Deeside Design & Detailing Ltd.

David Havard MEng CEng MICE
davidh@deesidedd.co.uk

PROJECT:

MR. T. PHILLIPS

LOWER RACKERY BARNS, DARK LANE, LLAY

VISUAL INSPECTION REPORT

DOCUMENT NUMBER:
21-AGR-1434_REP_01

DATE:
August 2023

PROJECT TITLE
LOWER RACKERY BARNS

PROJECT NUMBER
21-AGR-1434

ELEMENT
SUMMARY

CALCULATION SHEET REF.
0.1

CALCULATIONS BY / DATE
DJH AUGUST 2023

Deeside Design & Detailing Ltd.

INTRODUCTION

A site visit was undertaken on Friday 25th August, 2023 in order to undertake a visual inspection of the existing buildings on the Lower Rackery Farm Site, Dark Lane, Burton.

The purpose of this report is to describe the form of the existing structure and to provide a commentary on the general condition of the building and any observed significant defects. The inspection was limited to a visual survey of the buildings. Note that structural elements covered by vegetation or within inaccessible areas have not been inspected. Timber elements have not been inspected in detail – and no testing has been carried out. No intrusive investigation has been undertaken to date relating to any of the buildings..

It is understood that planning consents were granted by Wrexham County Borough Council in 2014 for a change of use of redundant barns to residential use.

The below photograph shows a view of the buildings from the entrance to the site – for the purpose of this report the buildings are to be referred to as Building 1, Building 2 and Building 3.

A similar visual survey was previously undertaken in June 2004, with a further follow-up survey carried out April 2013 - by Huxtable Hodgson (report reference 7006B). To allow comparisons to be made on the condition of the buildings, the same references for each of the elevations will be used in this report as were used in the report by Huxtable Hodgson. It should be noted that the 'lean to' structure to the rear of Building 3 has been demolished and removed at some point after 2013.



PROJECT TITLE

Lower Nocken

PROJECT NUMBER

ELEMENT

CALCULATION SHEET REF.

