



21314

BRANCH ROAD FARM, BRANCH ROAD
LITTLEBOROUGH – OL15 0AB

May 2021

Brunel House Milnrow Rochdale OL16 3NJ

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REPORT ON STRUCTURE

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1.00 INTRODUCTION

- 1.01** We were requested by Mr Wildman to carry out a survey and to provide a report on the structure of the property known as The Barn, Branch Road Farm, Littleborough. See photograph 1.
- 1.02** The purpose of the report was to assess the structural suitability of the remaining structure for reinstatement and conversion to a domestic dwelling. The report is to be used to aid a planning application and to help identify to the Planning Officers, the intentions of Mr Wildman and his Design / Construction Team.
- 1.03** For the purposes of this report all references to left, right, front and rear should be taken as viewing the property from Branch Road.
- 1.04** This report has been carried out on a purely visual basis. We have not inspected parts of the property which are covered, unexposed or inaccessible and such parts are assumed to be in good repair and condition.

The report does not purport to express an opinion about or to advise upon the condition of any uninspected parts, and should not be taken as making any implied representation or statement about such parts.

We have not inspected nor tested the drains and other services and are therefore not in a position to advise upon any defects.

- 1.05** This report has been carried out for guidance of the person named overleaf in his pursuance of planning permission for conversion of the barns to domestic use and should not be used as a specification for carrying out the works.
- 1.06** This report has been carried out for the person named overleaf to be used in connection with their purchase, selling or repair of the property and should not be copied or sold to any other persons without the agreement of Healey Consulting.

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2.00 DESCRIPTION

2.01 The part of the property to be converted originally comprised of a stone barn of two storey proportions with a single storey rear lean-to occupying the full length of the rear elevation. During the first attempt of the conversion, a number of walls became unstable and partial collapse occurred. This we feel, was partially attributable to the loss of restraint following the removal of the roof.

2.02 Drawings depicting the barn as existing at the time of our inspection are appended to the rear of this report, along with photographs taken at the same time.

2.03 The barn is attached to an existing, occupied farmhouse.

The ground floor of the farmhouse is raised approximately 950mm above that of the barn. The two share the same ridge line.

The party wall, with the farmhouse, is to remain as a party wall in the new development. See photograph 2.

2.04 The remaining barn walls are faced with a coursed local stone with narrow beds joints. See photograph 3. The inner leaf is of random stone and there is a poor, loose rubble fill. See photograph 4.

2.05 On the front elevation there is an existing large cart arch, two nominal window openings and a personnel door. See photograph 5.

2.06 The existing front elevation is complete up to within a few stone courses below eaves level. See photograph 6.

2.07 The left-hand side and rear elevations became unstable during demolitions and now only remain in part. See photographs 7, 8 & 9 - side elevation and photographs 10, 11 & 12 - rear elevation.

2.08 The roof structure no longer exists. The slates were removed and are palletised on the side for re-use.

2.09 Where the walls have been taken down or collapsed due to instability, all facing stones, feature lintels and mullions have been kept for re-use. These are also on site and can be viewed if deemed necessary.

2.10 The existing floor slab currently remains. This is a mixture of different surfaces set at varying levels. See photographs 13 & 14.

3.00 DISCUSSION

3.01 EXTERNAL WALLS

The proposed elevations are shown using the original planning drawings. Appendix B.

The front elevation is predominantly as original. Notwithstanding the formerly approved additional window openings, the elevation is to remain undisturbed.

The external face of this elevation is deemed to be plumb to within acceptable tolerances and there has been little or no movement to the inner face.

The inner face is of random stone set in a relatively poor, lime mortar matrix. In order to help stabilise the wall and avoid any further collapse, it is intended to carefully remove any loose mortar from the inner face and to apply a sand / cement render with a backing mesh.

The wall will be extended to eaves level, faced with the original coursed stone. The remaining partial elevations on the left and rear will be stabilised in a similar manner.

Prior to any further reconstruction, the existing floor slab will be removed and replaced with a new concrete slab / raft. A typical detail is shown in Appendix D.

This detail will allow an internal blockwork leaf to be constructed without disturbing any existing foundations or walls. This will result in a slight loss of internal floor space.

The blockwork inner leaf will become the loadbearing element of the structure, thereby ensuring that there is no further physical disturbance to the original walls. The inner leaf will be tied to the original wall or outer leaf. Thereby increasing the lateral stability.

The roof and internal floors will be supported by the blockwork. During construction, both leaves will be brought up together such that there is no temporary instability of the walls.

Original facing stones will be used for the re-build. We estimate 90 to 95% of the stone facings have been salvaged.

Where new stone, including mullions, lintels and cills are needed, these will be obtained to match the existing and will be subject to approval by the lead Planning Authority.

On completion, the external elevations will be totally repointed in a style and manner to be agreed. A lime-based mortar will be used.

3.02 ROOF

There is currently no roof on the property. This was always to be replaced.

The roof structure will be of traditional construction, utilising timber rafters and purlins.

The introduction of a number of conservation roof lights has been previously agreed with the Planning Authority.

The original slate will be re-used, and any additional slates will be sourced to match.

Tying details will be employed to ensure the roof does not spread and will offer restraint to the new walls.

3.03 UPPER FLOORS

The upper floor will be of timber construction supported by new internal walls and steel beams where necessary. No vertical load will be applied to any of the existing walls, including the party wall.

3.04 GROUND FLOOR

The ground floor will be ground supported.

The floor will be an insulated concrete structure with the ability to provide support for the inner leaf, the roof and the upper floors.

3.05 METHOD STATEMENT

A more detailed method statement for the re-build, along with typical construction details, can be found in Appendix D.

