

PDP Green Consulting Ltd

Falmouth Town Council

# Heritage Restoration of Falmouth's Ponsharden Cemeteries

General Specification For Boundary and  
Building Repairs, and Landscaping

24-03-2021 Revision A

Consolidation of monuments, repairs to boundary walls,  
repairs to Mortuary Chapel and Ohel, consolidation of  
boundary bank to road, and landscaping.

## Contents

<b>C20 Demolition</b> .....	<b>1</b>
<b>C40 Cleaning masonry/ concrete</b> .....	<b>3</b>
<b>C41 Repairing/ renovating/ conserving masonry</b> .....	<b>4</b>
<b>D41 Crib walls, gabions and other gravity retaining walls</b> .....	<b>11</b>
<b>F20 Natural stone walling</b> .....	<b>12</b>
<b>F30 Accessories/ sundry items for brick/ block/ stone walling</b> .....	<b>15</b>
<b>G12 Isolated structural metal members</b> .....	<b>16</b>
<b>L30 Stairs/ ladders/ walkways/ handrails/ balustrades</b> .....	<b>17</b>
<b>M20 Plastered/ rendered/ roughcast coatings</b> .....	<b>19</b>
<b>M60 Painting/clear finishing</b> .....	<b>38</b>
<b>Q20 Granular sub-bases to roads/ pavings</b> .....	<b>42</b>
<b>Q21 In situ concrete roads/ pavings/ bases</b> .....	<b>45</b>
<b>Q23 Gravel/ hoggin/ woodchip/ resin bound roads/ pavings/ overlays</b> .....	<b>51</b>
<b>Q25 Slab/ brick/ sett/ cobble pavings</b> .....	<b>53</b>
<b>Q28 Topsoil and soil ameliorants</b> .....	<b>56</b>
<b>Q30 Seeding/ turfing</b> .....	<b>61</b>
<b>Q31 External planting</b> .....	<b>64</b>
<b>Q40 Fencing</b> .....	<b>71</b>
<b>Q50 Site/ street furniture/ equipment</b> .....	<b>74</b>
<b>Q55 External decks, boardwalks and bridges</b> .....	<b>76</b>
<b>Z10 Purpose made joinery</b> .....	<b>78</b>
<b>Z20 Fixings and adhesives</b> .....	<b>79</b>
<b>Z21 Mortars</b> .....	<b>81</b>

## C20 Demolition

### General requirements

#### 150 Features to be retained

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1. General: Keep in place and protect the following: Trees noted on drawings; protect in accordance with BS 5837. All monuments: protect from damage. All boundary structures: protect from damage. All remains of buildings: protect from damage.

### Services affected by deconstruction/ demolition

#### 220 Location of services (if found on site)

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

#### 250 Live foul and surface water drains (if found on site)

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

#### 270 Services to be retained (if found on site)

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

### Deconstruction/ demolition work

#### 330 Dust control

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1. Lead dust: Submit method statement for control, containment and clean-up regimes.

#### 340 Health hazards

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1. Precautions: Protect site operatives and general public from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.

#### 350 Adjoining property

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1. Temporary support and protection: Provide. Maintain and alter, as necessary, as work proceeds. Do not leave unnecessary or unstable projections.
2. Defects: Report immediately on discovery.
3. Damage: Minimize. Repair promptly to ensure safety, stability, weather protection and security.
4. Support to foundations: Do not disturb.

### **360 Structures to be retained**

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1. **Extent:** Refer to Clause 150. Any unrecorded monuments or structures uncovered during the works are to be protected from damage, left as found and reported to the CA.
2. **Parts which are to be kept in place:** Protect.
3. **Interface between retained structures and deconstruction/ demolition:** Cut away and strip out with care to minimize making good.

### **370 Partly demolished structures**

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1. **General:** Leave in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Make secure outside working hours.
2. **Temporary works:** Prevent overloading due to debris.
3. **Access:** Prevent access by unauthorized persons.

### **390 Asbestos-containing materials – known occurrences**

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1. **General:** Materials containing asbestos are known to be present in: None known.
2. **Removal:**

### **391 Asbestos-containing materials – unknown occurrences**

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

### **410 Unforeseen hazards**

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

## **Materials arising**

### **511 Employer's property**

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1. **Components and materials to remain the property of the Employer:** Any unrecorded monuments, any salvaged materials not required for the completion of the works.
2. **Protection:** Maintain until these items are removed by the Employer or reused in the Works, or until the end of the Contract.
3. **Special requirements:** Report any unrecorded monuments, protect and leave as found until instructions are issued

Ω End of Section

## **C40**

### **Cleaning masonry/ concrete**

#### **General/ preparation**

##### **110 Scope of work**

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1. Monuments: Cleaning is to be carried out by volunteer labour. The contractor is to allow for all necessary access for volunteers and equipment, site safety briefings for volunteers, and access to site welfare facilities. The contractor is to allow for programming volunteer cleaning in conjunction with conservators operations to prevent delays to the progress of the monument conservation works.

##### **120 Related repair and remedial works**

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1. Work to be carried out before cleaning work: Most cleaning work will be required to be carried out before monument conservation work is commenced. Consult with conservators in advance.

#### **Products/ equipment - Not Used**

#### **Application - Not Used**

Ω End of Section

## C41 Repairing/ renovating/ conserving masonry

### Generally/ preparation

#### 110 Scope of work

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1. **Schedule:** Repair of stone boundary walls, repair of mortuary chapel and ohel walls.
2. **Records of masonry to be repaired:** Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, special features, etc.
3. **Identification of masonry units to be removed, replaced or repaired:** Mark clearly, but not indelibly, on face of masonry units or parts of units to be cut out and replaced. Transcribe markings to drawings/ photographs.

#### 120 Site inspection

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1. **Purpose:** To confirm type and extent of repair/ renovation/ conservation work shown on drawings and described in survey reports and schedules of work.
2. **Parties involved:** Project manager, contract administrator, contractor's representative, contractor's site manager, specialist conservator, structural engineer.
3. **Timing:** To be agreed at dates convenient to contractor's and conservator's programme of work on site
4. **Instructions issued during inspection:** To be confirmed by Contract Administrator

#### 130 Removal of plant growths from masonry

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1. **Plants, root systems and associated soil/ debris:** Carefully remove from joints, voids and facework.
2. **Removal of roots:** Where growths cannot be removed completely without disturbing masonry seek instructions.
3. **Unwanted plants close to masonry:** Where removal of root system is not possible or desirable, cut through stem as close to the ground as possible. Remove bark from stump and apply herbicide paste. Leave stump to wither.

#### 140 Record of work

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1. **General:** Record work carried out to masonry clearly and accurately using written descriptions, sketches, drawings and photographs, as necessary.
2. **Specific records:** Record repairs to boundary walls, mortuary chapel and ohel. Update to the pdp Green Consulting drawings of the boundary walls with before, progress and completion photographs. Update to the pdp Green Consulting drawings of the mortuary chapel and ohel with before, progress and completion photographs.
3. **Documentation:** Submit on completion of the work.
  - 3.1. **Number of sets:** Two paper copies of the documentation, one editable copy of drawings(dwg) and written documents (docx), and one digital copy of all documentation (pdf).

### Workmanship generally

#### 150 Power tools

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1. **Usage for removal of mortar:** Not permitted

#### 155 Putlog scaffolding

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1. **Usage:** Not permitted

## **160 Protection of masonry units and masonry**

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1. **Masonry units:** Prevent overstressing during transit, storage, handling and fixing. Store on level bearers clear of the ground, separated with resilient spacers. Protect from adverse weather and keep dry. Prevent soiling, chipping and contamination. Lift units at designed lifting points, where provided.
2. **Masonry:** Prevent damage, particularly to arrises, projecting features and delicate, friable surfaces. Prevent mortar/ grout splashes and other staining and marking on facework. Protect using suitable nonstaining slats, boards, tarpaulins, etc. Remove protection on completion of the work.

## **165 Structural stability**

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1. **General:** Maintain stability of masonry. Report defects, including signs of movement that are exposed or become apparent during the removal of masonry units.

## **170 Disturbance to retained masonry**

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1. **Retained masonry in the vicinity of repair works:** Disturb as little as possible.
2. **Existing retained masonry:** Do not cut or adjust to accommodate new or reused units.
3. **Retained loose masonry units and those vulnerable to movement during repair works:** Prop or wedge so as to be firmly and correctly positioned.

## **180 Workmanship**

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1. **Skill and experience of site operatives:** Appropriate for types of work on which they are employed.
  - 1.1. **Documentary evidence:** Submit on request.

## **185 Adverse weather**

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1. **General:** Do not use frozen materials or lay masonry units on frozen surfaces.
2. **Air temperature:** Do not bed masonry units or repoint:
  - 2.1. In cement gauged mortars when ambient air temperature is at or below 3°C and falling or unless it is at least 1°C and rising, unless mortar has a minimum temperature of 4°C when laid and the masonry is adequately protected.
  - 2.2. In hydraulic lime:sand mortars when ambient air temperature is at or below 5°C and falling or unless it is at least 3°C and rising.
  - 2.3. In nonhydraulic lime:sand mortars in cold weather, unless approval is given.
3. **Temperature of the work:** Maintain above freezing until mortar has fully set.
4. **Rain, snow and dew:** Protect masonry by covering during precipitation, and at all times when work is not proceeding.
5. **Hot conditions and drying winds:** Prevent masonry from drying out rapidly.
6. **New mortar damaged by frost:** Rake out and replace.

## **Materials/ production/ accessories**

### **215 Material samples**

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1. **Representative samples of designated materials:** Submit before placing orders.
  - 1.1. **Designated materials:** Secondhand stone imported to make up shortfall, secondhand brick imported to make up shortfall, sands for all mortars.
2. **Retention of samples:** Unless instructed otherwise, retain samples on-site for reference. Protect from damage and contamination.

## **250 Stone orientation**

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1. Orientation of natural bed
  - 1.1. In plain walling: Horizontal.
  - 1.2. In projecting stones and copings: Vertical and perpendicular to wall face.
  - 1.3. In arches: Perpendicular to line of thrust.

## **265 Salvaged and second hand bricks**

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1. Source: Existing bricks salvaged from monuments and from collapsed walls of mortuary chapel. Note; Archaeologists acting as Employer's Agents are to supervise volunteers for the clearing of the rubble within and around the mortuary chapel, and its sorting/stacking for re-use.
2. Condition
  - 2.1. Free from matter such as mortar, plaster, paint, bituminous materials and organic growths.
  - 2.2. Sound, clean and reasonably free from cracks and chipped arrises.

## **266 Salvaged and second hand rubble stone**

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1. Source: Primary source: Existing rubble stone and granite copings salvaged from collapsed sections of boundary walls and collapsed wall to west of steps. Secondary source: Secondhand matching stone obtained by contractor from other sources to make up any shortfall.
2. Condition
  - 2.1. Free from matter such as mortar, plaster, paint, bituminous materials and organic growths.
  - 2.2. Sound, clean and reasonably free from cracks and chipped arrises.

## **Dismantling/ rebuilding**

### **310 Dismantling masonry for reuse**

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1. Masonry units to be reused: Remove carefully and in one piece.
  - 1.1. Treatment: Clean off old mortar, organic growths and dirt, and leave units in a suitable condition for rebuilding.

### **321 Rebuilding and Repairs (Mortuary Chapel and Ohel, Brickwork to Tombs)**

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1. Description: Brickwork walls to mortuary chapel and ohel, and plinths to tombs
2. Replacement materials: Salvaged as Clause 265
3. Mortar: As section Z21.
  - 3.1. Standard: BS EN 998-2
  - 3.2. Mix: Suggested Mix: 1:2.5 St Astier NHL 3.5 hydraulic lime/sand
  - 3.3. Sand source/ type: Suggested Sand: Cornish Lime Company CLS90, well graded 5mm down
4. Fixings: Cramps and dowels, as clause 281
5. Rebuilding: To match previous face and joint lines, joint widths and bonding. Adequately bonded to retained work/ backing masonry, as appropriate.
6. Joint surfaces: Dampen, as necessary, to control suction.
7. Laying masonry units: On a full bed of mortar; perpend joints filled.
8. Exposed faces: Remove mortar and grout splashes immediately.
9. Joints: Flush, with brushed finish, as clause 860.
10. Other requirements: Include for taking mortar samples from mortuary chapel and analysis at a recognised specialist such as Rose of Jericho to determine original mix, binder and sands used. Issue reports to CA. Suggested materials and mixes may be reviewed once results of analysis received.

### **322 Rebuilding and Repairs (Rubble stone boundary walls)**

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1. Description: Rubble stone walls
2. Replacement materials: Salvaged from fallen sections of walls. Reuses stone as close as possible to the location from which it was salvaged.
3. Mortar: As section Z21.
  - 3.1. Standard: BS EN 998-2
  - 3.2. Mix: Suggested Mix: 1:2.5 St Astier NHL 3.5 hydraulic lime/sand
  - 3.3. Sand source/ type: Suggested Sand: Cornish Lime Company CLS90, well graded 5mm down
4. Fixings: Cramps and dowels, as clause 281
5. Rebuilding: To match previous face and joint lines, joint widths and bonding. Adequately bonded to retained work/ backing masonry, as appropriate.
6. Joint surfaces: Dampen, as necessary, to control suction.
7. Laying masonry units: On a full bed of mortar; perpend joints filled.
8. Exposed faces: Remove mortar and grout splashes immediately.
9. Joints: Slightly recessed to expose the edges of the stones, with brushed finish, as clause 861.
10. Other requirements: Include for taking mortar samples from boundary walls and analysis at a recognised specialist such as Rose of Jericho to determine original mix, binder and sands used. Issue reports to CA. Suggested materials and mixes may be reviewed once results of analysis received.

