

Notes to be read in conjunction with Preliminary Drawing MCC_B01_R1_DR_B_011_S3.

1.0 Roof

1.1 Issues

- a) There are longstanding issues with water penetration through the two low level roofs of the Stables complex; one half houses the café and the other workshop/ store space.
- b) The roofs have a natural slate covering with rolled lead ridge. The slate size is approx. 550mm x 300mm, with a breathable underlay; timber vents are positioned centrally along the ridge to each slope.
- c) The following issues have been noted:
 - o Investigation has calculated the pitches of the roofs over the café and workshop as approx. 13° - *minimum pitch for slate roof coverings is typically 20°.*
 - o The slates have a maximum headlap of 75mm – *typically 130-150mm for a minimum roof pitch of 20°.*
 - o The slates/ underlay have a minimal overhang into the eaves gutters - *typically 45-55mm overhang in accordance with BS5534.*
- d) Site have reported correlation between water ingress and with wind driven rain, with the likely cause water tracking underneath the slates due to the low pitch and limited headlap.
- e) Increase in roof pitch is deemed impractical due to listing of the building and location of the lead rolled ridge at the underside of the gutters to the upper roof slopes.

1.2 Proposed Solution

- a) Carefully strip existing slate coverings, inclusive of timber battens, breathable underlay and leadwork.
- b) Inspect integrity of all underlying timber; review any necessary repairs.
- c) Fit breathable underlay and new 38x50mm treated timber battens.
- d) Existing slates to be salvaged/ retained as far as reasonably practical; any replacement slates to be natural welsh slate in size, colour and profile to match existing to prior approval of CA/ Conservation Officer. Re-fix salvaged and new slates using copper clout nails.
- e) Headlap of slates to be increased to 150mm – this will require the replacement of approximately 3nr slate courses on each slope; locations of any new slates to be agreed.
- f) Installation of Permavent 'Easy Slates' to side laps of all slates to mitigate low roof pitch. The product is BRE tested to improve resistance to wind driven rain; the product is also nonobtrusive, and is not visible following laying of slates. The 'Easy Slates' are approximately 0.7mm thick.
 - Product Guidance - <https://www.permavent.co.uk/wp-content/uploads/2020/10/Permavent-Easy-Roof-System-LABC-23102020.pdf>
 - Photographs of completed installations - <https://www.permavent.co.uk/case-studies/>

The 'Easy Slates' are only BRE tested on natural slate coverings to 15°, however it is anticipated that resistance to driving rain will be achieved as far as reasonably practical through a combination of 'Easy Slates' and increased headlap.

(Increasing the pitch of the roof to 15° would require an approx. 150mm increase in ridge height).

- g) Increase slate and underlay overhang into gutter to between 45-55mm in line with BS Standards.
- h) Lead detailing (stepped flashing, soakers, rolled lead ridge) to be replaced with new leadwork in accordance with Lead Sheet Association details – ***can lead alternatives be considered due to high incidences of theft (e.g. zinc)?***

1.3 Miscellaneous Roofing Works

- a) Inspection of timber vents to the low-level roofs, and weathervane to upper central roof; undertake repairs to rotten timber as deemed necessary; consideration of potential netting solutions to weathervane to prevent pigeons nesting.
- b) Replacement of rotten timber fascia on a like-for-like basis – as detailed on *Drawing MCC_B01_R1_DR_B_011_S3*.
- c) Replacement stolen flashing along edge of Roof 7 with a **lead alternative (e.g. zinc or Ubiflex)** – as detailed on *Drawing MCC_B01_R1_DR_B_011_S3*.

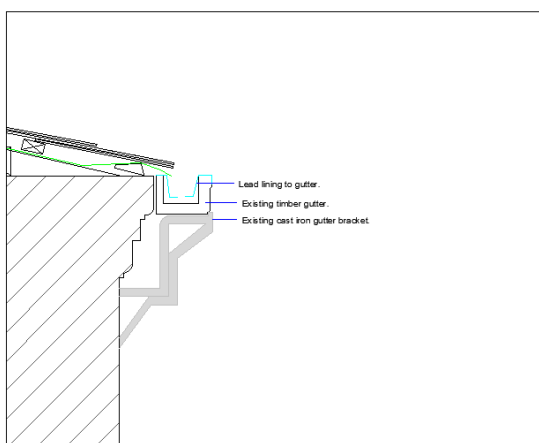
2.0 Gutters

2.1 Issues

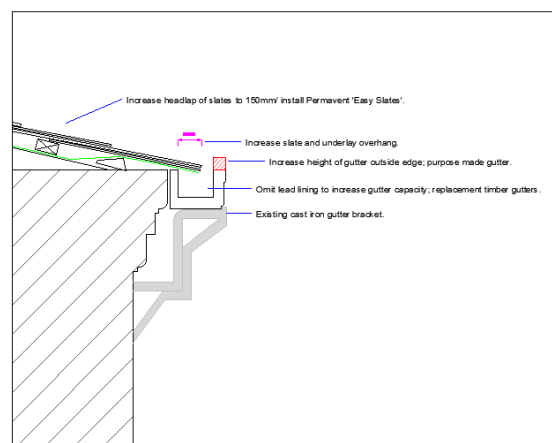
- a) The rainwater goods to the low- and high-level roofs comprise timber eaves gutters supported on cast iron brackets; some gutters are lined with lead. Downpipes and hoppers are cast iron.
- b) The existing timber gutters to the low- and high-level roofs are showing signs of rot throughout and require replacement.
- c) The following design issues were noted to the rainwater drainage to the low-level roofs:-
 - o Existing box gutters which are lead lined cannot cope with the amount of rain and overflow; capacity is restricted by the lead lining which has reduced the depth and width of the gutters.
 - o Rainwater from upper roofs drain onto lower roof slopes is compounding the above.
 - o The lead linings to the gutters to the low-level roofs do not lap under the slates as it was retrofitted following earlier theft without the eaves slates being removed.
 - o A combination of the above causes overflowing of the gutters during heavy rainfall, saturation of the masonry, and water ingress, resulting damage to building fabric.

