



Stonehaven Flood Defence Scheme

Interventions to 19 Bridgefield

5th June 2015

Aberdeenshire Council

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1 Proposal

1.1 Overview

The proposals indicated within this report are for discussion with the building owner to outline proposed intervention measures to be carried out as part of the Stonehaven flood prevention scheme. All interventions are currently subject to approval from Historic Scotland.

1.2 Description of proposals

The flood defence infrastructure adjacent to the property of 19 Bridgefield is proposed for a structurally independent reinforced concrete retaining wall to be situated in front of the wall with a cavity of varied width (dependant on verticality of existing wall) between the existing stone wall and the new concrete wall. The cavity will provide ventilation to the existing wall and allow for natural breathability to the lime pointing and stonework. A coping stone will be situated on top of the wall, this could also have a suitable flashing to allow for water to shed away from the building (to be confirm with Historic Scotland). A cross section of the proposed reinforced retaining wall can be seen in appendix A. To maintain light to the existing door and 3 windows seen on the property façade (figures 1.3 to 1.6) it is proposed that a self-cleaning glass screen is embedded into the wall across these individual locations. The face of the proposed reinforced concrete wall will be finished with a natural stone render system sympathetic to the area.

In order to undertake the proposed works a number of interventions are required to be made to the property. These interventions are described below in section 2 of this report.

Figure 1.1: Building elevation adjacent to Carron Water



Source: Mott MacDonald

Figure 1.2: Existing scour protection & Verticality of wall



Source: Mott MacDonald

Figure 1.3: Fixed window nearest bridge



Source: Mott MacDonald

Figure 1.4: Bottom hinged double window (central)



Source: Mott MacDonald

Figure 1.5: Fixed window (far side)



Source: Mott MacDonald

Figure 1.6: Existing door opening on to Carron Water



Source: Mott MacDonald

2 Interventions

2.1 Alterations to 2nr. Existing Windows

Two windows (as shown figure 1.3 and 1.5) are noted to be fixed pane windows. In order to provide adequate access for maintenance and cleaning to the external face of the window, it is proposed that these existing windows are retro fitted with hinges or replaced with a window of similar style and material so that they can be opened from the internal space.

2.2 Alterations to Existing Downpipes

It is proposed that the existing rainwater downpipes to the property façade are altered or replaced to allow for a dog leg section to be installed so that the rainwater pipe follows a new route to the front of the new flood wall (refer to cross section in appendix A).

2.3 Alterations to Existing Scour Protection and Existing Building Foundation

It is noted that a mass concrete strip has been placed at the bottom of the wall to protect against erosion to the existing foundations from the Carron water, but are currently being undermined. In order to install the flood wall as currently proposed, a section of the concrete will need to be cut away. After the installation of the new wall the requirements of the scour protection will no longer be required as the new wall will provide this scour protection.

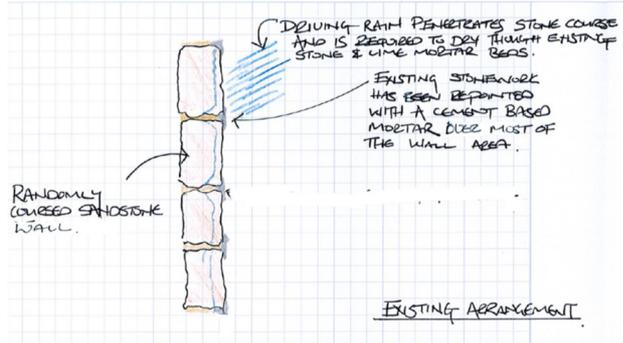
Further site investigations are required to be carried out prior to any proposed works to ascertain the extents of the existing foundation to ensure the structural integrity of the building foundations is maintained given the effects of the new flood wall.

2.4 Repointing to External Wall

The existing wall consists of randomly coursed sandstone which has been recently repointed with a cement based mortar over a large area of the wall elevation. It is recommended that the existing cement based mortar fully removed and replaced with a hydraulic lime mortar in order to maintain the integrity and durability of the wall. A full survey of the wall should be carried out to identify the areas and specification of the repointing.

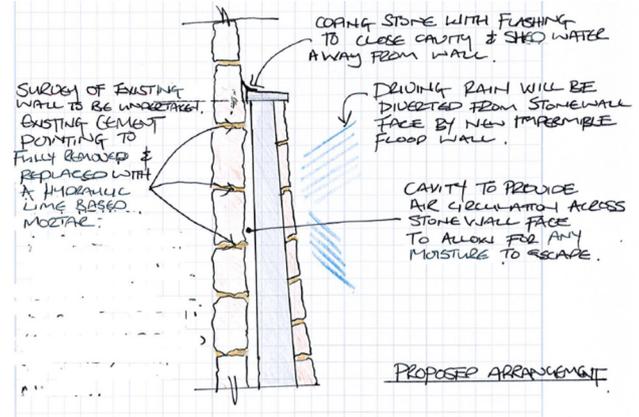
Following the installation of the impermeable flood wall in front of the existing wall, it is considered that very little further deterioration to the wall render will take place as the existing wall will be protected from the seasonal weather elements by the enclosure by the new flood wall (mortar deterioration is mainly due to removal of minerals over time from a permeable mortar due to repeated wetting and drying which occurs with a lime mortar).

Figure 2.1: Existing stonewall arrangement



Source: Mott MacDonald

Figure 2.2: Proposed stonewall arrangement



Source: Mott MacDonald

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Appendices

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Appendix A. Drawings

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