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# Specification Document

50 Newton St, Manchester

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# Specification Document

## 1. INTRODUCTION

This document is for reference to repair works at the external elevations of 50 newton St, Manchester. This is to be used as part of consents applications and is not meant for construction issue. The document and proposed repairs are all based on initial condition survey and site visits. Please refer to the defects and repairs drawings package for further details.

The fabric must be worked on with great care, by specialists skilled in heritage work of the type outlined within this document. The expectation of the client is that workmanship and materials to be used will be of the highest quality.

## 2. CLEANING MASONRY

### 2.1. SCOPE OF WORK

To full extent of external masonry including terracotta and brickwork.

REMOVAL OF FITTINGS

• Timing: Before commencement of cleaning work.

• Disturbance to surfaces: Minimise.

• Items to be kept for reuse: Confirm with conservation architect following removal exercise.

PROTECTION

• Surfaces not designated for cleaning: Prevent damage, including marking and staining.

• Openings: Prevent ingress of water, cleaning agents and detritus.

• Temporary mechanical fastenings:

- In masonry: Locate in joints.

- In other surfaces: Seek instructions.

• Additional protection: Submit proposals .

COLD WEATHER

• Cleaning procedures using water: Do not use when air temperature is at or below 5°C. Protect damp surfaces from frost.

• Chemical cleaning agents: Do not use when surface temperatures are below those recommended by manufacturer.

CLEANING GENERALLY

• Operatives: Appropriately trained and experienced for each type of cleaning work.

Evidence of training: Submit on request.

• Control of cleaning: Confine cleaning processes and materials to designated areas. Prevent wind drift.

• Detritus: Remove regularly. Dispose of safely.

• Monitoring: Frequently check results of cleaning compared to approved trial samples. If results established by trials are not achieved, seek instructions.

• Modifications to cleaning methods and materials: Seek instructions.

RECORD OF CLEANING WORKS

• Written report: Record cleaning methods and procedures used for each type of surface and deposit.

- Content: Relevant attributes of cleaning methods used including:

    Equipment and settings.

    Dwell times.

    Number of applications.

    Ambient temperatures.

• Additional documentation: Survey before cleaning: Photos.

• Submission: At completion of cleaning works.

TRIAL SAMPLES

• Trial sample reference: Interior and exterior, 1m2 discrete locations. Following instruction to proceed from Architect.

- Surface: terracotta and brick.

- Location/ Size: 1m x 1m.

- Type of soiling: salt, cement and lime residue.

- Cleaning methods:- TBC following further investigation. Any cleaning method to be conservation approved. Potential cleaning method following further investigation to be – Chemical poultices; Plain poultices; Steam.

• Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.

## 2.2. PRODUCTS/EQUIPMENT

COMPATIBILITY OF CHEMICAL PRODUCTS

• Products: Compatible and produced by the same manufacturer.

STEAM CLEANING EQUIPMENT

• Manufacturer: Doff or equal approved. All cleaning methods to be conservation-approved.

- Product reference: To be confirmed. All cleaning methods to be conservation-approved.

CHEMICAL AGENTS- PACKS/ POULTICES

• TBC following futher investigations. All cleaning methods to be conservation-approved.

PLAIN POULTICES FOR SALTS/CEMENT/LIME RESIDUE REMOVAL

• • TBC following futher investigations. All cleaning methods to be conservation-approved.

## 2.3. APPLICATION

REMOVAL OF LOOSELY ADHERED DEPOSITS

• Timing: Before commencement of other cleaning methods.

• Surfaces: Prevent damage, including abrasion.

STEAM CLEANING

• Surfaces: Prevent damage, including abrasion.

• Equipment settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface.

TESTING pH VALUES FOR CHEMICAL CLEANING

All cleaning methods to be conservation-approved. Generally -

• pH indicator: To distinguish pH values between 1-14.

• Testing before cleaning:

- Clean rinsing water, wetted surfaces and joints: Test for pH. Record as 'control' values.

• Testing after water rinsing and neutralization:

- Wetted surfaces and joints: Record pH values.

- Acceptance criteria: Seek instructions.

CHEMICAL CLEANING

All cleaning methods to be conservation-approved. Generally -

• Surfaces: Prevent damage, including discolouration, bleaching and efflorescence.

• Product variables (including concentrations, dwell times and number of applications): Adjust for each surface to achieve optimum cleaning performance.

• Application: To wetted surfaces.

- Drying out: Prevent unless recommended otherwise by cleaning product manufacturer.

• Removal of chemicals and neutralization: As recommended by product manufacturer, including rinsing with clean water.

- Additional treatment: Where water rinsing is insufficient to neutralize surface, apply compatible neutralizing agent.

- Surfaces and joints: Minimise absorption of chemicals. Prevent damage, including abrasion.

PLAIN POULTICING

All cleaning methods to be conservation-approved. Generally -

• Surfaces: Prevent damage, including abrasion.

• Application: To wetted surfaces. Maintain contact with surfaces as poultice dries out.

• Poultice reinforcement: Hessian.

• Drying: Prevent excessively rapid or localized drying out.

• Spent poultice material: Do not reuse.

# 3. REPAIRING/RENOVATING/CONSERVING MASONRY

Note – Masonry refers to both terracotta and brickwork in this section.

## 3.1. GENERALLY/PREPERATION

SCOPE OF WORK

• Schedule: Refer to defects and repairs drawings package. Summary: Repair and replacement of terracotta blocks and brickwork as indicated on drawings and further investigation following high level access being available.

• Records of masonry to be repaired: Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, special features, etc.

• 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.

SITE INSPECTION

• Purpose: To confirm type and extent of repair/ renovation/ conservation work shown on drawings and described in survey report.

