



FIRE QUEEN SHED, PARC PADARN

- REPAIRS AND ALTERATIONS

Schedule of Work

Chambers Conservation Ltd, April 2025 – Issue 1

1.0 Introductory Information

- 1.1 This Schedule of Works has been prepared by Chambers Conservation Ltd for the repair and improvement to the Fire Queen Shed which is within Parc Padarn at Gilfach Ddu, Llanberis. The building owner and client is Cyngor Gwynedd / Gwynedd Council.
- 1.2 This document must be read alongside the supporting drawings and other information, which includes:
- Fire Queen 01 - Plan as Existing Rev E
 - Fire Queen 02 - Elevations as Existing Rev B
 - Fire Queen 03 - Sections as Existing Rev C
 - Fire Queen 04 - Location Plan
 - Fire Queen 13 - Plan as Proposed Rev D
 - Fire Queen 14 - Elevations as Proposed Rev E
 - Fire Queen 16 - Elevations as Proposed Rev D
 - Fire Queen 17 - Section AA as Proposed Rev F
 - Fire Queen 18 - Sections as Proposed Rev E
 - Fire Queen 19 – New Extension Construction Details
 - Fire Queen 20 – Floor Pit Details
 - Fire Queen 21 – Viewing Platform Details
 - Fire Queen 22 – New Glazed Front Door Details
 - Fire Queen 23 – Alterations and Repairs to Existing Front Doors
 - Fire Queen 24 - Detail of Treatment of New Internal Openings
 - TRP – 23035-FQ-01 – Steelwork Support Frame to Rails
 - TRP – 23035-FQ-02 – Entrance Extension – Foundation Details
 - TRP – 23035-FQ-03- Entrance Extension – Steelwork Details
 - M&E - 23-026-E-120
 - M&E - 23-026-E-S-100
 - M&E - 23-026-M-120
 - M&E - 23-026-M-S-100
 - Hazard Identification and Risk Assessment



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2.0 Intention of Works

- 2.1 The intention of the works is to repair and enhance the building so that the historic Fire Queen Engine and Tender can return to its original home of the Dinorwic quarry and the building in which it was housed after its retirement for about 80 years. The building will allow visitors to enjoy looking and leaning about the engine and its history.
- 2.2 The work will, in summary:
- Repair of the building's fabric, including repointing, window repairs and roof repairs to ensure that it is as weatherproof as possible and to improve its appearance.
 - Work to the interior to improve its condition and appearance whilst preserving its character as a working building.
 - Work to the floor and inspection pits to facilitate the reintroduction of the engine (although the actual relocation work is not included as part of this contract).
 - Replacement of the existing lean-to / annex with a new structure that will be a welcome point for visitors
 - Renewal of services
 - Addition of a new viewing platform internally
 - Alteration to the existing main doors, providing new glazed doors behind
 - Various ecology measure, in particular to provide a bat / bird roost in the roof vent.

3.0 Background History / Information

- 3.1 The Fire Queen Shed is a grade II listed building (Locomotive Shed, Llanddeiniolen, Gwynedd) and it is included within the 'Dinorwic Quarry: Hafod Owen Winding Engine, Locomotive Shed, Main Waterwheel and Housing' scheduled monument.
- 3.2 The building is a detached structure, near the base of the 'A' incline and entrance to the Glan-y-Bala tunnel.
- 3.3 The building was built as a locomotive shed for the quarry in the late 19th century.
- 3.4 The building is constructed from slate blocks and has a pitched slate roof with a central louvered vent at the ridge. On the north facing side, there is a small lean-to which is clearly later in date.
- 3.5 The Fire Queen Locomotive itself operated on in the Dinorwic quarry between 1848 and 1882. Following its decommissioning, the engine and tender were stored away in what was to be known as the Fire Queen Shed and were cleaned and maintained by quarrymen.
- 3.6 In 1969, the engine was moved to Penryn Castle, where it has remained until last year.
- 3.7 In January 2024, the Fire Queen was moved to temporary housing at the Vale of Rheidol Railway.

4.0 General Matters:

- 4.1 The works will be carried out under a JCT intermediate contract.
- 4.2 The building is currently empty, having been used as a workshop for the past 30 or so years. All remaining stored items will be removed by the Parc Padarn Rangers prior to commencement.
- 4.3 Prior to commencement, an area an area around the building will be agreed with the client as a working / compound area.

