

Countryside Consultants

Project: The Shambles Market, Hexham.

Client: Northumberland County Council

MATERIALS & WORKMANSHIP SPECIFICATION



The existing roof soffit

Revision :1

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NOTE TO TENDERERS

Where manufacturers and products have been specified within the tender documents alternative 'equal or approved' products may be offered. Please refer to Appendix E Preliminaries - A30:531 Substitution of Products. You must have obtained approval prior to your tender submission for any equal and approved products and detailed this within your tender submission.

1.0 **SLATE PITCHED ROOFS**

1.1 **Westmorland Slates**

The existing slate has been on this roof for approximately 110 years. The nails holding the slates on the roof have come to the end of their useful life.

Many patch repairs have been made in recent decades and re-roofing is now essential.

- It is fixed with a two nails at the shoulder of the slate in to the sarking of redwood boards which are approximately 22mm thick.
- There are no battens or counter battens.
- There is an small tilting lath at the eaves
- The slate dimensions are: 250mm to 275mm high and varying widths, and the head lap is: approx. 50mm

1.2 **Stripping of Existing Slates**

Carefully strip the existing slates. 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 slate. Carefully remove nails using pads to protect existing slates, without splitting slates or enlarging nail holes. Do not lever out slate nails by lifting the tails of slates. Carefully remove slates, underlay etc., being careful to minimise slate loss. Slates should be selected to comply with BS EN 12326. Discard any defective slates that do not 'ring' or are showing signs of delamination or other defects. Discard intrusive slates of different type, colour, or thickness. 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. Carefully stack remaining sound slates into timber crates for later use on the project.

1.3 **Re-use of Existing Slate**

Re-slate these roofs with the slates reclaimed from the existing roofs, selected and re-dressed in strict accordance with the above methodology, laid in diminishing courses from eaves to ridge in accordance with BS 5534:2014, to a 50mm headlap. Sidelap will vary with slate length and should be in accordance with BS 5534:2014, 5.5.4.3. Centre-fix each slate through countersunk holes 20-25mm from side edges, with two copper nails to BS 1202:Part 2 of 3.35mm shank diameter and length to provide adequate withdrawal resistance and not less than 15mm penetration into the batten. Lay with an even overall appearance, with slightly open butt joints and tails of slates aligned. Use slates of consistent thickness in any one course laid with the thicker end as the tail. Use extra wide slates at ends of courses to maintain bond and ensure that cut slates are as large as possible.

1.4 **Salvaged Slate**

A percentage of the existing slate will be damaged and not suitable for reuse. Obtain salvaged slate to match the existing in all respects from a reputable salvage yard who can provide a record of the source of the salvaged slate. Provide samples for approval by the client and arrange to visit salvage yard with the architect so that it can be confirmed that sufficient material of a consistent standard is available.

