
Slates Farm
Structural Engineering
Condition report
Rev A – 10th January 2024

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Revision History

Revision	Purpose	Date	Issued by	Checked by
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1 Executive Summary

The following is an executive summary of the Condition Report with the main findings highlighted. The full report follows this section.

1. **Roof** - the roof and roof finishes are old and are in need of repair and replacement. It is assumed it will need to be re-roofed with large elements of new sarking board, new felt and tiled finishes. It is assumed that there will be elements of the roof rafters that will need repaired, the extent of this will be determined during detailed intrusive specialist surveys including a timber survey of the roof elements. The existing chimneys have not been maintained and as such the finishes and lead/flashing are showing signs of deterioration. They will need to have new chimney pots fitted and stonework repointed with new flashing/leadwork to help bring them back to a reasonable condition. The gutters and eaves timberwork will need to be replaced due to lack of maintenance.
2. **Superstructure** – internally the building fabric looks in reasonable condition. The walls are solid masonry with what is assumed suspended and ground bearing ground floors so cold-bridging and dampness will be an issue. There is evidence of some damp to the inside of the side gable wall. Externally there is evidence of cracking. The finishes are in poor condition and new coatings will need to be applied to all walls with potential for repointing and stonework repairs as there is evidence of moisture getting past the finishes on the walls.
3. **Sub-structure** – walls up to ground floor are showing signs of cracking and dampness at ground level. There isn't any evidence of damp proof membranes in the walls and they are solid masonry with ground bearing slabs so moisture ingress is a critical element to be dealt with. The ground floors are either suspended timber but with poor ventilation or ground bearing with no insulation of damp proofing. Intrusive investigations are required but it is assumed major works will be required for any potential refurbishment. The trial pit indicates that there are no foundations to the building and the solid masonry walls stop approximately 50mm below the existing ground level. New foundations will be required. The ground conditions are dark brown clay with gravels and is suitable for the new foundation but the work will be extensive and very involved.

2 Introduction

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Design Engineering Workshop were instructed by Graeme Quigley of Quigley Architects to act as the structural engineers to carry out a visual inspection of an existing two-storey farmhouse. The farmhouse building is part of a numbers of buildings within an existing courtyard. We have only been asked to inspect the farmhouse building. Refer to existing plan below. The farmhouse ground and attic plans highlighted in red.