0-2

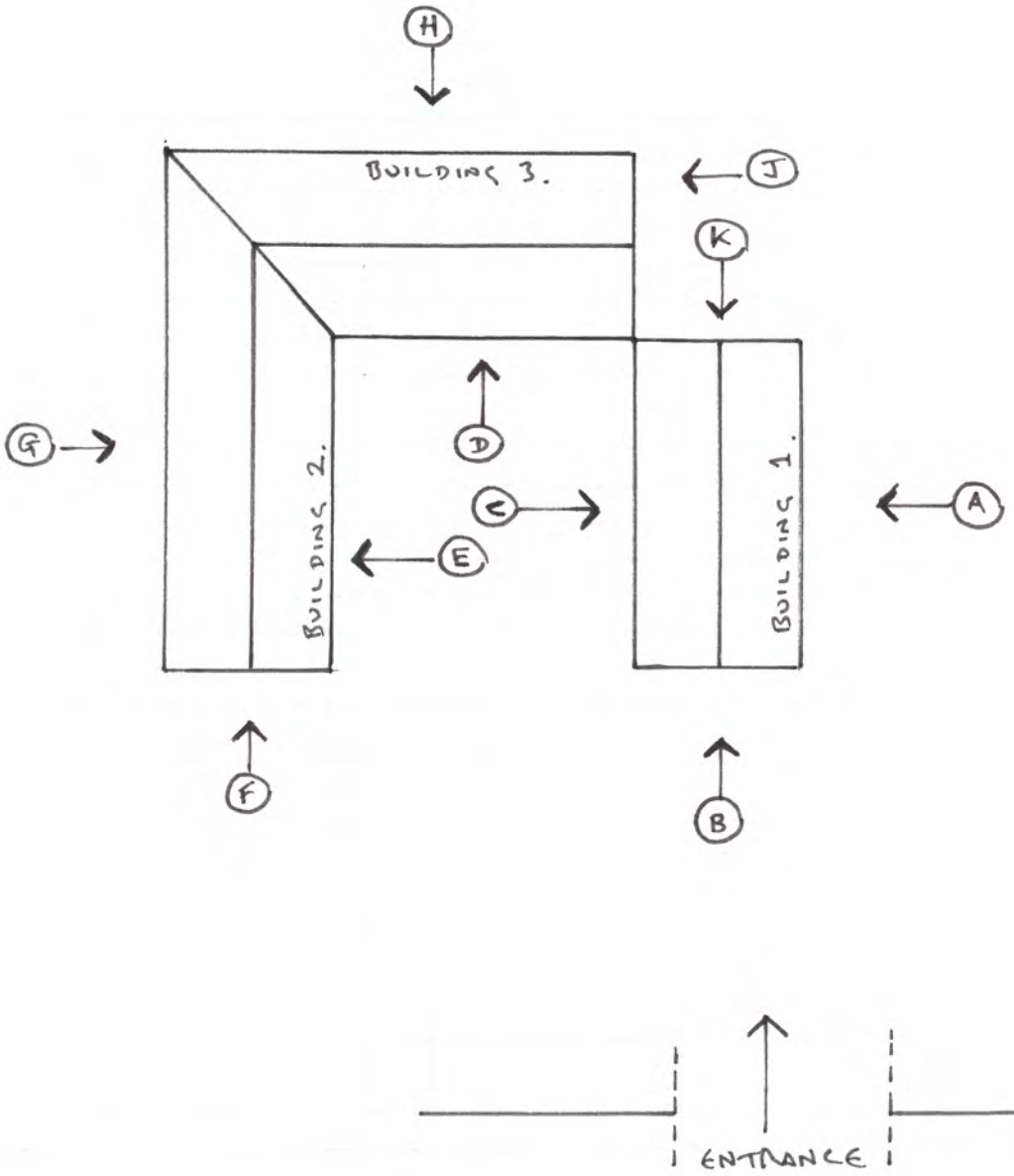
CALCULATIONS BY / DATE

DJH 12/21

Deeside Design & Detailing Ltd

- SITE LAYOUT :

ELEVATION REFERENCES



BUILDING 1 - STRUCTURAL LAYOUT

It is understood that Building 1 is the oldest of the buildings remaining on the site – and is understood to be approximately one hundred years old.

It was built as a two storey construction, rectangular on plan, with load bearing solid brickwork external walls (approximately 400mm thick) built off a low-level stone masonry wall (approximately 600mm thick).

The ground floor level appears to have been previously separated into three chambers by internal brickwork walls up to a height of approximately 1300mm, upon which timber infill walls were built up the underside of the first floor level to provide support. However, the separating walls appear to have been removed. There are no slabs or floor finishes to ground level.

The timber first floor level has been removed.

The roof construction is a traditional timber rafter and purlin arrangement, with two king-post timber trusses positioned above the previous dividing walls between chambers. The corrugated sheeting finish appears to have been removed, with a transparent sheeting material now in place providing protection from the weather.

The foundations were not exposed or inspected as part of this survey.



Image 1: Building 1, side and rear elevation

PROJECT TITLE
LOWER RACKERY BARNS

PROJECT NUMBER
21-AGR-1434

ELEMENT
BUILDING 1

CALCULATION SHEET REF.
1.1

CALCULATIONS BY / DATE
DJH AUGUST 2023

Deeside Design & Detailing Ltd.

BUILDING 1 - SURVEY OBSERVATIONS

Elevation A:

1.1 Low-level stonework joints open (mortar loss)
1.2 Ivy generally removed from elevation, with exception of small area to one end
1.3 Brickwork infill to previous opening
1.4 Evidence of local historic remedial work to corner
1.5 Wall bowing outward towards top
1.6 Corrugated roof sheeting removed – timber structure exposed but generally intact

Elevation B:

1.7 Low-level stonework joints open (mortar loss)
1.8 Ivy growth concealing large portion of elevation
1.9 Evidence of local historic remedial work to corner
1.10 Wall bowing outward at first floor level
1.11 Top of gable wall has loose coping units / dentil course, and not adequately restrained by roof structure

Elevation C:

1.12 Ivy growth concealing small area of elevation at each end
1.13 Possible local repair work to diagonal cracking
1.14 Areas of local historic remedial works adjacent to openings
1.15 Wall bowing outward towards top
1.16 Corrugated roof sheeting removed – timber structure exposed but generally intact
1.17 Localised re-pointing of brickwork
1.18 Loss of brickwork / damage to walls adjacent central door opening

Elevation K:

1.19 Vegetation growth partially concealing part of elevation
1.20 Numerous brickwork infills to ventilation voids
1.21 Evidence of historic remedial works at high level
1.22 Top of gable wall has loose coping units / dentil course, and not adequately restrained by roof structure

Internal:

- Vertical cracking to inside face of elevation B, below opening.
- Vertical cracking to inside face of elevation A, eaves level
- Evidence of previous repairs to corner wall (as highlighted on elevation A and B external)
- Damaged and loose brickwork around door openings
- Low level stonework and brickwork to rear of elevation A in poor condition
- Some timber joist ends (first floor) built into walls remain in place.
- King post trusses remain in place.