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1.5	New Replacement Slate	
	If sufficient suitable salvaged slate is not available, re-slate the east and west pitched roofs with new Westmorland green extra strong grade slates, cut to match the existing and laid in matching courses.	
1.6	Shoulder Fixing Existing, of All Slate	
	Fix each slate through a countersunk hole 20-25mm from the edge, with two copper nails to BS 1202:Part 2, of 3.35mm shank diameter and length to provide adequate withdrawal resistance and not less than 20 mm penetration into the sarking. Lay with an even overall appearance, with slightly open butt joints and tails of slates aligned. Use slates of consistent thickness in any one course laid with the thicker end as the tail. Use extra wide slates at ends of courses to maintain bond and ensure that cut slates are as large as possible.	
1.7	Timber Eaves Tilt Fillet	
	The existing tilt is too small at approximately 12 mm thick and 35mm wide. Replace with a tapered drip dressed from 25 thick x 75mm wide mahogany from a sustainable source.	
1.8	Breathing Sarking Membrane	
	<p>Currently not fitted but priced so it could be fitted if found necessary. A membrane which is air and vapour permeable is required. It is to be BAA certified and comply with the following properties:</p> <p>Reaction to Fire, EN 13501-1, Class E. Water Vapour Resistance SD, EN 12572, 0.013 (+/- 0.005m). Vapour Resistance, EN 12572, 0.065 MNs/g. Air Permeability, EN 12114, 34.4 m³/m²/hr @ 50Pa. Water Penetration, EN 1928, Class W1 (before ageing). Water Penetration, EN 1928, Class W1 (after ageing).</p> <p>To be used strictly in accordance with the manufacturer's recommendations. To be laid directly over the existing sarking boards. Fix down with sufficient copper nails to hold it in place until the slates are fixed in place.</p> <p>Manufacturer: A Proctor Group Ltd. Product reference: Roofshield Manufacturer: Kingspan. Product reference: Nilvent Manufacturer: Cromar. Product reference: Vent 3</p>	
1.9	Eaves Carrier	
	<p>Currently not fitted but priced so it could be fitted if found necessary. Semi-ridged preformed flashings that are to be dressed into the gutters and under the sarking membrane.</p> <p>Dimensions: 150 long (approx), 400mm wide and 1.5mm thick. Material: UV stable polypropylene. Installation: Install strictly in accordance with the manufacturer's recommendations . To provide support for the bottom edge roofing felt and to eliminate the problem of rotting felt caused by the sagging and retaining of water by the felt at the eaves. The breathable roofing membrane should not be draped into the gutter, as it is not UV stable and will become brittle and fall away over a short space of time. Manufacturer: contractors' choice.</p>	

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2.0	LEAD SHEET FLAT ROOF	
2.1	Conservation Strategy	
	The existing lead sheet material is not showing any signs of leaking and is doing its job well. The lead trays are to be lifted so the timber board substrate can be inspected and repaired. All the fixings are to be replaced with new copper fixing nails clips and straps.	
2.2	New Materials	
	Lead Sheet Manufacturer: contractors' choice. Copper fixing suppliers: contractors' choice. Lead thickness: to match existing.	
2.3	Workmanship	
	All the work is to be conducted by a suitably qualified lead worker. Lead Sheet Training Academy: Lead Skills Level 1 or higher. Your lead worker's c.v. is to be submitted with your tender. All works to be conducted strictly in accordance with the details defined in 'Lead Sheet for Building' published by the Lead Development Agency. Prior to the lead work being commenced on site. Samples of welding craftsmanship, using samples of new lead, are to be presented to the architect for approval.	
2.4	Lead Welding Safety	
	Any welding of patch repairs is to be conducted off the building on an isolated workbench so there is no risk of fire spreading to the building.	

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3.0	TIMBER WORK TO ROOF STRUCTURE	
3.1	Existing Timber	
	<p>Description: All the existing timber is believed to be Scandinavian Redwood dating from the 1760s. The structure consists of sarking boards on purlins on trusses on a perimeter beam which is protected on the external face by a fascia board.</p> <p>Missing support blocks: The lowest purlin performs as a wall plate which is supported off above the ring beam by wooden blocks. Many of the wooden blocks are missing and need to be replaced.</p> <p>Cleaning exposed surfaces: All to be carefully cleaned using a DOFF steam cleaning system to remove the guano, detritus and dirt without removing the patina of age.</p> <p>Cleaning painted surfaces: All existing paint is to be removed using the DOFF steam cleaning system.</p> <p>Cleaning concealed surfaces: All to be brushed down with a stiff plastic bristle brush and vacuumed clean.</p> <p>Observation: Any damage, rot or decay observed by the contractor during the cleaning process is to be recorded and reported to the architect and structural engineer.</p> <p>Existing damage: We are aware that three of the trusses have broken connections. Please refer to the structural engineer's drawings for the details of repair.</p>	
3.2	New Timber	
	<p>Repairs will be minimised and conducted in new wood. They cannot be fully defined until the roofs are lifted and the top surfaces of the timbers are exposed for inspection by the structural engineer and architect.</p> <p>Any new timber will be C24 structural grade Scandinavian Redwood, sawn and finished by hand using a plane, to match the existing as closely as possible.</p> <p>Any new fixing bolts, screws, or cleat plates are to be stainless steel.</p> <p>New timber to match existing is needed to carry the proposed bird mesh, see Drawing D1.</p>	
3.3	Timber Treatment	
	<p>Following cleaning of existing timber and the insertion of the new timber, it may be necessary to darken the colour of the new timber with a translucent wood dye.</p> <p>Manufacturer: Morrells Reference: Water-based stain. Colour: Jacobean Oak or equivalent equal and approved product.</p>	
	<p>Allow for treating all the timber with one sprayed coat of clear timber preservative. If no significant infestation of wood worm is found, this item will be omitted.</p> <p>Manufacturer: Cuprinol Reference: 5 Star wood preservative. Colour: clear.</p> <p>Equivalents which are also registered with Natural England as protected species friendly can be used following the equal and approved process prior to submission.</p>	