2.2 Proposed Solution(s)

- a) Supply and install new treated timber gutter to existing profile and dimensions; coated internally with a bitumen or similar.
- b) Increase height of lip to outer edge of gutter to eliminate any potential overshoot of rainwater discharge.
- c) Omit lead lining in any replacement to increase internal gutter capacity.

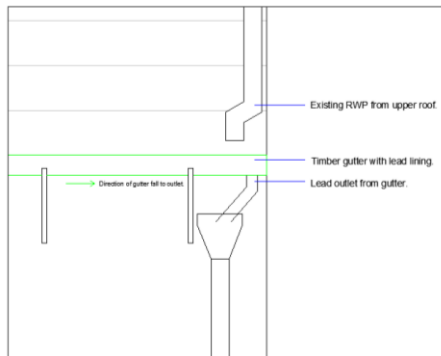


Eaves Detail - As Existing
NTS

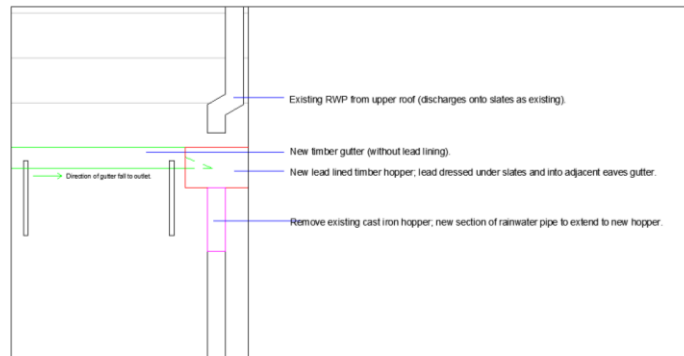


Eaves Detail - As Proposed
NTS

- d) **OPTION A** – Remove existing hoppers in locations marked on Drawing *MCC_B01_R1_DR_B_011_S3*. Replace with new purpose made timber hoppers as the indicative detail below to increase discharge capacity; as below.

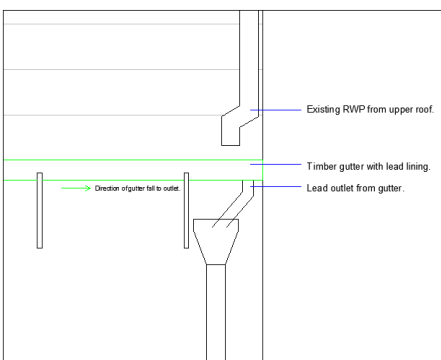


Hopper Detail - As Existing
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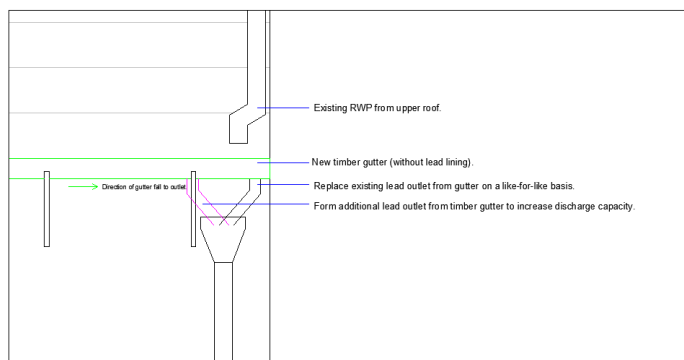


Hopper Detail - As Proposed
NTS

- e) **OPTION B** – Form additional lead outlet from gutter into existing hopper increase discharge capacity; as below.



Hopper Detail - As Existing
NTS



Hopper Detail - As Proposed
NTS

- f) **OPTION C** – Replace existing gutters with cast iron equivalents to match existing profile, which will provide increased gutter capacity (note that there is a cast iron gutter to the rear of the building).

3.0 Other Works

3.1 Existing Entrance Doors

- a) Localised timber splice repairs where timber is rotten; full redecoration of doors.

3.2 Existing Windows

- a) Localised timber splice repairs to rotten timber cills; full redecoration of frames.

4.0 Photographs



Photo 1

Pitched roofs with
slate coverings
approx. 12°.

Limited slate/
underlay overhang
into gutter.



Photo 2

Lead lining reduces
gutter capacity.



Upper roofs drain
onto lower roofs;
rainwater goods
over capacity.

Photo 3



Existing gutter
brackets restrict
changes to gutter
design/ capacity.

Photo 4



Photo 5 – Existing hopper arrangement.



Photo 6 – Existing hopper arrangement.