• Parties involved:- Contract administrator;- Contractor's representative;- Foreman mason; Structural engineer; Conservation architect.

• Timing: TBC.

• Instructions issued during inspection: To be confirmed by client.

## 3.2. WORKMANSHIP GENERALLY

POWER TOOLS

• Usage for removal of mortar: Not permitted.

PUTLOG SCAFFOLDING

• Usage: Not permitted.

PROTECTION OF MASONRY UNITS AND MASONRY

• 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.

• 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.

STRUCTURAL STABILITY

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

DISTURBANCE TO RETAINED MASONRY

• Retained masonry in the vicinity of repair works: Disturb as little as possible.

• Existing retained masonry: Do not cut or adjust to accommodate new or reused units.

• Retained loose masonry units and those vulnerable to movement during repair works: Prop or wedge so as to be firmly and correctly positioned.

WORKMANSHIP

• Skill and experience of site operatives: Appropriate for types of work on which they are employed.

- Documentary evidence: Submit to C3 Consultancy ltd. on request.

ADVERSE WEATHER •

General: Do not use frozen materials or lay masonry units on frozen surfaces.

• Air temperature: Do not bed masonry units or repoint: - 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.

- 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.

- In nonhydraulic lime:sand mortars in cold weather, unless approval is given.

• Temperature of the work: Maintain above freezing until mortar has fully set.

• Rain, snow and dew: Protect masonry by covering during precipitation, and at all times when work is not proceeding. • Hot conditions and drying winds: Prevent masonry from drying out rapidly.

• New mortar damaged by frost: Rake out and replace.

REMOVAL OF PLANT GROWTH FROM MASONRY

• Plants, root systems and associated soil/ debris: Carefully remove from joints, voids and facework.

•Removal of roots: Where growths cannot be removed completely without disturbing masonry seek instructions.

•Do not remove lichen.

•Use suitable biocides (multiple if necessary) specific to the purpose and use in accordance with manufacturer's recommendations. Protect adjacent areas of the building etc from unwanted spray. Biocide specification to be submitted for CA approval prior to commencement

•Hand tools only: loppers, handsaws, wood or plastic scrapers, natural and/or brass wire brushes.

CONTROL SAMPLES

• General: Complete an area of each of the following types of work, and arrange for inspection before proceeding with the remainder: Indent: allow for a 200x200x75mm section of brick to be directed by the architect on site for approval. Replacement terracotta block: Allow for 3nr 300x300x150mm decorative terracotta blocks, produced from moulds of existing blocks on the building to be directed by the architect on site for approval. Each block to provide different colour sample to match existing tone variance.

## 3.3. MATERIALS/PRODUCTION/ACCESSORIES

MATERIAL SAMPLES

Representative samples of designated materials: Submit before placing orders.

- Designated materials: Lime for mortar, sand for mortar, terracotta for replacements, bricks for replacements.

• Retention of samples: Unless instructed otherwise, retain samples on site for reference. Protect from damage and contamination.

RECORDING PROFILES

• Profiles: Take measurements from existing masonry units, as instructed, to allow accurate matching of replacements.

• Recording in situ: If there are no suitable joints to allow use of inserts, seek instructions.

• Drawings and templates: Prepare as necessary. Templates must be clearly and indelibly marked to identify use and location.

INSPECTION OF DRAWINGS, TEMPLATES, CASTS, ETC

• Timing: Before starting production of masonry units associated with the following items: New terracotta blocks for 50 Newton St

• Period of notice (minimum): One week.

BRICK

• Supplier: TBC.

• Type: New red brick to match existing - subject to approval of samples.

• Quality: Free from vents, cracks, fissures, discolouration, or other defects that may adversely affect strength, durability or appearance. Thoroughly seasoned, dressed and worked in accordance with shop drawings prepared by the supplier.

• Finish: to match existing.

TERRACOTTA UNITS

• Manufacturer/ Supplier: TBC to match existing profile. Samples to be submitted for conservation architect consideration.

• Quality: Free from imperfections that will adversely affect durability.

• Finish: To match existing historic finish. Samples to be submitted for conservation architect consideration.

• Colour/ Texture: To match submitted samples, and to match the existing terracotta which is a 'biscuit' colour with natural variations.

• Dimensions: Match dimensions of existing units within agreed manufacturing tolerances.

• Holes for fixings: Accurately aligned and positioned.

• Drain holes: Provide where there is any risk of water entering voids in exposed blocks in copings, cornices and projecting features, etc.

• Marking: Mark each unit clearly and indelibly on a concealed face to indicate position in the finished work.

TERACOTTA TILES OVER BLOCK INFILL

• Manufacturer/ Supplier: TBC to match profile of existing terracotta blocks. Samples to be submitted for conservation architect consideration.

• Quality: Free from imperfections that will adversely affect durability.

• Finish: To match adjacent terracotta blocks as existing.

• Colour/ Texture: To match submitted samples, and to match the existing terracotta which is a 'biscuit' colour with natural variations.

• Dimensions: Match dimensions of existing units within agreed manufacturing tolerances.

• Holes for fixings: Accurately aligned and positioned.

## 3.4. DISMANTLING/REBUILDING

DISMANTLING MASONRY FOR REUSE INCLUDING TERRACOTTA

• Masonry units to be reused: Remove carefully and in one piece.

- Treatment: Clean off old mortar, organic growths and dirt, and leave units in a suitable condition for rebuilding

- Identification: Mark each unit clearly and indelibly on a concealed face, indicating its original position in the construction. Transcribe makings to drawings/ photographs.

REBUILDING TERRACOTTA

• Replacement materials: Terracotta as specified above.

• Mortar: See mortar section

- Mix: Bedding Mix: To match existing following sample analysis.

- Sand source/ type: To match existing following sample analysis.