### **Replacements and insertions**

#### **330 Preparation for replacement masonry**

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1. Defective material: Carefully remove to the extent agreed. Do not disturb, damage or mark adjacent retained masonry.
2. Existing metal fixings, frame members, etc.: Report when exposed.
3. Redundant metal fixings: Remove.
4. Recesses: Remove projections and loose material; leave joint surfaces in a suitable condition to receive replacement units. Protect from adverse weather if units are not to be placed immediately.

#### **415 Stone pinnings for rubble stonework**

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1. Material for pinnings: Small stones reclaimed from collapsed boundary walls
2. Placing: Tamp pinnings firmly into fresh mortar. Ensure mortar is thoroughly compacted into voids and that levelling and load distribution functions of pinnings are retained.

### **Tooling/ dressing stone in situ**

#### **450 Weathering ledges at joints**

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1. Locations: Where stones project or are recessed.
2. Requirement: Carefully weather the ledge, to approval.
3. Method: Suitably graded carborundum blocks or tooling as appropriate.

#### **455 Descaling stone**

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1. Requirement: Carefully remove loose scaling and powdering from stones to the extent agreed.
2. Method: Suitable bristle brushes or carborundum blocks. Do not use wire brushes.

## **458 Redressing stone**

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1. Requirement: Carefully dress back stones to the extent agreed.
2. Method: Suitably graded carborundum blocks or tooling as appropriate.

## **Mortar repairs - Not Used**

## **Crack repairs/ ties/ reinforcement**

### **675 Joint reinforcement**

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1. Description: For stitching across cracks in rubble stone walls
2. Existing construction: Rubble stone boundary walls
3. Joint width: 10mm ±
4. Reinforcement system
  - 4.1. Standard: To BS EN 1090-1
  - 4.2. Manufacturer: Helifix or similar to approval
    - 4.2.1. Product reference: Helibar Remedial or similar system to approval
  - 4.3. Type: Austenitic stainless steel helical bar 6mm diameter
5. Grout: Helibond grout or similar system to approval
6. Installation: Remove existing mortar without damaging adjacent masonry or widening joints. Form recess to depth recommended by reinforcement manufacturer. Remove dust and debris. Install reinforcement using methods recommended by manufacturer.
7. Joints: Repoint, as clause 820.

## **Grouting rubble filled cores**

### **710 Preparation for grouting**

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1. Grouting holes: Drill in joints at horizontal and vertical centres to suit coursing and to achieve an effective distribution of grout so that, on completion, all voids in masonry are filled.
2. Maximum height of each grout pour: Regulate to prevent disruption to masonry.
3. Open joints in masonry: Seal with an approved temporary material to prevent leaking of grout. Leave weep holes every two or three courses to assist in flushing out dust and debris, and to prove effectiveness of grouting. Locate temporary seal back from facework to allow for specified repointing. Seek instructions if repointing precedes grouting.

### **712 Flushing out**

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1. Timing: Before grouting.
2. Requirement: Flush out core of masonry walls using clean water delivered under moderate pressure through grouting holes.

### **720 Hand grouting**

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1. Description: In association with repointing and rebuilding rubble stone walls
2. Grout mix: Cornerstone NHL3.5 Medium Strength Heritage Grout
3. Method: Direct grout into open joints using clay cups formed against masonry surface. Pour grout to refusal; allow to set; break off excess mortar and brush down masonry face.

### **740 Application of grouting**

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1. Grouting: Continuous operation during each lift. Allow grout to set before commencing subsequent lifts.

2. **Monitoring:** Monitor grouting carefully and continuously at each delivery point (flow and delivery pressure), and at adjacent/ opposite wall faces, to ensure that there is an effective distribution of grout with no leaking, staining, or disruption to the masonry.
3. **Temporary seals:** Remove on completion of grouting and leave joints in a suitable condition for repointing.

## Pointing/ repointing

### 810 Preparation for repointing

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1. **Existing mortar:** Working from top of wall downwards, remove mortar carefully, without damaging adjacent masonry or widening joints, to a minimum depth of 30 mm for rubble stonework, 25mm for brickwork. Fine joints up to 3mm wide are only to be cut out, prepared and repointed where the existing mortar joint has eroded to a depth of 2-3 times the joint width; otherwise if the joint is sound then the existing joint should be left.
  - 1.1. **Loose or friable mortar:** Seek instructions when mortar beyond specified recess depth is loose or friable and/ or if cavities are found.
2. **Raked joints:** Remove dust and debris.

### 821 Pointing (Brickwork)

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1. **Description:** Brickwork
2. **Preparation of joints:** Rake out existing mortar. Carefully brush away loose mortar. Dampen joints, as necessary, to control suction
3. **Mortar:** As section Z21.
  - 3.1. **Standard:** BS EN 998-2
  - 3.2. **Mix:** Suggested Mix: 1:2.5 St Astier NHL 3.5 hydraulic lime/sand
  - 3.3. **Sand source/ type:** Suggested Sand: Cornish Lime Company CLS90, well graded 5mm down
4. **Joint profile/ finish:** Flush, with brushed finish, as clause 860.
5. **Other requirements:** Suggested materials and mixes may be reviewed once results of original mortar analysis received. See C41/321

### 822 Pointing (Rubble Stonework)

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1. **Description:** Rubble stonework
2. **Preparation of joints:** Rake out existing mortar. Carefully brush away loose mortar. Dampen joints, as necessary, to control suction
3. **Mortar:** As section Z21.
  - 3.1. **Standard:** BS EN 998-2
  - 3.2. **Mix:** Suggested Mix: 1:2.5 St Astier NHL 3.5 hydraulic lime/sand
  - 3.3. **Sand source/ type:** Suggested Sand: Cornish Lime Company CLS90, well graded 5mm down
4. **Joint profile/ finish:** Slightly recessed to expose the edges of the stones, with brushed finish, as clause 861.
5. **Other requirements:** Suggested materials and mixes may be reviewed once results of original mortar analysis received. See C41/322

### 840 Pointing with tools/ Irons

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1. **General:** Press mortar well into joints using pointing tools/ irons that fit into the joints, so that they are fully filled.
2. **Face of masonry:** Keep clear of mortar. Use suitable temporary adhesive tape on each side of joints where necessary. Finish joints neatly.

### **860 Brushed finish to joints (Brickwork)**

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1. **Timing:** After initial mortar set has taken place remove laitance and excess fines by brushing, to give a coarse texture. Do not compact mortar.

### **861 Brushed finish to joints (rubble stonework)**

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1. **Timing:** After the initial set has taken place, beat joints with a stiff bristled brush to compact mortar, remove laitance/ excess fines and give a coarse texture.

Ω End of Section

## D41

### Crib walls, gabions and other gravity retaining walls

To be read with preliminaries/general conditions.

#### 240 Geotextile

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1. Manufacturer: Maccaferri
  - 1.1. Product reference: Macmat R
2. Recycled content: None permitted
3. Jointing
  - 3.1. End and side laps: 1000 mm

Ω End of Section

## F20 Natural stone walling

### Structural requirements

#### 104 Cornish Hedges

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1. **Description:** Gapping up existing opening and making two new openings in the Cornish Hedges using existing material reused from site.
2. **Requirements**
  - 2.1. **Generally:** Creating two new openings and rebuilding the wall ends, completed with standing stones as per the drawings. These are to be bedded into the round and battered back to an angle of 10 degrees. Stones to be secured to prevent falling onto passers by to contractor's details. Walls to be cut back by 1m from finished opening dimensions to allow for rebuilding. 900mm opening in northern hedge and 1200mm opening in southern hedge.
  - 2.2. **Additional requirements:** Follow the recommendations of PD 6697
3. **Workmanship supervision and control:** As required by the designated code of practice for class 1 execution control.
4. **Production/ Execution records:**

### Types of walling

#### 110 Rubble walling

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1. **Description:** New random rubble stone walling brought to courses west side of steps.
2. **Stone:** To BS EN 771-6.
  - 2.1. **Name (traditional):** Collapsed wall to west side of steps.
  - 2.2. **Petrological family:** As found
  - 2.3. **Colour:** As found
  - 2.4. **Origin:** Primary source: Salvaged from collapsed wall to west side of steps. Secondary source: Secondhand matching stone obtained by contractor from other sources to make up any shortfall.
  - 2.5. **Supplier:** Not applicable. Stone to make up shortfall to contractor's choice subject to approval.
    - 2.5.1. **Product reference:** Not applicable.
  - 2.6. **Size:** As found.
  - 2.7. **Compressive strength (minimum):** As found.
    - 2.7.1. **Category:** Not applicable.
  - 2.8. **Open porosity:** Not applicable.
  - 2.9. **Freeze/ thaw resistance:** Not applicable.
  - 2.10. **Additional requirements:** None.
  - 2.11. **Quality:** Seasoned and free from vents, cracks, fissures or other defects deleterious to strength, durability or appearance.
3. **Mortar:** As section Z21.
  - 3.1. **Standard:** To BS EN 998-2
  - 3.2. **Mix:** Suggested Mix: 1:2.5 St Astier NHL 3.5 hydraulic lime/sand.
  - 3.3. **Sand:** Suggested Sand: Cornish Lime Company CLS90, well graded 5mm down
  - 3.4. **Additional requirements:** Suggested materials and mixes may be reviewed once results of original mortar analysis received. See C41/322.
4. **Joints:** Slightly recessed to expose the edges of the stones, with brushed finish, as clause 390.

5. Other requirements: New walling and rebuilt walling/repared/repointed walling to match in all respects including coursing, mortar mix and colour, and joint finishing.

## General requirements

### 240 Stone samples

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1. Timing: Before placing orders.
2. Submit: Labelled samples of dressed stone or arrange for samples which represent the range of variation in appearance to be inspected.

### 250 Sand samples

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1. Timing: Before placing orders.
2. Submit: Representative samples for approval of colour and grading.

## Laying and jointing

### 300 Reference panels

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1. General: Complete areas of specified walling types and obtain approval of appearance before proceeding.
2. Walling type: F20/110
  - 2.1. Location: Wall to west side of steps.
  - 2.2. Size: Approx 1 metre square
  - 2.3. Features: None

### 315 Adverse weather

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1. General: Do not use frozen materials or lay on frozen surfaces.
2. Air temperature: Do not lay stones:
  - 2.1. In cement gauged mortars: At or below 3°C and falling or below 1°C and rising.
  - 2.2. In hydraulic lime:sand mortars: At or below 5°C and falling or below 3°C and rising.
3. Temperature of walling during curing: Above freezing until mortar 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.

### 325 Laying generally

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1. Absorbent stones: Dampen in warm weather to reduce suction. Do not soak.
2. Mortar joints
  - 2.1. Laying: Full bed of mortar with all joints and voids filled.
  - 2.2. Appearance: Neat and consistent.
3. Orientation for natural bed of stones: Appropriate to properties of stones and positions in walling/dressings.
4. Appearance and bonding: Consistent overall appearance and good bond.
  - 4.1. Random walling: Distribute different shapes, sizes and colours evenly throughout the face of the wall. Avoid long continuous vertical joints.
5. Accuracy
  - 5.1. Walling generally: Plumb, unless specified otherwise.
  - 5.2. Setting out: Achieve satisfactory junctions and joints with adjoining or built-in elements and components.

6. **Cleanliness:** Keep facework clean. Rubbing and other abrasive or chemical cleaning methods to remove marks and stains, not permitted.

### **330 Walling below ground level**

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

### **340 Putlog scaffolding**

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

### **360 Quoins and jambs in rubble walling**

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1. **Selection of stones:** Large stones, dressed to a regular shape.
2. **Laying:** In advance of main body of walling.

### **370 Bonders for walls faced both sides**

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1. **Bonding stones**
  - 1.1. **Length:** Two thirds the thickness of the wall.
  - 1.2. **Height:** Not less than one third of length.
  - 1.3. **Distribution:** One to every square metre of each side of wall and staggered.

### **380 Coursed work**

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1. **Courses:** True to line and level.

### **390 Brushed finish to joints**

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1. **General:** After the initial set has taken place, beat joints with a stiff bristled brush to compact mortar, remove laitance/ excess fines and give a coarse texture.

### **410 Support of existing works**

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1. **Joint above inserted lintel or masonry:** Fully consolidated with semidry mortar to support existing structure.

Ω End of Section

## **F30**

### **Accessories/ sundry items for brick/ block/ stone walling**

**Cavities - Not Used**

**Reinforcing/ fixing accessories - Not Used**

**Flexible damp proof courses/ cavity trays - Not Used**

**Installation of dpcs/ cavity trays - Not Used**

**Joints - Not Used**

**Proprietary sills/ lintels/ copings/ dressings**

#### **761 Natural stone coping units laid in hydraulic lime:sand mortar**

---

1. Standard: Not applicable.
2. Manufacturer: Not applicable
  - 2.1. Product reference: Half round granite copings salvaged from collapsed sections of wall and parts of wall to be rebuilt.
3. Dimensions: Not applicable
4. Finish: Not applicable
5. Mortar for bedding/ jointing: Hydraulic lime:sand as section Z21.
  - 5.1. Hydraulic lime: Suggested lime: St Astier NHL3.5
  - 5.2. Sand source/ type: Suggested Sand: Cornish Lime Company CLS90, well graded 5mm down
  - 5.3. Mix: Suggested mix: 1:2.5 hydraulic lime/sand
6. Joints: Full and finished flush.
7. Placement: Lay on a full bed of mortar to line and level.
8. Additional requirements: Mortar mix may be adjusted in accordance with C41/822. Advise CA if there is a shortfall in the number of copings required. Allow to make up shortfall with hearing stones bedded to top of wall to form rough shape of coping finished with Prompt Natural Cement render to match finished shape of copings, mix and coats to be agreed.

**Miscellaneous items - Not Used**

Ω End of Section

## G12 Isolated structural metal members

### Products

#### 320 Steel members

---

1. Steel: Steel Soldiers
  - 1.1. Grade: S275JR
  - 1.2. Section properties and dimensions: To BS EN 10365
  - 1.3. Surface condition: Free from heavy pitting and rust, burrs, sharp edges and flame cutting dross.