- 4.4 The contractor must be aware that there are ongoing works in the immediate area to renew underground electric cabling – this affects the area outside the building, in particular around the tunnel entrance. More information will be made available on this, but some limitations to compactor parking etc may be inevitable (e.g. contractor cars may need to be parked slightly further away).
- 4.5 It should be expected that the rest of the land surrounding the site will remain accessible by the public – during fine weather, weekends and school holidays the area becomes very busy.
- 4.6 Prior to commencement on site, the contractor must produce a programme for the works which should be updated and distributed to the client and architect on a weekly basis.
- 4.7 Noise, dirt and debris will need to be strictly minimised – the contractor will need to be responsible for ensuring that dirt or debris will not unduly be spread into the surrounding area.
- 4.8 All waste must be removed on a daily basis unless placed in a locked skip in an agreed location.
- 4.9 The contractor may use the toilets within the public car park or provide their own portaloos.
- 4.10 For the purposes of pricing, it can be assumed that electricity will be available for use in the building.
- 4.11 The contractor may use water within the nearby yard area (subject to metering) but there is no water provision in the building itself.
- 4.12 Site radios etc are not to be used externally.
- 4.13 It is expected that all people working on the building are experienced in working with historic buildings and within the National Park.

5.0 CDM

- 5.1 In accordance with the Construction (Design and Management) Regulations 2015, the contractor would undertake the role of Principle Contractor and therefore should:
- Plan, manage, monitor and coordinate the entire construction phase
 - Take account of the health and safety risks to everyone affected by the work (including members of the public), in planning and managing the measures needed to control them
 - Liaise with the client and architect for the duration of the project to ensure that all risks are effectively managed
 - Prepare a written construction phase plan before the construction phase begins, implement, and then regularly review and revise it to make sure it remains fit for purpose
 - Have ongoing arrangements in place for managing health and safety throughout the construction phase
 - Consult and engage with workers about their health, safety and welfare
 - Ensure suitable welfare facilities are available
 - Check that anyone they appoint has the skills, knowledge, experience and, where relevant, the organisational capability to carry out their work safely and without risk to health
 - Ensure all workers have site-specific inductions, and any further information and training they need
 - Take steps to prevent unauthorised access to the site areas
 - Liaise with the architect to share any information relevant to the planning, management, monitoring and coordination of the pre-construction phase

6.0 Preparatory Works:

- 6.1 Prior to the contract starting on site, the contractor should obtain Welsh slate samples for the roofing, walls and floor of the new extension to closely match the colours and textures of the existing materials.
- 6.2 Prior to the contract starting on site, the contractor should propose the timber type(s) to be used in repairs.
- 6.3 Immediately before starting work, the contractor should take a photographic record of the condition of the exterior and interior of the building and the immediate surrounding area that might be affected.
- 6.4 Before starting work the contractor should familiarise himself with the positions of all the site services – in particular wiring that may be affected.
- 6.5 The contractor is to agree with the client and architect the nature of any hoarding and temporary security measures. The building's openings must be kept secure or attended at all times.
- 6.6 The contractor is to be responsible for the design, supply and maintenance of scaffolding and high-level access. Scaffold to be in accordance with methodology 1.
- 6.7 The contractor may put up an advertising sign on a scaffold or elsewhere in agreement with the client.
- 6.8 Note: the contractor is responsible for taking measurements for any new components or materials.
- 6.9 The contractor must keep the architect and client up to date with current availability and lead-in times for key materials.

7.0 Demolitions / Removal Work

- 7.1 The contractor is to have necessary measures to protect the remaining historic features from damage – these include the workbench, fireplace, doors and windows.
- 7.2 The council will arrange for the disconnection of the existing gas metre and main at the start of the works.
- 7.3 The contractor should allow for removing and disposing of the existing floor boarding and timber posts used to support it within the inspection pits.
- 7.4 The contractor should allow for an electrician to safely strip out the existing electrical systems – note, temporary connections can be left for their own needs.
- 7.5 Following the disconnection of the gas meter, the contractor is to strip out the existing heating equipment.
- 7.6 The contractor is to remove all other modern fixtures and fittings – please note that older items such as the shelf / bench is to be left in place, together with the fireplace.
- 7.7 The contractor is to carefully dismantle the existing annexe. It is expected that the existing slate to the walling and roof are to be set aside for later reuse where sound. Existing mortar is to be cleaned off and an estimate made of the quantity available. Other materials are to be disposed of unless otherwise requested.
- 7.8 The contractor must make arrangements for the safe storage of the existing walling and roofing slate prior to reuse.

