least 7 days old, with a sprayer or roller.
Drying time:
8-10 min at 40 °C in forced air for 150 g/m².

NB: [redacted] is applied to excess on a low porosity or power floated pavement it will increase the slipping effect when there is water around (i.e. a swimming pool area).
NB2: If performed quickly on stains (in the beginning), the result will be more efficient and easy.
For applications on wet concrete, freshly demoulded, or just after washing exposed aggregates concrete, it is preferable to use our [redacted]

Technical Specifications

- Milky-white aqueous emulsion.
- Density: 1 ± 0.02.
- pH: 8.
- Viscosity: < 7 cSt (Iso cup 2431 N°3 at 20 °C)
  < 7 cSt (Iso cup 2431 N°3 at 40 °C)
- VOC content: (Cat A/i) Contains max. 36 g/l COV.
- Covering power: 4 to 6 m²/litre for one coat with a sprayer, depending on the surface.
- Recommended [redacted] nozzle: X 18.

Storage

1 year in unopened original packaging.
Protect from freezing.

Packaging

5 litre drum.
22 litre drum which is sufficient to treat:
- 80 m² pavement,
- 120 m² exposed aggregate concrete.

Safety

Not regulated.
This product must be kept in its original packaging.
For further information, please consult our Safety Data Sheet.

Transport

Not regulated.

TECHNICAL DATA SHEET [redacted]

[redacted]

Range of in-form surface retarders for textured finishes on precast architectural concrete

Description

Creates exposed aggregate concrete surfaces in precast factories for both bottom of mould or top of mould application.
10 grades are available depending on cement type, aggregate grading and surface finish desired: 6/01, 6/02, 6/10, 6/25, 6/50, 6/80, 6/100, 6/130, 6/200, 6/300.

How It Works

- For mould face applications, [redacted] dries to form a waterproof adherent coat, which reacts with cement alkanility. Its excellent adhesion properties ensure the desired performance on all types of elements (vertical, horizontal, or inclined).
- Its application to the finished concrete surface at the top of mould, by spray application also permits easy washing of the element the next day.

Directions for use

Mould face:

Clean moulds must be uniformly coated with [redacted] using a brush, roller or an airless spray gun low pressure preferable (2 up to 5 bar). The normal application rate is about 8 to 12 m²/litre. Depending on temperature and humidity, drying time of the product is between 5 and 30 minutes.

Depth of etch achieved is determined by the grade of [redacted] used, aggregate grading, type of sand, proportion and type of cement.

Panels can be stoved or heated, subject only to avoiding severe thermal shocks.

The length of time the concrete is in the mould is not a problem. Pieces can remain 3 or 4 days in the mould without surface appearance modification.

Brushing and washing off panels can be successfully accomplished with delays of up to several hours.

On certain mould types, plastic, rubber, fibre glass, it will be necessary to use [redacted] Primer to prevent [redacted] sticking to the mould surface.

Top of mould:

[redacted] may be applied to the concrete surface as soon as the [redacted] has disappeared. However, in this application we would recommend the use of [redacted] due to its integrated curing effect.

Applications

- Architectural concrete facade elements
- Concrete walls for industrial buildings
- Anti-noise walls, sound barriers
- Street furniture
- Precast concrete

Technical Specifications

- Partly volatile and flammable in the liquid state.
- Flash point: 23 ° C (SETAFLASH method)
- Density: 1 to 1.1 depending on grade
- Viscosity: < 60 s - Cup ASTM n°4
- After solvent evaporation: adherent, hydrophobic coat.
- Application rate: 8 to 12 m²/litre depending on the grade and the application.
- Not affected by freezing
- Normal storage in closed containers, even after partial use, provided that containers have been closed after each use.
- Stir the product thoroughly before every use: otherwise light sedimentation takes place.
- Differentiation of each grade with color:

6/01: blue	6/80: turquoise
6/02: brown	6/100: mustard
6/10: green	6/130: white
6/25: yellow	6/200: orange
6/50: pink	6/300: purple

Recommendations

This product is flammable, avoid using a sprayer powered by an internal combustion engine.

Storage

18 months from manufacturing date in unopened original packaging.

Packaging
4.5 and 20 litres pail.