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4.0	STONEWORK TO COLUMNS	
4.1	Existing Stonework	
	All the existing buff-coloured Northumbrian sandstone is to be carefully cleaned using the DOFF steam cleaning system. Any stone faces which are delaminating and sanding are to be exfoliated with a brass bristle brush to form a new surface. Any lime mortar pointing in good condition is to be retained. All the Portland cement-based pointing is to be carefully removed. Replacement Stone: Once the work described above is complete, the stonework will be inspected by the architect and mason and conservation officer and the extent of stone replacement will be agreed.	
4.2	New Stonework	
	The contractor's mason is to supply a sample of the stone proposed for the replacement works and new plinths for the timber columns for approval and agreement with the architect and conservation officer. The sample is to be of fresh stone taken from the bed of the quarry that is currently being extracted and which is known to suitable to be carved to provide the level of detail required and good durability. A data sheet for the quarry is also to be supplied.	
4.3	Workmanship	
	<p>Skilled bench masons are to conduct the carving work. To have a minimum of a Level 2 Diploma in Stonemasonry. Please submit a CV with your tender. Four local stonework companies who could conduct this work are listed below:</p> <p style="text-align: center;"> Classic Masonry of North Shields Border Stone Quarries of Haltwhistle Natural Stone Direct of Lanercost Dunhouse Quarry of Barnard Castle Or equal and approved. </p>	
4.4	Repointing Work	
	<p>As the quantities of mortar required are small, the work is to be conducted in a moderately hydraulic 1:2.5 - 1:3 binder to aggregate ratio lime premixed and bagged lime mortar provided by a specialist lime mortar supplier such as:</p> <p style="text-align: center;"> Masons Mortar of Edinburgh Womersley's of Dewsbury Mike Wye of Exeter Conserv of Middlesbrough Or equal and approved. </p>	

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5.0	STONEWORK TO PERIMETER KERBS AND STEPS	
5.1	Existing Landscape Stonework	
	All the existing igneous stonework is in acceptable condition and we do not anticipate any replacement stone will be required. Various sections have slightly settled or drifted out of line horizontally. The sections most out of alignment are lifted and re-bedded on a fresh 75mm thick bed of 1:1:6 (hydrated lime: Portland cement: sharp sand) mortar.	
5.2	Repointing of Kerbs and Steps	
	As the quantities of mortar required are small, the work is to be conducted in an eminently hydraulic 1:2.5 - 1:3 binder to aggregate ratio lime premixed and bagged lime mortar provided by a specialist lime mortar supplier such as: Masons Mortar of Edinburgh Womersley's of Dewsbury Mike Wye of Exeter Conserv of Middlesbrough Or any equal and approved manufacturer	
6.0	PAVING TO REPLACE THE EXISTING CONCRETE SLAB	
6.1	Preparatory Work	
	Remove the existing slab. This needs to be done with care to preserve all the perimeter landscape stonework and the columns that support the market and to minimise disruption of the ground below which will be very well compacted. Scrape out below to form a 1:40 fall gradient and a 150mm zone to take the paving and mortar bed. Compact the freshly exposed bearing surface using a vibrating plate compactor.	
6.2	Mortar Bed	
	75mm thick bed of 1:1:6 (hydrated lime: Portland cement: sharp sand) mortar.	
6.3	Option 1: New Sandstone Paving Flags	
	Buff sandstone selected to be suitable for paving in heavily trafficked public spaces. To match the specification being used elsewhere in Hexham's Heritage Action Zone. Flexural Strength Class 1 BS EN 1341 / 1343 Abrasion Resistance Class 1 BS EN 14157:2004 Unpolished Slip Resistance Satisfactory BS EN 1341 / 1342 Water Absorption Class 2 BS EN 1341 / 1342 / 1343 Manufacturer: Hardscape of Bolton Reference: Crosland Hill https://hardscape.co.uk/select/crosland-hill-classic-buff/ Dimensions: 450 x 450 to 900 long Finish: Diamond Sawn or an equal and approved product from a local supplier such as: Classic Masonry of North Shields Border Stone Quarries of Haltwhistle Natural Stone Direct of Lanercost Dunhouse Quarry of Barnard Castle Alston Natural Stone Ltd of Alston	