#### 350 Proprietary anchors

---

1. Description: Platipus Bat Anchors
2. Manufacturer: Platipus
  - 2.1. Product reference: B4B
3. Anchor type: Anchorages for stainless steel tendons.
4. Material: Aluminium Bronze
5. Coating applied by manufacturer: None

### Fabrication

#### 510 Fabrication of steel members

---

1. Cuts and holes: Accurate and neat.
2. Welding: Metal arc method to BS EN 1011-2.
  - 2.1. Welded joints: Fully fused, with mechanical properties not less than those of the parent metal.
  - 2.2. Site welding: Not permitted

### Execution - Not Used

### Completion - Not Used

Ω End of Section

## L30

# Stairs/ ladders/ walkways/ handrails/ balustrades

## Preliminary information/ requirements

### 115 Timber procurement

---

1. Timber (including timber for wood-based products): Obtained from well managed forests and/ or plantations in accordance with:
  - 1.1. The laws governing forest management in the producer country or countries.
  - 1.2. International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
2. Documentation: Provide either:
  - 2.1. Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
  - 2.2. Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
3. Certification scheme: Forest Stewardship Council (FSC)
  - 3.1. Other evidence:

### 130 Site dimensions

---

1. Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
  - 1.1. Designated items: Rope handrail support posts

## Components

### 515 Wood balustrades

---

1. Description: Rope handrail support posts
2. Timber: Generally to BS EN 942.
  - 2.1. Wood species: Douglas fir
  - 2.2. Appearance class: J20
  - 2.3. Grade: C16
  - 2.4. Moisture content at time of installation: 12-19%
3. Adhesive: Contractor's choice
4. Preservative treatment: To section Z12 and Wood Protection Association Commodity Specification C 5.
  - 4.1. Type and desired service life: Boron, 30 years
5. Finish as delivered: Prepared and sealed, as section M60
6. Workmanship: To section Z10.
7. Other requirements: None
8. Fixing: Bolted to purpose made inverted galvanised steel "T" brackets recessed into base of post, in turn bolted down and built in to top of new stone wall, timber to be isolated from stonework.
  - 8.1. Centres: 900mm max

### 580 Proprietary handrails

---

1. Description: Rope handrail to Congregationalist cemetery entrance steps
2. Manufacturer: Rope Services UK or similar to approval

- 2.1. Product reference: Eye plate rope fittings and end caps for 36mm dia rope
3. Component material and finish as delivered
  - 3.1. Handrails: 36mm dia synthetic sisal decking rope
  - 3.2. Brackets: 36mm dia, polished brass finish
4. Fixing: With brass screws plugged to stonework
  - 4.1. Centres: Approx 780mm

## Installation

### 610 Moisture content

---

1. Temperature and humidity: Monitor and control internal conditions to achieve specified moisture content in wood components at time of installation.

### 620 Priming/ Sealing/ Painting

---

1. Surfaces inaccessible after assembly/installation: Before fixing components, apply full protective/decorative treatment/coating system.

### 630 Corrosion protection of dissimilar materials

---

1. Components/ substrates/ fasteners of dissimilar materials: Isolate using washers/ sleeves or other suitable means to separate materials to avoid corrosion and/ or staining.

### 640 Installation generally

---

1. Fasteners and methods of fixing: 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 stairs, walkways or balustrades 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.

## Completion - Not Used

Ω End of Section

## M20 Plastered/ rendered/ roughcast coatings

### Types of coating

#### 110 Cement:lime:sand

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Cement: lime:sand mortar:
  - 3.1. Type:
  - 3.2. Pigment:
4. Undercoats
  - 4.1. Mix (cement:lime:sand):
    - 4.1.1.Cement type:
  - 4.2. Thickness (excluding dubbing out and keys):
5. Final coat
  - 5.1. Mix (cement:lime:sand):
    - 5.1.1.Cement type:
    - 5.1.2.Other requirements:
  - 5.2. Thickness:
  - 5.3. Finish:
6. Accessories:

#### 120 Cement:lime:sand roughcast (harling)

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Cement: lime:sand mortar:
  - 3.1. Type:
  - 3.2. Pigment:
4. Undercoats
  - 4.1. Mix (cement:lime:sand):
    - 4.1.1.Cement type:
  - 4.2. Thickness (excluding dubbing out and keys):
5. Final coat
  - 5.1. Mix (cement:lime:sand:coarse aggregate):
    - 5.1.1.Cement type:
  - 5.2. Coarse aggregate: To BS EN 12620.
    - 5.2.1.Type/ Source:
    - 5.2.2.Single size:
  - 5.3. Finish: Roughcast.
6. Accessories:

### **130 Cement:sand (air entrained)**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Mortar
  - 3.1. Type:
  - 3.2. Pigment:
4. Undercoats
  - 4.1. Mix:
    - 4.1.1.Cement type:
  - 4.2. Thickness (excluding dubbing out and keys):
5. Final coat
  - 5.1. Mix:
    - 5.1.1.Cement type:
    - 5.1.2.Other requirements:
  - 5.2. Thickness:
  - 5.3. Finish:
6. Accessories:

### **140 Cement:sand (air entrained) substrates**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Mortar
  - 3.1. Type:
4. Coats
  - 4.1. Mix:
    - 4.1.1.Cement type:
  - 4.2. Thickness (excluding dubbing out and keys):
  - 4.3. Finish:
5. Accessories:

### **160 Proprietary cement gauged render**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Manufacturer:
4. Undercoats
  - 4.1. Product reference:
  - 4.2. Thickness (excluding dubbing out and keys):
5. Final coat
  - 5.1. Product reference:
  - 5.2. Thickness:
  - 5.3. Finish:

6. Accessories:

### **200 Gypsum plaster on cement gauged undercoats**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Undercoats
  - 3.1. Mix:
  - 3.2. Thickness (excluding dubbing out and keys):
4. Final coat: Gypsum plaster to BS EN 13279-1.
  - 4.1. Manufacturer:
    - 4.1.1. Product reference:
  - 4.2. Thickness:
  - 4.3. Finish:
5. Accessories:

### **210 Lightweight gypsum plaster**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Manufacturer:
4. Undercoats: To BS EN 13279-1.
  - 4.1. Product reference:
  - 4.2. Thickness (excluding dubbing out and keys):
5. Final coat: Finish plaster to BS EN 13279-1.
  - 5.1. Product reference:
  - 5.2. Thickness: 2-3 mm.
  - 5.3. Finish: Smooth.
6. Accessories:

### **220 Multicoat proprietary plaster**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Manufacturer:
4. Undercoats
  - 4.1. Product reference:
  - 4.2. Thickness (excluding dubbing out):
5. Final coat
  - 5.1. Product reference:
  - 5.2. Thickness:
  - 5.3. Finish:
6. Accessories:

## **240 One coat proprietary plaster**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Manufacturer:
  - 3.1. Product reference:
4. Thickness (excluding dubbing out and keys):
5. Finish:
6. Accessories:

## **250 X-ray plaster**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Undercoats
  - 3.1. Manufacturer:
    - 3.1.1. Product reference:
  - 3.2. Thickness (excluding dubbing out and keys):
4. Final coat
  - 4.1. Manufacturer:
    - 4.1.1. Product reference:
  - 4.2. Thickness: 2-3 mm.
  - 4.3. Finish: Smooth as clause 777.
5. Accessories:

## **280 Gypsum plaster skim coat on plasterboard**

---

1. Plasterboard:
  - 1.1. Preparation:
2. Plaster: Board finish/ finish plaster to BS EN 13279-1.
  - 2.1. Manufacturer:
    - 2.1.1. Product reference:
  - 2.2. Thickness:
  - 2.3. Finish: Smooth.
3. Accessories:

## **290 Parge coat to**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Render
  - 3.1. Mix:
  - 3.2. Thickness:
  - 3.3. Finish: Scratched horizontally to provide key.

### **295 Proprietary parge coat to**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Render
  - 3.1. Manufacturer:
    - 3.1.1. Product reference:
  - 3.2. Thickness:
  - 3.3. Finish: Scratched horizontally to provide key.

### **310 Lime:sand**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Lime manufacturer:
  - 3.1. Product reference/ Type:
4. Undercoats
  - 4.1. Mix:
    - 4.1.1. Sand:
  - 4.2. Thickness (excluding dubbing out and keys):
5. Final coat
  - 5.1. Mix:
    - 5.1.1. Sand:
  - 5.2. Thickness:
  - 5.3. Finish:
6. Accessories:
7. Other requirements:

### **320 Lime:sand roughcast (harling)**

---

1. Substrate:
  - 1.1. Preparation:
2. Lime manufacturer:
  - 2.1. Product reference/ Type:
3. Undercoats
  - 3.1. Mix:
    - 3.1.1. Sand:
  - 3.2. Thickness (excluding dubbing out and keys):
4. Final coat
  - 4.1. Mix (lime:sand:coarse aggregate):
    - 4.1.1. Sand:
  - 4.2. Coarse aggregate: To BS EN 12620.
    - 4.2.1. Type/ source:
    - 4.2.2. Single size:
  - 4.3. Finish: Roughcast.

5. Accessories:
6. Other requirements:

### **330 Proprietary lime:sand**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Manufacturer:
4. Undercoats:
  - 4.1. Product reference/ Type:
    - 4.1.1. Fibre reinforcement:
  - 4.2. Thickness (excluding dubbing out and keys):
5. Final coat:
  - 5.1. Product reference:
  - 5.2. Thickness:
  - 5.3. Finish:
6. Accessories:
7. Other requirements:

### **340 Nonhydraulic lime:sand plaster**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Undercoats
  - 3.1. Mix:
    - 3.1.1. Sand:
  - 3.2. Thickness (excluding dubbing out and keys):
4. Final coat
  - 4.1. Mix:
  - 4.2. Lime putty: As for undercoats.
    - 4.2.1. Sand:
  - 4.3. Thickness:
  - 4.4. Finish:
5. Accessories:
6. Other requirements:

### **350 Gypsum/ nonhydraulic lime:sand plaster**

---

1. Description:
2. Substrate:
  - 2.1. Preparation:
3. Undercoats
  - 3.1. Mix (gypsum:coarse stuff): 1:3.
    - 3.1.1. Coarse stuff (lime:sand): 1:3.
    - 3.1.2. Sand:
    - 3.1.3. Gypsum: To BS EN 13279-1, class A (plaster of Paris).

3.1.4. Set retarding admixture:

3.2. Thickness: (excluding dubbing out and keys): .....

4. Final coat

4.1. Mix:

4.1.1. Lime putty: As for undercoats.

4.1.2. Fine sand:

4.1.3. Gypsum: As for undercoats.

4.1.4. Set retarding admixture: As for undercoats.

4.2. Thickness:

4.3. Finish:

5. Accessories:

6. Other requirements:

## General

### 413 Samples

---

1. General: Provide representative samples of the following: .....

### 418 Control samples

---

1. Complete sample areas, being part of the finished work, in locations as follows:

### 421 Scaffolding

---

1. General: Prevent putlog holes and other breaks in coatings.

### 424 Special protection of historic plasterwork

---

1. General: Prevent damage and disturbance to retained plasterwork.

2. Protection methods: Submit proposals.

## Materials and marking of mortar

### 430 Ready-to-use cement gauged mortars

---

1. Time and temperature limitations: Use within limits prescribed by mortar manufacturer

1.1. Retempering: Restore workability with water only within prescribed time limits.

### 438 Cements for mortars

---

1. Cement: To BS EN 197-1.

1.1. Types: Portland cement, CEM I.

2. Portland slag cement, CEM II.

3. Portland fly ash cement, CEM II.

3.1. Strength class: 32.5, 42.5 or 52.5.

4. White cement: To BS EN 197-1.

4.1. Type: Portland cement, CEM1.

4.2. Strength class: 52.5.

5. Sulfate resisting Portland cement: To BS EN 197-1.

5.1. Strength class: 42.5.

6. Masonry cement: To BS EN 998-1 and Kitemarked.

#### **440 Sand for cement gauged mortars**

---

1. Standard: To BS EN 13139.
  - 1.1. Grading: 0/2 or 0/4 (CP or MP); Category 2 fines.
2. Colour and texture: Consistent. Obtain from one source.

#### **443 Lime for cement gauged mortars**

---

1. Standard: To BS EN 459-1.
  - 1.1. Type: CL 90S.

#### **445 Pigment for coloured mortars**

---

1. Standard: To BS EN 12878.

#### **449 Admixtures for cement gauged mortars**

---

1. Suitable admixtures: Select from:
  - 1.1. Air entraining (plasticizing) admixtures: To BS EN 934-2 and compatible with other mortar constituents.
  - 1.2. Other admixtures: Submit proposals.
2. Prohibited admixtures: Calcium chloride and any admixture containing calcium chloride.

#### **450 Chloride content of mortars**

---

1. Chloride content (maximum): 0.1% by dry mass.

#### **478 Hydraulic lime**

---

1. Standard: To BS EN 459-1.
  - 1.1. Type: Natural hydraulic lime (NHL).

#### **481 Ready prepared lime putty**

---

1. Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.
  - 1.1. Maturation: In pits/ containers that allow excess water to drain away.
  - 1.2. Density of matured lime putty: 1.3-1.4 kg/L.
2. Maturation period before use (minimum): 90 days.
3. Storage: Prevent drying out or wetting: Protect from frost.

#### **491 Pozzolanic additives for nonhydraulic lime:sand mortars**

---

1. Manufacturer/ Supplier:
  - 1.1. Product reference:
2. Mixing: Mix thoroughly into mortar during knocking up.

#### **492 Hair reinforcement**

---

1. Manufacturer/ Supplier:
  - 1.1. Product reference:
2. Proportions (approximate): 5 kg hair to 1 m<sup>3</sup> of coarse stuff.
3. Condition: Clean, free from grease and other impurities. Well teased before adding to the mix.
4. Distribution: Evenly throughout with no balling into lumps.
5. Storage period for haired mortar (maximum): Four weeks.