PROJECT TITLE
Lower Rochem

PROJECT NUMBER

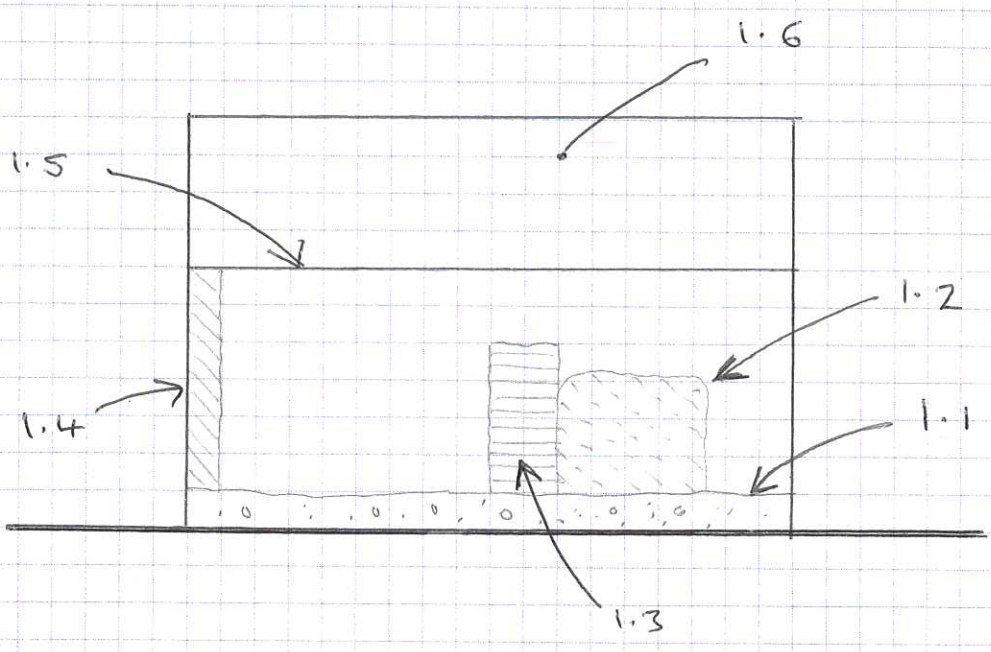
ELEMENT

CALCULATION SHEET REF.
1.3

CALCULATIONS BY / DATE
DJH 08/23

Deeside Design & Detailing Ltd.

- ELEVATION A :



PROJECT TITLE
Lawson Na Cheall

PROJECT NUMBER

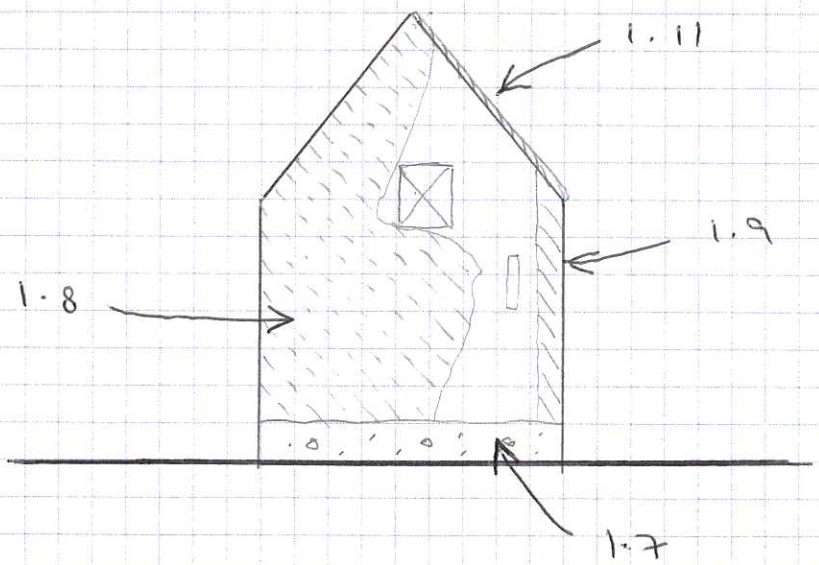
ELEMENT

CALCULATION SHEET REF.
1.4

CALCULATIONS BY / DATE
DJH 08/20

Deeside Design & Detailing Ltd.

- ELEVATION B :



PROJECT TITLE
LOWER NACHEN

PROJECT NUMBER

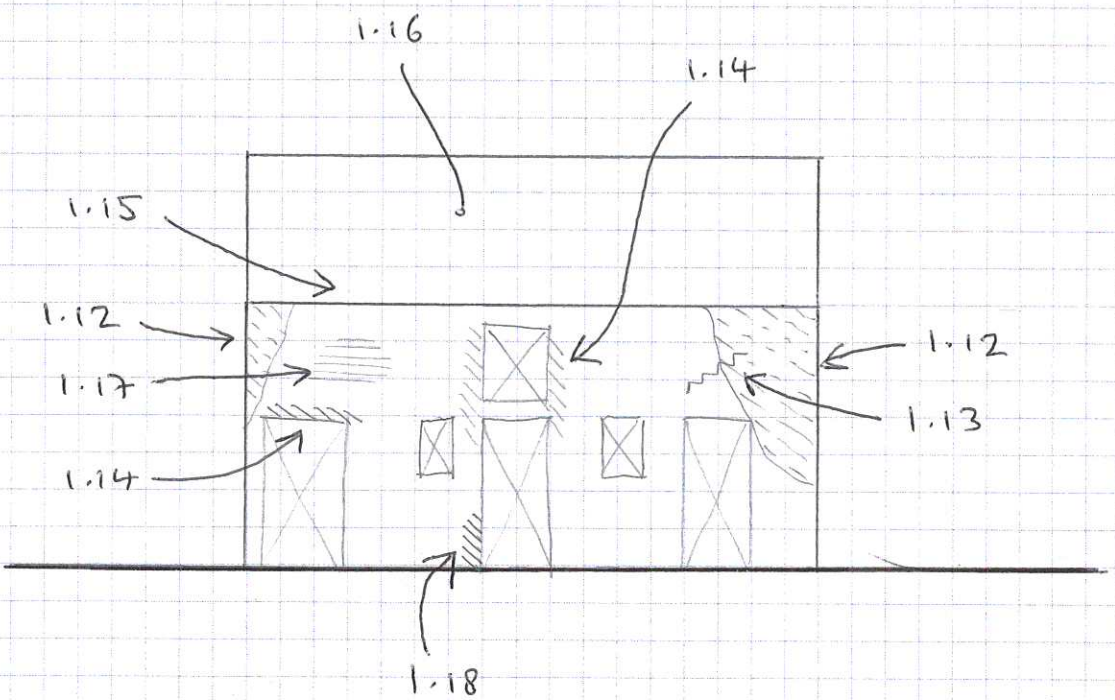
ELEMENT

CALCULATION SHEET REF.
1.5

CALCULATIONS BY / DATE
DJH 08/23

Deeside Design & Detailing Ltd.