8.0 Roof Repairs

- 8.1 The contractor is to provide full scaffold access to the roof and should allow for the following repairs (where appropriate in accordance with methodology 2):
- 8.2 Replacement of 20 individual damaged slates (fixed with lead tabs)
- 8.3 Basic surface repair to 10 small areas of the eaves and verge timberwork – assume using hardwood timber to piece in or an agreed propriety repair system (e.g. RepairCare). Repairs larger than 5cm are to be agreed in advance with the architect. Timber repairs in accordance with methodology 3.
- 8.4 Redecoration of the barge boards, fascias and other eaves timberwork using Dulux Weathershield or agreed similar system in an eggshell / satin finish and applied in accordance with manufacturer's instructions.
- 8.5 Remove damaged chimney pot. Allow to re-flaunch top to aid shedding of water.
- 8.6 Allow to mechanically fix a large slate over the flue hole at the top of the chimney using stainless steel screws. The slate is to be raised up approximately 25mm (on rainwater downpipe bobbins or similar, with insect mesh fixed back from the face so it is not visible).
- 8.7 Allow to repoint the chimney in lime mortar in accordance with methodology 4
- 8.8 Allow to renew the lead flashings to the chimney. Work must be undertaken in accordance with Lead Sheet Training Academy details / recommendations. For pricing purposes assume code 4 lead soakers, code 5 stepped flashing and a code 5 front apron.
- 8.9 Once high-level access is available, allow to inspect the raised roof vent with the architect. For pricing purposes allow to replace 50% of uprights posts and 25% of louvres. Work to be undertaken by an experienced joiner and must be carried out using sustainable (FSC) hardwood to an agreed sample.
- 8.10 Allow to re-slate the ends of the vent, replacing any damaged slates to match (assume 25%).
- 8.11 Allow to reinstate the missing bargeboards to the vent (on the tunnel facing side) in painted hardwood. Detail to match the existing vent bargeboards.
- 8.12 Allow to renew the lead flashings to the vent. Work must be undertaken in accordance with Lead Sheet Training Academy details / recommendations. For pricing purposes assume code 4 lead soakers, code 5 stepped flashing and a code 5 front apron.
- 8.13 Allow to redecorate the vent timberwork using Dulux Weathershield or agreed similar system in an eggshell / satin finish and applied in accordance with manufacturer's instructions.

9.0 Repointing and Masonry Repairs

- 9.1 Allow to DOFF clean 10m2 of the stonework (e.g. where existing extension removed - subject to agreement on site and samples).
- 9.2 To 5 no former joist holes on tunnel-facing side (from previous structure now removed), allow to partially fill with slate block (50mm back from surface with mortar fillet at the bottom) to reduce water ingress.
- 9.3 Allow to remove up to 20 ferrous fixings from elevations, filling holes with lime mortar (note – fixings of historic interest must not be removed, if in doubt, the architect must be asked),
- 9.4 Following the removal of a ferrous fixing to the centre window, allow to carry out an indent repair approx. 50 x 50 x 50mm in accordance with Methodology 5.
- 9.5 Make an allowance to carry out 5 indent / piecing in repairs elsewhere (for pricing purposes assume slate block 100x100x100mm in accordance with Methodology 5).
- 9.6 Allow to replace the cracked cill to the central window in Welsh slate to match existing – size

approx. 1500 x 90 x 300mm in accordance with Methodology 5.

- 9.7 Allow for complete repointing to the existing elevations in accordance with methodology 4. Mortar should be raked out by hand to a depth of around at least 20mm, ensuring that all vegetation is removed.
- 9.8 Following the completion of the work to the windows, allow to renew the mortar fillets to the surrounds in lime in accordance with methodology 5.

10.0 Rainwater Goods and Drainage

- 10.1 Allow to renew all rainwater goods (provided by Hargraves Foundry and delivered in a black finish unless otherwise agreed) as follows:
- 10.2 Main building: provide 150mm half round cast iron gutters with stop ends, joints and outlets. Gutters to be supported on rise and fall brackets. Outlets to be at least mm.
- 10.3 Main building: provide 100mm cast iron downpipes with appropriate swannecks, eared sockets and shoes.
- 10.4 New extension: provide 100mm half round cast iron gutters with stop ends, joints and outlets. Gutters to be supported on rise and fall brackets. Outlets to be at least 63mm.
- 10.5 New extension: provide 75mm cast iron downpipes with appropriate swannecks, eared sockets and shoes.
- 10.6 Subject to further surveys, make an allowance to dig out 2 no. crate soakaways of 1m³ and to provide 25m of drainage pipes and 4 no. sumps / gulleys with cast iron grilles on the surface.
- 10.7 Contractor to make a provisional allowance for making good existing surfaces following above drainage installations.

