

**Conservation Methodology
on proposed works to the former
Keshcarrigan Barracks at Keshcarrigan,
Co. Leitrim**



Prepared on behalf of

Keshcarrigan Development Association

by

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A. DESCRIPTION OF AND CONSERVATION METHODOLOGY FOR PROPOSED WORKS

The proposed development will consist of the following works:

Restoration, Refurbishment and Change of Use of former Keshcarrigan Garda Barracks and Site to Community Resource Use, incorporating Museum and Working Hub.

A.1. Proposed change of use

Change of use from most recent use a Garda Barracks to use as a Community Resource, incorporating Museum and Working Hub.

A.2. Proposed works to the interior

The works proposed to the interior are as follows:

2.1 Original timber floors:

Limited works are proposed to the internal floors purely to accommodate the removal of/installation of electrical services, insulation, etc. Where such works are required, the floors will be patched, repaired and protected. Timber boards will be lifted carefully, the joists carefully examined, repaired or renewed as necessary and sound boards refitted.

Original floorboards throughout to be sanded and varnished.

2.2 Staircase:

The original timber feature staircase is to be retained and repaired where necessary with matching materials. With the exception of a few damages or missing bannisters the stairs is generally in good repair and only minor works are anticipated.

2.3 Fabric upgrade to inner face of external walls:

Carefully remove existing lime render to inner face of external walls only. Re-render inner face of all external walls throughout to a depth of 60mm using Diathonite Evolution (cork based insulated lime render).

Diathonite Evolution is a fully breathable lime-based insulating plaster made from Hydrated lime, NHL 3.5 binder, Clay, Cork and Diatomaceous earth. It is highly breathable and helps walls in older buildings dry out thanks to its capillary active nature. It is therefore ideally suited for the restoration and insulation of Historic/Listed buildings or any building with solid stone or masonry walls.

This thermal plaster can be used internally or externally on solid stone or masonry walls and ceilings. It should be applied to exposed stone or brick after any gypsum plaster has been removed. It can also be applied on wood-based panels, lath and plasterboard that have been primed with Diasen Aquabond.

The Diathonite system is breathable and capillary active. It lets vapour pass through and actively transports moisture from the structure of the building helping the wall and building dry out. It regulates humidity and prevents condensation and mould growth.

Prior to application, any existing damp problems must be fully resolved.

In a typical installation, applying 50 - 75mm of Diathonite Evolution will improve the thermal performance of the wall by 3.5-4.5 times. This thickness is the most cost-effective way to provide a significant thermal improvement to the wall. The mechanical strength and elasticity are provided by the clever combination of natural ingredients. Elasticity reduces the risk of micro-cracking for a long-lasting durable finish.

2.4 Ceilings:

There are no surviving original lath & plaster ceilings. All ceilings were replaced with gypsum plasterboard whilst in use as a Barracks.

2.5 Joinery:

Unfortunately the majority of the internal skirtings were replaced with the exception of the half landing and some rooms on the first floor. Similarly there are no surviving door leafs or architraves.

2.6 Surviving Fixtures & Fittings:

There is one surviving fire surround located in the Eastern room on the First Floor. This should be retained & restored to help preserve the character of the interior.

2.7 Timber Lintels:

It was not possible to visually examine timber lintels as part of this report. It is likely that woodworm will be found to be present. These should be removed and replaced with recycled existing hardwood railway sleepers.

A.3. Proposed works to the exterior

Works to the exterior of the building comprising of cleaning, re-pointing, repairs to harling render, redecoration and replacement of non original rainwater goods to restore the character of the structure.

3.1 Rainwater goods:

Existing Condition/Proposed works:

Due to the re-roofing works underway the rainwater goods have all been removed. We understand that in general much of the original cast iron rainwater goods were intact prior to commencement of the works. However where sections of guttering are found to have been missing, or replaced using inappropriate materials, it is proposed to complete using cast iron rainwater goods to restore the character of the structure.

Proposed Methodology:

Re-fit original cast iron rainwater goods in their original locations. Fit new cast iron rainwater goods (gutters, gutter brackets, downpipes etc.) where necessary to match existing profiles, to Conservation Architects satisfaction.

3.2 External Joinery:

Existing Condition:

The building contains a mixture of original single glazed sliding sash two over two timber windows, replacement single glazed sliding sash two over two timber windows, replacement pvc framed windows, and replacement hardwood timber doors. Due to inadequate maintenance over the years some of the timber members to the original surviving windows have unfortunately decayed to such an extent that repair is necessary.