## 495 Mixing

---

1. Render mortars (site prepared)
  - 1.1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
  - 1.2. Mix proportions: Based on damp sand. Adjust for dry sand.
  - 1.3. Lime:sand: Mix thoroughly. Allow to stand, without drying out, for at least 16 hours before using.
2. Mixes: Of uniform consistence and free from lumps. Do not retemper or reconstitute mixes.
3. Contamination: Prevent intermixing with other materials.

## 497 Cold weather

---

1. General: Do not use frozen materials or apply coatings on frozen or frost bound substrates.
2. External work: Avoid when air temperature is at or below 5°C and falling or below 3°C and rising. Maintain temperature of work above freezing until coatings have fully hardened.
3. Internal work: Take precautions to enable internal coating work to proceed without detriment when air temperature is below 3°C.

## Preparing substrates

### 510 Suitability of substrates

---

1. Soundness: Free from loose areas and significant cracks and gaps.
2. Cutting, chasing, making good, fixing of conduits and services outlets and the like: Completed.
3. Tolerances: Permitting specified flatness/ regularity of finished coatings.
4. Cleanliness: Free from dirt, dust, efflorescence and mould, and other contaminants incompatible with coatings.

### 527 Raking out for key

---

1. Joints in existing masonry: Rake out to a depth of 13 mm (minimum).
  - 1.1. Dust and debris: Remove from joints.

### 531 Roughening for key

---

1. Substrates: Roughen thoroughly and evenly.
  - 1.1. Depth of surface removal: Minimum necessary to provide an effective key.

### 536 Splatterdash key

---

1. Materials
  - 1.1. Cement: To BS EN 197-1.
  - 1.2. Sand: Clean, coarse.
  - 1.3. Admixtures:
2. Mix proportions (cement:sand): 1:1.5-2.
3. Consistency: Thick slurry, well stirred.
4. Application: Throw onto dampened background and leave rough.
  - 4.1. Thickness: 3-5 mm.
5. Curing: Controlled to achieve a firm bond to substrate.

### 538 Stipple key

---

1. Materials
  - 1.1. Cement: To BS EN 197-1.

- 1.2. Sand: Clean, coarse.
- 1.3. Admixture:
2. Mix proportions (cement:sand): 1:1.5–2.
3. Consistency: Thick slurry, well stirred.
4. Application: Brushed and stippled to form deep, close textured key.
5. Curing: Controlled to achieve a firm bond to substrate.

#### **541 Bonding agent application**

---

1. General: Apply evenly to substrate to achieve effective bond of plaster/ render coat. Protect adjacent joinery and other surfaces.

#### **549 Zinc oxychloride plaster**

---

1. Manufacturer:
  - 1.1. Product reference:
2. Application
  - 2.1. Coverage: Extend beyond infected area by not less than 300 mm.
  - 2.2. Thickness (minimum): 6 mm.
  - 2.3. Keying: Do not penetrate through to substrate when cross scratching for key.

#### **551 Removal and renewal of existing plaster/ render**

---

1. Location and extent: Agree, at least on a provisional basis, before work commences. Minimize extent of removal and renewal.

#### **556 Removing defective existing render**

---

1. Render for removal: Detached, hollow, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
2. Removing defective render: Cut out to regular rectangular areas with straight edges.
  - 2.1. Horizontal and vertical edges: Square cut or slightly undercut.
  - 2.2. Bottom edges to external render: Do not undercut.
  - 2.3. Render with imitation joints: Cut back to joint lines.
3. Cracks
  - 3.1. Fine hairline cracking/ crazing: Leave.
  - 3.2. Other cracks:
4. Dust and loose material: Remove from exposed substrates and edges.

#### **566 Removing defective existing plaster**

---

1. Plaster for removal: Detached, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
  - 1.1. Hollow, detached areas:
2. Stained plaster:
3. Removing defective plaster. Cut back to a square, sound edge.
4. Faults in substrate (structural deficiencies, damp, etc.): Submit proposals.
5. Cracks
  - 5.1. Fine hairline cracking/ crazing: Leave.
  - 5.2. Other cracks:
6. Dust and loose material: Remove from exposed substrates and edges.

### **568 Existing damp affected plaster/ render**

---

1. Plaster affected by rising damp: Remove to a height of 300 mm above highest point reached by damp or 1 m above dpc, whichever is higher.
2. Perished and salt contaminated masonry
  - 2.1. Mortar joints: Rake out.
  - 2.2. Masonry units: Submit proposals.
3. Faults in substrate (structural deficiencies, additional sources of damp, etc.): Submit proposals.
4. Drying out substrates: Establish drying conditions. Leave walls to dry for as long as possible before plastering.
5. Dust and loose material: Remove from exposed substrates and edges.

### **584 Record castings**

---

1. Timing: Make castings before commencing repair work, to enable accurate reproductions to be made.
2. Items for casting:
3. Identification: Mark clearly to identify original location.

### **587 Replacing timber laths**

---

1. Defective plaster and laths: Remove. Prevent disturbance to adjacent sound plaster.
  - 1.1. Defective laths: Cut back to supporting timbers.
  - 1.2. Cavities: Keep clear of debris.
2. Supports for laths: Sound and firmly fixed. Provide additional supports where necessary.
3. New lathing:

### **589 Refixing sound timber laths through plaster**

---

1. Application of repair: To loose but otherwise sound laths on sound framework.
2. Method: Cut out plaster patches to sound, undercut edges. Screw laths back to framework using screws and washers.
  - 2.1. Screws: Brass or stainless steel.
  - 2.2. Washers: Metal to match screws.
    - 2.2.1. Inner washer:
    - 2.2.2. Outer washer:
  - 2.3. Fixing centres:
3. Replastering:
  - 3.1. Finish: Flush with existing.

### **592 Consolidating existing timber lath and plaster ceilings**

---

1. General: Achieve effective consolidation of plasterwork to supporting structure.
2. Methods:

### **Backings/ beads/ joints**

### **600 Additional framing supports for backings**

---

1. Framing: Accurately position and securely fix to give full support to fixtures, fittings and service outlets.
2. Support board edges and perimeters: As recommended by board manufacturer to suit type and performance of board.

## **605 Gypsum plasterboard backings**

---

1. Type: To BS EN 520 .....
  - 1.1. Core density (minimum): 650 kg/m<sup>3</sup>.
2. Exposed surface and edge profiles: Suitable to receive specified plaster finish.

## **607 Proprietary gypsum plasterboard backings**

---

1. Manufacturer:
  - 1.1. Product reference:
2. Exposed surface and edge profiles: Suitable to receive specified plaster finish.

## **610 Fixing plasterboard backings to timber**

---

1. Fixings, accessories and installation methods: As recommended by board manufacturer.
2. Fixing: At the following centres (maximum):
  - 2.1. Nails: 150 mm.
  - 2.2. Screws to partitions/ walls: 300 mm. Reduce to 200 mm at external angles.
  - 2.3. Screws to ceilings: 230 mm.
3. Position of nails/ screws from edges of boards (minimum)
  - 3.1. Bound edges: 10 mm.
  - 3.2. Cut/ unbound edges: 13 mm.
4. Position of nails/ screws from edges of supports (minimum): 6 mm.
5. Nail/ screw heads: Set below surface. Do not break paper or gypsum core.

## **611 Fixing plasterboard backings**

---

1. Description:
2. Manufacturer:
  - 2.1. Product reference:
3. Accessories, materials and installation methods: As recommended by the plasterboard manufacturer.

## **612 Joints in plasterboard backings**

---

1. Ceilings
  - 1.1. Bound edges: At right angles to supports and with ends staggered in adjacent rows.
  - 1.2. Two layer boarding: Stagger joints between layers.
2. Partitions/ walls
  - 2.1. Vertical joints: Centre on studs. Stagger joints on opposite sides of studs.
    - 2.1.1. Two layer boarding: Stagger joints between layers.
  - 2.2. Horizontal joints
    - 2.2.1. Two layer boarding: Stagger joints between layers by at least 600 mm. Support edges of outer layer.
3. Joint widths (maximum): 3 mm.

## **624 Damp proof lathing**

---

1. Manufacturer:
  - 1.1. Product reference:
2. Fixing and sealing accessories: As recommended by damp proof lathing manufacturer.
3. Fixing: Secure and firm to provide a continuous, keyed backing for coatings.

4. Joints between lathing sheets and junctions with services, windows and other openings: Prevent penetration and bridging of cavity by coatings.
5. Ventilation gaps
  - 5.1. Bottom of lath:
  - 5.2. Top of lath:
  - 5.3. Accessories:

## **626 Timber lathing**

---

1. Type/ Section size:
  - 1.1. Quality of timber: Free from decay, insect attack (except pinhole borers), splits, shakes. No knots wider than half the width of the section.
2. Preservative treatment:
3. Moisture content at time of installation (maximum): 16%.
4. Installation: Space laths 8-10 mm apart in straight lines.
  - 4.1. Joints: 3 mm wide centred over supports. Stagger at not more than every eighth lath.
  - 4.2. Nails: At every support.
    - 4.2.1.Type:
  - 4.3. Counter laths: To faces or sides of timber supports wider or deeper than 75 mm.

## **630 Beads/ stops for internal use**

---

1. Standard: In accordance with BS EN 13914-2, Table 2.
2. Material:

## **634 Beads/ stops**

---

1. Description:
2. Manufacturer:
  - 2.1. Product reference:
3. Material:

## **636 Beads/ stops for external use**

---

1. Standard: In accordance with BS EN 13914-1, Table 4.
2. Material:

## **638 Arch form metal lathing**

---

1. Manufacturer:
  - 1.1. Product reference:
2. Material:

## **640 Beads/ stops generally**

---

1. Location: External angles and stop ends except where specified otherwise.
2. Corners: Neat mitres at return angles.
3. Fixing: Secure, using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
  - 3.1. Beads/ stops for external render: Fix mechanically.
4. Finishing: After coatings have been applied, remove surplus material while still wet, from surfaces of beads/ stops exposed to view.

### **646 Crack control at junctions between dissimilar solid substrates**

---

1. Locations: Where defined movement joints are not required. Where dissimilar solid substrate materials are in same plane and rigidly bonded or tied together.
2. Crack control materials
  - 2.1. Isolating layer: Building paper to BS 1521.
  - 2.2. Metal lathing:
3. Installation: Fix metal lathing over isolating layer. Stagger fixings along both edges of lathing.
4. Width of installation over single junctions
  - 4.1. Isolating layer: 150 mm.
  - 4.2. Lathing: 300 mm.
5. Width of installation across face of dissimilar substrate material (column, beam, etc. with face width not greater than 450 mm)
  - 5.1. Isolating layer: 25 mm (minimum) beyond junctions with adjacent substrate.
  - 5.2. Lathing: 100 mm (minimum) beyond edges of isolating layer.

### **648 Fibre glass reinforcement mesh**

---

1. Manufacturer:
  - 1.1. Product reference:

### **650 Movement joints**

---

1. Description:
2. Manufacturer:
  - 2.1. Product reference:
3. Installation: Centred over joint in substrate.
  - 3.1. Fixing:

### **653 Sealant movement joints with stop bead edgings**

---

1. Description:
2. Stop beads:
3. Installation: Centred over joint in substrate.
  - 3.1. Joint width:
  - 3.2. Fixing:
4. Sealant
  - 4.1. Manufacturer:
    - 4.1.1. Product reference:
  - 4.2. Preparation and application: As section Z22. ....

### **659 Plasterboard joints**

---

1. Joints and angles (except where coincident with metal beads). Reinforce with continuous lengths of jointing tape.

### **673 Plasterboard over conduits/ service chases**

---

1. General: Prevent cracking over conduits and other services.
2. Services chased into substrate: Isolate from coating by covering with galvanized metal lathing, fixed at staggered centres along both edges.

## Mouldings/ decorative plasterwork

### 680 Fibrous plaster mouldings

---

1. Description:
2. Type:
3. Noggings, bearers, etc. to support mouldings: Accurately position and securely fix.
4. Installation: True to line and level.
  - 4.1. Fixing:
  - 4.2. Framing, fixing points and joints: Reinforce.
5. Finishing: Smooth, to correct profile and with flush joints.

### 685 Solid cast plaster

---

1. Description:
2. Type:
3. Installation: Fix securely and accurately.
  - 3.1. Fixing: Bed solid in gypsum based adhesive.
4. Finishing: Smooth, to correct profile and with flush joints.

### 689 In situ run plaster mouldings

---

1. Description:
2. Template profile: Give notice before commencing setting out.
3. Core mix:
  - 3.1. Keying: Key surface of core and undercoats.
4. Mitres: Form as running out work proceeds.
5. Final coats: Run to a consistent profile with sharp arrises.
  - 5.1. Mix:
6. Keying for enrichments: Lightly scour contact areas of final coat.
  - 6.1. Finishing: Clean off droppings and clean out mitres.

### 692 Refixing existing plaster mouldings

---

1. Substrates: Accurate, secure and clean.
  - 1.1. Suction control: Dampen or apply suitable sealer.
2. Installation: True to line and level with abutting mouldings, on solid bed of gypsum based adhesive.
  - 2.1. Additional fixings:
3. Finishing: Smooth, to correct profile and with flush joints.
  - 3.1. Filler:

### 695 Reproduction of existing plaster mouldings

---

1. Moulds and casts generally: Prepare moulds from original plaster face. Reproduce profiles and details accurately.
2. Quantity of moulds: Sufficient to complete the required number of casts and maintain a consistent appearance.
3. Casting material: Plaster of Paris.
4. Inserts: As necessary to give strength and rigidity to the mouldings and provide secure fixings.

## **697 Repairing cracks/ steps in plaster mouldings**

---

1. Preparation: Remove applied ornament and keep for reuse. Cut back plasterwork each side of cracks. Replace defective timber laths. Remove dust.
  - 1.1. Suction control: Dampen repair area or apply suitable sealer.
2. Plaster: Follow, and finish flush with, existing moulding profile.
  - 2.1. Undercoat:
    - 2.1.1. Key to receive final coat.
  - 2.2. Final coat:
3. Applied ornaments: Fix accurately using gypsum based adhesive.