- ELEVATION C :



PROJECT TITLE
Lower Nachern

PROJECT NUMBER

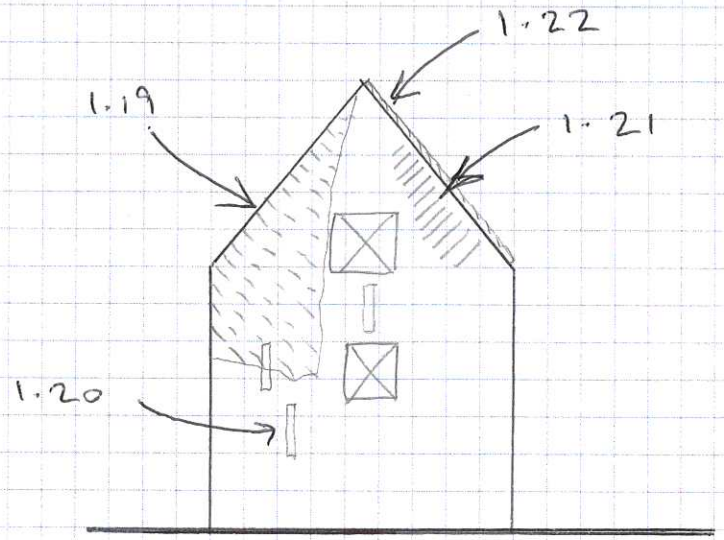
ELEMENT

CALCULATION SHEET REF.
1.6

CALCULATIONS BY / DATE
DJH 08/23

Deeside Design & Detailing Ltd.

- ELEVATION K :



BUILDING 2 - STRUCTURAL LAYOUT

Building 2 is a two storey construction which forms part of an overall an L-shaped structure on plan through its connection to Building 3. The external walls are load bearing solid brickwork (typically 215 to 325mm thick).

The ground floor level is separated into three chambers by internal brickwork cross walls which continue up to roof level. It appears that there are no slabs or floor finishes within this building – due to the vegetation growth throughout.

A number of timber beams remain at first floor level, however it appears that floorboards and secondary support members have been removed.

The roof construction is understood to have been a traditional timber rafter and purlin arrangement, with intermediate support off the brickwork cross walls. However, there is very little of the timber structure remaining.

The foundations were not exposed or inspected as part of this survey.



Image 2: Building 2, front elevation from courtyard

BUILDING 2 - SURVEY OBSERVATIONS

Elevation E:

2.1 Roof sheeting / finishes removed – some timber purlins remaining
2.2 Wall relatively plumb for verticality
2.3 Brickwork generally fractured / weathered across elevation
2.4 Cracked brickwork to side of large opening
2.5 Timber lintel (supporting wall above) large opening deflecting excessively
2.6 Loose brickwork around pattress plate, extending to eaves level
2.7 Previous opening infilled with brickwork
2.8 Loose brickwork to dentil courses

Elevation F:

2.9 Ivy / vegetation growth across majority of elevation including external staircase
2.10 Historic repair works to corner

Elevation G:

2.11 Lateral movement of wall at low level (where wall is acting as retaining wall, internal ground level approximately 1300mm higher than external levels)
2.12 Evidence of local historic remedial work to the corner
2.13 Brickwork generally weathered and fractured, open joints and loss of mortar beds
2.14 Loss of mortar beds – loose brickwork
2.15 Previous openings / damaged areas infilled with brickwork
2.16 Loose brickwork to dentil courses
2.17 Diagonal cracking (previously repointed)
2.18 Cracking and loose brickwork local to pattress plate
2.19 Evidence of local historic remedial work to the corner
2.20 Roof sheeting / finishes removed – some timber structure remaining
2.21 Loose brickwork to ventilation voids

Internal:

- Inaccessible at ground level due to vegetation growth
- Evidence of previous repairs to corner wall (as highlighted on elevation F and G external)
- Internal cross-walls detaching from side walls – cracking and loose brickwork
- Previous repair / repointing to interface between internal cross walls and side walls
- Number of timber beams remain in place.
- Some timber joist ends built into walls remain in place.