4.00 CONCLUSIONS & RECOMMENDATIONS

- 4.01** We believe the collapse of the left-hand side and the rear elevation was inevitable given the condition of the walls and the poor quality of the inner leaf matrix and the loose rubble fill. See photographs 15 & 16. The loss of lateral restraint due to the removal of the roof was also a contributing factor.

It is obviously essential that no further collapse occurs and that any rebuild is undertaken with materials re-claimed from the site and in a manner in keeping with the original construction.

- 4.02** To this end, we have recommended action that will stabilise the remaining elements prior to any further work being undertaken.

The elevations to be rebuilt will be backed up with a blockwork inner leaf. This will need to step around areas of the external wall that remain standing.

- 4.03** To facilitate the construction, the local debris from the collapsed walls will need to be removed from the footprint of the building. The base stone course at ground level will then need to be prepared to receive the re-claimed facings.

- 4.04** Once this debris is removed from the footprint, the floor slab will be carefully broken out and removed from site. A new insulated concrete slab with relevant thickenings will form the base / foundation for the inner leaf and any internal load bearing walls.

- 4.05** Both leaves of the new external walls will be constructed in tandem, such that the wall does not become unstable during construction. Internal load bearing walls will, where possible, be tied to the inner leaf of the external walls to provide buttressing and lateral restraint.

A more detailed method statement, with sketches, is provided in Appendix D.

- 4.06** Given the nature of the remaining wall construction, it is in our opinion that the collapse was unfortunate but inevitable.

To leave the barn in its current state would, we feel, constitute a danger. The front elevation would ultimately collapse, potentially causing damage to the adjacent occupied dwelling.

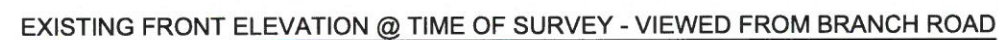
We are clearly aware that 60%+ of the elevations now need to be rebuilt and that this is outside normal guidelines for conversions of this type, but given the current situation, we strongly recommend that the conversion is allowed to be completed in a controlled manner.

SIGNED... *P. Healey*.....

PAUL MICHAEL HEALEY
BSc (Hons) C.Eng M.I. Struct.E. M.a.P.S.