## **699 Repairing hand modelled plasterwork**

---

1. Armatures: Stainless steel to suit the relief and profile of the modelling.
2. New modelling:

## **Internal plastering**

### **710 Application generally**

---

1. Application of coatings: Firmly and in one continuous operation between angles and joints. Achieve good adhesion.
2. Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
  - 2.1. Accuracy: Finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
3. Drying out: Prevent excessively rapid or localized drying out.

### **715 Flatness/ surface regularity**

---

1. Sudden irregularities: Not permitted.
2. Deviation of plaster surface: Measure from underside of a straight edge placed anywhere on surface.
  - 2.1. Permissible deviation (maximum) for plaster not less than 13 mm thick: 3 mm in any consecutive length of 1800 mm.

### **718 Junction of new plasterwork with existing**

---

1. New plasterwork: Finish flush with original face of existing plasterwork to form a seamless junction.

### **720 Dubbing out**

---

1. General: Correct substrate inaccuracies.
2. New smooth dense concrete and similar surfaces: Dubbing out prohibited unless total plaster thickness is within range recommended by plaster manufacturer.
3. Thickness of any one coat (maximum): 10 mm.
4. Mix: As undercoat.
5. Application: Achieve firm bond. Allow each coat to set sufficiently before the next is applied. Cross scratch surface of each coat.

### **725 Undercoats generally**

---

1. General: Rule to an even surface. Cross scratch to provide a key for the next coat.
2. Undercoats on metal lathing: Work well into interstices to obtain maximum key.

3. Undercoats gauged with Portland cement: Do not apply next coat until drying shrinkage is substantially complete.

#### **742 Thin coat plaster**

---

1. Preparation for plasters less than 2 mm thick: Fill holes, scratches and voids with finishing plaster.

#### **747 Projection plaster**

---

1. Application: Evenly and in one continuous operation between angles and joints.
2. Finish: A level open textured surface before finishing manually.

#### **777 Smooth finish**

---

1. Appearance: A tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks. Avoid water brush, excessive trowelling and over polishing.

#### **778 Wood float finish**

---

1. Appearance: An even overall texture. Finish with a dry wood float as soon as wet sheen has disappeared.

#### **782 Textured/ patterned finishes**

---

1. Appearance: Consistent and even. Carry out work on each surface as one continuous operation.

#### **786 Plastering on timber lathing**

---

1. Application of undercoat: Force between laths to form continuous keys.

#### **788 Nonhydraulic lime plaster undercoats**

---

1. Suction control: Dampen substrate.
2. Application: Apply firmly. Trowel to an even surface. Consolidate/ scour as necessary to control shrinkage. Cross scratch to provide an undercut key for the next coat. Do not penetrate through the coat.
  - 2.1. Key for final coats: Lightly scratch using a wood 'devil' float.
3. Curing coatings: Keep damp by light spraying with water until coating is sufficiently firm.

#### **789 Three layer nonhydraulic lime plaster final coat**

---

1. Suction control: Dampen undercoat.
2. Application
  - 2.1. First layer: Use steel trowel.
  - 2.2. Second layer: Use wood float in the opposite direction to the first layer.
  - 2.3. Third layer: Use a steel trowel in the same direction as second layer.
3. Consolidation/ scouring: As necessary to control shrinkage. Use a wood cross grain float.
4. Finishing: Dampen with a stock brush. Polish with a steel trowel. Finish with a damp stock brush.
5. Drying: Keep damp by light spraying with water until coating is sufficiently firm.

### **External rendering**

#### **810 Application generally**

---

1. Application of coatings: Firmly and in one continuous operation between angles and joints. Achieve good adhesion.
2. Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.

- 2.1. **Accuracy:** Finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
3. **Drying:** Prevent excessively rapid or localized drying out.

### **815 Flatness/ surface regularity of rendering to receive ceramic tiles**

---

1. Sudden irregularities: Not permitted.
2. **Deviation of render surface:** Measure from underside of a 2 m straight edge placed anywhere on surface.
  - 2.1. Permissible deviation (maximum): 3 mm.

### **820 Dubbing out rendering**

---

1. **General:** Correct substrate inaccuracies.
2. **Thickness of any one coat (maximum):** 16 mm.
  - 2.1. **Total thickness (maximum):** 20 mm, otherwise obtain instructions.
3. **Mix:** As undercoat.
4. **Application:** Achieve firm bond. Allow each coat to set sufficiently before the next is applied. Comb surface of each coat.

### **830 Anchored mesh reinforcement**

---

1. **Application of first undercoat:** Through and round mesh to fully bond with solid substrate.

### **840 Undercoats generally**

---

1. **General:** Rule to an even surface. Comb to provide a key for the next coat. Do not penetrate the coat.
2. **Undercoats on metal lathing:** Work well into interstices to obtain maximum key.

### **845 Thrown undercoats for lime:sand roughcast (harling)**

---

1. **Application of undercoats and dubbing out:** Throw from a casting trowel or scoop.
2. **Finishing:** Press back to give an even thickness without smoothing the surface.

### **856 Final coat – plain floated finish**

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1. **Finish:** Even, open texture free from laitance.

### **861 Final coat – scraped finish**

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1. **Finish:** Scraped to expose aggregate and achieve an even texture.

### **866 Final coat – roughcast (harling) finish**

---

1. **Finish:** Left as cast with an even thickness and texture.

### **871 Final coat – dry dash finish**

---

1. **Coarse aggregate:** To BS EN 12620. Well washed.
  - 1.1. **Size:**
  - 1.2. **Type:**
2. **Application and finishing:** Achieve firm adhesion to an even overall appearance. After throwing aggregate tap particles lightly into coating.

### **880 Curing and drying**

---

1. **General:** Prevent premature setting and uneven drying of each coat.

2. Curing coatings: Keep each coat damp by covering with polyethylene sheet and/ or spraying with water.
  - 2.1. Curing period (minimum):
  - 2.2. Final coat: Hang sheeting clear of the final coat.
3. Drying: Allow each coat to dry thoroughly, with drying shrinkage substantially complete before applying next coat.
4. Protection: Protect from frost and rain.

### **885 Curing and drying nonhydraulic lime render**

---

1. General: Prevent premature setting and uneven drying of each coat.
2. Curing coatings: Keep each coat damp by covering with sheeting hung clear of coating. Spray with water until sufficiently firm.
  - 2.1. Sheeting:
3. Shrinkage: Thoroughly consolidate/ scour each coat one or more times as necessary to control shrinkage.

Ω End of Section

## M60 Painting/clear finishing

### Coating systems

#### 150 Eggshell/ satin paint

---

1. Description: for new gates and handrail posts
2. Manufacturer: Sadolin
  - 2.1. Product reference: Superdec
3. Surfaces: Uncoated
  - 3.1. Preparation: Ensuring compatibility with wood preservative treatment applied to timber substrate (advice available on Sadolin helpline - 0844 7708 998), including allowance of time for preservative to dry out. Timber surfaces must be suitably prepared, clean and dry. The moisture content should not exceed 18% prior to coating. Resinous deposits should be removed. Degrease exposed bare timber surface by wiping with a cloth dampened with methylated spirits. See also clauses 711 & 751, noting that "knotting agents" should not be used. Fillers specifically designed for use with timber such as the Sadolin woodfillers should be used for making good any minor surface defects, imperfections and open joints etc. General or All Purpose fillers are not suitable.  
Only use non-ferrous screws, nails or fixings. Where there is a risk of extractive discolouration, especially when using White or pale colours on resinous/knotty softwoods and coloured hardwoods, an initial coat of a suitable 'blocking primer' such as Crown Trade PSB Stain Block Primer is recommended in order to minimise the risk of this type of discolouration.
4. Initial coats: Sadolin Quick Drying Wood Preserver
  - 4.1. Number of coats: 2
5. Finishing coats: Sadolin Superdec
  - 5.1. Number of coats: 2

### Generally

#### 210 Coating materials

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1. Manufacturers: Obtain materials from any of the following:
2. Akzo Nobel, Dulux.
3. Selected manufacturers: Submit names before commencement of coating work.

#### 215 Handling and storage

---

1. Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
2. Materials from more than one batch: Store separately. Allocate to distinct parts or areas of the work.

#### 220 Compatibility

---

1. Coating materials selected by contractor
  - 1.1. Recommended by their manufacturers for the particular surface and conditions of exposure.
  - 1.2. Compatible with each other.
  - 1.3. Compatible with and not inhibiting performance of preservative/fire-retardant pretreatments.

## 280 Protection

---

1. 'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.

## Preparation

### 400 Preparation generally

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1. Standard: In accordance with BS 6150.
2. Refer to any pre-existing CDM Health and Safety File.
3. Refer to CDM Construction Phase Plan where applicable.
4. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work. Lead based paints may be present.
5. Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
6. Substrates: Sufficiently dry in depth to suit coating.
7. Efflorescence salts: Remove.
8. Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
9. Surface irregularities: Remove.
10. Joints, cracks, holes and other depressions: Fill flush with surface, to provide smooth finish.
11. Dust, particles and residues from preparation: Remove and dispose of safely.
12. Water based stoppers and fillers
  - 12.1. Apply before priming unless recommended otherwise by manufacturer.
  - 12.2. If applied after priming: Patch prime.
13. Oil based stoppers and fillers: Apply after priming.

### 440 Previously coated surfaces generally

---

1. Preparation: In accordance with BS 6150, clause 11.5.
2. Contaminated or hazardous surfaces: Give notice of:
  - 2.1. Coatings suspected of containing lead.
  - 2.2. Substrates suspected of containing asbestos or other hazardous materials.
  - 2.3. Significant rot, corrosion or other degradation of substrates.
3. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
4. Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
5. Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.
6. Cracks, joints, holes and other depressions:: Fill flush with surface, to provide smooth finish.
7. Alkali affected coatings: Completely remove.
8. Retained coatings
  - 8.1. Thoroughly clean to remove dirt, grease and contaminants.
  - 8.2. Gloss-coated surfaces: Provide key.
9. Partly removed coatings
  - 9.1. Additional preparatory coats: Apply to restore original coating thicknesses.
  - 9.2. Junctions: Provide flush surface.
10. Completely stripped surfaces: Prepare as for uncoated surfaces.

## **461 Previously coated wood**

---

1. Degraded or weathered surface wood: Take back to provide suitable substrate.
2. Degraded substrate wood: Repair with sound material of same species.
3. Exposed resinous areas and knots: Apply two coats of knotting.

## **481 Uncoated wood**

---

1. General: Provide smooth, even finish with arrises and moulding edges lightly rounded or eased.
2. Heads of fasteners: Countersink sufficient to hold stoppers/fillers.
3. Resinous areas and knots: Apply two coats of knotting.

## **622 Organic growths**

---

1. Dead and loose growths and infected coatings: Scrape off and remove from site.
2. Treatment biocide: Apply appropriate solution to growth areas and surrounding surfaces.
3. Residual effect biocide: Apply appropriate solution to inhibit re-establishment of growths.

## **Application**

### **711 Coating generally**

---

1. Application standard: In accordance with BS 6150, clause 9.
2. Conditions: Maintain suitable temperature, humidity and air quality during application and drying.
3. Surfaces: Clean and dry at time of application.
4. Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.
5. Overpainting: Do not paint over intumescent strips or silicone mastics.
6. Priming coats
  - 6.1. Thickness: To suit surface porosity.
  - 6.2. Application: As soon as possible on same day as preparation is completed.
7. Finish
  - 7.1. Even, smooth and of uniform colour.
  - 7.2. Free from brush marks, sags, runs and other defects.
  - 7.3. Cut in neatly.
8. Doors, opening windows and other moving parts: Ease before coating and between coats.

### **720 Priming joinery**

---

1. Preservative treated timber: Retreat cut surfaces with two flood coats of a suitable preservative before priming.
2. End grain: Coat liberally allow to soak in, and recoat.

### **730 Workshop coating of concealed joinery surfaces**

---

1. General: Apply coatings to all surfaces of components.

### **731 Site-coating of concealed joinery surfaces**

---

1. General: After priming, apply additional coatings to surfaces that will be concealed when fixed in place.
  - 1.1. Components: External door/gate frames
  - 1.2. Additional coatings: One undercoat

## **751 Staining wood**

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1. **Primer:** Apply if recommended by stain manufacturer.
2. **Application:** Apply in flowing coats and brush out excess stain to produce uniform appearance.

Ω End of Section

## Q20

### Granular sub-bases to roads/ pavings

To be read with preliminaries/ general conditions.

#### 110 Thicknesses of sub-base/ subgrade improvement layers

---

1. Thicknesses: See sections: See sections:
  - 1.1. Q26 Special surfacings/pavings for sport/general amenity.

#### 120 Checking of subgrades

---

1. Anticipated subgrade conditions
  - 1.1. Soil type: Made up ground with high percentage of leaf litter
  - 1.2. Plasticity index: No test data available
  - 1.3. CBR (minimum): NA
  - 1.4. Depth below formation level to groundwater table: NA
2. Subgrade variation: If material appears to vary from anticipated conditions, or if there are extensive soft spots, Burial site - depths not known, no excavation permitted unless authorised by the CA.
3. Submit: Obtain instructions before proceeding.

#### 130 Herbicides

---

1. Type: Non-residual, non-selective
2. Application: To subgrade of footpath.

#### 140 Excavation of subgrades

---

1. Final excavation to formation or subformation level: Carry out leveling of surface immediately before compaction of subgrade.
2. Soft spots and voids: Give notice.
3. Old drainage and service trenches: Give notice.
4. Wet conditions: Do not excavate or compact when the subgrade may be damaged or destabilised.