Safety
Product regulated.
Must be kept in its original packaging. For further information, please consult our Safety Data Sheet.

Transport
- Class: 3.
- [redacted]

[redacted]

Technical Specifications

- Milky-white aqueous emulsion.
- Density: 1 ± 0.02.
- pH: 8.
- Viscosity: < 7 cSt (Iso cup 2431 N°3 at 20 °C)
  < 7 cSt (Iso cup 2431 N°3 at 40 °C)
- VOC content: (Cat A/i) Contains max. 36 g/l COV.
- Covering power: 4 to 6 m²/litre for one coat with a sprayer, depending on the surface.
- Recommended [redacted] nozzle: X 18.

Storage

1 year in unopened original packaging.
Protect from freezing.

Packaging

5 litre drum.
22 litre drum which is sufficient to treat:

- 80 m² pavement,
- 120 m² exposed aggregate concrete.

Safety

Not regulated.
This product must be kept in its original packaging.
For further information, please consult our Safety Data Sheet.

Transport

Not regulated.

[redacted]

Specifying Concrete suitable for Polishing

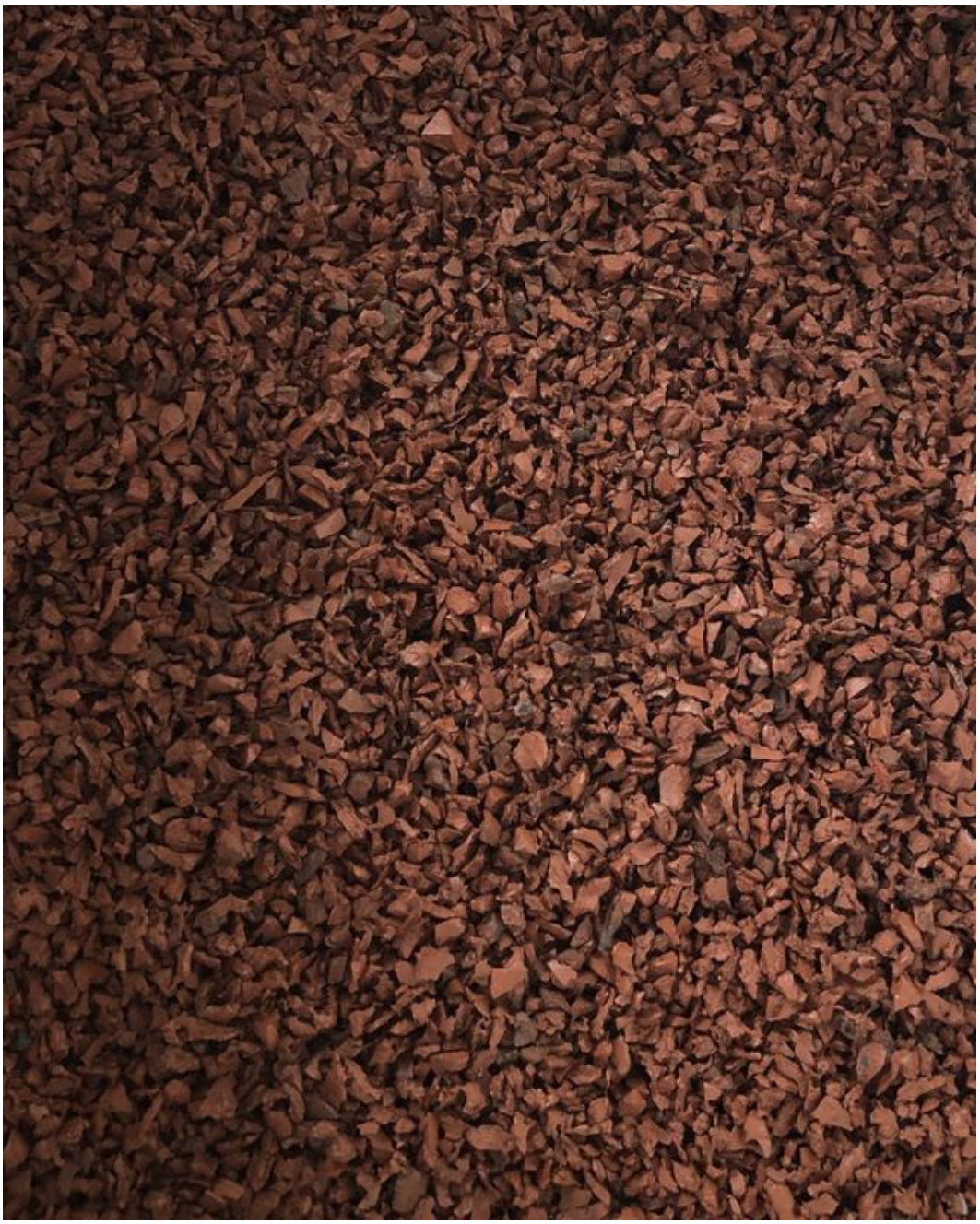
We recommend working with a contractor who is highly experienced pouring concrete for polishing. You can also choose a supplier that will provide the colour materials you require for your finish.