DATED.....8th June 2021

APPENDIX A
ELEVATIONS AS EXISTING



REV.	DATE	BY	DETAILS OF REVISION

ARCHITECT / CLIENT
MR & MRS D WILDMAN

PROJECT
BRANCH ROAD FARM
BRANCH ROAD
LITTLEBOROUGH, ROCHDALE

TITLE
PROPOSED DEVELOPMENT
CONVERSION OF BARN TO DOMESTIC
EXISTING FRONT & SIDE ELEVATIONS

DRAWN BY
PMM

DATE
20.05.21

SCALE
1:100 @ A3

DRAWING NO.
HC-21314-(60)-01

REVISION



HEALEY

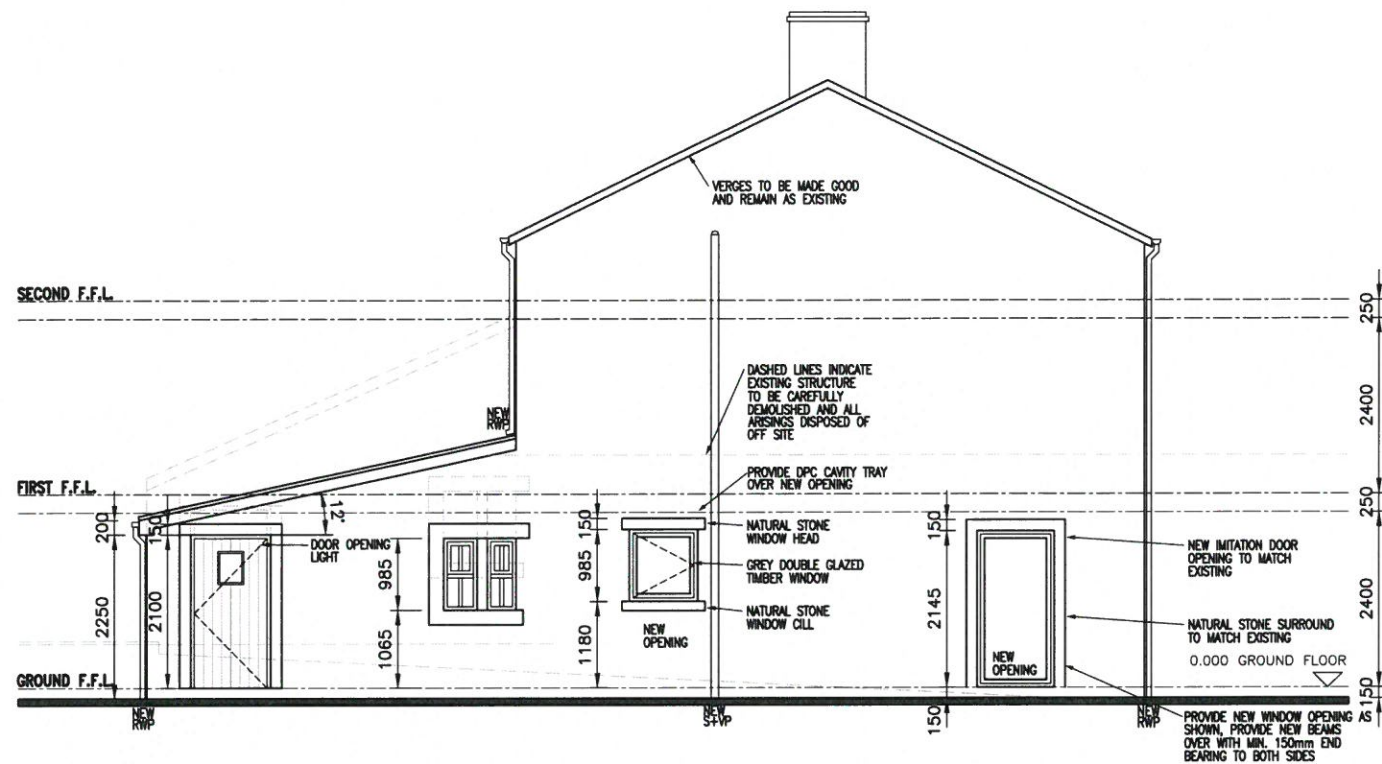
consulting

structural engineering consultants

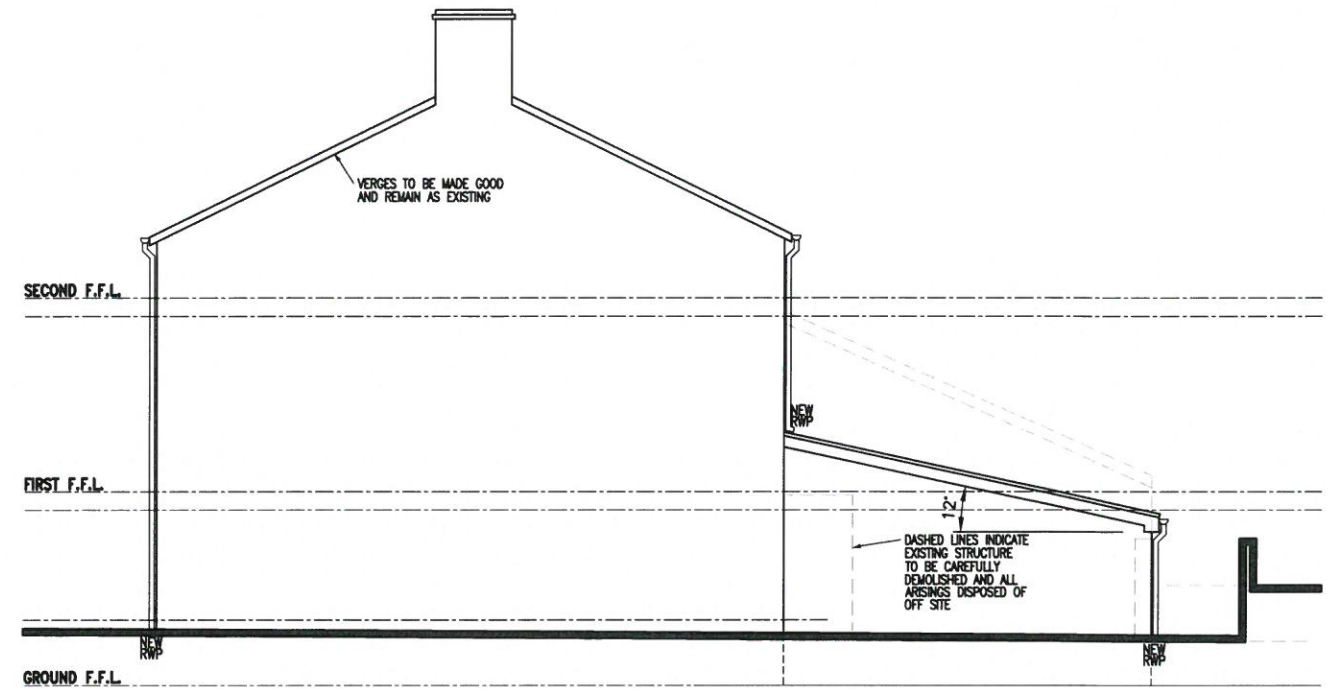
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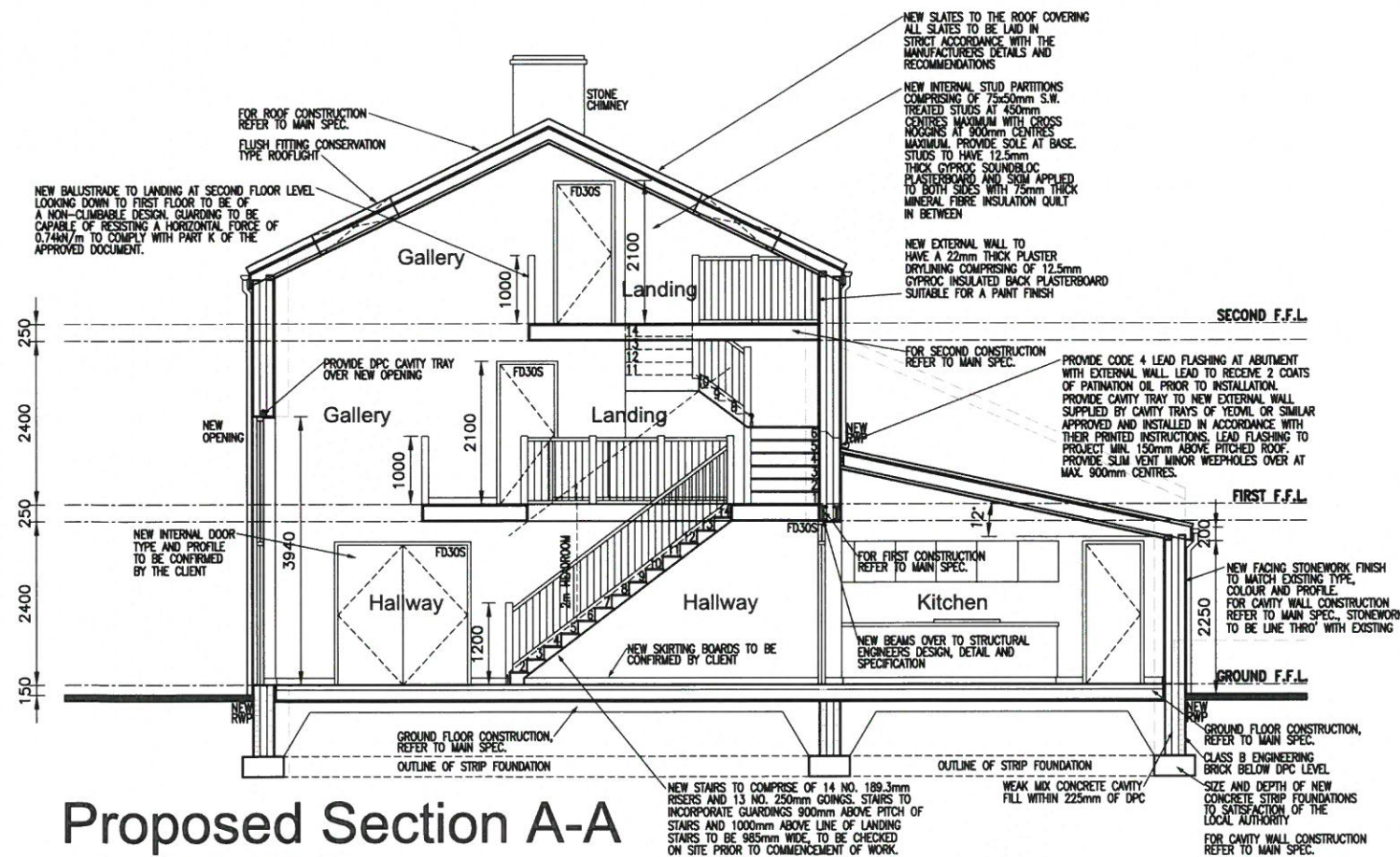
APPENDIX B
ELEVATIONS AS PROPOSED