#### 145 Preparation and compaction of subgrades

---

1. Timing: Immediately before placing surface finish.
2. Soft or damaged areas: Build up soft areas with and to LA's approval.
3. Compaction: Thoroughly, by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads/ pavings when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

#### 170 Geotextile filter/ separator membrane

---

1. Description: Separator membrane under MOT Type 1.
2. Manufacturer: Terram T1000 - 2.25mm or similar
  - 2.1. Product reference: T1000
3. Jointing: 300 mm overlap
4. Protect from
  - 4.1. Exposure to light, except during laying (maximum five hours).

- 4.2. Contaminants.
- 4.3. Materials listed as potentially deleterious by geotextile manufacturer.
- 4.4. Damage, until fully covered by fill.
- 4.5. Wind uplift, by laying not more than 15 m before covering with fill.
5. Preparation: Remove humps and sharp projections and fill hollows before laying.

## **180 Notice**

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1. Give notice: Of path setting out
  - 1.1. Period of notice: 5 working days

## **200 Subgrade improvement layer (capping)**

---

1. Material: To Highways Agency 'Specification for highway works', table 6/1, Class .....
2. Standard: Placed and compacted to Highways Agency 'Specification for highway works', table 6/1, clauses 612 and 613.3, 613.8, 613.9, 613.10 and 613.13.

## **210 Highways agency Type 1 unbound mixture for sub-base**

---

1. Material: Type 1 unbound mixture to Highways Agency 'Specification for highway works', clauses 801 and 803.
  - 1.1. Recycled aggregate: Permitted

## **211 Granular material**

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1. Quality: Of a known suitability for use in sub-bases, free from excessive dust, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50 kN when tested in a soaked condition to BS 812-111 or a resistance to fragmentation of LA50 for the Los Angeles test to BS EN 1097-2, and in any one layer only one of the following:
  - 1.1. Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
  - 1.2. Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
  - 1.3. Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
  - 1.4. Natural gravel.
  - 1.5. Natural sand.
2. Filling: Spread and levelled in 150 mm maximum layers, each layer thoroughly compacted.

## **225 Placing of material with high sulfate content**

---

1. Standard: To Highways Agency 'Specification for highway works', clauses 801.2 and 801.3.
  - 1.1. Separation distance (minimum):

## **250 Laying granular sub-bases**

---

1. Description:
2. General: Spread and levelled.
3. Compaction
  - 3.1. Timing: As soon as possible after laying.
  - 3.2. Method: By roller or other suitable means, adequate to resist subsidence or deformation of the sub-base during construction and of the completed paving when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

### **310 Accuracy**

---

1. Permissible deviation from required levels, falls and cambers (maximum)
  - 1.1. Subgrades
    - 1.1.1.Roads and parking areas: +20 -30 mm.
    - 1.1.2.Footways and recreation areas:  $\pm$  20 mm.
  - 1.2. Sub-bases
    - 1.2.1.Roads and parking areas:  $\pm$  20 mm
    - 1.2.2.Footways and recreation areas: +20 -15 mm

### **330 Cold weather working**

---

1. Frozen materials: Do not use.
2. Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.

### **340 Protection**

---

1. Sub-bases: As soon as practicable, cover with subsequent layers, specified elsewhere.
2. Subgrades and sub-bases: Prevent degradation by construction traffic, construction operations and inclement weather.

Ω End of Section

## Q21

### In situ concrete roads/ pavings/ bases

#### Types of paving

#### 130 Hard landscaping materials specification

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

#### General/ preparation

#### 140 Ready-mixed concrete

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1. Production plant: Currently certified by a body accredited by UKAS to BS EN ISO/IEC 17065 for product conformity certification.
2. Source of ready-mixed concrete: Obtain from one source if possible. Otherwise, submit proposals.
  - 2.1. Name and address of depot: Submit before any concrete is delivered.
  - 2.2. Delivery notes: Retain for inspection.
3. Declarations of nonconformity from concrete producer: Notify immediately.

#### 141 Site mixed concrete

---

1. Batching by mass
  - 1.1. Restrictions:
  - 1.2. Accuracy of measuring devices: To BS EN 206-1, clause 9.6.2.2.
    - 1.2.1. Tolerances for quantity of constituent material: To BS EN 206-1, table 21.
2. Batching by volume
  - 2.1. Restrictions:
3. Mixing: To BS 8000-2.1, subsections 2, 3 and 4.

#### 142 Recycled aggregate

---

1. Standard: To BS 8500-2, clause 4.3 .....
2. Type:
3. Source:
4. Quality control:
5. Limitations on use
  - 5.1. Strength class (maximum):
  - 5.2. Permitted exposure classes:
6. Additional restrictions on content
  - 6.1. Acid-soluble sulfate content (maximum):
  - 6.2. Alkali-aggregate reactivity:
7. Test method
  - 7.1. Determination of chloride content:
  - 7.2. Determination of alkali content:
8. Frequency of testing:
9. Other requirements:

## 145 Admixtures

---

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

## 150 Reinforcement

---

1. Description:
2. Standard: To .....
- 2.1. Product form/ designation:
- 2.2. Strength grade:
3. Cutting and bending: To BS 8666.
4. Supplier: A firm currently approved by the UK Certification Authority for Reinforcing Steels (CARES).
5. Nominal cover:
6. Cleanliness: Free from corrosive pitting, loose material and contaminants which may adversely affect reinforcement, concrete, or bond between the two.

## 152 Proprietary steel fibres

---

1. Requirement:
2. Standard: To BS EN 14889-1.
3. Manufacturer:
  - 3.1. Product reference:
4. Size
  - 4.1. Length:
  - 4.2. Aspect ratio (length ÷ diameter):
5. Addition rate (minimum):
  - 5.1. Increase addition rate if necessary to achieve required properties.
6. Dispersion in fresh concrete: Uniform without balling.

## 153 Steel fibres

---

1. Requirement:
2. Standard: To BS EN 14889-1.
3. Material:
4. Type:
5. Fibre properties (minimum):
6. Size
  - 6.1. Length:
  - 6.2. Aspect ratio (length ÷ diameter/ equivalent diameter):
  - 6.3. Shape:
7. Tensile strength:
8. Coating:
9. Addition rate (minimum):
  - 9.1. Increase addition rate if necessary to achieve required properties.
10. Dispersion in fresh concrete: Uniform without balling.

## 154 Polymer fibres

---

1. Requirement:

2. Standard: To BS EN 14889-2.
3. Material:
4. Manufacturer:
  - 4.1. Product reference:
5. Addition rate (minimum):
  - 5.1. Increase addition rate if necessary to achieve required properties.
6. Dispersion in fresh concrete: Uniform without balling.

### **155 Project testing of concrete - general**

---

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

### **160 Initial project testing of concrete**

---

1. Description:
2. Tests:
3. Timing:
4. Sampling
  - 4.1. Point:
  - 4.2. Number of batches:
  - 4.3. Number of samples from each batch:

### **165 Regular project testing of concrete**

---

1. Description:
2. Tests:
3. Sampling
  - 3.1. Point:
  - 3.2. Rate:
4. Other requirements:

### **240 Sub-base preparation**

---

1. Surface: Sound, free of debris, mud and soft spots, and suitably close textured.
2. Levels and falls: Within specified tolerances:
  - 2.1. Vehicular areas:  $\pm 20$  mm.
  - 2.2. Pedestrian areas:  $\pm 12$  mm.
  - 2.3. Drainage outlets: +0 to -10 mm of required finished level.

3. Kerbs and edgings: Complete, adequately bedded and haunched, and to required levels.

## 250 Laying fabric reinforcement

---

1. Flatness: Lay in flat sheets, straight and out of winding.
2. Main reinforcement: Parallel to long axis of slab.
3. Temporary support: Securely fix and support fabric during construction of slab.
4. Lapping at joints (minimum)
  - 4.1. Longitudinal bars:
  - 4.2. Transverse bars:
5. Extent of fabric: Fully within slab.
  - 5.1. Stopping short of slab edges by:
  - 5.2. Stopping short of centre line of transverse joints by:
  - 5.3. Stopping short of centre line of longitudinal joints:
6. Alternative placing method: Fabric may be placed on top of first compacted layer of concrete, followed by top layer of concrete, placed within two hours of the first layer.

## 260 Steel formwork

---

1. Side forms: Steel, drilled for dowel bars, free from warping and kinks.
2. Fixing
  - 2.1. To required line,  $\pm 10$  mm.
  - 2.2. To required level,  $\pm 3$  mm.
3. Locking plates: Use where necessary to ensure rigidity and prevent movement during laying and compaction of concrete.
4. Removal of forms: Six hours (minimum) after completing compaction. Treat exposed edges with waterproof compound.

## 265 Timber permanent formwork

---

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

## Laying concrete

### 310 Transporting concrete

---

1. General: Avoid contamination, segregation, loss of ingredients, excessive evaporation and loss of workability. Protect from heavy rain.
2. Entrained air: Anticipate effects of transport and placing methods in order to achieve specified air content.
3. Placing: Use suitable walkways and barrow runs for traffic over reinforcement and freshly placed concrete.

### **320 Laying concrete generally**

---

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

### **330 Compacting**

---

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

### **350 Levels**

---

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

### **360 Surface regularity**

---

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

### **Joins - Not Used**

### **Surface finish - Not Used**

### **Curing/ protection/ finishing**

#### **610 Curing**

---

1. **General:** Immediately after completion of surface treatment prevent evaporation from surface and exposed edges of slabs for a minimum period of seven days.
2. **Early curing**

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

## **615 Curing periods**

---

1. Description:
2. General: Curing periods are in days (minimum).
  - 2.1. Definition of 't': The average surface temperature of concrete in degrees Celsius during the curing period.
3. Curing periods
  - 3.1. Drying winds or dry, sunny weather (relative humidity < 50%):
  - 3.2. Intermediate conditions (relative humidity between 50 and 80%):
  - 3.3. Damp weather, protected from sun and wind (relative humidity > 80%):
4. Curing periods for concretes using admixtures or other types of cements/ combinations: **Submit proposals.**
5. Other requirements:

Ω End of Section

## Q23

# Gravel/ hoggin/ woodchip/ resin bound roads/ pavings/ overlays

## Types of surfacing

### 110 Hard binding gravel

---

1. Description: TO FOOTPATHS AND BENCH AREAS
2. Subgrade improvement layer: As drawing 6001 - Landscape Details
  - 2.1. Compacted thickness: 300 mm
3. Geotextile: Sheet
  - 3.1. Manufacturer: Terram T1000 2.25mm
    - 3.1.1. Product reference: T1000 - 2.25mm
4. Granular sub-base: Type 1 unbound mixture, as section Q20
  - 4.1. Compacted thickness: 150 mm
5. Blinding to sub-base: Not required
6. Surface course: SUPERCEDEC
  - 6.1. Type: Self Binding Gravel
  - 6.2. Source: CED Quarries
  - 6.3. Colour: GOLD
  - 6.4. Size: As per manufacturer
  - 6.5. Compacted thickness: 50 mm
7. Completion: Compact to produce a firm, regular surface, stable in use.

## Laying

### 310 Everedge Steel Edging

---

1. Steel Edging System: Everedge ProEdge
  - 1.1. Size: 125mm x 2.5 mm 100mm spikes
  - 1.2. Fixing: Push gently into ground avoiding obstacles and tree roots.
  - 1.3. Colour:: Galvanised Steel - Grey Slate Finish

### 330 Herbicide to paving Q23/

---

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

### 340 Laying generally

---

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

### **350 Cold weather working**

---

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

### **360 Drainage falls**

---

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

### **390 Protection from traffic and plant**

---

1. Paved areas: Restrict access to prevent damage.

## **Completion**

### **400 Slip resistance testing**

---

1. Surfaces to be tested: Pathways
  - 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
  - 4.1. Testing authority: An approved laboratory
  - 4.2. Witnessing/ Certification: Arrange for tests to be witnessed/ certified by: Contract administrator.
  - 4.3. Report: Submit.
  - 4.4. Format: As required under BS 7976

Ω End of Section

## Q25 Slab/ brick/ sett/ cobble pavings

### General

#### 110 Natural stone slab paving system

---

1. Description: Stepping stones and steps laid in Jewish Cemetery
2. Subgrade improvement layer: Type 1 unbound mixture, as section Q20
  - 2.1. Compacted thickness: Varies - to be laid on top of existing surface to avoid any excavation
3. Paving units: Reclaimed granite slabs 900 x 900mm depending on availability - to client's satisfaction
4. Jointing: 100 - 200mm grass gaps between paving slabs

### System performance

#### 210 Design – natural stone slab paving system

---

1. Design: Complete the design of the natural stone slab paving system in accordance with BS 7533-4.
  - 1.1. Site category:
2. Ground conditions:
3. Performance criteria:
4. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

### Products

#### 310 Natural stone slabs

---

1. Description: Silver grey granite - reclaimed
2. Standard: To BS EN 1341.
3. Supplier: T. Marsh Ltd
  - 3.1. Product reference:
  - 3.2. Quarry: Trenoweth Quarry 01326 372546
4. Petrographical description/ stone type: Granite
5. Finish: Honed
6. Sizes: 900 x 900 x 30mm
  - 6.1. Diagonal deviation class:
  - 6.2. Thickness deviation class:
7. Slip resistance: PTV to BS 7976-2 of 40

#### 400 Sand/ fine aggregate for laying course of grassed or gravel filled paving

---

1. Description:
2. Standard: To BS EN 13242.
  - 2.1. Designation:

## Execution

### 610 Material samples

---

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
  - 1.1. Designated materials: Natural stone slab paving; reference sample to BS EN 1341

### 630 Levels of paving

---

1. Permissible deviation from specified levels
  - 1.1. Generally:  $\pm 6$  mm.
2. Height of finished paving above features
  - 2.1. 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):
  - 4.2. Vehicular traffic (minimum):
5. Access: Restrict access to paved areas to prevent damage from site traffic and plant.