• Fixings: Stainless steel dowels if necessary.

• Rebuilding: To match previous face and joint lines, joint widths and bonding. Adequately bonded to retained work/ backing masonry, as appropriate.

• Joint surfaces: Dampen, as necessary, to control suction.

• Laying masonry units: On a full bed of mortar; perpend joints filled.

• Exposed faces: Remove mortar and grout splashes immediately.

• Joints: To match existing.

• Other requirements: Allow for trials and at least 5 number of biscuit samples to conservation architect approval.

## 3.5. REPLACEMENT AND INSERTIONS

PREPARATION FOR REPLACEMENT MASONRY

• Defective material: Carefully remove to the extent agreed. Do not disturb, damage or mark adjacent retained masonry.

• Existing metal fixings, frame members, etc: Report when exposed.

• Redundant metal fixings: Remove.

• 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.

REPLACEMENT OF MASONRY EXTERNALLY

• Terracotta: as specified above .

• Mortar: Refer to Mortar section of document.

- Mix: Bedding Mix: To match existing following sample analysis and trials.

- Sand source/ type: Bedding Mix: Quarry: To match existing following sample analysis and trials.

• Fixings: Stainless steel if necessary .

• Joints: To match existing adjacent original joints - struck .

• Other requirements: Colour and finish to match existing. Allow for variety of colours for new blocks to blend with existing building. Moulds will need to be taken of existing detailing for decorative elements. Moulds will then need to be blown up by 5% by hand modeling to allow for shrinkage in the kiln.

INSTALLING MASONRY INSERTS

• Pockets to receive inserts:- Cut out accurately. Undercut sides of pocket where necessary to provide space for bonding material.

- Adjust depth so that insert stands proud of existing masonry for finishing in situ.

- Clean out thoroughly.

• Inserts: Cut to the smallest rectangular shape necessary to replace the defective area and provide a firm seating. Install accurately and securely.

- Exposed faces: Keep clear of bonding material.

• Existing joint widths: Maintain. Do not bridge joints.

FILLING TERRACOTTA BLOCKS

• Voids in blocks: Fill with uncompacted, semidry, 1:1-2 bedding mortar:coarse aggregate mix, of uniform consistence, post trials and sample analysis.

• Coarse aggregate: Crushed terracotta, clay tiles or bricks, to approval.

BONDED DOWELS

• Dowels: Austenitic stainless steel.

• Adhesive: Epoxy resin or similar approved

• Holes for dowels: Suitably sized and accurately aligned in masonry background and in rear of replacement/ insert stone; clean and dry.

• Other requirements: Do not use adhesive to bond stones at joints unless instructed.

CORRODED METAL FIXINGS

• Removal: Cut out carefully, causing the least possible disturbance to surrounding masonry. Remove associated rust debris.

• Replacement: Compatible fixings.

REBUILDING BRICK AT WEST ELEVATION

• Replacement materials: Brick as specified above.

• Mortar: See mortar section

- Mix: Bedding Mix: To match existing following sample analysis.

- Sand source/ type: To match existing following sample analysis.

• Fixings: Crocodile ties or similar TBC.

• Rebuilding: To match previous face and joint lines, joint widths and bonding. Adequately bonded to retained work/ backing masonry, as appropriate.

• Joint surfaces: Dampen, as necessary, to control suction.

• Laying masonry units: On a full bed of mortar; perpend joints filled.

• Joints: To match existing.

• Other requirements: Allow for trials to conservation architect approval.

## 3.6. MORTAR REPAIRS

PREPARATION FOR MORTAR REPAIRS

• Repair area: Scribe area of masonry to be removed using straight horizontal and vertical lines parallel to joints. Where repair area abuts joints, maintain existing joint widths and do not bridge joints.

• Decayed masonry: Cut back carefully to a minimum depth of 20 mm to a sound background. Where the depth of removal exceeds 50 mm, seek instructions.

• Precautions: Do not weaken masonry by removing excessive material. Do not damage adjacent masonry.

• Top and vertical reveals of repair area: Undercut.

MORTAR REPAIRS

• Undercoats: As specified in mortar section.

- Mix: to be agreed with conservator on site through trial works to match site condition .

- Sand source/ type: TBC.

- Building up: In layers where necessary, each layer not exceeding 12 mm.

• Finishing coat: To match approved samples.

- Mix: To be agreed through trial process.

- Sand source/ type: TBC

.- Finished thickness: TBC.

- Finish: To sit comfortably with existing masonry finish.

• Reinforcement: Not required.

APPLYING MORTAR

• Surfaces to receive mortar: Clean, and free from dust and debris. Dampen to control suction.

• Applying coats: Build up in layers to specified thickness. Apply mortar firmly, ensuring good adhesion with no voids. Form a mechanical key to undercoats by combing or scratching to produce evenly spaced lines. Allow each layer to achieve an initial set before applying subsequent coats. Prevent each layer from drying out rapidly by covering immediately with plastics sheeting and/ or dampening intermittently with clean water.

• Finishing mortar coat: Form accurately to required planes/ profiles, and finish flush with adjacent masonry.

• Protection: Protect completed repairs from adverse weather until mortar has set.

## 3.7. CRACK REPAIRS

MORTAR REPAIR OF CRACKS TO TERRACOTTA

• Mortar: As specified in mortar section.

- Mix: to be agreed with conservator on site through trial works to match site condition .

- Sand source/ type: TBC.

• Preparation: Clean out cracks to remove debris, dust and dirt. Dampen recesses, as necessary, to control suction.

• Applying mortar: Press well into cracks so that they are fully filled. Ensure that mortar does not encroach upon exposed faces. Finish mortar flush with masonry face.