Proposed Side Elevation



Proposed Side Elevation



Proposed Section A-A

NEW BEAMS INDICATED TO BE ENCASED IN 15mm THICK FIRELINE BOARD TO PROVIDE 1 HOUR FIRE RESISTANCE ALL SUPPLIED BY BRITISH GYPSUM AND INSTALLED IN ACCORDANCE WITH THEIR PRINTED INSTRUCTIONS. ALL JOINTS TO BE TAPED AND PLASTERBOARD TO HAVE A SKIM FINISH. ALL NEW BEAMS TO BE BOLTED TOGETHER, TO BE CONFIRMED BY STRUCTURAL ENGINEER.



Magnus Technical Engineering Ltd.
Blackthorn House
Skull House Lane
Appley Bridge
WN6 9DB

Rev.	Description	By	Date
1	Project		
1	Mr & Mrs Wildman Branch Road Farm Branch Road Littleborough OL15 0AB		
1	Drawing Title		
1	Proposed Elevations Sheet 2 of 2		
1	Drawing No.		
1	WILDMAN/07		
1	Rev.		
1	Drawn by		
1	P.E.		
1	Scale		
1	1:50		
1	Date		
1	Mar '18		

APPENDIX C
PHOTOGRAPHS



Photograph 1



Photograph 2



Photograph 3



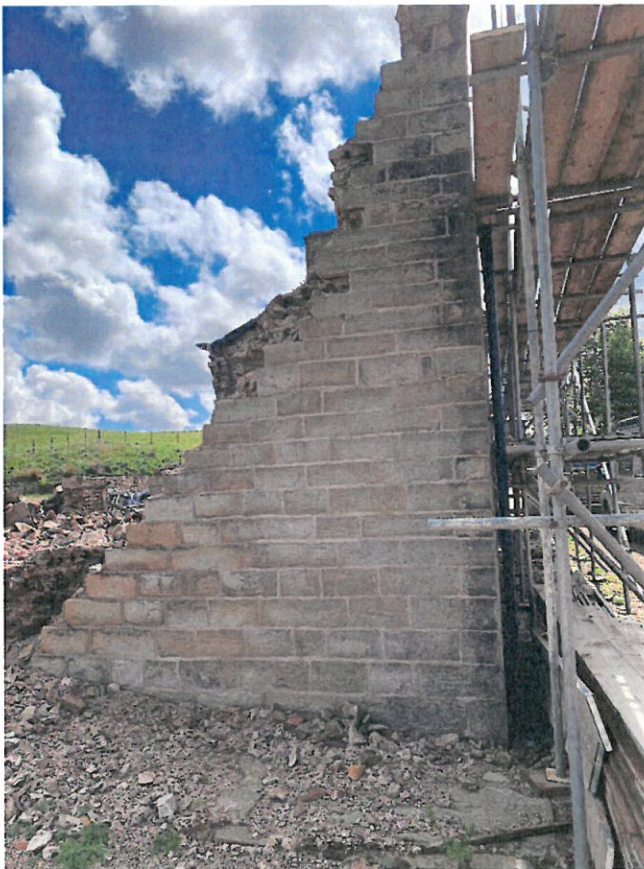
Photograph 4



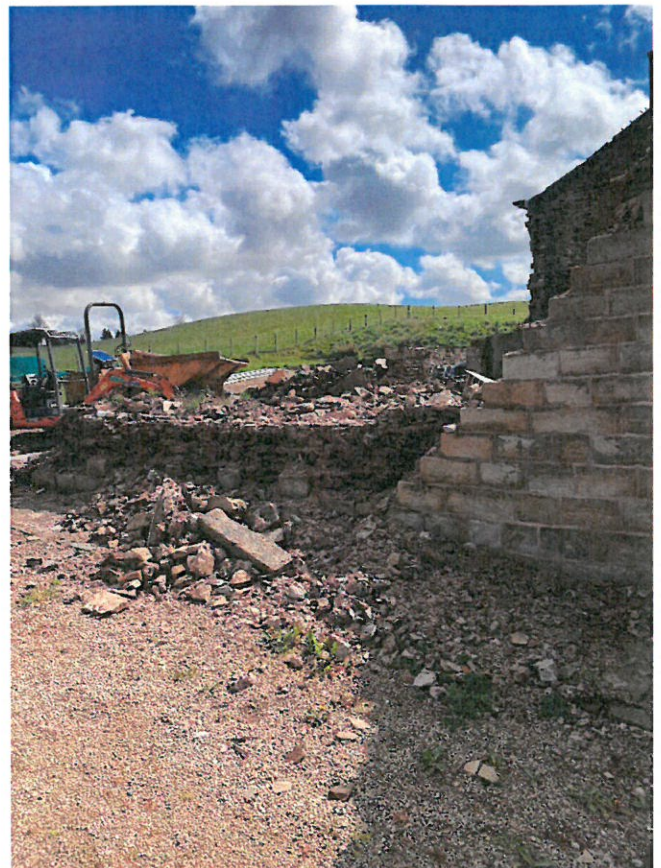
Photograph 5



Photograph 6



Photograph 7



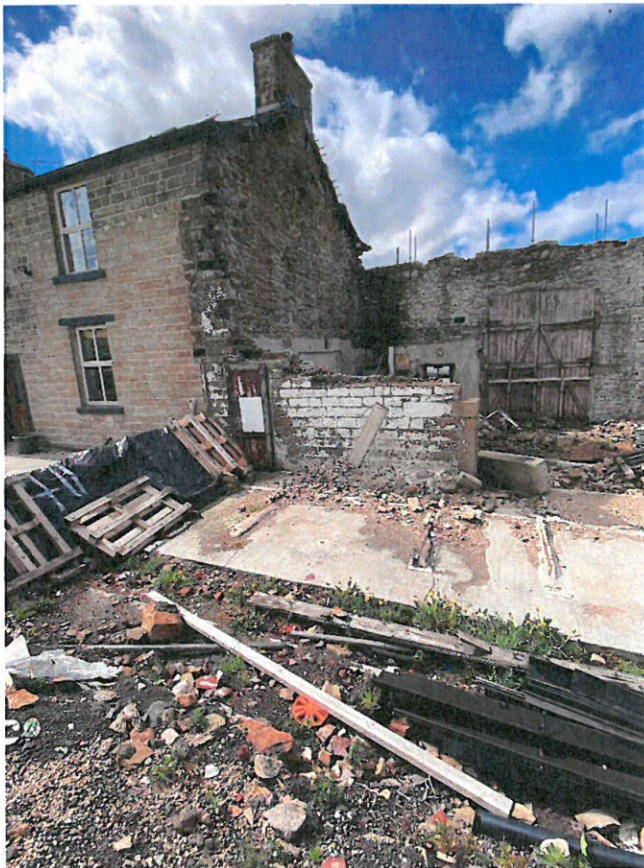
Photograph 8



Photograph 9



Photograph 10



Photograph 11



Photograph 12



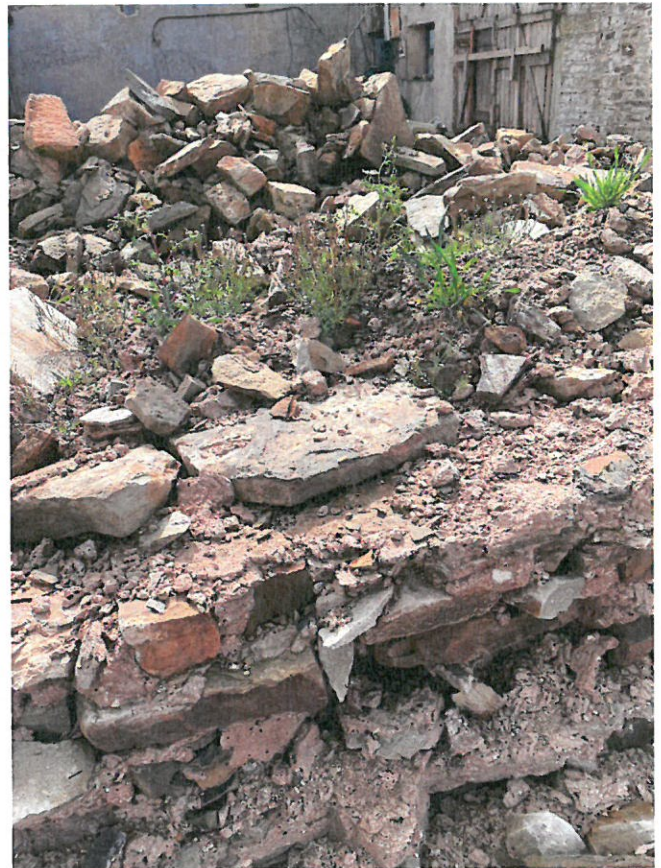
Photograph 13



Photograph 14