### 665 Planing and repairs to existing bases

---

1. Existing macadam/ asphalt surfaces: Plane to required levels if required for finished levels from northern path to gate stone threshold.
2. Repairs: Cut out depressions, fill to match existing surface and compact
3. Building up existing surfaces to required levels:

### 690 Reclaimed natural stone

---

1. Description: SLABS and STEPS
2. Location/ Access: Jewish Cemetery and southern Cornish Hedge Opening
3. Lifting/ Storage/ Protection: Store in a secure compound
4. Preparation: Submit samples of cleaned slabs

## Completion

### 930 Slip resistance testing

---

1. Surfaces to be tested: Granite slabs
  - 1.1. Surface condition: Dry and wet
2. Timing: As agreed with contract administrator
3. Period of notice (minimum): 3 working days.
4. Test standard: To BS 1134
  - 4.1. Testing authority: 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 1134

Ω End of Section

## Q28

# Topsoil and soil ameliorants

### System outline

#### 135 Planting bed soil system

---

1. Description: For hedge and bank areas
2. Composition
  - 2.1. Topsoil: Submit design and cost proposals Imported topsoil to BS 3882
  - 2.2. Ameliorants: Organic materials
  - 2.3. Accessories: None

#### 145 Plant pit backfilling soil system

---

1. Description: FOR SHRUB PITS
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 HEDGE PLANTING
2. Composition
  - 2.1. Material: Organic materials - bark free - refer to drawings

### 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: Bark and Peat

#### 315 Imported topsoil to BS 3882

---

1. Description: FOR PLANTING BEDS

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 clay loam
5. Source: Submit proposals
  - 5.1. Product reference: Refer to drawings

#### **401 Organic fertilizers**

---

1. Description: FOR PLANTING PITS
2. Manufacturer/ source: Refer to Drawings
  - 2.1. Product reference: Submit proposals
3. Standard: In accordance with The EC Fertilizers (England and Wales) Regulations 2006
4. Purpose: Establishment fertilizer
5. Type: Seaweed extract
6. Availability to plants: Slow release

#### **Execution**

#### **620 Importing topsoil**

---

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

#### **625 Sample loads**

---

1. Description: FOR IMPORTED TOPSOIL/FERTILISERS
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: 5 days

#### **630 Documentation for imported topsoil**

---

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

#### **635 Documentation for compost and composted materials**

---

1. Description: FOR COMPOST
2. Timing: Submit at handover.
3. Contents
  - 3.1. Full description of all compost components.
  - 3.2. Record of source for all compost components.

- 3.3. Analyst's report for each test carried out.
- 3.4. Declaration of compliance: in accordance with PAS 100 and BSI PD CR 13456.
- 3.5. Quality Compost Protocol certification: Required
4. Number of copies: One

## **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

## **655 Mechanical tools**

---

1. Restrictions: Do not use

## **675 Preparation of undisturbed topsoil**

---

1. Standard: In accordance with BS 4428.
  - 1.1. Grading and cultivation: To suit cultivation operations specified in Q30
2. Hard ground: Break up thoroughly.
3. Clearing: Remove visible roots and large stones with a diameter greater than 100 mm.
4. Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
5. Fallow period (minimum): One month
  - 5.1. Weed control: At appropriate times treat with a suitable translocated nonresidual herbicide.

## **680 Surplus topsoil to be retained**

---

1. Generally: Spread and level on site: to LA's direction
  - 1.1. Locations: As directed by Landscape Architect
  - 1.2. Protected areas: Do not raise soil level within root spread of trees that are to be retained.

## **685 Surplus materials to be removed**

---

1. Topsoil removal from site: Not required
2. Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

## **690 Topsoil storage heaps**

---

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

## **700 Grading of topsoil**

---

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

## **705 Handling topsoil**

---

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

## **710 Spreading topsoil on:**

---

1. Description: WILDFLOWER AREAS WOODLAND PLANTING AREAS
2. Standard: In accordance with BS 3882.
3. Temporary roads/ surfacing: Remove before spreading topsoil.
4. Layers
  - 4.1. Depth (maximum): 150 mm.
  - 4.2. Gently firm each layer before spreading the next.
5. Depth after firming and settlement: 300 mm
6. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

## **715 Loose tipping of topsoil**

---

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

## **718 Final cultivation**

---

1. Description: FOR PLANTING BEDS
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: 300 mm
5. Particle size (maximum): 20 mm 15 mm
6. Timing: Within a few days before planting
7. Weather and ground conditions: Suitably dry.
8. Surface: Leave regular and even.
9. Levels: 50 mm above adjoining lawns
10. Undesirable material brought to the surface
  - 10.1. Remove visible weeds.
  - 10.2. Remove roots and large stones with any dimension exceeding 100 mm.

## **720 Finished levels of topsoil after settlement**

---

1. In relation to adjoining paving, kerbs or hard surfaces: 50 mm below 25 mm above
2. In relation to adjacent grass areas: 50 mm above
3. Seeded areas: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
4. Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
5. Adjoining soil areas: Marry in.
6. Thickness of turf or mulch: Included.

## **Completion**

### **905 Applying maintenance fertilizer to soil**

---

1. Description: TO PLANTING BEDS
2. Duration: Carry out the following operations from completion of seeding/ turfing until the end of the rectification period.
3. Time of year: During February and March
4. Application: Evenly spread, carefully incorporating below mulch materials.
5. Rate: 25 g/m<sup>2</sup>

Ω End of Section

## Q30 Seeding/ turfing

### General information/requirements

#### 115 Seeded and turfed areas

---

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

#### 120 Climatic conditions

---

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

#### 145 Watering

---

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

#### 146 Watering

---

1. **Quantity:** Wet full depth of topsoil.
2. **Application:** Even and without displacing seed, seedlings or soil.
3. **Frequency:** When instructed

#### 150 Water restrictions

---

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

#### 160 Notice

---

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

#### 170 Setting out

---

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

### Preparation

#### 212 Seed bed cleaning before sowing

---

1. **Description:** WILDFLOWER MEADOWS

2. Operations: Kill pernicious weeds with selective contact herbicide.

## 250 Soil requirements

---

1. Type
  - 1.1. Seeded areas: Existing topsoil

## Seeding

### 312 Wildflower seed mixture

---

1. Description: FOR WILDFLOWER MEADOWS
2. Supplier: As per drawing
  - 2.1. Mixture reference: As per drawing
3. Origin of each species (as defined in Flora Locale's Code of practice for collectors, growers and suppliers of native flora): British Native
4. Application rate: Supplier's recommendations

### 319 Quality of seed

---

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

### 322 Quality of wildflower seed

---

1. Description: FOR NATURALIZED AREAS FOR WILDFLOWER MEADOWS
2. Standard: In accordance with Flora Locale's 'Code of practice for collectors, growers and suppliers of native flora'.
3. Germination testing: Not required
4. Freshness of seed: Germination test certification no greater than 2 years old
5. Samples: Submit when requested.

### 330 Sowing

---

1. General: Establish good seed contact with the root zone.
2. Method: To suit soil type, proposed usage, location and weather conditions during and after sowing
  - 2.1. Distribution: 2 equal sowings at right angles to each other and diagonally to main axis

### 336 Wildflower sowing season

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1. Wildflower seed generally: August to October

## Turfing - Not Used

## Protecting/cutting

### 590 Cleanliness

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1. Soil and arisings: Remove from hard surfaces.

2. General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

## Maintenance

### 610 Failures of seeding/ turfing

---

1. Duration: Carry out the following operations from completion of seeding/ turfing until: .....
2. Defective materials or workmanship: Areas that have failed to thrive.
  - 2.1. Exclusions: Theft or malicious damage.
3. Method of making good: Recultivation and reseeding/ returfing.
4. Timing of making good: Submit proposals

### 650 Maintaining grassed areas with perennial wildflowers

---

1. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
2. Preparation: Before each cut remove all litter and debris.
3. Height and frequency of cut in first growing season
  - 3.1. Time of first cut: March/ April
  - 3.2. Height of first cut: 100 mm
  - 3.3. Frequency of subsequent cutting (minimum): Every 6-8 weeks until autumn
  - 3.4. Height of growth permitted (maximum): 150 mm
4. Height and frequency of cut in second growing season
  - 4.1. Time of cut: Single cut in October October, March and August
  - 4.2. Height of cut: 100 mm
5. Trimming: All edges.
  - 5.1. Arisings: Remove.
6. Watering: When instructed Contractor's choice

Ω End of Section

## Q31 External planting

### General information/ requirements

#### 112 Site clearance generally

---

1. **General:** Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
2. **Stones:** Remove those with any dimension exceeding 50 mm.
3. **Contamination:** Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
4. **Vegetation:** Clear surface vegetation in areas shown on drawings using suitable nonresidual herbicide
5. **Large roots:** Grub up and dispose of without undue disturbance of soil and adjacent areas.

#### 118 Soil conditions

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1. **Soil for cultivating and planting:** Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
2. **Frozen or snow covered soil:** Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.

#### 120 Climatic conditions

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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

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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 5 m of graves, tree roots tree roots and plant stems.\*\*\*  
Excavate by hand unless alternative agreed in advance, in writing with Landscape Architect.

#### 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.

#### 146 Watering

---

1. **Quantity:** Wet full depth of topsoil.

2. Application: Even and without damaging or displacing plants or soil.
3. Frequency:

### 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. New Item: Setting out and clearing paths and opening up stone wall (Cornish Hedge) cut throughs.
  - 1.3. Applying herbicide.
  - 1.4. Applying fertilizer.
  - 1.5. New Item: Excavating pits for new hedgerows
  - 1.6. Delivery of plants/ trees.
  - 1.7. Planting shrubs.
  - 1.8. Planting trees into previously dug pits.
  - 1.9. Watering.
  - 1.10. Visiting site during maintenance period.
2. Period of notice: 1 week

### 170 Soil requirements

---

1. Type
  - 1.1. Planted beds: Topsoil back fill in accordance with BS3882. Topsoil to be entirely peat, wood chip and bark free. Tree and shrub compost to be blended with Organic, recycled compost - 'Yorganics' or similar, incorporated at Manufacturer's specified rates.
  - 1.2. Tree pits, shrub pits and other backfilling: Topsoil back fill in accordance with BS3882. Topsoil to be entirely peat, wood chip and bark free. Tree and shrub compost to be blended with Organic, recycled compost - 'Yorganics' or similar, incorporated at Manufacturer's specified rates.
  - 1.3. Fertiliser: Incorporate 'Green Tech Carbon Gold' or similar approved, PRODUCT CODE: 110SA4320 to manufacturer's instructions.
  - 1.4. External container planting: N/A
  - 1.5. Mulch applied after planting: Greentech 'gtCoir' 100% biodegradable blanket or similar approved applied to hedge lines.
  - 1.6. Tree and Shrub protection during establishment: Green Tech - Treebio - Biodegradable Tree/Shrub Guards, PRODUCT CODE: 160PS1031-PRO-60 x 30cm or similar approved

### 200 Plants/ Trees – general

---

1. Condition: Materially undamaged, sturdy, healthy and vigorous in accordance with the National Plant Specification.
2. Appearance: Of good shape and without elongated shoots.
3. Hardiness: Grown in a compatible environment to that of the site 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 relevant parts of BS 3936

7. Species: True to name.
8. Origin/ Provenance: British grown, British provenance.
9. Definition: Origin and Provenance have the meaning given in the National Plant Specification.

### **216 Plants/ Trees – specification criteria**

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1. Name, forms, dimensions and other criteria: To the relevant part of BS 3936.

### **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. Plant specification, in accordance with scheduled National Plant Specification categories.

### **246 Labelling and information**

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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: Biodegradable white bags
5. Packaging of bulk quantities: Avoid shrink wrapping where possible
6. Planting: Upright or well balanced with best side to front.

## 280 Treatment of tree wounds

---

1. **New Item:** This applies to tree and their roots cut for the installation of the path. Any cuts to be agreed in advance and in writing with the Landscape Architect.
2. **Cutting:** Keep wounds as small as possible.
  - 2.1. Cut cleanly back to sound wood using sharp, clean tools.
  - 2.2. Leave branch collars. Do not cut flush with stem or trunk.
  - 2.3. Set cuts so that water will not collect on cut area.
3. **Fungicide/ Sealant:** Do not apply unless instructed.

## 285 Protection of existing grass

---

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

## 290 Surplus material

---

1. **Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings:** Remove all material by hand and dispose of off site.

## Plant containers - Not Used

## Preparation of planting beds/ planting materials

## 300 Herbicide

---

1. **Description:** TO CLEAR EXISTING VEGETATION ALONG ROUTE OF PROPOSED PATHS EXCEPT OVER GRAVES.
2. **Locations:** As drawing J20-6000 - Landscape GA
3. **Type:** Suitable for suppressing perennial weeds.
4. **Timing:** Allow fallow period before cultivation.
  - 4.1. **Duration (minimum):** As manufacturer's recommendation

## 305 Weed control

---

1. **Description:** FOR INVASIVE NON-NATIVE WEEDS
2. **Locations:** Route of paths and location of seats
3. **General:** Prevent weeds from seeding and perennial weeds from becoming established, by hand weeding.

## 385 Mulch matting/ Geotextile fabric

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1. **Description:** TO SHRUB PLANTING
2. **Manufacturer:** As per drawing - GREEN TECH 'gtCoir' 100% biodegradable blanket or similar approved.
  - 2.1. **Product reference:** Submit proposals
3. **Type:** 'gtCoir'
4. **Recycled content:** Submit proposals
5. **Timing:** Lay before planting.
6. **Watering:** Water soil thoroughly before laying.
7. **Laying:** In close contact with soil surface. Lap or butt joints as recommended by manufacturer, with no gaps.

8. Planting: Cut neat slits or flaps. Refit closely around plant stems.

## Planting shrubs/ herbaceous plants/ bulbs

### 405 Shrub planting pits

---

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

### 455 Planting wildflower plugs

---

1. Handling: Keep plants watered and in shade until planted. Do not allow to dry out.
2. Preparation: Remove brambles, coarse and invasive weeds from planting sites.
3. Planting in grass:
4. Planting sites:
5. Planting: Into a hole to suit plug size and shape. Create a cleft at bottom of hole to improve rooting. Gently firm plant into hole.