PROJECT TITLE
Lower Nochem

PROJECT NUMBER

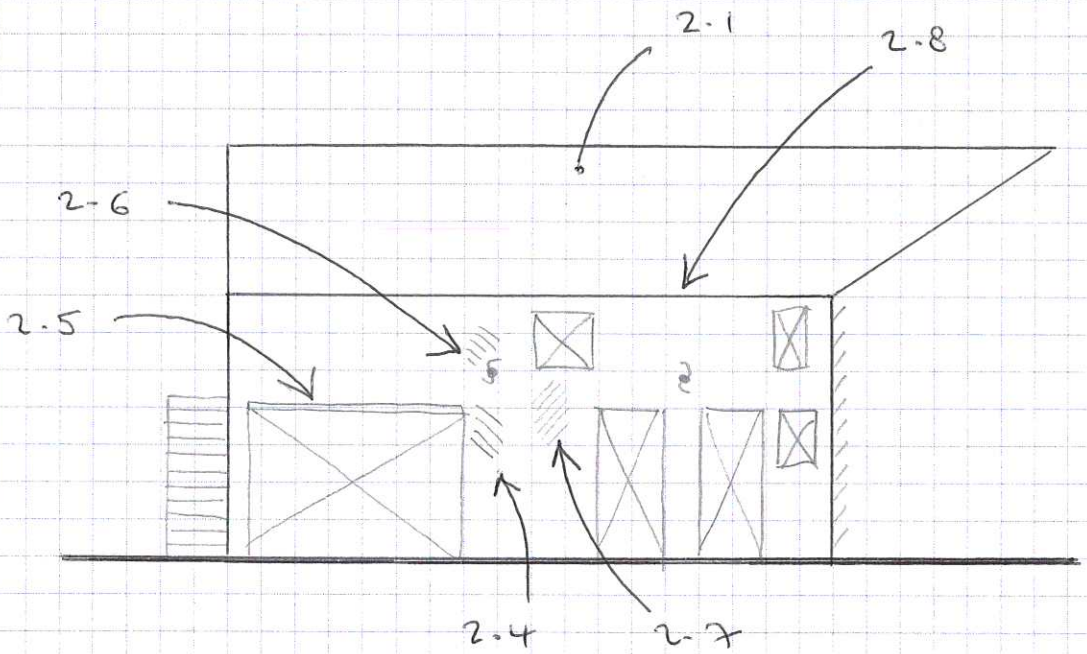
ELEMENT

CALCULATION SHEET REF.
2.3

CALCULATIONS BY / DATE
DJH 08/23

Deeside Design & Detailing Ltd.

- ELEVATION E :



PROJECT TITLE
LOGAN MACHINE

PROJECT NUMBER

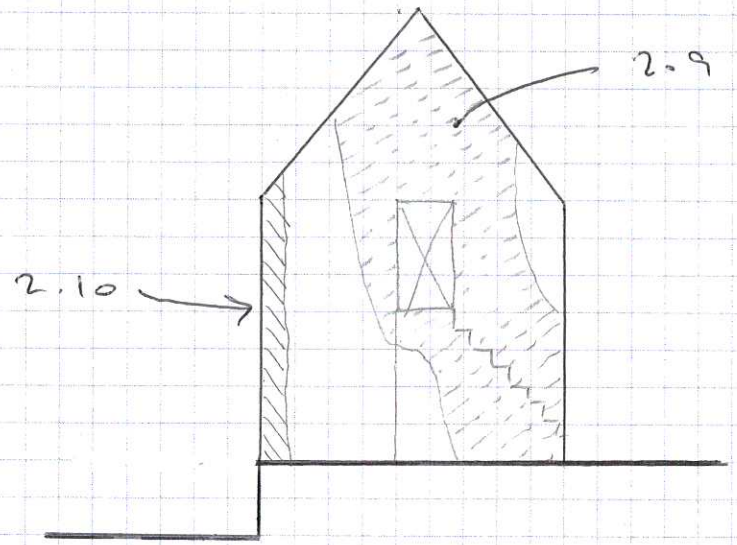
ELEMENT

CALCULATION SHEET REF.
2.4

CALCULATIONS BY / DATE
DJH 08/23

Deeside Design & Detailing Ltd.

- ELEVATION F :