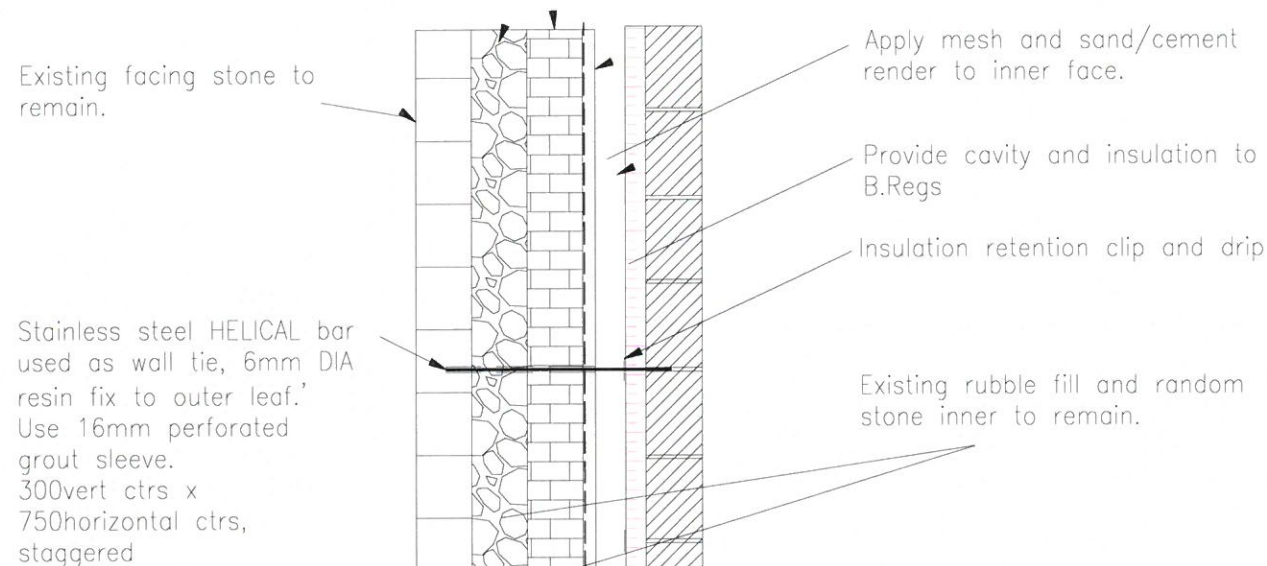
Photograph 15



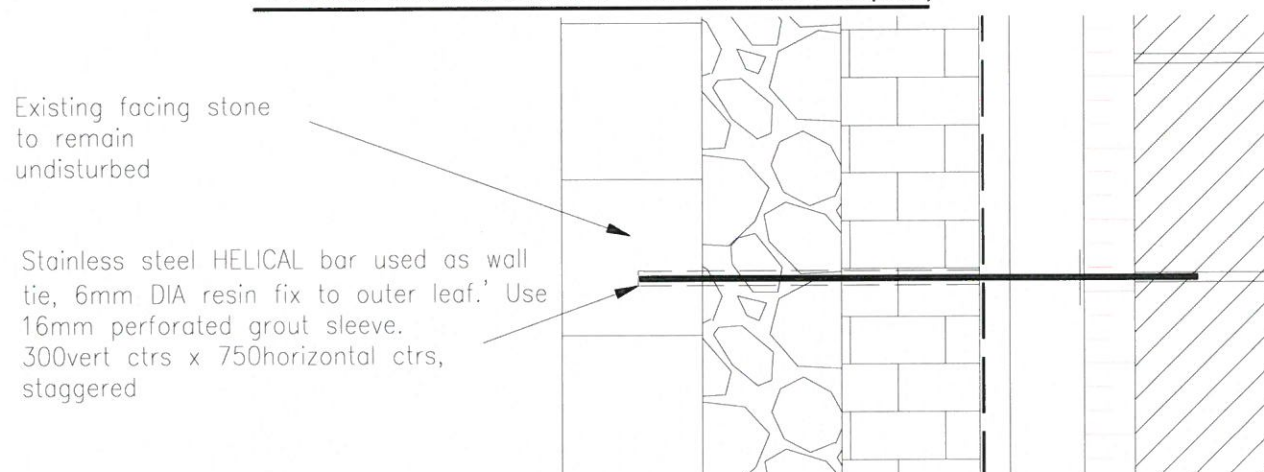
Photograph 16

APPENDIX A

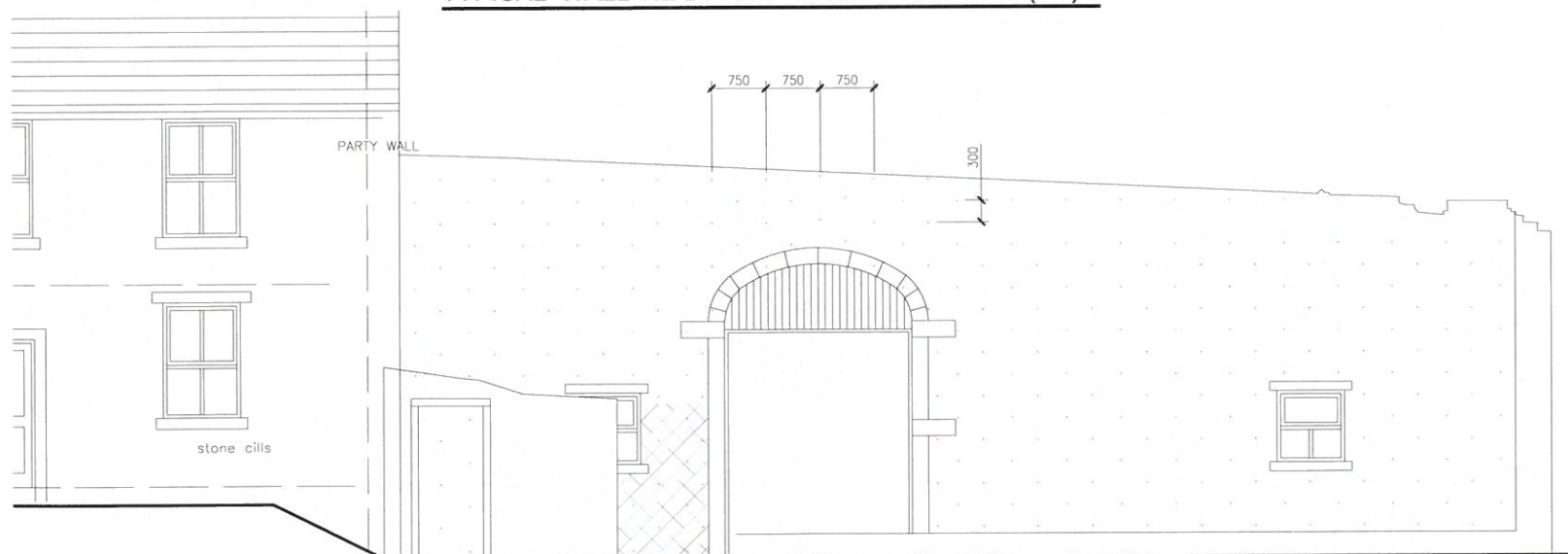
TYPICAL CONSTRUCTION DETAILS & METHOD STATEMENT



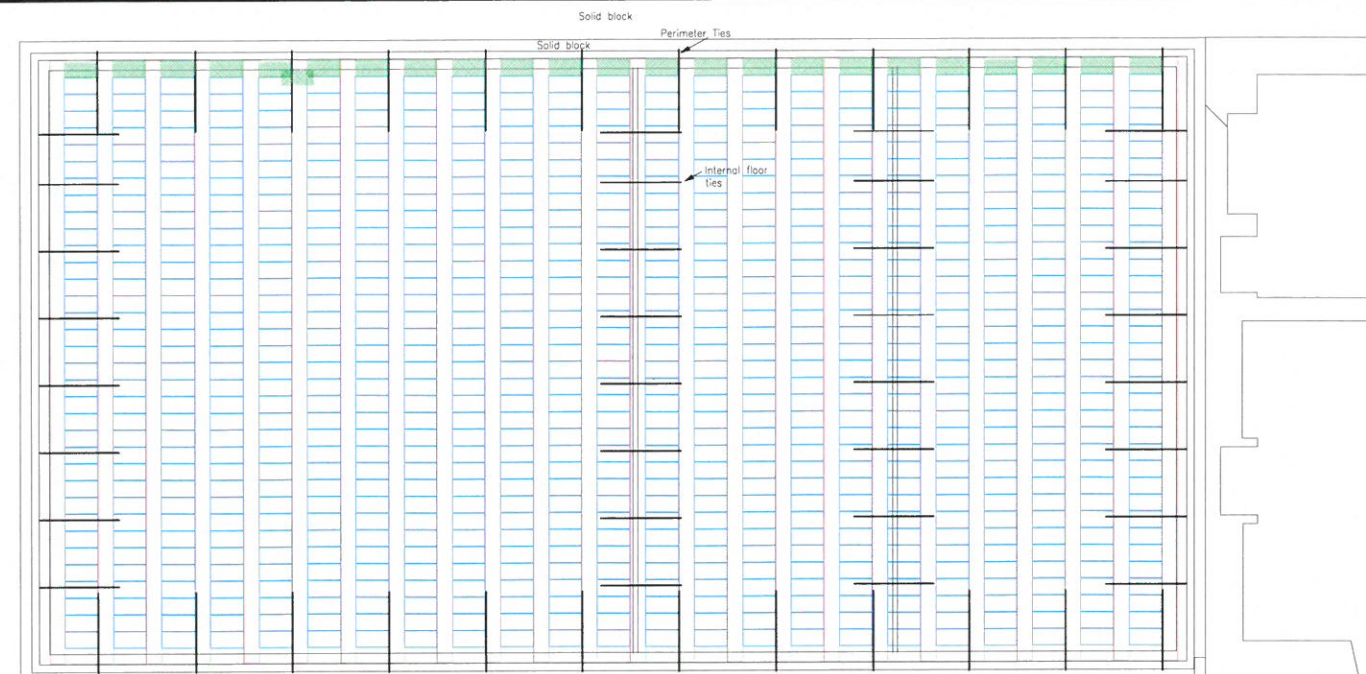
TYPICAL WALL TIE DETAIL - NEW TO EXISTING (1:20)



TYPICAL WALL TIE DETAIL - NEW TO EXISTING (1:5)



**EXISTING INNER FACE OF FRONT ELEVATION
SHOWING ARRANGEMENT OF WALL TIES (1:50)**



TYPICAL BEAM AND POT PC FLOOR LAYOUT SHOWING THE LOCATIONS (1:100)

Purpose made wall ties from stainless steel HELICAL welded to stainless steel fishtail tie.