### 463 Preplanted mats

---

1. Manufacturer: Greentech
  - 1.1. Product reference: Covamat Fresh Type 3-F
2. Species mix: Native wildflower mix for shady sites - see drawing
3. Properties of soil used for mat production: As per topsoil spec above
4. Substrate preparation: level off by backfilling with topsoil as mat installed up slope
5. Fixing/ Jointing: Metal pins and clips to Engineer's bank stability system.
  - 5.1. Restraint on slopes: Metal pins and clips to Engineer's bank stability system.
6. Establishment/ Aftercare: Watering during dry spells and clipping in loose corners and edges

### 471 Naturalized hedges

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1. Planting: In tree pits 300mm deep, large enough to take full spread of roots. Set out plants evenly.

### 472 Fencing support for new hedge on northern boundary

---

1. Type: As existing on site - clip new hedgerow stock to fencing for additional support
2. Support: Lightly secure hedge plants to fence wires at appropriate intervals, allowing for a season's growth.

### 480 After planting

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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:
  - 3.1. Depth:

### 486 Shrub protection

---

1. Manufacturer: Greentech
  - 1.1. Product reference: Biodegradable shrub and tree shelters - 160PS1031-PRO-60x30cm
2. Type: Round

3. Material:
4. Size:
5. Colour: black
6. Support: Single timber stake 1500mm
7. General: Ensure that protection methods do not impede natural movement of shrubs or restrict growth.

## Planting trees

### 546 Single vertical staking for

---

1. Description: hedge plants - western boundary to dissenter's cemetery only - the northern boundary will be tied to the fencing.
2. Staking
  - 2.1. Position: Close to shrub position on windward side.
  - 2.2. Driving: Vertically at least 300 mm into bottom of pit before planting.
  - 2.3. Backfilling: Consolidate material around stake.
  - 2.4. Firming: Sufficiently firm to prevent movement of the rootball/ rootstock.
3. Height of stakes: 1000mm
4. Ties: Biodegradable natural fibre
  - 4.1. Number of ties: Two
5. Tying: Secure shrub firmly but not rigidly to stake with ties. Prevent tree from touching stake using spacer blocks or cushions if required.
  - 5.1. Position: Top tie within 25 mm of top of stake and additional ties equally spaced along the stake.

## Woodland/ matrix/ buffer zone planting

### 600 Woodland work generally

---

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

### 605 Existing vegetation/ Weed clearance

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1. Surface vegetation clearance: In proposed path and hedge areas shown on drawing 6000, using suitable nonresidual herbicide
2. Arisings: Remove off site

### 635 Notch planting in northern bank system

---

1. Notching: Make a vertical 'X' notch at 30cm centres on a neat grid.
  - 1.1. Depth: To accommodate full depth of roots.
2. Planting: Plant plug plants as per drawings.

### 665 Setting out - hedge

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1. Distance between rows: 50cm - double, staggered rows with plants species randomly selected
  - 1.1. Plant in staggered rows.

## 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: Once a month

### 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: During the next suitable planting season

### 740 Cleanliness

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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

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1. Weed control: Maintain weed free area around each shrub.
  - 1.1. Diameter (minimum): The larger of 300mm or the surface of original planting pit.
  - 1.2. Keep planting beds clear of weeds: By hoeing
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. Watering:

### 760 Planting maintenance – pruning

---

1. General: Prune to promote healthy growth and natural shape.
  - 1.1. Dead, dying, diseased wood and suckers: Remove.
  - 1.2. Timing: As appropriate to the species
2. Arisings: Remove.

### 780 Maintenance instructions

---

1. General: Before end of the maintenance period, submit printed instructions recommending procedures to be established by the Employer for maintenance of the planting work for one full year: Provide details of any special procedures to be carried out.

Ω End of Section

## Q40 Fencing

### Fencing systems

#### 210 Wooden post and rail fencing

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1. Manufacturer: Jacksons
  - 1.1. Product reference: Round Post
2. Standard: To BS 1722-7, type MPR 11/3.
3. Height: 2 No. at 1200 and 2 no. at 1500mm above ground level
4. Wood: Softwood
  - 4.1. Treatment: To provide a 15-year service life
  - 4.2. Finish: None required
5. Maximum centres of posts: 1m
6. Method of setting posts: Rammed earth to a minimum depth of 600 mm
7. Accessories: Additional mesh - wildlife netting, 100mm diam round hand rail to topline as per drawing
8. Conformity: Submit manufacturer's and installer's certificates, to BS 1722-7.

#### 210 Wooden post and rail fencing Type A

---

1. Manufacturer: Jacksons Fencing
  - 1.1. Web: [www.jacksons-security.co.uk](http://www.jacksons-security.co.uk)
  - 1.2. Email: [sales@jacksons-fencing.co.uk](mailto:sales@jacksons-fencing.co.uk)
2. Product Reference: Standard Post
3. Posts:
  - 3.1. Type: Round
  - 3.2. Section: 100mm
  - 3.3. Length: 1700mm and 2100mm lengths
4. Post top: Chamfered
5. Finish as delivered:
  - 5.1. Treatment: Planed, Pressure treated, finely sanded
  - 5.2. Applied finish: none
6. Height: 2 no. posts at 1200 and 2 no. posts at 1500mm above ground level, a minimum of 1200mm at any point adjacent to grave J2 for safety compliance reasons.
7. Type:
  - 7.1. Standard panel posts:
  - 7.2. Heavy duty posts:
8. Accessories: 2 no. Diagonal support braces/stakes - to north of fence - 50mm x 1000mm

### Gates, posts and stiles - Not Used

### Accessories - Not Used

### Execution

#### 710 Installation generally

---

1. Set out and erect
- PDP Green Consulting Ltd  
24-03-2021

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

## **720 Setting posts in concrete**

---

1. Standard: To BS 8500-2.
2. Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.
3. Alternative mix for small quantities: 50 kg Portland cement to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
4. Admixtures: Do not use.
5. Holes: Excavate neatly and with vertical sides.
6. Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
7. Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

## **730 Exposed concrete foundations**

---

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

## **740 Setting posts in earth - interpretation boards**

---

1. Holes: Excavated neatly, with vertical sides and as small as practicable to allow refilling. 100 x 100 x 500mm deep. Install manufacturer's galvanised bolted shoe/sleeve for the reclaimed oak posts
2. Filling: Position posts/ struts and replace excavated material, well rammed as filling proceeds.

## **770 Site cutting of wood**

---

1. General: Kept to a minimum.
2. Below or near ground level: Cutting prohibited.
3. Treatment of surfaces exposed by minor cutting and drilling: Two flood coats of solution recommended for the purpose by main treatment solution manufacturer.

## **790 Site painting**

---

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

## **Completion**

### **910 Cleaning**

---

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

### **920 Fixings**

---

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

## **930 Gates**

---

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

Ω End of Section

## Q50 Site/ street furniture/ equipment

### Gates, barriers and parking controls

#### 110 Wood gate

---

1. Description: Ledged, braced and boarded gate to Jewish Cemetery entrance
2. Manufacturer: Contractor's choice
  - 2.1. Product reference: Purpose made, details to match surviving part of Congregationalist cemetery gate
3. Standard: To BS 5709.
4. Wood: Douglas fir
  - 4.1. Quality: To BS EN 942, Class J30.
5. Treatment: As Wood Protection Association 'Industrial Wood Preservation. Specification and Practice'.
  - 5.1. Type: To provide a 30 year service life
6. Adhesive: Synthetic resin to BS EN 301, type 1.
7. Fittings and accessories: One pair strap hinges, return spring and padbolt with padlock, all galvanized to BS EN ISO 1461, strap hinges painted black.
8. Method of setting posts: Rebated frames fixed to masonry reveals with expanding bolts, holes plugged.

#### 111 Wood gate

---

1. Description: Ledged, braced and boarded gate to Congregationalist Cemetery entrance
2. Manufacturer: Contractor's choice
  - 2.1. Product reference: Purpose made, details to match surviving part of Congregationalist cemetery gate. Salvaged part of gate to be incorporated into new gates
3. Standard: To BS 5709.
4. Wood: Douglas fir
  - 4.1. Quality: To BS EN 942, Class J30.
5. Treatment: As Wood Protection Association 'Industrial Wood Preservation. Specification and Practice'.
  - 5.1. Type: To provide a 30 year service life
6. Adhesive: Synthetic resin to BS EN 301, type 1.
7. Fittings and accessories: One and a half pairs strap hinges per leaf, return spring, drop bolts, and padbolt with padlock, all galvanized to BS EN ISO 1461, strap hinges painted black.
8. Method of setting posts: Plain edged frames to match surviving frame fixed to face of masonry reveals with expanding bolts into existing lead lined holes in granite quoins, holes plugged.

### Site and street furniture

#### 220 Benches

---

1. Description: Reclaimed Granite Benches
2. Manufacturer: Tim Marsh, Trenoweth Quarry, Mabe Burnthouse, Penryn
  - 2.1. Product reference: Client Choice
3. Material: Granite
  - 3.1. Finish: honed

3.2. Colour: silver

4. Size: 600mm deep x 1200mm long x 600mm high
5. Accessories/ Special requirements: To be selected at the quarry
6. Method of fixing: Elements bolted and epoxy resined together - located on Supercedec rectangle - 1200mm x 1000mm

### **345 Proprietary Interpretation Panels**

---

1. Supplier: HDC or similar
  - 1.1. Product reference: Double pillar pedestal - A1
2. Material: Reclaimed oak legs
3. Approximate weight: 30kg
4. Approximate size: A1
5. Delivery/ Handling/ Storage requirements:
6. Method of fixing: Bolted into galvanised steel in-ground shoes

### **Installation**

#### **510 Concrete foundations generally**

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1. Standard: To BS 8500-2.
2. Concrete:
3. Admixtures: Do not use.
4. Foundation holes: Neat vertical sides.
5. Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

#### **515 Setting components in concrete**

---

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

#### **530 Preservative treated timber**

---

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

#### **540 Building in to masonry walls**

---

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

#### **560 Site painting**

---

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

Ω End of Section

## Q55 External decks, boardwalks and bridges

### Tendering - Not Used

### General

#### 110 Stone deck over Grave J2

---

1. Description: Decked path over Jewish Graves
2. Base preparation: Not required
3. Structure, other than surfacing: 150 x 150 x 900 granite sleepers
  - 3.1. Fasteners: Epoxy resin
4. Post setting: Sleepers set on earth
5. Surfacing: Granite slab - 900 x 900 x 30mm
  - 5.1. Method of attachment: As above
6. Guarding: Not required
7. Edge protection: Not required
8. Accessories:

### System performance - Not Used

### Products - Not Used

### 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.

#### 640 Setting components in earth

---

1. Holes: As small as practicable.
2. Components: Accurately positioned and securely supported.
3. Buried depth (minimum):
4. Earth fill: Well rammed as filling proceeds.

#### 665 Installation generally

---

1. Fasteners and methods of fixing: As 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 stairs, walkways or balustrades as temporary support or strutting for other work.

### **670 Installation of surfacing**

---

1. **Heading joints:** Kept to a minimum, and formed only as butt joints situated over joists.
2. **Length:** Each board must span not less than two bays between joists with joints in adjacent boards staggered.
3. **Gaps between boards:**

### **672 Installation of slip resistant products**

---

1. **Surfacing:** Sound and level. Prepared/ rebated for products.
2. **Fixing**
  - 2.1. **Location/ position:** In accordance with BS 8300-1
  - 2.2. **Method:** As manufacturer's recommendations
    - 2.2.1. **Centres:** As manufacturer's recommendations

### **Completion - Not Used**

Ω End of Section

## Z10 Purpose made joinery

To be read with preliminaries/ general conditions.

### 110 Fabrication

---

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

### 120 Cross section dimensions of timber

---

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

### 130 Preservative treated wood

---

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

### 140 Moisture content

---

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

### 250 Finishing

---

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

Ω End of Section

## Z20 Fixings and adhesives

### Products

#### 310 Fasteners generally

---

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

#### 320 Packings

---

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

#### 340 Masonry fixings

---

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

#### 350 Plugs

---

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

#### 360 Anchors

---

1. Types
  - 1.1. Expansion: For use in substrate strong enough to resist forces generated by expansion of anchor.
  - 1.2. Adhesive or chemical
    - 1.2.1. For use in substrate where expansion of anchor would fracture substrate.
    - 1.2.2. For use in irregular substrate where expansion anchors cannot transfer load on anchor.
  - 1.3. Cavity: For use where the anchor is retained by toggles of the plug locking onto the inside face of the cavity.

#### 370 Wood screws

---

1. Type
  - 1.1. Wood screws (traditional pattern).
    - 1.1.1. Standard: To BS 1210.
  - 1.2. Wood screws.
    - 1.2.1. Pattern: Parallel, fully threaded shank or twin thread types.
2. Washers and screw cups: Where required are to be of same material as screw.

#### 380 Miscellaneous screws

---

1. Type: To suit the fixing requirement of the components and substrate.
  - 1.1. Pattern: Self-tapping, metallic drive screws, or power driven screws.
2. Washers and screw cups: Where required to be of same material as screw.

## **390 Adhesives**

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

## **Execution**

### **610 Fixing generally**

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

### **620 Fixing through finishes**

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

### **630 Fixing packings**

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

### **680 Plugged countersunk screw fixing**

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1. Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
2. Plugs: Glue in to full depth of hole.
3. Finished level of plugs: Projecting above surface.

### **700 Applying adhesives**

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

Ω End of Section

## Z21 Mortars

### Cement gauged mortars - Not Used

### Lime:sand mortars

#### 310 Lime:sand mortar mixes

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

#### 320 Sand for lime:sand masonry mortars

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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.

#### 350 Storage of lime:sand mortar materials

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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

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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.

#### 400 Making hydraulic lime:sand mortars

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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



Specification created using NBS Chorus