11.0 Window Repairs

- 11.1 The work to the windows must only be carried out by contractors with experience in working with historic metalwork and glazing. If the contractor is not confident that they have adequate experience or resources, this element must be subcontracted to a specialist who will be approved prior to commencement.
- 11.2 Allow to remove the existing windows – this should be achieved by removing the existing external mortar fillet and cutting through existing fixings – the metal window frames themselves must not be damaged and glazing must be protected during the process.
- 11.3 The extent of glazing replacement is to be agreed with the architect prior to commencement. For pricing purposes, assume that all glass will be removed – glass agreed for reinstatement (assume 25%) must be individually labelled and securely stored.
- 11.4 Allow to remove all modern sealants from the glazing
- 11.5 All existing flaking / modern paint is to be removed from the windows (be aware that lead paint is likely to be present and take necessary precautions). This should be achieved by a method to be agreed in advance with the architect and checked by carrying out a small sample of 0.5m². For pricing purposes, assume a product such as Peelaway 7, which should remove modern paint but not sound historic layers. Any police must be used in accordance with manufacture's instructions.
- 11.6 Allow to carefully remove all existing putty and glazing.
- 11.7 Allow to remove all rust from the windows – a sample should be carried out and agreed with the architect before proceeding further. For pricing purposes assume cleaning using fine, specialist power tools would be acceptable. It should be expected that a small amount of paint / coatings

will remain but only where there is no evidence of rusting beneath. This process should be carried out to both sides of the window and hidden faces of the frames and fixed casements will therefore need to be disassembled.

- 11.8 As soon as the metal has been cleaned, it should be dried and coated with a zinc-rich primer with a high zinc content (the paint system must be agreed in advance).
- 11.9 Any defects / indents that may become a water trap should then be filled with a filler that is compatible with the coating – e.g. a two-pack polyester compound used for car body repairs. Once applied it must be rubbed down to blend with the surrounding metal.
- 11.10 The window is to be reglazed, reusing existing glass as agreed. All existing glass should be carefully cleaned, removing all sealant, residues etc. For pricing purposes, the contractor should allow for cylinder glass, 3mm thick. Glass should be resecured using a specialist glazing compound confirmed to be suitable for cast iron windows
- 11.11 The metal work and glazing compound is to be coated with an alkyd paint system – coatings are to be applied to all faces before reassembly. Coatings must be applied in accordance with manufacturers guidance with adequate time allowed for the coats to fully dry.
- 11.12 The windows should be refixed using stainless steel fixings (any visible screw heads must be painted).

12.0 New Extension

- 12.1 Construct the new extension in accordance with drawing 19.
- 12.2 It is assumed that the existing roof slates can be reused but an additional 50% should be supplied to match (sample to be provided prior to construction). New ridge tiles to be supplied to match the existing on the main roof.
- 12.3 It is assumed that the existing slate walling to the current extension can be reused – an allowance should be made for cleaning and assessing it with the architect. Blocks should be a consistent depth and some adjustment should be expected. Any deficit (allow 25%) will be made up by slate provided by the client – shaping to match must be allowed for.
- 12.4 Make an allowance to install the new corten etched panel (installation only – provisional sum for item included in section 20). Contractor to provide fixings.
- 12.5 Make an allowance to install the new metal gate / screen (installation only – provisional sum for item included in section 20). Contractor to provide fixings.

13.0 Internal Repairs

Floor:

- 13.1 The floor consists of 3 elements: The two inspection pits in the centre of the room; thick smooth-slate slabs approx. 65mm deep and 670mm wide and concrete slabs between the pits and to the section inside the doors. It is assumed that the rails can be retained in situ during the works.
- 13.2 To the slate slabs - protect from damage during the work.
- 13.3 Allow to carefully lift and relay 4 slate slabs where uneven and posing a potential trip hazard.
- 13.4 Allow to repoint the joints between the slabs in lime mortar.
- 13.5 Allow to clean the slate slabs following the completion of the internal works using stiff brushes, sponges and a mild detergent.
- 13.6 To the two concrete sections allow to dig out and re-lay following installation of new rails. Provide

shuttering as needed to give clean edges at the sides of the pits.

- 13.7 Over the pits provide new timber flooring with service runs / trays – see drawing 20 for further information.
- 13.8 Floorboards between rails to be Welsh Larch 175mm x 25mm with a 25mm air gap between. Allow for fixing 20 no. boards in the central row (between the original rails) with stainless steel anti-tamper screws to aid future access.
- 13.9 Note: the existing rails will remain in place during the work and must be protected from damage.
- 13.10 To the pit voids themselves there will be no work, except to ensure that they are left in a clean and tidy condition.