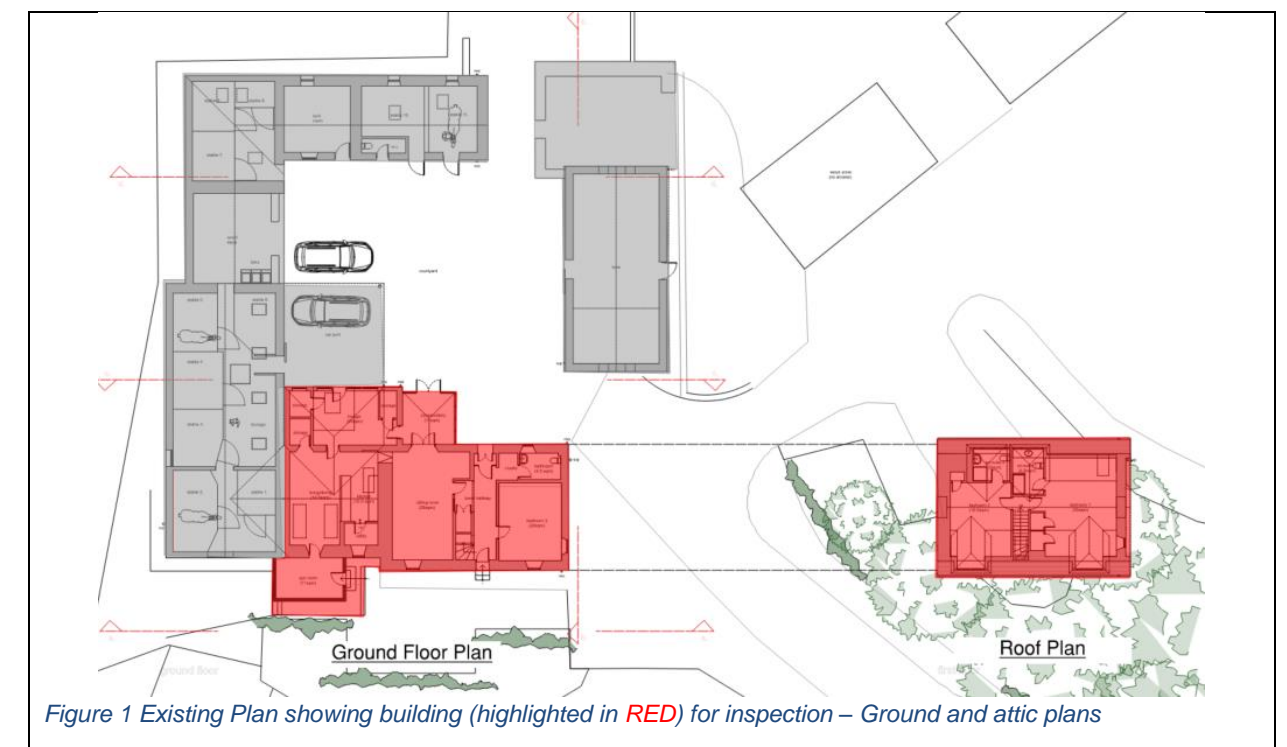


Figure 1 Existing Plan showing building (highlighted in RED) for inspection – Ground and attic plans

Our inspection was carried out by Mark Sinclair BEng MSc CEng MICE, on the 20th December 2024. At the time of our inspection, it was cold, dry & overcast weather and it had had been raining recently.

3 Scope of Works

The following report is provided to demonstrate the visual inspection that was carried out on 20th December 2024 and provide a base line commentary on the condition of the structural fabric. We would highlight that our inspection was visual only and that we are unable to give any commentary on any element that is covered, unexposed or inaccessible. It does not extend to assessing the presence of asbestos or contamination.

The pages overleaf consider each of the farmhouse building on only. They describe the structure and any potential issues and includes supporting photographs.

The report will start at the top with the roof, then the main superstructure and finishing with the foundations and ground conditions.



Figure 2 Image of elevation facing courtyard



Figure 3 Image of elevation facing away from courtyard

4 Roof

The roof was inspected externally visually from ground level and internally through a small hatch within the upstairs corridor. The internal inspection was for the main house building only and not the additional elements linked to the stables.

John Fulton Roofing have been instructed to carry out a more detailed report on the roof and their report should be read in conjunction with this one.

4.1 Existing roof



Figure 4 Existing roof plan

4.2 Roof Photographs



Figure 5 Images of external roof showing slate covering, dormers, chimneys and metalworks



Figure 6 Images of external roof showing slate covering, eaves, dormers and metalworks



Figure 7 Images of external roof link between house and stables showing slate covering and metalworks



Figure 8 Images of external roof from rear showing slate covering, rooflights and metalworks



Figure 9 Inside main farm building roof space. Showing signs of water ingress and rot



Figure 10 Inside main farm building roof space. Showing signs of water ingress and rot

4.3 Condition and Assessment

The roof is traditional construction with slate tiles, assumed felt then timber sarking and timber rafters/truss structure. The following points have been highlighted:

1. **Roof covering**- this appears to be very old slate and a specialist survey will need to be completed to determine how much of the finishes needs to be removed/replaced. On inspection it appears that the entire roof covering will need to be replaced. The existing slates might be reused but specialist advice will be required to confirm this.
2. **Felt** – it is assumed that this will have reached the end of its life and when the roof coverings are replaced this will need to be removed and replaced as well.
3. **Timber sarking** – from the internal inspection photos there is evidence of water ingress and rot to the timbers. A specialist timber survey will determine the extent of this and the extent of sarking to be removed. From existing similar projects, it is recommended that a 50% allowance for sarking repairs are made.
4. **Rafters/truss elements** – there is signs of water ingress and rot. The key elements for this are at the eaves and we had no access to determine the extent of water ingress or timber deterioration. The timer survey will highlight these items. An allowance for rafter end repairs should be made.
5. **External timber eaves and gutters** – the existing paint is showing severe deterioration and there appears to be water ingress and deterioration of the timbers. It is assumed due to the lack of maintenance over the years these elements will need to be replaced.

We only had access to the main farm building and to the very top of the roof attic so the visual inspection is very limited in its comments.