Proposed Works/Methodology:

The following works are now proposed:

It is proposed to remove all non original external windows & doors and install replacement traditional external doors and sash windows complete with a slim-glaze double glazed units (with warm edge spacer), which allows the perimeter margin to be to the minimum and therefore replicate traditional glazing rebates. Whilst details of the original profiles of the sliding sash windows can be recorded and re-created from the surviving windows on the rear façade, sufficient details of external doors were not available at the time of preparation of this Conservation methodology to specify the replacement doors. However the applicant is in the process of gathering old photographs and making these available to the Conservation Architect, which will inform the detailing of the proposed replacement timber doors.

It is proposed to carefully restore the surviving original windows as follows:

1. General

Each component of the surviving windows should be individually assessed on site by Conservation Contractor and a methodology for the works to be agreed with CA. This will help minimise loss of any historic materials and undue damage to decorative features. All elements of assembly to be numbered (if removal required).

2. Stripping of old paint

Paint should be removed using with a heat-gun to reveal the state of the timber/stucco/stone underneath.

3. Replacement of degraded timber

Once stripped and the condition of all timber elements in the shopfront assessed, any rotten or degraded wood should be cut out and replaced, one at a time. By replacing the degraded sections one after the other (and not all at once) you have more of the surviving frame to act as a guide for measurements, meaning each replaced section should be as close to the original as possible - even if that original section wasn't fully 'square'. This meant that a frame which may have been made to fit an ope, that may not be completely 'square', should fit back comfortably again.

A specific area that has rotted should be first chosen and the full extent of its rot assessed. This should then be cut out of the original section, leaving only firm healthy timber. Cuts should generally be angled, sloped to the outside, so that if any water should enter their joint in the future it would be directed back toward the exterior. A minimum of wood is removed.

The area cut away should be done in such a fashion that the new timber is not jointed to it along one straight line (a 'butt-joint'). To increase the strength of the joint, the new section should meet the existing section along several lines, one being 'spliced' into the other.

Once the rotten wood has been removed, new replacement pieces should be cut to size from larger pieces of Accoya-wood. Each new piece of timber should be glued and pinned into place with a combination of adhesive and stainless steel nails & screws and allowed to set before work commences on the next section to be replaced.

The timber should then be cleaned with pressurized air, removing all dust from joints and holes.

All components should then be sanded with a fine 120 grade sandpaper and cleaned for the last time before painting.

4. Glazing

The job of glazing can be delicate. Where original glass has survived this should have been numbered, cleaned and stored to ensure it is now refitted in its original position. Any new replacement panes should be specially cut to fit each particular opening in the sash, to ensure they fit perfectly. A thin layer of glazing putty should be first applied to the inside of the glazing bar around an opening (i.e. 'behind' the glass). The appropriate glass pane should then be gently placed on this layer of putty and pressed into it. When in the correct position it should be pinned into place with stainless steel pins. The window-sash should then be turned around and the excess putty cut away (from the 'inside' of the window) to form a straight line along the moulded side of the glazing bar, ensuring that no putty is visible from the interior when the sash is rehung. The window-sash should then be turned around once again and more putty pressed into the corner-joint formed by the pane of glass and the glazing bar, by hand. When an adequate amount of putty has been pressed into place, it should be smoothed into a neat triangular shape and then the edge cut back to line up with that on the 'inside' of the glass – again to ensure that no putty can be seen from the inside when looking through the window.

5. Painting

A priming coat should be painted throughout and left to dry. Once the primer has dried, the shopfront should be lightly sanded with 120 grade sand paper and cleaned down before an undercoat is applied. Once the undercoat has dried, the shopfront should be lightly sanded again and cleaned before the two top-coats are applied.

6. Final touches & cleaning

The final step is to clean the work and touch up any blemishes. Blemishes should be filled and sanded down level with the surface.

The repaired shopfront should be cleaned with a cloth and soapy water and caulked with a water-based caulk. The caulk can be smoothed out with a damp sponge, not being suitable to sanding.

All such joints and small fixes should be given a final coat of paint. The glass panes in each window should now be washed and the job completed & ready for the architect's inspection.

3.3 External re-pointing of stonework

Existing Condition/Proposed works:

Ashlar sandstone façade to front facades capped with corbel eaves stone, harling render elsewhere. The stonework is generally in good condition. Localized pointing proposed only where dislodged.

Proposed Methodology:

Repointing, where required, is to be carried out in a compatible and appropriate NHL mortar. Where possible, a sample of existing surviving lime mortar should be retained to allow replication. The contractor should allow for getting a sample of the existing mortar analysed facilitating replication of the original mix or a suitable variation as may be appropriate. Prior to implementation, a sample of mortar repair / repointing should be carried out and agreed with the Conservation Architect to demonstrate suitability of mortar, compatibility of colour and finish together with competency of the contractor. The sand is to be well-graded crushed stone with a predominant particle size to match the original mortar. It is to be low in soluble salts having an inert siliceous content greater than 95%. The sand is to be free from clay and other impurities.