## 3.8. POINTING/REPOINTING

PREPARATION FOR REPOINTING

• Existing mortar: Working from top of wall downwards, remove mortar carefully, without damaging adjacent masonry or widening joints, to a minimum depth of twice joint thickness or 40mm.

- Loose or friable mortar: Seek instructions when mortar beyond specified recess depth is loose or friable and/ or if cavities are found.

• Raked joints: Remove dust and debris.

POINTING TO JOINTS

• Preparation of joints: Dampen joints, as necessary, to control suction.

• Mortar: As As specified in mortar section.- Mix: 1 part NHL3.5 to 1 part yellow brick dust. To be trialed before approval .- Sand source/ type: crushed yellow brick dust to approved sample. • Joints profile/ finish: Ruled to match existing adjacent.

POINTING WITH TOOLS/ IRONS

• General: Press mortar well into joints using pointing tools/ irons that fit into the joints, so that they are fully filled.

• Face of masonry: Keep clear of mortar. Use suitable temporary adhesive tape on each side of joints where necessary. Finish joints neatly.

BRUSHED FINISH TO JOINTS

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

# 4. LEAD SHEET COVERINGS/FLASHING

## 4.1. TYPES OF LEADWORK

FLASHING TO STRING COURSE AND COPINGS

• Substrate: Masonry blockwork. Exact composition TBC following access availability

• Underlay: Building paper or similar approved.

• Type of lead: Rolled to BS EN 12588.

- Thickness: Code 5 or similar approved as per LSTA guidelines.

• Joints: Welted.- laps of not less than 100 mm.

• Edge details: Drip secured with clip at front and back.

• Fixing: Copper clips at 300 centres.

• Accessories: TBC.

LEAD VALLEY GUTTERS

• Substrate: Exact composition TBC following access availability

• Underlay: Building paper or similar approved.

• Type of lead: Rolled to BS EN 12588.

- Thickness: Code 7 or similar approved as per LSTA guidelines.

• Joints: Welted.- laps of not less than 100 mm.

• Edge details: Drip secured with clip at front and back.

• Fixing: Copper clips at 300 centres.

• Accessories: TBC.

LEAD FLAT ROOF

• Substrate: Exact composition TBC following access availability

• Underlay: Building paper or similar approved.

• Type of lead: Rolled to BS EN 12588.

- Thickness: Code tbc following high level access. Exact code as per LSTA guidelines.

• Joints: Welted.- laps of not less than 100 mm.

• Edge details: Drip secured with clip at front and back.

• Fixing: Copper clips at 300 centres.

• Accessories: TBC.

## 4.2. WORKMANSHIP GENERALLY

WORKMANSHIP GENERALLY

• Standard: To BS 6915 and latest edition of 'Rolled lead sheet. The complete manual' published by the Lead Sheet Association.

• Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.

• Operatives: Trained in the application of lead coverings/ flashings. Submit records of experience on request.

• Preforming: Measure, mark, cut and form lead prior to assembly wherever possible.

• Marking out: With pencil, chalk of crayon. Do not use scribers or other sharp instruments without approval.

• Bossing and forming: Straight and regular bends, leaving sheets free from ripples, kinks, buckling and cracks.

• Solder: Use only where specified.

• Sharp metal edges: Fold under or remove as work proceeds.

• Finished work: Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.

- Protection: Prevent staining, discolouration and damage by subsequent works.

LEADWELDING

• In situ lead welding: Is permitted, subject to completion of a 'hot work permit' form and compliance with its requirements.

LEAD SHEET

• Production method:- Rolled, to BS EN 12588, or

- Machine cast and BBA certified, or - Sand cast, from lead free from bitumen, solder, other impurities, inclusions, laminations, cracks, air, pinholes and blowholes; to code thicknesses but with a tolerance (by weight) of ±10%.

• Identification: Labelled to show thickness/ code, weight and type.

CONTROL SAMPLES

• General: Complete areas of the finished work, and obtain approval of appearance before proceeding:

• Size: TBC following high level survey access.

• Location: All copings and string courses.

SUITABILITY OF SUBSTRATES

• Condition: Dry and free of dust, debris, grease and other deleterious matter.

LAYING UNDERLAY

• Handling: Prevent tears and punctures.

• Laying: Butt or overlap jointed onto a dry substrate.

- Fixing edges: With copper or stainless steel staples or clout nails.

- Do not lay over roof edges but do turn up at abutments.

- Wood core rolls: Fixed over underlay.

- Protection: Keep dry and cover with lead at the earliest opportunity.

## 4.3. FIXING LEAD

FIXINGS

• Nails to timber substrates: Copper clout nails to BS 1202-2, or stainless steel (austenitic) clout nails to BS 1202-1.

- Shank type: Annular ringed, helical threaded or serrated.

- Shank diameter: Not less than 2.65 mm for light duty or 3.35 mm for heavy duty

.- Length: Not less than 20 mm or equal to substrate thickness.

• Screws to concrete or masonry substrates: Brass or stainless steel to BS 1210, tables 3 or 4.

- Diameter: Not less than 3.35 mm.- Length: Not less than 19 mm.

- Washers and plastic plugs: Compatible with screws and lead.

• Screws to composite metal decks: Self tapping as recommended by the deck and lead manufacturer/ supplier for clips.

CLIPS

• Manufacturer: Submit proposals.

• Material:- Lead clips: Cut from sheets of same thickness/ code as sheet being secured.

- Copper clips: Thickness: 0.70 mm. Temper: BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere; dipped in solder if exposed to view.

- Stainless steel clips: Thickness: 0.71 mm. Grade: BS EN 10088, 1.4301(304) terne coated if exposed to view.

• Dimensions:- Width: 50 mm where not continuous.

- Length: To suit detail.

• Fixing clips: Secure each to substrate with either two screw or three nail fixings not more than 50 mm from edge of lead sheet. Use additional fixings where lead downstands exceed 75 mm.