5 Superstructure

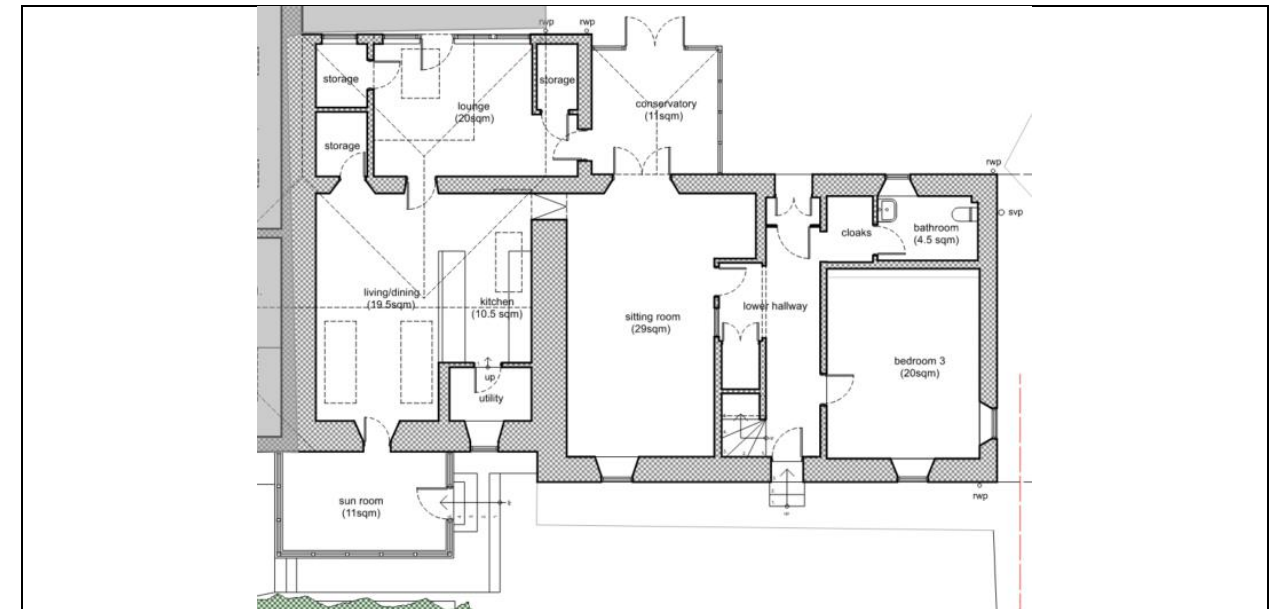


Figure 11 Ground floor plan

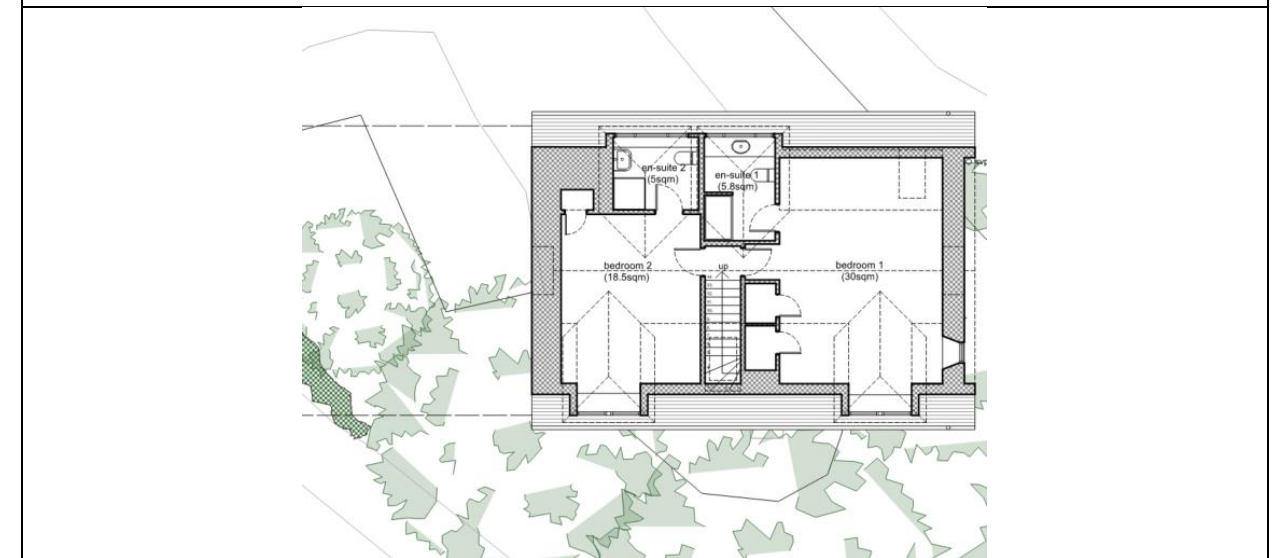


Figure 12 Attic Roof layout

5.1 Photos from the internal spaces



Figure 13 Lounge area



Figure 15 Living/dining and kitchen



Figure 14 Conservatory



Figure 16 Sun room



Figure 17 Bedroom 3 – there is some evidence of damp to the external gable wall.