3.4 Repairs to brickwork

Existing Condition/Proposed works:

The condition of the brickwork to external window & door opes was found to be generally in good condition.

Where decayed bricks are uncovered they should be cut out in a way that causes the minimum disturbance to the surrounding sound bricks. Replacement bricks to be sourced & installed that match the original as closely as possible in size, durability, texture and colour. Any replacements should be laid with the same bond, joint size and joint colour as the original. Where the brickwork is patterned or coloured, the replacement bricks should match the pattern and colours of the originals.

3.5 External Render repairs to harling on facades

Existing Condition/Proposed works:

The harling render is generally in a fair state of repair with just a few specific locations where small areas of render has become dislodged.

Proposed Methodology:

Where repairs are deemed to be required, all decayed render is to be carefully removed. Sound render is to be retained. Samples of render are to be made for approval.

Thoroughly (but lightly) wet the works area with clean water using hose pipe or sprayer. Allow water to soak in and spray again. Repeat until the surface layers of the wall are thoroughly damp but without water glistening on the surfaces. The introduction of this volume of water into the building is to be carefully controlled so

that water is applied to the area specified and does not spill and pool onto other adjacent surfaces. Careful application with appropriate sprayer in multiple treatments to allow soakage is required. The lime render is to be applied in two separate applications. The first coat comprising of well graded 3-5mm sharp sand mixed with Otterbein Calcidur/ Hydradaur NHL 3.5 in the ratio of 3:1 is to be pushed on using a trowel and pushed into the joints between stones. Keep lime mix as dry as possible and apply with pressure forcing the mortar into the surface crevices. This coat should be a minimum of 10mm thick and crosshatched. Protect the base coat from drying out too quickly using damp hessian, allow early carbonation to start (but not advance far). Leave base coat to dry for at least 3-5 days depending on the weather conditions. Thoroughly dampen base coat before applying subsequent top coat comprising of 3mm sharp sand mixed with Otterbein Calcidur/ Hydradaur NHL 3.5 in the ratio of 3:1. Close up cracks that form in the second coat by scouring, using wood float. Allow all plasters to dry slowly. Prevent from rapid drying with polythene or tarpaulin with a ventilation gap between the surface and the tarpaulin.

3.5 Ivy:

Existing Condition/Proposed works:

There are notable ivy growths to the rear façade and this should be removed to avoid even further threatening the structural integrity of the building.

The minimum works required here are as follows:

Treat with appropriate biocide, allowed to die back and then to be removed. Care to be taken to remove all roots and dead growth within the masonry. Limited opening up may be required. Stone elements to be carefully removed to avoid damage and to be reset in lime mortar on completion.

B. PROPOSED METHODOLOGY

B.1 Conservation Philosophy

The proposed conservation works will be carried out in accordance with the principles of the Venice and Burra Charters produced by ICOMOS Australia in 1979 and amended in 1981, 1988 and 1999. This document defines current conservation terminology and makes sensible recommendations for its practise. These include Principles, Processes preservation, Restoration, Reconstruction, Adaption and Practise all of which will be followed. The Charters accurately describes the strategy to be adopted for a project such as this, but they cannot dictate every decision since many of the clauses are open to interpretation. The term 'Cultural Significance' features extensively throughout and is defined as 'aesthetic, historic, scientific or social value for past, present or future generations' (Burra 1988). These aspects may occasionally be in conflict and the relative importance attached to any one of them can only be decided after informed discussions. In such circumstances a consensus of expert opinion will be arrived at in which no relevant fact has been overlooked.

B.2 General Principles

Features and materials of importance to maintain the structure's character will be retained. It is the object to carry out works limited to those essential for the survival of the property.

It is intended in all cases where possible to carry out repairs rather than replace materials.

In relation to any new work required to the structure the use of processes which are reversible will be used where practicable.

It is intended that unsatisfactory alterations that disfigure earlier work of greater merit should be reversed, where feasible.

B.3 Professional & Contractor Expertise

The works are to be carried out under the guidance of Mr. Enda MC Kiernan, Mc Kiernan Architects Ltd. (Grade 3 level accreditation with the RIAI).

Carrying out of the Works

The main contractor will be responsible for the works and thus must prepare & provide method statements to demonstrate how the fabric will be protected, labelled, stored, cleaned, etc. to facilitate the proposed works. Precautions should also be made to protect the building from fire and the ingress of water.