• Fixing lead sheet: Welt clips around edges and turn over 25 mm.

## 4.4. JOINTING LEAD

FORMING DETAILS

• Method: Bossing or lead welding except where bossing is specifically required. Exact method TBC following high level access being available.

• Lead welded seams: Neatly and consistently formed.

- Seams: Do not undercut or reduce sheet thickness.

- Filler strips: Of the same composition as the sheets being joined.

- Butt joints: Formed to a thickness one third more than the sheets being joined.

- Lap joints: Formed with 25 mm laps and two loadings to the edge of the overlap.

• Bossing: Carried out without thinning, cutting or otherwise splitting the lead sheet.

- Details where bossing must be used: Not applicable.

WELTED JOINTS

• Joint allowance: 50 mm overlap and 25 mm underlap.

• Copper or stainless steel clips: Fix to substrate at not more than 450 mm centres.

• Overlap: Welt around underlap and clips and lightly dress down.

PATINATION OIL

• Manufacturer: Submit proposals.- Sample analysis of existing required following high level access.

Product reference: Submit proposals.

• Location: All  leadwork.

• Application: As soon as practical, apply a smear coating to lead, evenly in one direction and in dry conditions.

CORNICE COVERINGS

Form from sheets not more than 1500mm long and double welt ends incorporating copper fixing clips, turn up 25mm at back of 25x25mm groove, fix with lead wedges. Insert strip of masking tape to separate underside of mortar pointing from lead. Point in 1:3 NHL3.5 hydraulic lime:approved coarse sand mortar. Welt front edge and turn down to form drip and clip at minimum 500mm centres

REPLACEMENT OF EXISTING LEAD

Must always be carried out in small sections at a time to reduce the risk of weather damage to a minimum. Provide and maintain temporary waterproof coverings to ensure that there is no damage to the existing base and building.

CLIP FIXINGS

Fix copper/lead clips to timber with copper clout nails to BS 1202 Part 2:1974, table 2, with annular ring, helical ring or serrated shank, length not less than 20 mm, shank diameter not less than 3.35 mm and head diameter not less than 8 mm.

Fix copper/lead clips to concrete, brickwork and stonework with brass or stainless steel screws to (superseded) BS 1210:1963, table 3, length not less than 19 mm and diameter not less than 3.35 mm, with washers of the same material and plastics plugs of length and diameter to suit screws.

Fix stainless steel clips to timber with stainless steel (austenitic) clout nails with annular ring, helical ring or serrated shank, length not less than 19 mm, shank diameter not less than 2.65 mm and head diameter not less than 8 mm.

Fix stainless steel clips to concrete, brickwork and stonework with stainless steel screws to (superseded) BS 1210:1963, table 3, length not less than 19 mm and diameter not less than 3.35 mm, with washers of the same material and plastics plugs of length and diameter to suit screws.

# 5. PAINT/CLEAR FINISHES

## 5.1. COATING SYSTEMS

PAINT FOR TIMBER WINDOWS AND DOORS

• Manufacturer: TBC.

- Product reference: To match existing following sample analysis.

• Surfaces: Existing timber doors and windows.

- Preparation: Remove existing paint as specified below with Infrared Lamp.

• Colour: TBC, to match historic.

• Undercoats: TBC, to match historic.

• Finishing coats: TBC, to match historic.

- Slip resistance value - water wet (minimum): N/A.

PAINT FOR EXISTING AND NEW METAL FRAMES AT WINDOWS AND METALWORK GENERALLY INCLUDING VENTS

• Manufacturer: TBC.

- Product reference: Linseed Paint or similar TBC following sample analysis.

• Surfaces: Existing and new cast iron.

- Preparation: Remove existing paint as specified below with Infrared Lamp.

Colour: TBC, to match historic.- Slip resistance value - water wet (minimum): N/A.

## 5.2. GENERALLY

HANDLING AND STORAGE

• Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.

• Materials from more than one batch: Store separately. Allocate to distinct parts or areas of the work.

COMPATIBILITY

• Coating materials selected by contractor:

- Recommended by their manufacturers for the particular surface and conditions of exposure.

- Compatible with each other.

- Compatible with and not inhibiting performance of preservative/fire retardant pretreatments.

SURFACES NOT TO BE COATED • Terracotta, lead, brick, glass, door ironmongery.

## 5.3. PREPERATION

PREPARATION GENERALLY

• Standard: In accordance with BS 6150.

• Refer to any pre-existing CDM Health and Safety File.

• Refer to CDM Construction Phase Plan where applicable.

• Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.

• Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.

• Substrates: Sufficiently dry in depth to suit coating.

• Efflorescence salts: Remove.

• Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.

• Surface irregularities: Remove.

• Joints, cracks, holes and other depressions: Fill flush with surface, to provide smooth finish.

• Dust, particles and residues from preparation: Remove and dispose of safely.

• Water based stoppers and fillers:- Apply before priming unless recommended otherwise by manufacturer. - If applied after priming: Patch prime.

• Oil based stoppers and fillers: Apply after priming.

• Doors, opening windows and other moving parts:- Ease, if necessary, before coating.- Prime resulting bare areas.

EXISTING IRONMONGERY

• Refurbishment: Remove old coating marks. Clean and polish.

PREVIOUSLY COATED SURFACES GENERALLY

• Preparation: In accordance with BS 6150, clause 11.5.

• Contaminated or hazardous surfaces: Give notice of:

- Coatings suspected of containing lead.

- Substrates suspected of containing asbestos or other hazardous materials.

- Significant rot, corrosion or other degradation of substrates.

• Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.

• Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.

• Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.

• Alkali affected coatings: Completely remove. •

Retained coatings:

- Thoroughly clean to remove dirt, grease and contaminants.