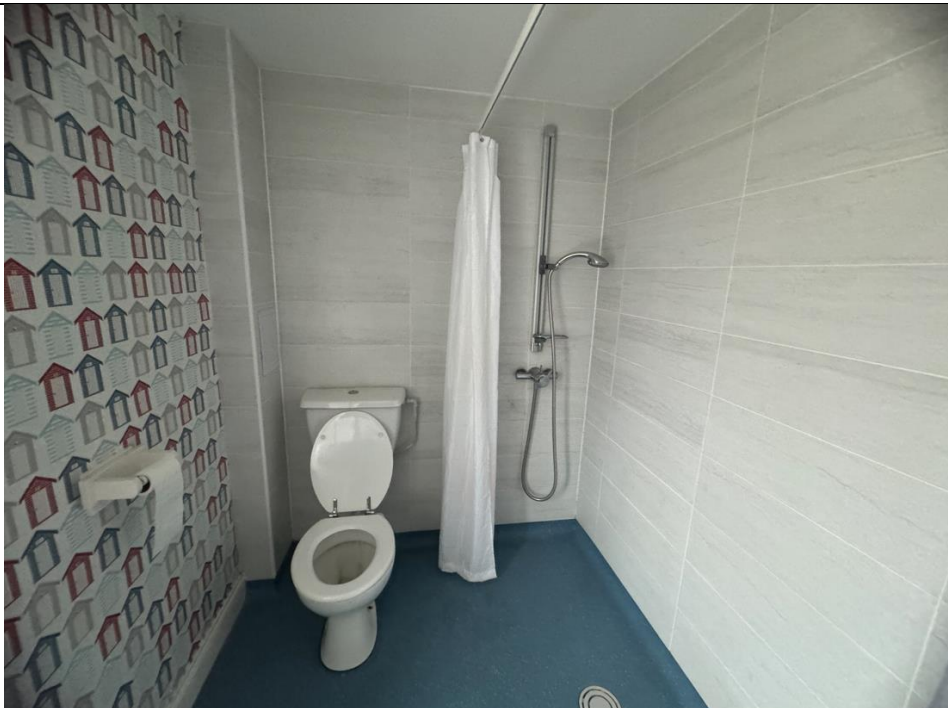


Figure 18 Bathroom downstairs

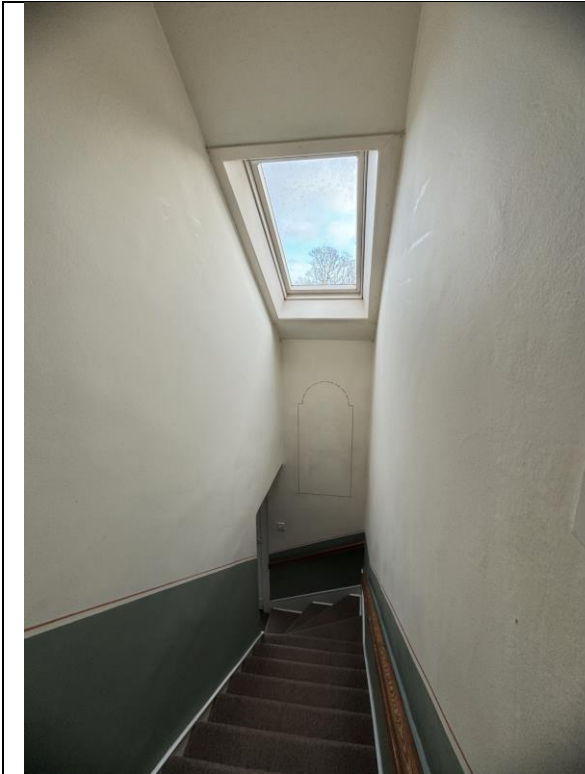


Figure 19 image looking down staircase with rooflight

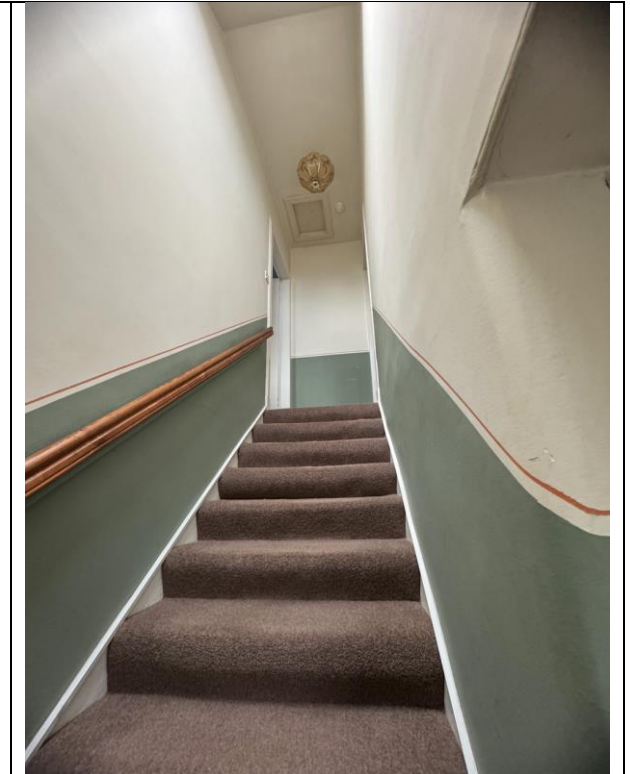


Figure 20 Image looking up staircase with small hatch for access into roof space.



Figure 21 interface between conservatory and main building showing signs of water ingress



Figure 22 Bedroom 2 – upstairs in roof/attic space



Figure 23 Bedroom 1 – upstairs in roof/attic space