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6.4	Option 1: Pointing	
	Fill the joints between the paving flags with a dry mix of 1:1:8 (hydrated lime: Portland cement: sharp sand). Gently apply water using a spray to set the mix. Keep the exposed surface of the paving flags free of mortar slurry.	
6.5	Option 2: Concrete Paving Flags with a natural aggregate topping	
	<p>Description: a paving slab with a 100% natural stone surface on a polymer concrete carrier.</p> <p>Sub base: graded and broken stone (unbound granular material) topped off with 30mm to 50mm grit sand for bedding. The thickness of the load bearing sub-base depends on the frequency and type of vehicular traffic</p> <p>Manufacturer: Hardscape of Bolton Reference: Breccia 618 Anthracite. https://hardscape.co.uk/select/ke0140-antracite-618/ Dimensions: 400 x 400 and 400 x 600 both 60mm thick Finish: Four grain sizes of aggregate to create a 'seamless' surface. Etched with high water pressure. Or equal and approved.</p>	
	Option 2: Pointing	
	Brush in jointing space with dry jointing sand, preferably with a surplus of fine particles. Repeat this several times, also after compacting the paving. Leave jointing sand on the pavement after finishing the work.	

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7.0	RAINWATER GOODS	
7.1	Existing and New Cast Iron Rainwater Goods	
	<p>Description of the existing installation: Ogee pattern gutters with 4 no round pipes.</p> <p>All to be carefully taken down, jet washed and shot blasted. Then sorted into 'reusable' and 'not reusable' stacks for a confirmation inspection by the architect. Abrasive blast cleaning to be conducted to standard Sa 2.5.</p> <p>Once the amount of salvage has been assessed it is to be shop primed. The shortfall is to be made up with newly cast and primed guttering to match the existing. New and salvaged components to be painted with two coats of the specified paint system. Then refix, all joints are to be sealed with a proprietary gutter sealant and then the painting to be touched up just prior to contract completion.</p> <p>Shot blast specialist: contractors' choice</p> <p>New cast iron components supplier: contractors' choice</p> <p>Paint finish: see section 9.2.</p>	
7.2	Clay Rainwater Gullies	
	<p>Material: Traditional salt-glazed vitrified clay.</p> <p>Manufacturer: W T Knowles & Sons Ltd of Elland</p> <p>Product reference: Square Inspection Gully with inspection arm outlet 150mm x 100mm. Complete with cast iron grate Code KIG2C and gully plug.</p> <p>Knowles is the only manufacturer of these items left in the UK. If the contractor can find an alternative supplier of an equivalent product, please submit your product for the equal and approved process prior to submission.</p>	
7.3	Drainage Channel	
	<p>Manufacturer : ACO Technologies PLC of Shefford, Bedfordshire.</p> <p>Product reference: ACO MultiDrain M100D channels with ultra steel galvanised edge rails and heel guard grating 12614.</p> <p>Sump unit: with 110 dia connection to below-ground drainage with a removable trap for rodding and jetting.</p> <p>Stop ends: Aco Multifunctional end cap.</p> <p>As per the detailed quotation attached or an equal and approved manufacturer.</p>	