PROJECT TITLE
LOWER ARCHERY

PROJECT NUMBER

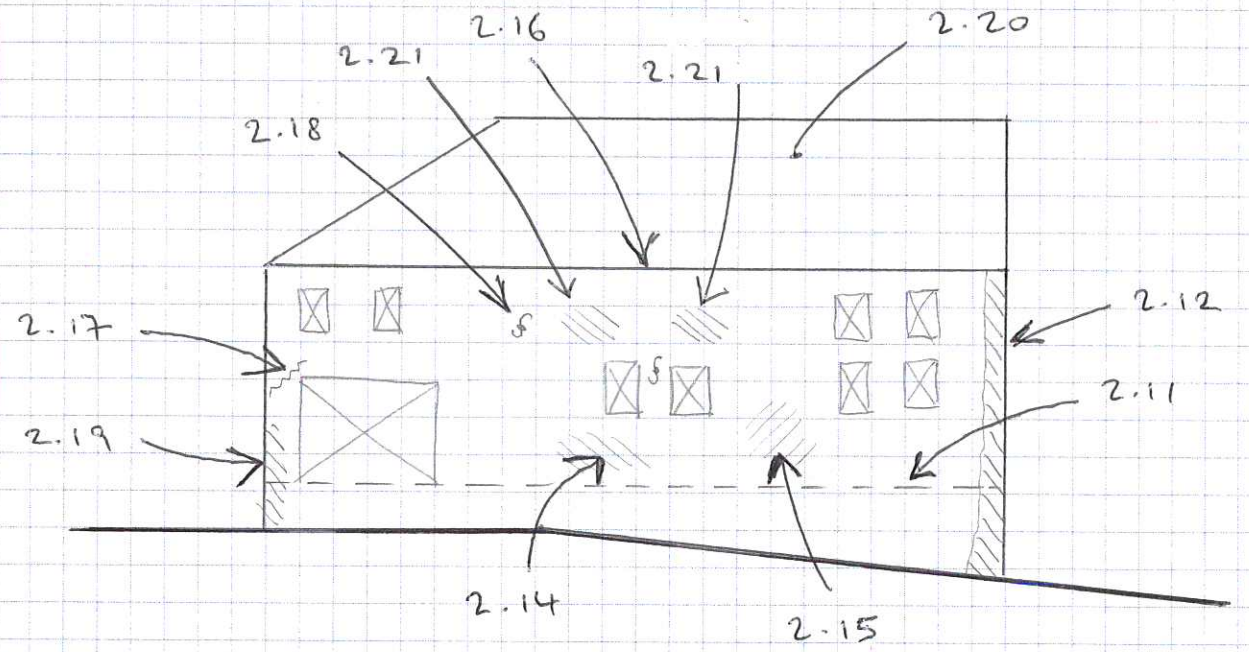
ELEMENT

CALCULATION SHEET REF.
2.5

CALCULATIONS BY / DATE
DJH 08/23

Deeside Design & Detailing Ltd.

ELEVATION G :



BUILDING 3 - STRUCTURAL LAYOUT

Building 3 is a two storey structure. The external walls are load bearing solid brickwork (approximately 215mm thick).

It appears that there are no ground floor slabs or floor finishes within this building – due to the vegetation growth throughout.

The first floor timber construction appears to have been removed throughout. It is also understood that the repaired walls to the elevation H and J were carried out as a result of the collapse of part of the first floor timber structure which caused damage to the original walls.

The roof construction is understood to have been a traditional timber rafter and purlin arrangement, with intermediate support off brickwork cross walls and timber king-post trusses. The trusses and a number of the purlins remain – all other members and finishes are not present.

The foundations were not exposed or inspected as part of this survey.



Image 3: Front elevation of Building 3

BUILDING 3 - SURVEY OBSERVATIONS

Elevation D:

3.1 Previous opening infilled with brickwork
3.2 Loose brickwork / void in wall due to collapsed brickwork
3.3 Complete loss of mortar beds – loose brickwork
3.4 Loose brickwork to brickwork dentil courses / above timber lintels
3.5 Roof sheeting / finishes removed – some timber structure remaining

Elevation H:

3.6 Lean-to structure completely removed – scarring and damage from associated demolition works
3.7 Scaffolding present across full elevation
3.8 Complete repair of western end of elevation and return wall (elevation J) in blockwork masonry
3.9 Local re-building to eastern corner and repointing of vertical cracking
3.10 Loss of outer leaf brickwork at low level
3.11 Low level brickwork concealed by render
3.12 Roof sheeting / finishes removed – some timber structure remaining
3.13 Locally collapsed brickwork at high level
3.14 Weathered brickwork and loss of mortar to joints

Elevation J:

3.15 Elevation fully repaired in blockwork masonry, and tied into adjacent elevation D and H.

Internal:

- Blockwork masonry wall constructed up to underside of steel beam at western end
- Movement / cracking to low level wall – consistent with elevation H observations
- Internal cross-walls detaching from side walls