All works to the historic fabric of the building shall be carried out under the supervision of the contractor with advise and inspections by the Conservation Architect (C.A). No demolition, taking down, opening up or removal of any feature or fitting without C.A's approval. The contractor is to inform the workforce, other parties, sub contractors and suppliers, of what is expected of them and to enforce good practice in relation to standards, Health & Safety and waste management.

Opening up & investigations shall be carried out to determine the condition of concealed fabric. All works, repairs, alterations and making good to the original fabric are to be carried out in accordance with the conservation methodology below. Where any parts of the structure are to be removed these works should be done with care and original fabric must be stored for re-use in repairs or making good.

Replacement of original material should be kept to a minimum and should only be carried out when absolutely necessary. The proposed works should only be undertaken by appropriately qualified conservation practitioners who have experience in the use of historic materials and techniques.

B.4 Reference Documentation

1. General

All works to the structure to be carried out in compliance with the Venice and Burra Charters and should be guided by the documents listed below.

International Charter for the Conservation and Restoration of Monuments and Site. ICOMOS, 1964 (The Venice Charter). *The Australia ICOMOS Charter for Places of Cultural Significance*. Originally adopted in 1979, revisions 1981, 1988, 1999. (The Burra Charter). Note current standards/ most recent editions to apply.

2. General texts

BS 7913:1998 Guide to the principles of the conservation of historic buildings

British Standards Institute, 1998

Architectural Heritage Protection: Guidelines For Planning Authorities Published by:
Department of Arts, Heritage and the Gaeltacht, 2011.

The Repair of historic buildings, advice on principles and methods. English Heritage, 1995.

By Brereton, C. Ashurst, John & Nicola: *Practical Building Conservation*, Volume 2 &3, English Heritage

Technical Handbook, Gower Technical Press Ltd 1988 (currently being updated) Department of Environment, *Conservation Guidelines*, 1996.

Keohane, Fran, *Conservation Guidance Manual*, Dublin Civic Trust.

Dublin Civic Trust. *Period Houses: A Conservation Guidance Manual*. Dublin Civic Trust, 2001.

RIAI. *Guidelines for the Conservation of Buildings*. RIAI, 2001.

English Heritage, *Investigative Work and Historic Buildings*, December 1994.

CIRIA Report 111, *Structural Renovations OF Traditional Buildings*, 1986.

Brereton, Christopher, *The Repair of Historic Buildings: Advice on Principles and Methods*, 1995.

Society for the Protection of Ancient Buildings: *Information Sheet Series*

3. Masonry; repairs, cleaning

Ruins: The Conservation and Repair of Masonry Ruins

Advice series published by: Department of Environment, Heritage and Local Government, 2010.

Architectural Heritage Protection: Guidelines For Planning Authorities

Published by: Department of Arts, Heritage and the Gaeltacht, 2011. (Pg 118-123)

Bricks: A guide to the repair of historic brickwork

Advice series published by: Department of Environment, Heritage and Local Government, 2009.

McAfee, Patrick, *Stone Buildings*, O'Brien Press, Dublin 1998, Updated 2001.

2113- *Architectural Heritage Report 67*

Pavia, Sarah and Bolton, Jason, *Stone, Brick and Mortar Historic Use, Decay and Conservation of Building Materials in Ireland*.

4. Lime mortar; repointing

Architectural Heritage Protection: Guidelines For Planning Authorities Published by:
Department of Arts, Heritage and the Gaeltacht, 2011. (Pp.120-123 Repointing of stonework esp. 8.3.18 & Repointing of brickwork esp.8.3.36)

Building Limes Forum (the journal of) *Lime News*

Historic Scotland, *Preparation and Use of Lime Mortars*. Technical Advise Note HMSO, Edinburgh 1995.

Society for the Protection of Ancient Buildings: *Information Sheet 09 Introduction to Building Limes*

The Traditional Lime Company. *A Guide to Lime*. 2003

BS EN:459:2010 Building Lime

5. Timber; repairs

Architectural Heritage Protection: Guidelines For Planning Authorities Published by: Department of Arts, Heritage and the Gaeltacht, 2011.(Pg 123-125)

Society for the Protection of Ancient Buildings: *Information Sheet 10 Patching Old Floor Boards*

Society for the Protection of Ancient Buildings: *Information Sheet 15 Care and Repair of Old Floors*

6. Structure

Structural Aspects of Building Conservation: Second Edition by Paul Beckmann and Robert Bowles.