Figure 24 External gable wall showing evidence of minor cracking to the external finishes.

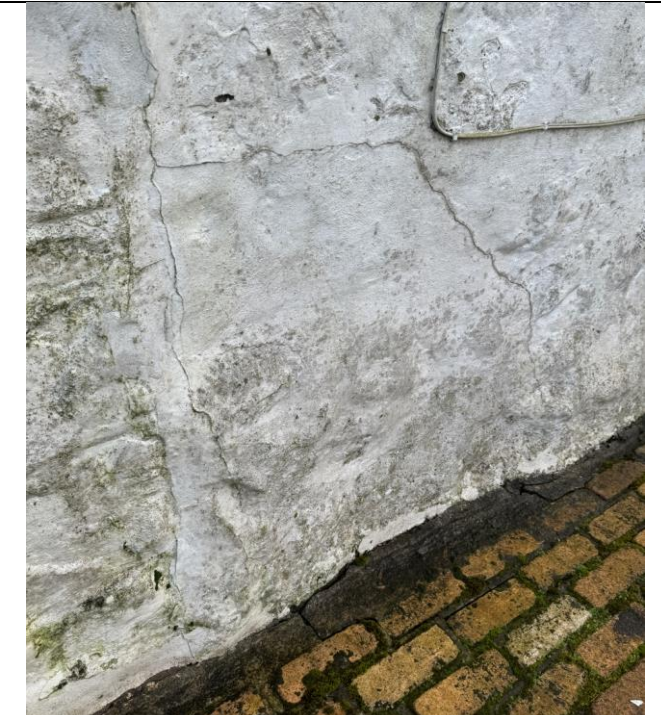


Figure 25 External gable wall showing evidence of minor cracking to the external finishes.



Figure 26 external gable wall with rocks in the wall build-up at the base

5.2 Condition and Assessment

The superstructure is from the ground floor level up to the roof spaces and includes the attic spaces and bedrooms.