- Gloss coated surfaces: Provide key.

• Partly removed coatings:

- Additional preparatory coats: Apply to restore original coating thicknesses.

- Junctions: Provide flush surface.

• Completely stripped surfaces: Prepare as for uncoated surfaces.

ORGANIC GROWTHS

• Dead and loose growths and infected coatings: Scrape off and remove from site.

• Treatment biocide: Apply appropriate solution to growth areas and surrounding surfaces.

• Residual effect biocide: Apply appropriate solution to inhibit re-establishment of growths.

## 5.4. APPLICATION

COATING GENERALLY

• Application standard: In accordance with BS 6150, clause 9.

• Conditions: Maintain suitable temperature, humidity and air quality during application and drying.

• Surfaces: Clean and dry at time of application.

• Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.

• Overpainting: Do not paint over intumescent strips or silicone mastics.

• Priming coats:- Thickness: To suit surface porosity.

- Application: As soon as possible on same day as preparation is completed.

• Finish:- Even, smooth and of uniform colour.- Free from brush marks, sags, runs and other defects.- Cut in neatly.

• Doors, opening windows and other moving parts: Ease before coating and between coats.

HANDLING AND STORAGE

Coating materials: deliver in sealed containers, each clearly labelled to show:

- Maker's name, initials or recognised trade mark.

- Title and specification number.

- Whether primer, undercoat or finishing coat.

- Whether for internal or external use, where appropriate.

- Colour reference, from BS 4800:2011 where appropriate.

- Method of application.

- Batch number and date of despatch or re-test.

- Detailed instruction for storage and use if highly flammable or toxic.

- Statutory markings.

Wherever possible materials must be from one manufacturing batch. Inform the CA if materials from more than one batch are to be used, store separately and allocate to distinct parts or areas of the work. Store materials in accordance with manufacturer's recommendations. Use in order of delivery and before expiry of any shelf life date.

ANCILLARY SURFACES

The descriptions of areas to be coated given in schedules, etc. are of necessity simplified. All ancillary exposed surfaces and features are to be coated to match similar or adjacent materials or areas except where a fair faced natural finish is required or items are completely prefinished. In cases of doubt obtain instructions before proceeding.

OFF SITE WORK

All off site preparation and coating to be carried out under cover in a suitable environment with adequate lighting. Store all items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage, properly stacked with spaces to permit air circulation and prevent sticking of surfaces.

PROTECTION

Adequately protect internal and external surfaces, fixtures and fittings which are not to be coated, by covering with dust sheets, masking or other suitable materials. Exhibit 'Wet paint' signs and provide barriers where necessary to protect other operatives and the general public, and to prevent damage to freshly applied coatings.

SAMPLES FOR RETENTION BY EMPLOYER

Provide wet samples in fully identified half litre air-tight containers of all specially mixed paints that are used in works

PREPARATION GENERALLY

To BS 6150:2006 unless otherwise specified or shown on drawings.

Materials used in preparation must be types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared. Prevent or control exposure of operatives to dust, vapour and fumes exceeding occupational exposure standards set in the current Health and Safety Executive (HSE) document EH40.

Substrates must be sufficiently dry in depth to suit the coating to be applied.

Remove but do not wet efflorescence salts from surfaces. Repeat removal if efflorescence recurs.

Clean off dirt, grease and oil from surfaces. If contamination of surfaces/substrates has occurred, obtain instructions before proceeding.

Smooth surface irregularities. Fill joints, cracks, holes and other depressions with stoppers/fillers worked well in and finished off flush with surface.

Abrade to a smooth finish.

Apply oil based stoppers/fillers after priming. Apply water based stoppers/fillers before priming unless recommended otherwise by manufacturer. Patch prime water based stoppers/fillers when applied after priming.

Remove dust and particles from dry abrasive preparation of surfaces with vacuum cleaner. Remove residues from wet preparation of surfaces by rinsing with clean water and wiping dry.

Ensure that doors, opening windows, etc., are 'eased' as necessary before coating. Prime any resulting bare areas. Provide sufficient clean dust sheets and coverings to protect floors and all other surfaces. Exhibit 'Wet Paint' signs and provide protective barriers as required. Use only non-ferrous bristle brushes to clean surfaces. Remove all dry dust by vacuum. Remove wet abrasion dust by washing with clean water.

APPLICATION OR REMOVAL OF LEAD PAINT

Complete part 1 of the Declaration on Intended Supply and Use of Lead Carbonate or Lead Sulphate in Paint, and before removing or applying any such paint ensure that three weeks have elapsed following the service of the completed Declaration to the competent regulating authority.

Comply with the relevant health and safety regulations referred to in the notes relating to the Declaration when removing or applying lead paint.

PREVIOUSLY COATED SURFACES - BURNING OFF WITH INFRARED LAMP

Risk assessment and method statement: Prepare, and obtain approval before commencing work.

Do not carry out any Hot Work unless the CA or Clerk of Works has issued a relevant Hot Work Permit as clause 460D.

Comply with all requirements set out in the Hot Work Permit. Do not use blow lamp on clear finished coatings or resinous surfaces.

Adjacent areas: Protect from excessive heat and falling scrapings. Removed coatings: Dispose of safely.

Equipment: Speedheater Cobra Infrared Lamp from Oricalcum or equal approved.

# 6. DOOR/WINDOW IRONMONGERY

## 6.1. GENERAL

SAMPLES

• General: Before placing orders with suppliers submit labelled samples of the following: window and door catches and handles

- Conformity: Retain samples on site for the duration of the contract. Ensure conformity of ironmongery as delivered with labelled samples.

# 7. RAINWATER GOODS

## 7.1. OVERHAULING EXISTING RAINWATER GOODS

GENERAL

Record positions of gutters and downpipes to be refurbished and re-decorated. All cast iron rainwater and drainage goods are to be handled carefully and re-decorated.