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8.0	BOLLARDS	
	<p>Manufacturer: Broxap Reference: Manchester Cast Iron Bollard BX 1539 Fixing method: Standard Root Fixing</p>	
	<p>Diameter: 227mm Height: 950mm Root length: 300mm Weight: 42 kg</p>	
	<p>Equivalent manufacturers: These are to match bollards being fitted in the Heritage Action Zone project elsewhere in the town. Any equivalent being offered by the contractor will need to be an exact equivalent and follow the equal and approved process.</p>	

9.0	DECORATION	
9.1	Paint System for the Wooden Ring Beam	
	<p>Manufacturer: Johnstone's Trade Paints Reference: Stormshield Flexible Primer Undercoat and Flexible Gloss. Preparation and precautions: All as per the manufacturers data sheets.</p> <p>https://www.johnstonestrade.com/getmedia/ee80ce04-3fa1-4164-9b64-185ff0144a13/Stormshield-Flexible-Primer-Undercoat.pdf?ext=.pdf</p> <p>https://www.johnstonestrade.com/getmedia/51b3fec4-c5fc-43fd-b7bf-99d820878975/Stormshield-Flexible-Gloss.pdf?ext=.pdf</p> <p>Or an equal and approved manufacturer</p>	
9.2	Paint System for Cast Iron, Rainwater Goods and Bollards	
	<p>The paint system should be all provided by the same manufacturer and be applied strictly in accordance with the manufacturer's recommendations.</p> <p>Surface Preparation:</p> <ol style="list-style-type: none"> 1. Wash down using clean water and mild detergent, rinse clean and thoroughly dry. 2. Remove all loose, heavy and adherent rust deposits. 3. This should be conducted using hand or power tool cleaning in accordance with BS EN ISO 8504-3: 2001 St3 or by abrasive blast cleaning to standard Sa 2.5. 4. Remove any damaged or loose flaking paint and abrade back to a firm feather edge, remove any dust with a soft bristled brush. 5. Check that any remaining paint is well adhered and lightly abrade overall to provide a key for the new paint system to adhere. 6. Ensure the surface to be painted is clean and dry. 7. Apply primer with a brush using a stipple action to work it into the pores of the cast surface of the iron. <p>We have obtained specifications from two manufacturers for one part epoxy paint systems.</p> <p>Manufacturer: Dacrylate Paints Limited, Lime Street, Kirkby-in-Ashfield, Nottinghamshire NG17 8AL www.dacrylate.co.uk</p> <ol style="list-style-type: none"> 1. Prime all areas of bare metal with: Dacrylate HB Zinc Phosphate Primer Ref. 95-2. 2. Apply overall 2 coats of: Dacrylate Dacsil Silicone Alkyd Gloss, Finish Ref. 90-line. 	

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	<p>Manufacturer: Sherwin-Williams, Tower Works, Kestor Street Bolton, BL2 2AL www.protectiveemea.sherwin-williams.com</p> <p>To achieve a total dry film thickness of 200 microns.</p> <p>BS or RAL colour: to be agreed. Gloss percentage level: to be agreed.</p> <p>Or an equal and approved manufacturer.</p> <ol style="list-style-type: none">1. L489 Alkyd Primer2. L654 Alkyd MIO3. M671 Alkyd Undercoat4. C530 Alkyd top coat	
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10.0	BIRD MESH INSTALLATION	
	<p>Description: The eaves of the building are the ideal location for pigeons to roost and this needs to be prevented. Hinged and padlocked stainless metal mesh panels will prevent roosting and also protect any lighting installed in the eaves.</p> <p>Materials: all components to be stainless steel.</p> <p>Mesh dimensions: 75 x 25</p> <p>Finish: Powder coated black.</p> <p>Timber noggins and grounds: To support the mesh and block access between the rafters is to be installed by the main contractor. As per specification clauses 3.2 and treated as clause 3.3.</p> <p>Manufacture: All panels to be manufacturer to match templates made and fitted on site.</p> <p>Please refer to detailed drawing: 2317 D1. Please note there is a schedule on the drawing. All to be coordinated by a specialist installers such as:</p> <p style="text-align: center;">Albion Glass of Brampton, Cumbria Iona Glass of Warkworth, Northumberland J Goodwin Stained Glass of Huntingdon, North Yorkshire The Stained Glass Company of Bolton, Lancashire Or equal and approved.</p>	