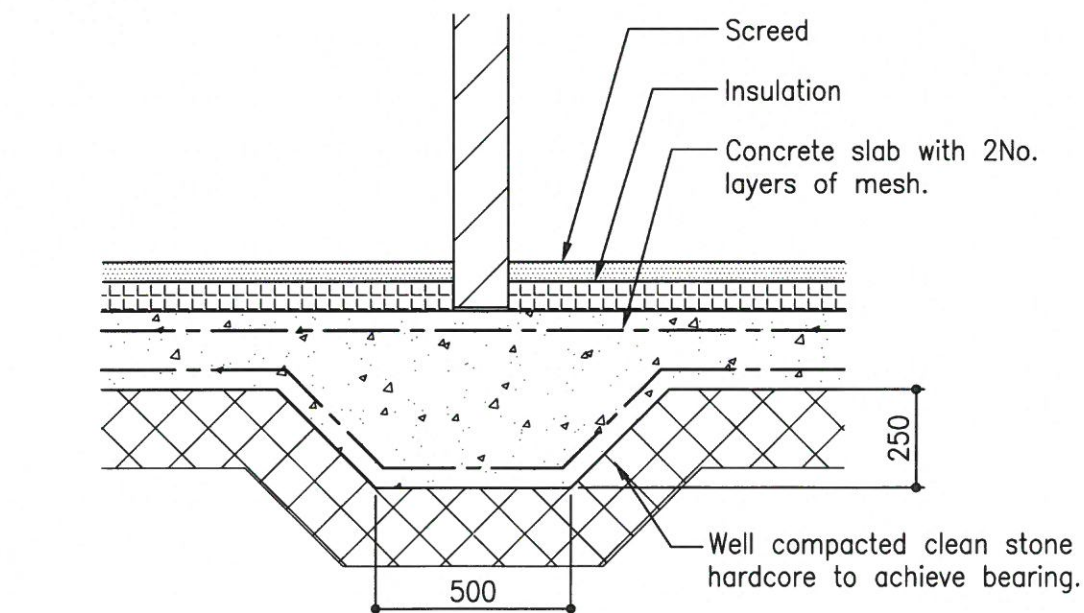
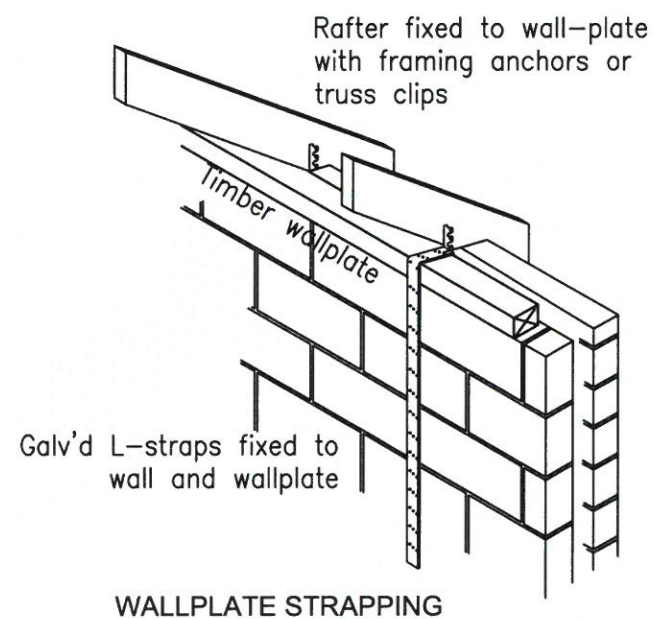
PURPOSE MADE WALL TIE DETAIL (1:5)

NOT TO BE USED FOR CONSTRUCTION

REV	DATE	BY	DETAILS OF REVISION
A	08.06.21	PMH	1:5 DETAILS ADDED
ARCHITECT / CLIENT			
MR & MRS D WILDMAN			
PROJECT			
BRANCH ROAD FARM			
BRANCH ROAD			
LITTLEBOROUGH, ROCHDALE			
TITLE			DRAWN BY
PROPOSED FLOOR SLAB AND			PMH
INTRNL WALL DETAILS			DATE
			20.05.21
			SCALE
			1:100@A3
DRAWING NO.			REVISION
HC-21314-(60)-03			A

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SLAB THICKENING AND WALL DETAILS

SLAB THICKENING AT INTERNAL WALL LOCATIONS

NOT TO BE USED FOR CONSTRUCTION

[illegible]

DO NOT SCALE FROM THIS DRAWING. USE GIVEN DIMENSIONS ONLY. ALL DIMENSIONS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY DIMENSIONAL DISCREPANCIES TO BE REPORTED BACK TO HEALEY CONSULTING PRIOR TO PROCEEDING WITH CONSTRUCTION

A3 size drawing sheet (382mm x 267mm)

PROPOSED METHOD STATEMENT

This is not considered as a specification for works. Detailed construction drawings will need to be submitted to the Local Authority prior to works starting on site.

1. Clear existing site of all loose stone debris. The existing ground floor construction to be cleared of debris and left insitu at this time.
2. The remaining walls will need to be cleared of any loose surface rubble. No further demolition is to take place.
3. The remaining walls are to be inspected by a Structural Engineer and a representative from the Planning Authority. This may be a Conservation Officer, Building Control Office, both or another.
4. The remaining walls will need to be made stable. This is to be agreed but is likely to involve applying a render mesh securely fixed to the inner face and applying a sand / cement render.
5. At this stage, existing ground floor slab(s) will need to be carefully removed from the footprint. A new concrete slab containing appropriate thickenings will need to be cast on approved strata / hardcore. The thickening will act as a foundation to the new inner leaf. The new inner leaf will become the loadbearing element of the structure.
6. Where the existing random stone inner leaf and the rubble fill remains, this cannot be relied on to provide a suitable tie to the new proposed inner leaf. It is therefore intended that a stainless-steel bar is inserted through the wall, drilled from the inside, such that it is anchored into the outer stone face. This may be a resin fix or a mechanical fix. Drilling from the inside will ensure that this outer face remains visually undisturbed.

The bar may need to be purpose made to suit the wall thickness, the cavity width and the new inner leaf. The bar will have a clip on drip and will serve as a wall tie. These ties will be fixed at 300 centres vertically and 750mm horizontally in a staggered pattern. Elsewhere, the new wall construction comprising of an outer leaf of stone and a 140mm leaf blockwork (strength to be determined), will have traditional wall ties to suit the cavity width as dictated by BS5268. See HC 21314-(60)-03 & 04.

Continued. . .

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Continued. . . .

7. The new walls will need to be constructed in agreed lifts, say no more than 2m with the inner leaf never exceeding 1m above the height of the outer leaf.
8. The walls will be taken up to first floor chamber level, where a pre-cast concrete floor of a beam and pot nature will be introduced. This will be tied to the walls as appropriate using robust details. A typical set of details are shown on HC 21314-(60)-03 & 04.
9. Once these details are complete to the satisfaction of all parties, the construction of the wall will continue to second floor. Here, a timber floor will be tied to the walls. Typical details are again shown on HC 21314-(60)-03 & 04.
10. The roof will be of traditional construction using loose timbers, including rafters and purlins. It is highly likely that the roof structure will require a plywood or OSB lining to ensure this acts as a diaphragm to provide stability to the leaf of each wall. Tying details will be employed. Typical details are shown on HC21314-(60)-03 & 04.