1. **Internally** the building fabric is in reasonable condition. The rooms haven't been redecorated for some time and there isn't any signs of major movement or distress within the fabric structure. It is assumed that the structure is solid masonry walls with suspended attic floors and timber roof structure.
2. **Externally** the superstructure is showing signs of some cracking and minor movement. Again the external walls haven't been maintained for some time so this could have happened over a long period. It is assumed the walls would need to be repaired and finished in suitable external coating.

We only had access to areas that were visible and therefore the survey was limited.

6 Substructure

It is assumed that the floor is mix of ground bearing and suspended timber floor on dwarf walls. To one side of the building the finished floor level is over 1000mm above the external ground level. AT the point of the trial pit the finished floor level is approximately 250mm above the external ground level. There is a vent in the external face to the side where there is greater dimension between floor level and ground level. So it is assumed this is a vented suspended timber floor. However this was only a visually inspection so the floor make-up will need to be determined with intrusive investigations. On the side elevation you can clearly see rock formation at the junction of wall to external ground. To try and determine the existing foundation conditions a trial pit was completed to the external boundary of the existing main farm building to the external elevation facing the courtyard. This was picked to allow easy access for the machinery.



Figure 27 image of side elevation showing what appears to be rock forming the exposed foundation

6.1 Trial Pit Location Plan

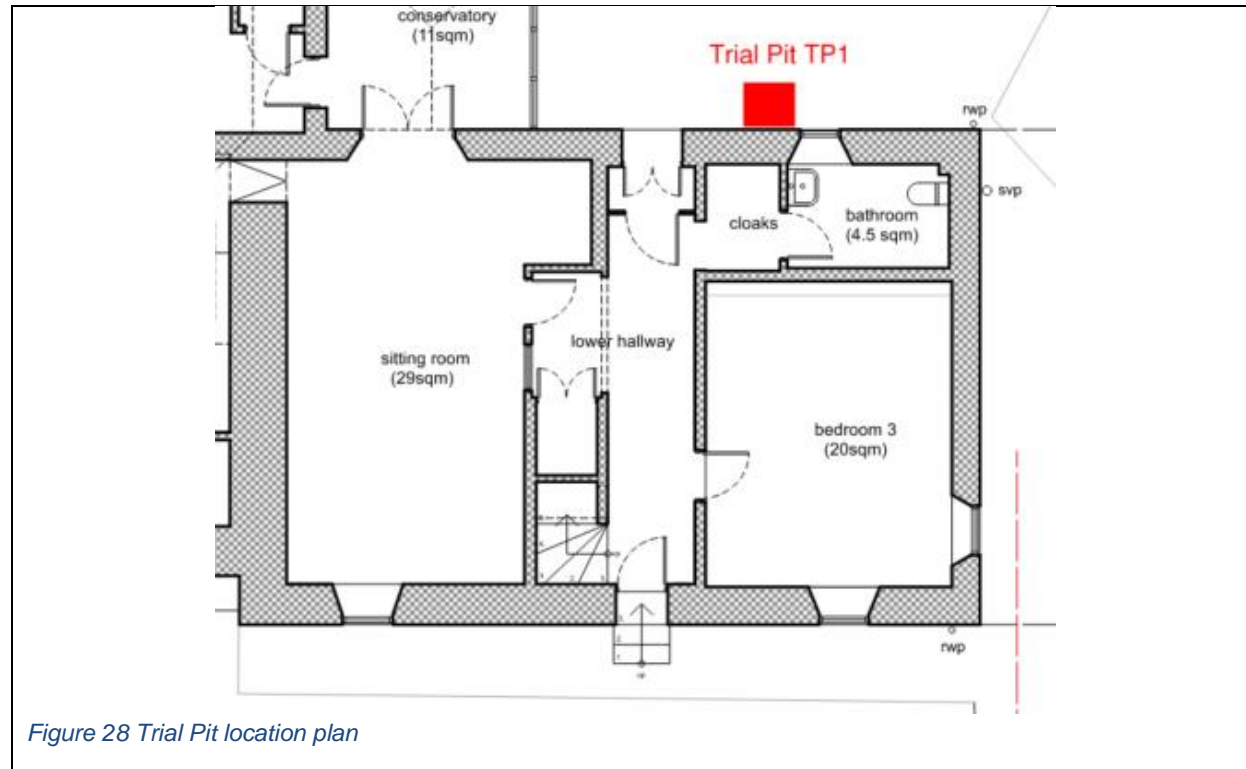


Figure 28 Trial Pit location plan

6.2 Photos of the trial pit



Figure 29 Location of the trial pit (to very bottom left of picture).