PROJECT TITLE
Lower Lochton

PROJECT NUMBER

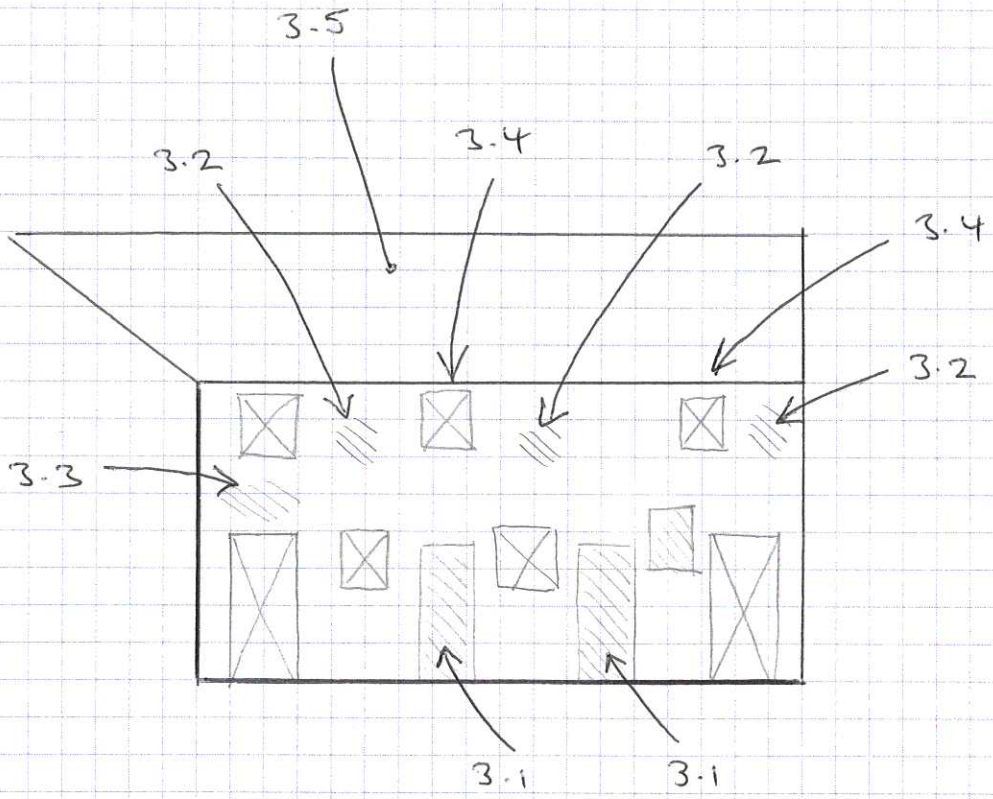
ELEMENT

CALCULATION SHEET REF.
3.3

CALCULATIONS BY / DATE
DJH 08/23

Deeside Design & Detailing Ltd.

- ELEVATION D :



PROJECT TITLE
LONGACRE

PROJECT NUMBER

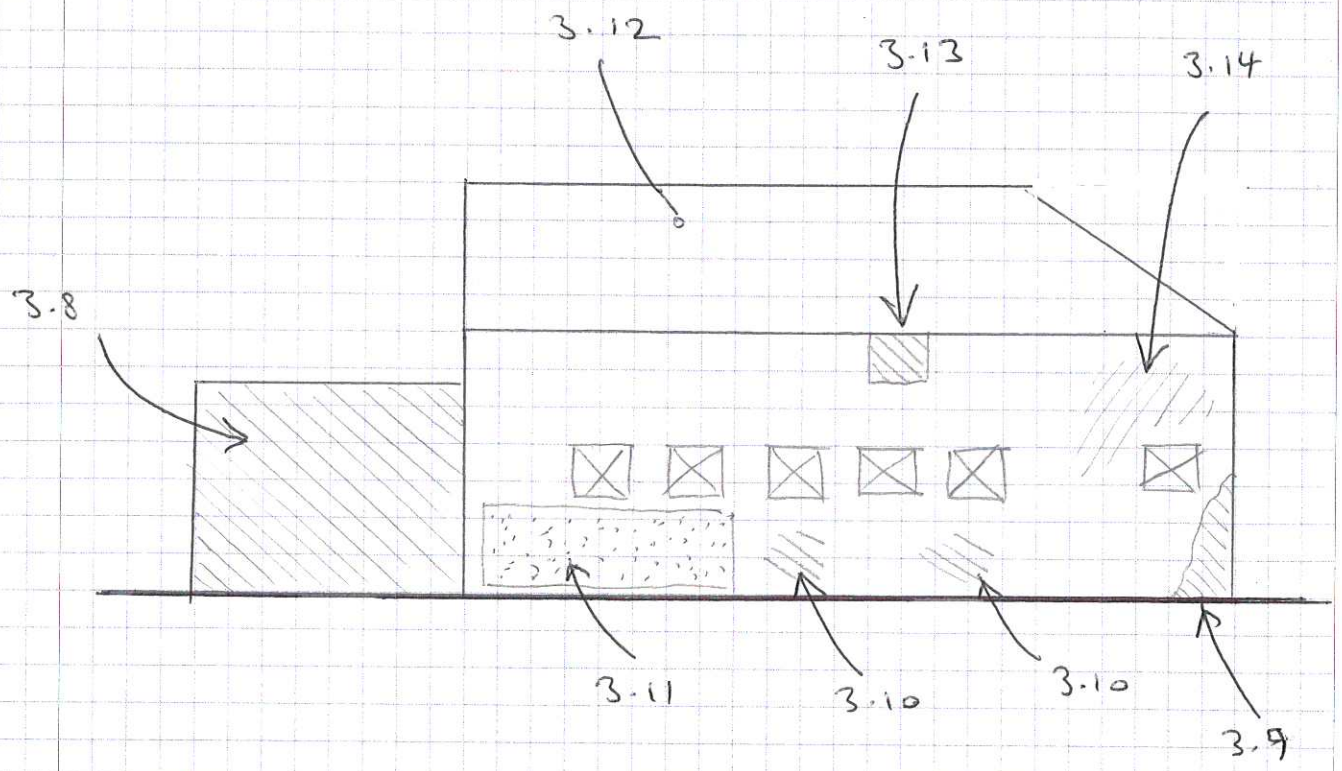
ELEMENT

CALCULATION SHEET REF.
3.4

CALCULATIONS BY / DATE
DJH 08/17

Deeside Design & Detailing Ltd.

- ELEVATION H:



PROJECT TITLE

LOWER NORTHSIDE

PROJECT NUMBER

ELEMENT

CALCULATION SHEET REF.