Here are some recommendations and principles to think about for specifying concrete suitable for external use.

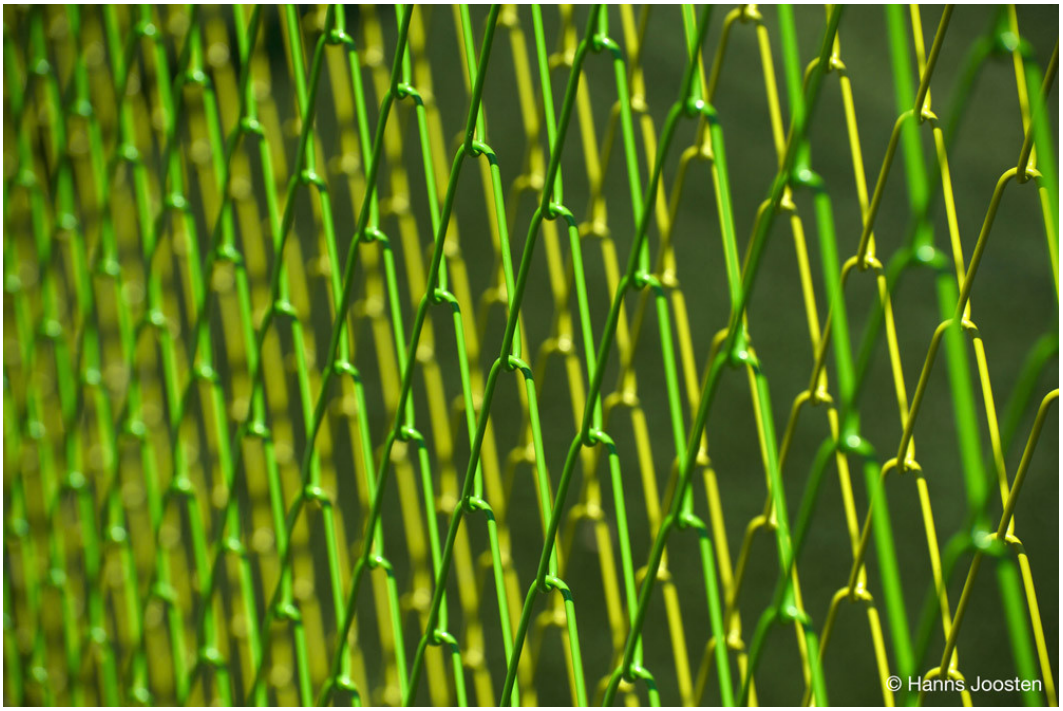
- Use un-bonded concrete
- A minimum thickness of 75 mm over pipes
- 35N10 is normal but this can vary, it will need to be between 30N and 40N.
- Slump value between 100 and 150
- Use polypropylene fibres - with the correct polishing process, the fibres on the surface will be removed
- Aggregate should be between 5mm and 20 mm in size
- Not fewer than 3 aggregate sizes - fine, intermediate, and large - will yield the best visual quality
- The fine aggregate percentage should be between 45% and 48%
- Concrete must be power floated
- A PSI between 3,000 and 4,000 will achieve the best results
- Ensure the subfloor is prepared with this finish in mind – for instance, ensure that it is correctly reinforced and doesn't contain contaminants
- Ensure the subfloor is level. Depressions in the subfloor can lead to bleed water pooling in those areas, leaving blemishes in the concrete surface (because of the differential curing and drying) that cannot be eliminated by the polishing process
- Run services through the sub floor so that they don't interfere with the top slab
- Use a high quality waterproof membrane under the concrete. This acts as a de-bonding agent and also stops water being pulled from the mix
- Use control joints/expansion joints every 30m2
- Use perimeter insulation and a compressible material around edges, including around any object protruding from floor.