Internal walls

- 13.11 Carefully remove all loose plaster using a stiff brush and hand tools. Allow to reinstate any missing areas of plaster in lime to methodology 6 (either removed or already missing) - allow 20m2. Note: the edges of the fireplace and arched doorway must be reinstated with the rounded timber details existing. Where the top surface of the plaster has been lost, but it is otherwise sound, it will be retained as existing to preserve the character of the space.
- 13.12 Allow for the plaster to dry out naturally and allow to lime wash in accordance with methodology 7. Allow for 3 coats, which would brighten the space and reduce the impact of modern stains but without losing its character.

To the roof structure and ceiling:

- 13.13 Isolate and remove all existing services, boarding to the central vent and modern fixings.
- 13.14 All to fill any small holes in the roof timbers with a proprietary wood filler
- 13.15 Allow for 5 no resin repairs to timbers and 5 no splice repairs to the roof timbers
- 13.16 Make an allowance to replace the existing metal straps on the trusses, like-for-like.
- 13.17 Allow to renew 10m2 of damaged roofing felt to match existing – the fixing method is to be discussed but the contractor should allow for necessary fixings and, for instance 25x25mm battens if needed.
- 13.18 Allow to install bird and insect mesh at edges between each of the rafters, set back from the face of the wall so it is not seen.
- 13.19 Allow to remove all loose paint from ceiling timbers before lime-washing (assume 3 coats) in accordance with methodology 7.

Fireplace

- 13.20 The fireplace is to remain in situ and must be protected from damage during the work by plywood boxing or similar.
- 13.21 The slate is to be cleaned using mild detergents and sponges. Care should be taken not to remove the etched graffiti.
- 13.22 Allow to rebed 6 no loose bricks (replacing a small missing section with a matching reclaimed brick) and repoint open joints (about 50%)
- 13.23 A provisional sum of £500 should be allowed for work to stabilise the metal grate.

14.0 Internal Alterations

Roof Vent

- 14.1 Once internal high-level access is available, allow for inspection of the existing roof vent with the architect. At this point the final design of the interventions / repairs will be agreed (with input from the ecologist).
- 14.2 Allow for 12 mm marine ply boarded panels to be installed on the inside of the louvres covering around 80-90% of the surface area (open area to one end, to be agreed with ecologist). Boards to be to encourage future adjustment with exposed stainless steel screw heads.
- 14.3 To the base of the vent allow for the installation of treated and painted soft wood 19 x 125mm t&g boarding on new 50 x 75mm frame with 2 no. 600 x 600mm hinged hatches (secured with back finish bolts) constructed of framed and braced t&g boarding. Loose mineral fibre insulated added between joists for acoustic purposes and 18mm marine ply boarding added over for ease of cleaning etc.

Viewing platform

- 14.4 Following work to floor and walls, allow to construct new view platform in accordance with drawing 21.

Main doors

- 14.5 Carefully remove existing doors and take to joiners shop for inspection and then alterations and repairs. Secure opening during work. Allow time in the joiners shop to agree with the architect the final scope of work to the existing doors
- 14.6 Take detailed measurements of the existing opening – these must be used for the detailed design of the new, frame, doors and windows as well as for confirming the work to the existing doors.
- 14.7 Allow to create new painted hardwood frame to suit new door arrangements – final section detail to be agreed in advance but contractor must allow for a large cross section (likely to be manufactured in at least 2 pieces) of around 175 x 275mm. The contractor must also allow for the additional work needed in creating the arch segments at the top of the opening.
- 14.8 Allow for works to the existing doors as shown on drawing 23. Allow for workshop alteration to the doors to reduce them slightly in height and width (approx. 25mm) – assume this will be possible by trimming the bottom edge and replacing the meeting stiles, together with very limited reshaping elsewhere. Allow for ironmongery as shown
- 14.9 Allow to paint both the frame and timber doors in an eggshell paint with appropriate primers and undercoats (exact products and colours to be agreed prior to commencement).
- 14.10 Allow to supply and install new glazed doors and glazed panel above to front elevation in accordance with drawing 22. Glazed doors to have lockable bolts so that that can be secured in an open position, pull handles on both sides and suitable hinges.