Figure 30 Image of the trial pit showing the existing build-up, ground condition and lack of any foundations

6.3 Section thru' Trial Pit

The following is a drawn section showing the ground condition and substructure.

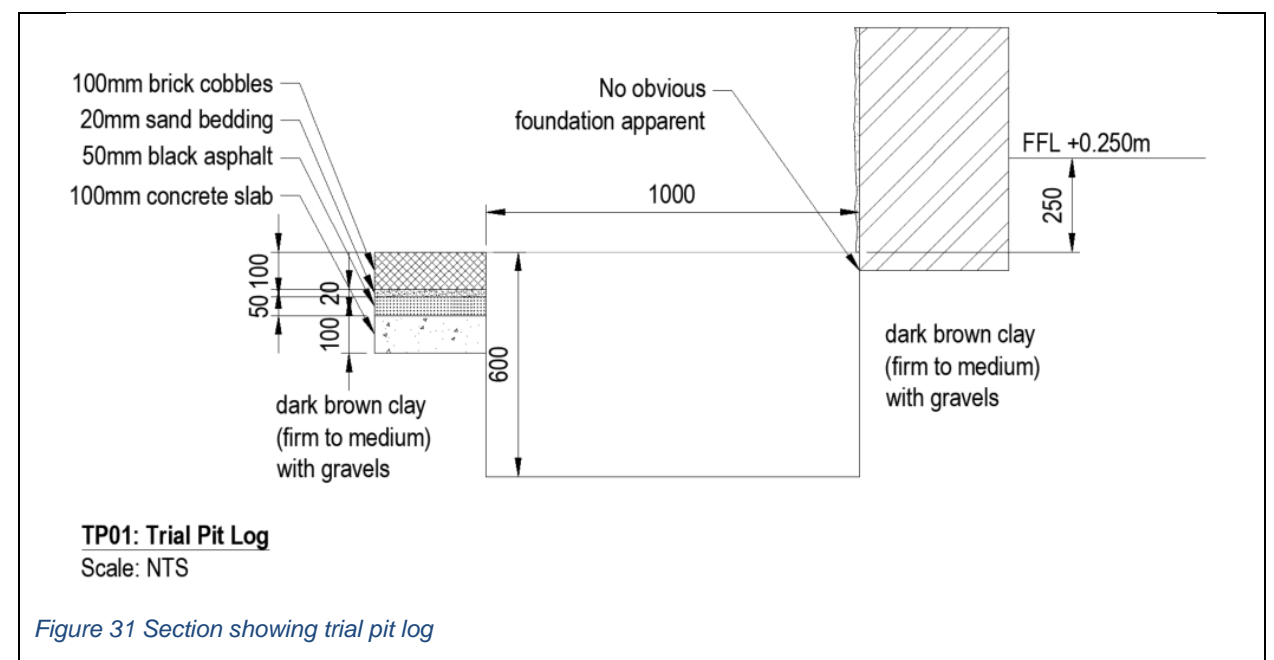


Figure 31 Section showing trial pit log

6.4 Condition and assessment

The substructure, which include the foundations and walls/supporting structure up to existing floor level, is masonry/stonework sitting on the ground floor with shallow embedment.

1. **Walls up to ground floor level** – these are assumed to be solid masonry walls with no evidence of damp proofing or insulation.
2. **Ground floor** It is also assumed the ground floors are a combination of ground bearing and suspended. Is suspended the ventilation is inadequate and will need to be rectified. If it is ground bearing, it is then assumed the floor sits directly off the ground with no insulation. There is also no evidence of any dam proof course/membranes. So moisture and cold-bridging is a major element.
3. **Foundations** - the trial pit shows that there are no foundations and the external solid masonry wall sits on the dark brown clay with gravels at about 50mm below finished ground level. For future development the walls would need to be underpinned to allow new foundations to meet current standards. The ground floor structure would need to be investigated to determine if there are any dwarf walls and if these need new foundations. This work will be extensive and very disruptive.