APPENDIX 3: ILLUSTRATION OF SELF-BINDING GRAVEL (Q23)

APPENDIX 4: WET POUR IMPACT ABSORBING SURFACE (Q26)

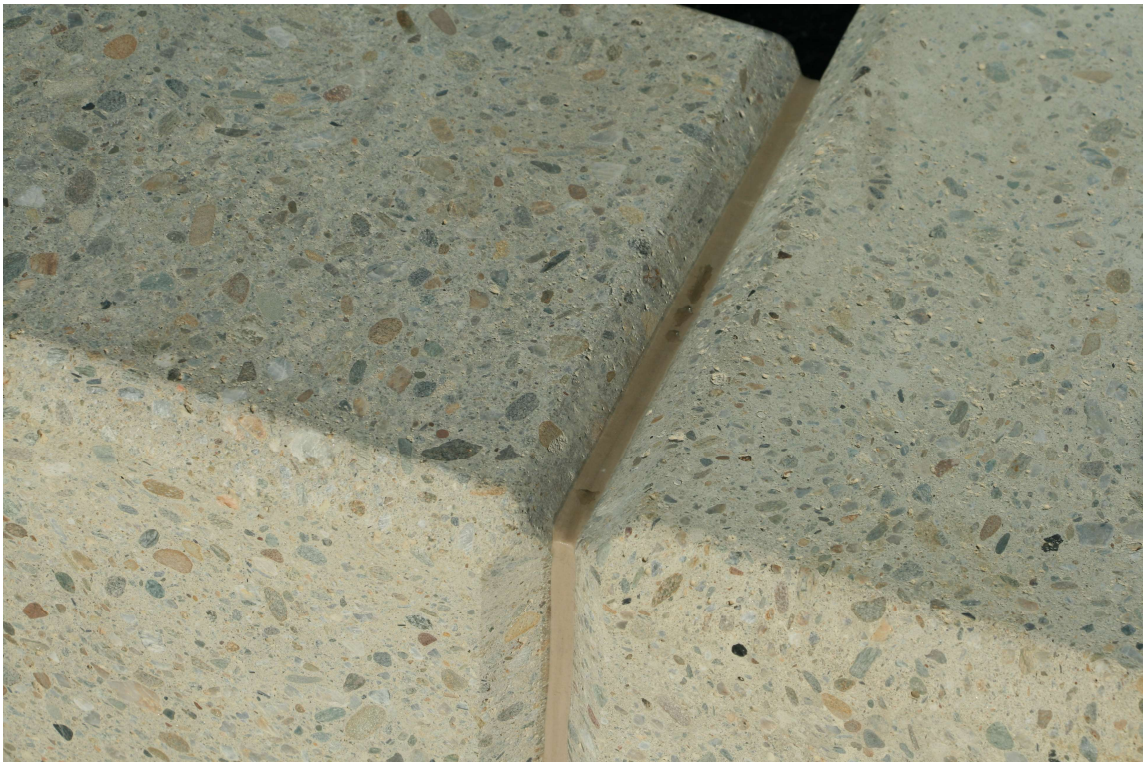


APPENDIX 5: ILLUSTRATION OF CHAINLINK FENCE (Q40)



APPENDIX 6: ILLUSTRATION OF CHESTNUT PALE FENCE (Q40)

APPENDIX 7: ILLUSTRATIONS FOR PRECAST CONCRETE (Q50)




WELLCUT 3 metre Bridge Saw
www.minorsa.com

APPENDIX 8: ILLUSTRATIONS FOR CLIMBER (Q52)

APPENDIX 9: ILLUSTRATIONS FOR SPINNER (Q52)

APPENDIX 10: ILLUSTRATIONS FOR BASKETBALL GOAL (Q52)