New openings to extension

- 14.11 Allow to create new openings in the wall to the new extension in accordance with drawing 24.
- 14.12 Allow a provisional sum of £1,000 for a specialist metalworker to manufacture the bespoke metal doorway linings.
- 14.13 Allow to install the door linings and make good any damage to surrounding walls etc, repairing plaster to the engine-shed side.
- 14.14 An allowance should be made for lime-plastering the inside face of the existing wall in the extension – this will be confirmed when the existing extension is removed and the condition of the wall can be assessed.
- 14.15 Allow to install a new Welsh slate slab to the threshold, making sure that it is flush with the adjacent floors.

New Cupboard

- 14.16 Details to be finalised following discussion on sizing with the electrician. For pricing purposes assume design as shown in Drawing 17 (i.e.. painted timber with 2 sets of lockable double doors) – 600mm wide x 1800mm high x 250mm deep.

15.0 Mechanical & Electrical

- 15.1 Allow to carry out electrical works in accordance with drawings 23-026-E-120, 23-026-E-S-100, 23-026-M-120 and 026-M-S-100
- 15.2 Note that the external lights must be fitted with a timer and movement sensor to accord with planning requirements.
- 15.3 In addition to work on the drawings, allow for 6 no double sockets at high level and a double socket in each of the inspection pits.
- 15.4 Instead of the lighting track system shown, allow for a suspended track system with adjustable spotlights every 1.5m (approx. 20) and uplights for each bay (approx. 8). Emergency lighting provision should be included.
- 15.5 In addition, allow for 5 no adjustable spotlights under the engine and tender (10 in total)
- 15.6 The colour of the fittings should be confirmed prior to order but assume grey for pricing. All lamps to be warm white.
- 15.7 All lighting to be controlled on a digital timer (with remote connectivity), with the panel inside the electrical cabinet.

16.0 Reintroduction of Railway Locomotive and Tender

- 16.1 This work will be undertaken by a specialist contractor under a separate contract, however, the contractor should allow a period of 1 week for the reintroduction of the engine and tender within their contract period. During this time, work should not be allowed for within the main part of the building. It is expected that most work will be complete except work to the main doors and floor just inside.

17.0 Interpretation

- 17.1 The interpretation work will be installed by a specialist contractor after the completion of the main contract. No work is therefore included but the contractor should permit access by the interpretation designers / installers at mutually agreed times to help with their planning and finalise positions for the lighting and sockets.

18.0 Ecology

- 18.1 Works have been included in the above to the roof vent, which will facilitate future use by bats and other protected species. Once the existing boarding and services have been stripped out, allow for access by the ecologist to finalise the layout of openings etc.
- 18.2 Allow a provisional sum of £150 to supply bird boxes as required by the ecologist.
- 18.3 When the project is nearing completion, allow to install 2 no. bird boxes on the rear elevation.

19.0 Upon Completion:

- 19.1 The contractor is to remove all waste from the site. All facilities are to be left clean and ready to be used. A copy of relevant material should be passed to the architect for insertion into a Health and Safety File.

20.0 Provisional Sums

- 20.1 The following costs should be included in the overall tendered sum for the summary of the following specialist items (these will be confirmed at a later date (the contractor must include separately any overheads for managing the supply of these items):
- 20.2 £2,000 for the etched corten panel on the front side of the replacement extension
- 20.3 £10,000 for the decorative gates on the replacement extension
- 20.4 £2,000 for the linings to the new openings

A.o Methodology 1 – Scaffold and Protection

A.1 Scaffold and Protection

- A.1.1 The contractor should provide, erect and maintain (including altering as required) all scaffolding necessary to carry out and complete the works.
- A.1.2 Any fixings into the brick or timber must be agreed in advance and must be filled and made good on completion.
- A.1.3 All tube ends to be protected with soft nylon caps or equivalent.
- A.1.4 The scaffold is to be strong enough for its purpose and erected and dismantled with great care. The contractor is responsible for the design of the scaffold – if needed he should consult with a structural engineer.
- A.1.5 Scaffold fittings and fixtures must not be thrown from the scaffold during erection, dismantling and alteration.
- A.1.6 The means of securing and stabilising the scaffold is the responsibility of the contractor. However, before commencement the contractor should agree with the architect / principal designer:
 - The overall design of the scaffold
 - Its loading capacity
 - Access arrangements
 - Means of securing the scaffold when not in use
 - Any sheeting / other methods of preventing items from falling
- A.1.7 The contractor is to provide details to the client of how they are to minimise dust internally and protect existing surfaces and sensitive features.
- A.1.8 The contractor should provide adequate warning signage and tape to ensure the general public are kept away from the work area.
- A.1.9 All rubbish and debris are to be removed from site as soon as possible – on a daily basis as a minimum.