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C.1 EXTERIOR



Fig. 1 Front (South East) elevation



Fig. 2 Side (South West) elevation



Fig. 3 Rear (North West) elevation



Fig. 4 Rear (North West) elevation



Fig. 5 Side (North East) elevation



Fig. 6 Stone & brickwork



Fig. 7 Replacement timber framed windows to front facade



Fig. 8 Surviving two over two timber framed sash window to rear facade

C.2 INTERIOR



Fig. 9 Interior of front entrance

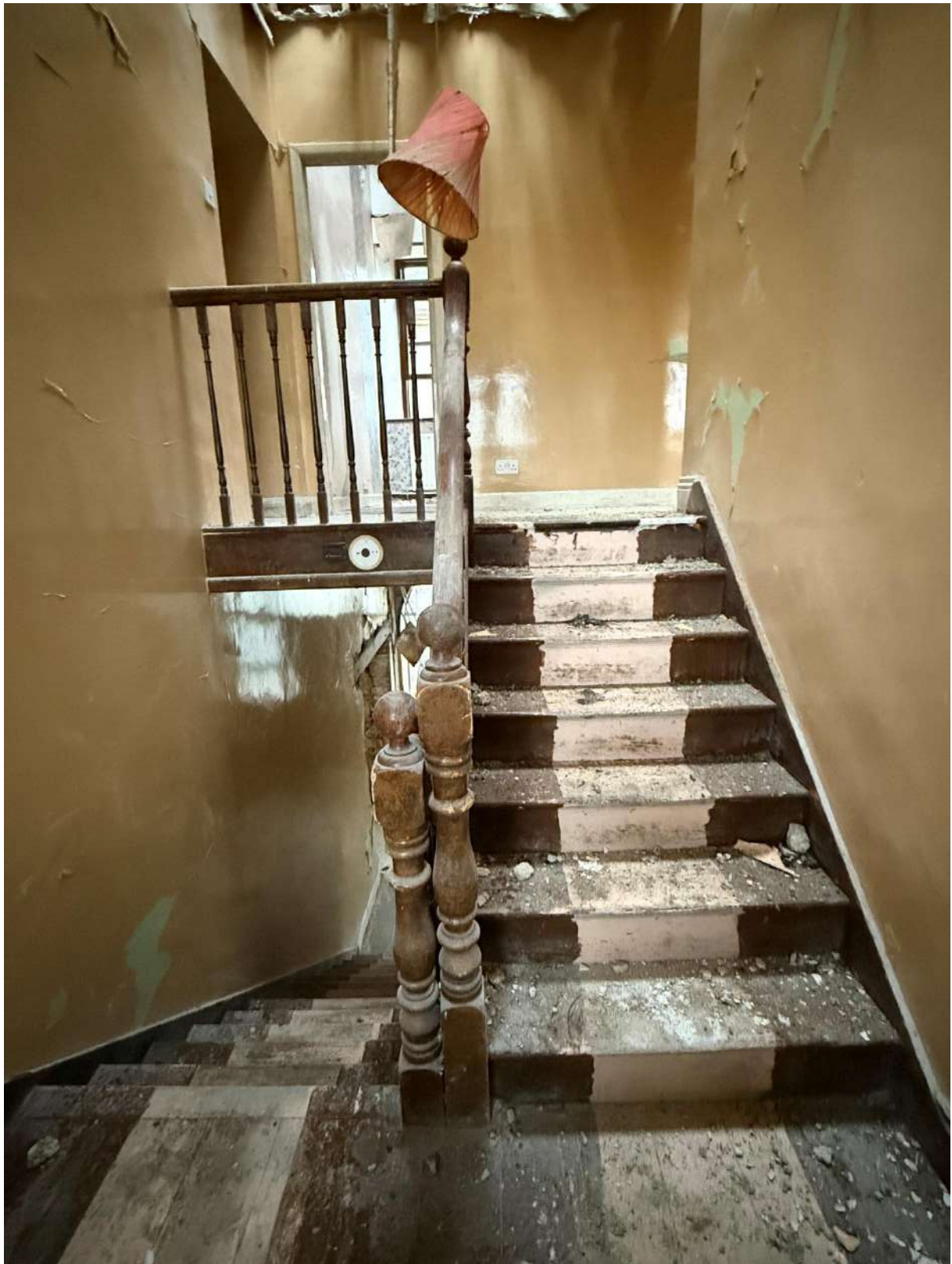


Fig. 10 Original stairs



Fig. 11 Landing & banister detail to original stairs at half landing



Fig. 12 Typical interior of room showing non-original ceilings & joinery



Fig. 13 First Floor interior of room showing ceilings removed



Fig. 14 Original fireplace to Eastern front room at first floor