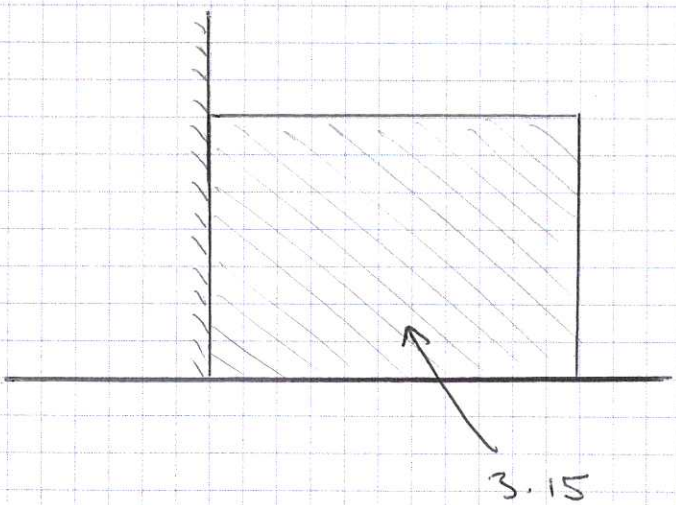
3.5

CALCULATIONS BY / DATE

DJH 08/23

Deeside Design & Detailing Ltd.

- ELEVATION J :



CONCLUSIONS AND RECOMMENDATIONS

With reference to the earlier reports produced by Huxtable Hodgson and following our recent visual inspection on site, we would suggest that, in general, there has been little appreciable change in the overall condition of the buildings (and in particular the external elevations) since 2013.

Repair works have recently been carried out to elevations H and J in terms of the new sections of masonry blockwork walls constructed to locally stabilise Building 3. It is anticipated that the previous removal of the lean-to structure (at some point after 2013) and the collapse of the first floor timber joists (in 2022) had progressively weakened the building leading to the requirement for the repair works.

It is also evident that other parts of the buildings have undergone structural movement (as noted in the first Huxtable Hodgson report in 2004) that had led to cracking of brickwork and out of plumb external walls – and that a series of repair and maintenance works had been carried out to attempt to address this and limit further movements.

A further programme of repair works are required throughout each building in order to prolong the life of the structures / facilitate conversion of the buildings into dwellings, however, it is suggested that these would be minor repair works typically including:

- Localised crack repairs to masonry
- Repointing of mortar joints
- Replacement of timber lintels
- Making good around window / door openings and ventilation voids and other loose brickwork
- Resetting dentil courses / high level brickwork units
- Lateral restraint to out of plumb walls to halt any further outward movement / bulging – through the provision of ties to the first floor construction / roof level
- Lateral restraint to elevation G at low level (ground floor) and potentially removal of fill material being retained by the wall.
- Repointing and resetting works low level stone bases (Building 1) to ensure adequate support to walls above

PROJECT TITLE
LOWER RACKERY BARNS

PROJECT NUMBER
21-AGR-1434

ELEMENT

CALCULATION SHEET REF.
A

CALCULATIONS BY / DATE
DJH AUGUST 2023

Deeside Design & Detailing Ltd.

APPENDIX A: SITE PHOTOGRAPHS

PROJECT TITLE
LOWER RACKERY BARNS

PROJECT NUMBER
21-AGR-1434

ELEMENT

CALCULATION SHEET REF.
A.1

CALCULATIONS BY / DATE
DJH AUGUST 2023

Deeside Design & Detailing Ltd.



Elevation A:



Elevation B and C:



Elevation D:



Elevation E:



Elevation F:



Elevation G:

PROJECT TITLE
LOWER RACKERY BARNS

PROJECT NUMBER
21-AGR-1434

ELEMENT

CALCULATION SHEET REF.
A.2

CALCULATIONS BY / DATE
DJH AUGUST 2023

Deeside Design & Detailing Ltd.



Elevation H:



Elevation J:



Elevation K:



Site overall:

PROJECT TITLE
LOWER RACKERY BARNS

PROJECT NUMBER
21-AGR-1434

ELEMENT

CALCULATION SHEET REF.
A.3

CALCULATIONS BY / DATE
DJH AUGUST 2023

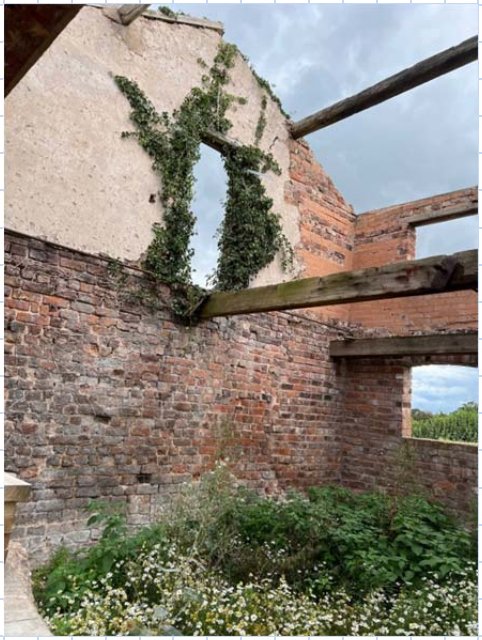
Deeside Design & Detailing Ltd.



Building 1: internal view



Building 1: internal view



Building 2: internal view



Building 2: internal view

PROJECT TITLE
LOWER RACKERY BARNS

PROJECT NUMBER
21-AGR-1434

ELEMENT

CALCULATION SHEET REF.
A.4

CALCULATIONS BY / DATE
DJH AUGUST 2023

Deeside Design & Detailing Ltd.



Building 3: internal view



Building 3: internal view