Methodology 2 – Stonework Repairs

A.2 Stonework Repair Generally:

- A.2.1 Prior to appointment, the mason will be asked to give evidence of their experience in using lime mortars (in particular hot lime).
- A.2.2 If it is necessary to work in the spring / autumn / winter, additional time should be factored in so repointing would not be carried out during periods where the temperature is likely to drop below 5°C. Whilst the mortar goes off, it is important that it is protected with hessian. The majority of the work should be programmed for the milder months.
- A.2.3 All works must be carried out by a time-served mason with a high level of experience in working with historic buildings and lime mortar.
- A.2.4 A photographic record is to be made before commencing.
- A.2.5 No cleaning agents or fungicides are to be used either before or after repair works, except on the agreement of the Architect.
- A.2.6 Whilst replacing several stones at once (or larger units), the structural integrity of the surrounding wall must be protected – this will remain the responsibility of the contractor but the methods of doing this should be discussed with the architect.

A.3 Repairs to Damaged Stones

- A.3.1 The drawings provisionally show stones which project or are recessed, which unless dressed, will lead to water being trapped and the condition of the stone worsening further. Dressing of these water traps is specified only where it is thought it may serve to lengthen the lifespan of the stone.
- A.3.2 The specialist stone mason should view the stonework and advise, in his opinion, which stones may benefit from being dressed.
- A.3.3 The architect and stone mason then will agree the location where a sample of stone dressing will be carried out and mason will confirm the tools to be used and the architect will then confirm the final extent of stone dressing work.
- A.3.4 All dressing work must be carried out in accordance with the approved sample.
- A.3.5 Tooling marks should be kept to a minimum.
- A.3.6 Where indicated or agreed soft / highly damaged areas of stone to be chiselled back with the void infilled with small pieces of stone and mortar.
- A.3.7 Area with holes – probably caused by / enlarged by masonry bees and cluster flies – allow to fill holes with a lime mortar to match stone. Existing holes should not be enlarged, just simply cleaned out. It is important that new mortar is softer than the surrounding stone.
- A.3.8 If an area of decorative stone is found to be delaminated, pinning may be considered – this sound be discussed with the architect.

A.4 Replacement of Stones

- A.4.1 Stones are to be replaced only where agreed with the architect. All removal / dismantling is to be carried out by hand, using the minimum necessary force so to avoid unnecessary damage to surrounding stone. Where stones require replacement, matching reclaimed bricks should be sourced of the same dimensions, colour, texture and grade (i.e. ability to withstand weathering).
- A.4.2 Stones should generally be cut out to a depth of at least 100mm or to the original depth if smaller.
- A.4.3 Generally, stones should be replaced to the original bedding plain, however, in some rare instances this may be thought to have been the cause of failure – if this is the case a difference approach should be agreed in advance with the architect.
- A.4.4 Sawn faces can be positioned within the wall, but the original surface type should be replicated on the external face – this will take an experienced eye and should be agreed with the architect – if in doubt a simpler surface is preferred to a heavily tooled one.
- A.4.5 Joints where piecing into a larger surviving stone should be as slim as possible.
- A.4.6 Before installing the new stone, the cavity should be cleaned out and well dampened before applying a bed of mortar to the base, sides and back. The new stone unit should also be dampened. The top joint can be completely filled with a drier mortar. For finer jointed repairs a lime grout should be used. Any required packers can be removed after 24 hours, when final pointing should take place.