Existing cast iron rainwater goods are to be cleaned to ensure a sound, clean, dry surface and free from dirt, grease and any other contamination. Any cracks, holes or open joints are to be filled with appropriate exterior filler. Allow for removal of rust or weak paint back to bare metal. Small areas of corrosion to be removed using a bronze wire brush and sandpaper before repainting. Do not use mechanical tools.

FINISH

Exact RAL colour TBC. Paint to match existing finish to rainwater goods. All surfaces to be prepared in accordance with manufacturer's recommendations.

## 7.2. REPAIR TO EXISTING ALUMINUM/PLASTIC RAINWATER GOODS

GENERAL

Record positions of gutters and downpipes to be removed. All aluminum/plastic rainwater and drainage goods are to be carefully dismantled and removed for full overhaul. Any new fixings to be in stainless steel and bobbins be in hardwood timber using the existing fixing points..

Reinstate down pipes and gutters on completion of repairs, re-using original fixing holes into masonry where possible.

MANUFACTURER

Contractor to submit proposals for conservation architects approval. Design and profile of new cast iron rwg to match existing.

FINISH

Exact RAL colour TBC. Paint to match existing finish to rainwater goods. All surfaces to be prepared in accordance with manufacturer's recommendations.

## NEW CAST IRON RAINWATER GOODS

GENERAL

Including pipework, spigots, sockets, hoppers, brackets etc.

STANDARD

To BS 416-1.

MANUFACTURER

Contractor to submit proposals for conservation architects approval. Design and profile of new cast iron rwg to match existing.

BRACKETS –

Profile to match existing

FIXINGS –

Cast iron to match existing profiles

FINISH

Exact RAL colour TBC. Paint to match existing finish to rainwater goods. All surfaces to be prepared in accordance with manufacturer's recommendations.

## 7.3. EXECUTION

PREPARATION

• Work to be completed before commencing work specified in this section:

- Below ground drainage. Alternatively, make temporary arrangements for dispersal of rainwater without damage or disfigurement of the building fabric and surroundings.- Painting of surfaces which will be concealed or inaccessible.

INSTALLATION GENERALLY

• Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur. • Plastics and galvanized steel pipes: Do not bend.

• Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.

• Protection:- Fit purpose made temporary caps to prevent ingress of debris.- Fit access covers, cleaning eyes and blanking plates as the work proceeds.

FIXING PIPEWORK

• Pipework: Fix securely, plumb and/ or true to line.

• Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.

• Externally socketed pipes and fittings: Fix with sockets facing upstream. • Additional supports: Provide as necessary to support junctions and changes in direction.

• Vertical pipes: - Provide a loadbearing support at least at every storey level.

- Tighten fixings as work proceeds so that every storey is self supporting.

- Wedge joints in unsealed metal pipes to prevent rattling.

• Wall and floor penetrations: Isolate pipework from structure.

- Pipe sleeves: As section P31.

- Masking plates: Fix at penetrations if visible in the finished work.

• Expansion joint pipe sockets: Fix rigidly to buildings. Elsewhere, provide brackets and fixings that allow pipes to slide.

## 7.4. COMPLETION

TESTING GENERALLY

• Dates for testing: Give notice.

- Period of notice (minimum): 7days.

• Preparation:- Pipework: Complete, securely fixed, free from defects, obstruction and debris before testing.

• Testing:- Supply clean water, assistance and apparatus.- Do not use smoke to trace leaks.

• Records: Submit a record of tests.

MAINTENANCE INSTRUCTIONS

• General: At completion, submit printed instructions recommending procedures for maintenance of the rainwater installation, including full details of recommended inspection, cleaning and repair procedures.

IMMEDIATELY BEFORE HANDOVER

• Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: Remove. Do not sweep or flush into the rainwater system.

• Access covers, rodding eyes, outlet gratings and the like: Secure complete with fixings.

# 8. MORTARS

## 8.1. GENERAL NOTES

ADMIXTURES GENERALLY

Do not use in mortar unless specified or approved. Do not use calcium chloride or any admixtures containing calcium chloride. Admixtures, if specified, to be to BS EN 934 3:2003 325D

SAND FOR CONSERVATION WORK

Clean, to BS EN 13139:2002 Aggregate to match existing in colour, texture, grain size and grading. If necessary source from variety of suppliers. Soft building sand may be added to achieve required colour or to improve workability up to 50% of total volume of sand.

LIMESTONE DUST

To be clean, free from silt and organic matter, of appropriate colour and texture to match existing mortar. Where stone dust constitutes more than 25% of aggregate used in mix particle size is to be graded. Store in dry.

POINTING SAMPLES TO MATCH EXISTING WORK

Prepare up to twelve sample tablets of varying mortar mixes to match colour, texture and profile of existing for approval. Prepare samples in advance of site visit so that they can be inspected when dry. Execute up to three sample areas of pointing in approved location(s) using approved mix. Retain approved pointing sample for reference during the contract.

# 9. SLATE

## 9.1. RECLAIMED SLATES

SUPPLIER: Contractors choice – Submit samples for approval

PRODUCT: Contractors choice – Submit samples for approval

Slates to be sorted to match the colour, texture and thickness of the existing reclaimed slates being re-used on each individual roof slope.

SAMPLES: Provide representative samples of reclaimed slates to be used for each roof slope for approval by the Architect.

## 9.2. SAMPLES:

Of each type of slate for approval before ordering. Keep samples on site for reference.

Delivered slates are to match approved samples. Slates to be sorted to match the colour, texture and thickness of the existing reclaimed slates being re-used on each individual roof slope.

## 9.3. WORKMANSHIP

Keep slates clean and dry until laid.