Methodology 3 – Pointing

A.5 General Pointing

- A.5.1 Samples of mortar mix and pointing should be prepared for architect's approval and retained on site as a control sample for the duration of the works. Again, mortar for repointing is to be a hot lime mix strictly without the use of cement. The required colour and texture will be achieved through careful selection of different sand / aggregate types and will be agreed between the mason and architect.
- A.5.2 The exact scope of repointing will be agreed with the architect / church prior to commencing.
- A.5.3 In preparation for re-pointing works, rake out all loose jointing material to a depth of not less than twice the joint width. All raking/cutting shall leave a clean, square face at the back of the joint.
- A.5.4 The prepared face and joint should be carefully cleaned out with a bristle brush and thoroughly flushed out with clean water. All dust and loose material must be removed, working from top to bottom of the wall.
- A.5.5 It is essential to thoroughly dampen the masonry before pointing commences. In dry conditions the wall may need to be wetted down two or three times. No water should be left lying within the prepared joints.
- A.5.6 The mortar should be pushed into the joint and firmly ironed in with the maximum possible pressure and minimum over-working. Pointing irons should be used, not trowels. The pointing irons should be of a width which will fit into the joint and ensure full compaction is achieved throughout the depth of the joint each time mortar is placed rather than from the surface alone. The Contractor should be aware that it may be necessary to fabricate pointing irons to undertake the works.
- A.5.7 Re-pointing work should begin at the uppermost section of the wall and proceed downwards, ensuring that all the mortar is pressed well into the joints to achieve good compaction. Fill all the joints solidly with the approved mortar mix finishing either flush or very slightly back from the masonry, in accordance with the approved sample.
- A.5.8 The mortar should be left to take its initial set and then be worked over with a stiff bristle brush. This should counteract shrinkage and provide a suitable finish. The bristles should not be dragged across the face but tapped against it. Timing is critical. If this technique is applied too early the mortar will be removed too easily, if too late, it will be difficult to make the required impression. The timing will depend on the weather. The aim should be to produce a joint brushed back 1-2mm from the arriss of the bricks or stone.
- A.5.9 Any slight fractures due to shrinkage must be cut and re-made.
- A.5.10 In warm weather lime mortar should be protected from drying out too quickly with damp hessian. In cold weather lime mortar work should only be carried out when temperature is min. 5 degrees and rising. Protect overnight and until fully cured.

A.6 Repointing of Deep Holes

- A.6.1 Where indicated holes larger than 50mm are to be packed out with smaller stones, slates or tile fragments (type to be agreed)

Methodology 4 – Cleaning, Repair and Redecoration of Cast Iron Rainwater Goods

A.7 Cleaning of Rainwater Goods

- A.7.1 Prior to redecoration or repair, the surfaces must be prepared. Any build-up of general dirt or organic growth should be removed with a mild detergent. This will enable areas of rust to be identified. Should cracks be found, the architect should be notified.
- A.7.2 Any areas of rust should be removed. The method of achieving this will be agreed prior to commencement (as factors such as whether the rainwater goods need to be taken down, extent of damage and the vulnerability of other building fabric need to be considered). The following are options for rust removal:
- Scrapers and wire brushes – this would be the preferred option for very minor areas of rusting.
 - Blast cleaning -options include either dry or wet blast cleaning. Dry blast cleaning would provide a fast solution and would leave a good surface for painting. Wet cleaning is less effective, and the water makes visibility difficult, but control is easier. However, the slurry produced would need to be controlled, as it would likely to contain lead and may stain the building. Either method should only be carried out by experienced and trained contactors, with sample areas approved first. These methods are not likely to be viable for isolated areas of metal)
- A.7.3 It always should be assumed that old rainwater goods may have been coated with lead-based paints. Therefore, appropriate precautions should be taken by the contractor in terms of protecting themselves, other people in and around the building and disposing of waste appropriately.
- A.7.4 If it is felt that complete removal of rust would not be possible without damaging the integrity of the piece of metal work the architect should be notified and options will be considered.
- A.7.5 After cleaning, the metal should be visible oil, grease and dirt, and free from poorly adhering scale, rust, paint coatings and foreign matter.

A.8 Repair of Rainwater Goods

- A.8.1 Any remaining rust that cannot be removed using the above methods should be treated with Furtan Rust Converter in accordance with the manufacturer's guidance.
- A.8.2 Small holes and defects can be filled, upon agreement with epoxy-based proprietary fillers.

A.9 Redecoration of Rainwater Goods

- A.9.1 It should be assumed that the rainwater goods will need to be at least partially removed / dismantled in order to get a good, durable result.
- A.9.2 Scrape off any remaining loose, flaking and peeling paint. Using a foam wet-dry sanding block, sand the sheen off of the remaining paint.
- A.9.3 Thoroughly wash the rainwater goods. Clean them with a mild detergent from the top down and allow to dry.
- A.9.4 Coat with a high quality metal work primer (to be conformed with the architect) e.g. Temaprime EE by Tikkurila, strictly in accordance with manufacturer's guidance.
- A.9.5 Top-coat (allow 2 coats) with a high quality metal work paint (to be conformed with the architect) e.g. Panssarimaali Solid Shield by Tikkurila, strictly in accordance with manufacturer's guidance.

- A.9.6 Seal gutter joints using a low modulus silicone sealant. The sealant should be spread evenly within the gutter socket before placing the gutter spigot into the socket and bolting them together with stainless steel or zinc-plated screws and washers. The nuts should be lightly tightened onto the washers to avoid damaging the paint. Finally, any excess sealant should be removed to ensure free-flowing water within the gutter.
- A.9.7 Once the rainwater goods have been installed, they should be water tested using a hose or watering can to check there are no leaks and the falls are true.