SETTING OUT: To give true lines and regular appearance, fitting neatly at all edges, junctions and features.

Fix slate roofing to make the whole sound and weathertight at the earliest opportunity.

GUTTERS AND PIPES: Keep free of debris. Clean out at completion.

## 9.4. REMOVE EXISTING SLATING

Extreme care is to be taken during the stripping of the existing slates to remove as many as possible without damage. A method statement is to be submitted for approval, followed by a trial area of stripping on site to test the methodology. Subsequent stripping in accordance with the agreed methodology is to be closely monitored by the main contractor to ensure the maximum number of slates are available for re-use.

Ladders and roof scaffold systems to have protective pads at all points of contact with the slate to ensure safe access to roof pitches without damaging slates.

Where slates are nailed, carefully remove nails using pads to protect existing slates, without splitting slates or enlarging nails holes. Do not lever out slate nails by lifting the tails of slates.

GENERAL

Carefully remove slates, battens, underlay, etc. with minimum disturbance of adjacent retained slating and being careful to minimise slate loss.

Set aside for reuse later on the same roof slope.

## 9.5. SORTING, SELECTING AND STACKING

Record slates from each course and roof for potentially re-using in the same course on same roof.Ladders and roof scaffold systems to have protective pads at all points of contact with the slate to ensure safe access to roof pitches without damaging slates.

Discard any defective slates that do not 'ring' when tapped with a hammer or are showing signs of delamination or other defects.

Discard intrusive slates of different type, colour or thickness.

Discard slates that have softened, delaminated or cracked through their whole length; softening, delamination and other minor damage at the head, tail or edges may be re-dressed using hand tools.

The sound slates are to be carefully cleaned, sorted to length and thickness and arranged instacks for each course, the slates being stacked vertically on their heads (i.e. nail hole downwards). The length of each slate should be measured from the nail hole.

UNDAMAGED SLATE

Set aside for reuse

Slates should be re-dressed and re-holed where required. Excessively wide nail holes or nail holes which are not going to be used and which will compromise the weathertightness of the slate should be dressed out.

## 9.6. SUITABILITY OF EXISTING SUBSTRUCTURE

Before commencement of slating, survey supporting structure/base, checking line, level and fixing points. Report immediately to the conservation architect if the structure/base is unsuitable to receive slating.

## 9.7. SLATE FIXING

SETTING OUT

Lay slates with an even overall appearance with slightly open (maximum 5 mm) butt joints. Align tails.

SLATE THICKNESS

Consistent in any one course. Lay with thicker end as tail.

END OF COURSES

Use extra wide slates to maintain bond and to ensure that cut slates are as large as possible. Do not use slates less than 150 mm wide.

TOP COURSE

Head-nail short course to maintain gauge.

FIXING

Centre nail each slate twice through countersunk holes 20-25 mm from side edges.

NAILS

Copper clout to BS 1202-2 or aluminum clout to BS 1202-3.

SLATE WIDTHS GENERALLY

Do not use slate widths less than 150mm other thanas an 'in-hand' and where doing so ensure that side lap is maintained at all times and in accordance with BS5534

# 10. WINDOWS/ROOFLIGHTS/DOORS

## 10.1. WINDOWS

Window repair to elevations as per repair drawings.

TIMBER

TBC following sample analysis. Contractor to submit samples to conservation architect for approval.

Obtained from well-managed forests and/ or plantations

STANDARD

To BS EN 14351-1

MANUFACTURER

Contractor to submit samples to conservation architect for approval. Conservation-approved products only.

FRAME

Timber. Paint finish TBC following sample analysis. Exact RAL colour TBC.

PRODUCT

TBC following sample analysis. Contractor to submit samples to conservation architect for approval.

THERMAL PERFORMANCE

Manufacturers standard to appropriate U value.

GLAZING DETAILS

TBC following opening up. To match historic as closely as possible.

## 10.2. ROOFLIGHTS

STANDARD

To BS EN 14351-1

MANUFACTURER

Contractor to submit samples to conservation architect for approval. Conservation-approved products only.

FRAME

To match existing following access.

PRODUCT

TBC following sample analysis. Contractor to submit samples to conservation architect for approval.

THERMAL PERFORMANCE

Manufacturers standard to appropriate U value.

GLAZING

Conservation rooflight or similar approved.

## 10.3. DOORS

Door repair to elevation at ground floor.

TIMBER

TBC following sample analysis. Contractor to submit samples to conservation architect for approval.

Obtained from well-managed forests and/ or plantations

STANDARD

To BS EN 14351-1

MANUFACTURER

Contractor to submit samples to conservation architect for approval. Conservation-approved products only.

FRAME

Timber. Paint finish TBC following sample analysis. Exact RAL colour TBC.

PRODUCT

TBC following sample analysis. Contractor to submit samples to conservation architect for approval.

THERMAL PERFORMANCE

Manufacturers standard to appropriate U value.

GLAZING DETAILS

TBC following opening up. To match historic as closely as possible.

METAL PAINT

Exact RAL colour TBC following sample analysis. Colour to match existing. Contractor to submit 8 no. Samples of the finishing coat to conservation architects approval.

## 10.4. GLAZING GENERALLY

GENERALLY

In accordance with BS 6262 series.

INTEGRITY

Wind and watertight under all conditions. Make full allowance for deflections and other movements.

GLASS –

STANDARDS – Generally to BS 952

MANUFACTURER

Contractor to submit samples to conservation architect for approval. Conservation-approved products only.

PRODUCT

TBC following sample analysis. Contractor to submit samples to conservation architect for approval.

THERMAL PERFORMANCE

Manufacturers standard to appropriate U value.

GLAZING DETAILS

TBC following opening up. To match historic as closely as possible.