
Lamyatt Lodge

Lamyatt

BA4 6NP

Structural Methodology Statement - Main House

Job number:

2356

Revision:

02

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For Planning

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1. Introduction

JGS Design has been appointed as consulting Structural Engineers for the refurbishment of Lamyatt Lodge, a Grade II listed country residence located in Lamyatt, Somerset.

This report has been produced in support of the Planning application and Listed Building Application to describe the structural works which are proposed and the methodologies which will be used to ensure the works can be carried out with limited impact on the retained building fabric.

2. Existing Building & Site

Lamyatt Lodge is located outside the village of Lamyatt, to the West of Bruton in the County of Somerset.

The property consists of a historic farmhouse which has been linked with a Georgian era extension and several outbuildings, (stables, cottage, barn etc.). This report relates only to the alterations proposed to the main House which consists of the farmhouse and Georgian extension.

The property is located on the western face of a hill and the ground level slopes upwards to the east/northeast. The ground around the Main House is relatively level except in the northeastern corner adjacent the garden where the slope of the hillside has created several level changes internally and externally to the house.

A review of the BGS records of the local site geology indicate that the underlying ground consists of limestone and sandstone.

Having been subject to numerous extensions and additions over its history, the wall construction varies from thick rubble stone used in the farmhouse, cut stonework in the Georgian



Fig. 1: Site plan



Fig. 2: View from garden elevation of Main House

extension and brickwork to the courtyard walls. A more modern infill extension in the rear courtyard appears to have incorporated cavity wall construction.

The ground floor is generally solid construction with many of the original paving stones present throughout the building. Timber framing forms the upper floors and roof structure of the building with timber downstand beams present in the farmhouse.

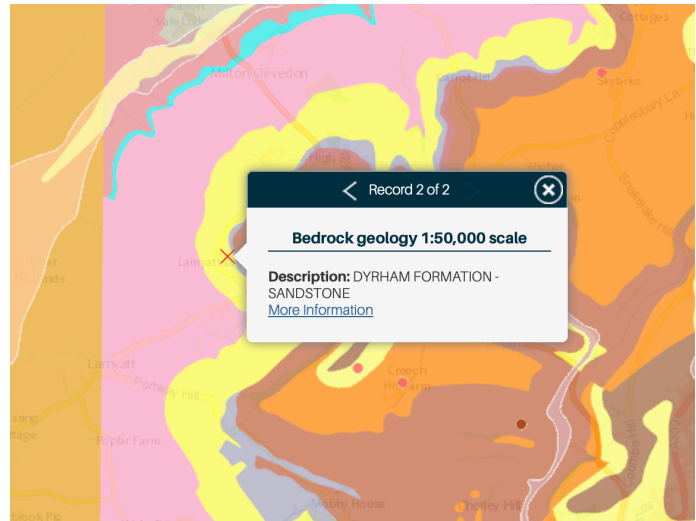


Fig. 3: BGS records of underlying ground conditions

3. Proposed works

The proposals consist of the demolition of the existing courtyard infill extension and the construction of a new, slightly larger, infill extension referred to as the Orangery. The original courtyard walls on the garden elevation will be fully retained with only the non-original walls being removed.

The floor level within the courtyard and existing infill extension will be lowered to accommodate the new layouts and improved the connection with the farmhouse. A new fully insulated, ground bearing floor slab will be constructed where this excavation is proposed. The floor level will not extend lower than the original farmhouse, therefore none of these original walls will be affected structurally by the excavations.

A provisional allowance has been made for underpinning the original brick courtyard wall on the rear elevation because there is potential for the existing foundation depths to vary with the sloping site. The presence of a large brickwork planter in front of this wall has limited the scope for investigations on the garden elevation to assess the condition of the exposed brickwork in this area. The requirement for underpinning will be assessed further once this planter is removed (as proposed in this application).

Other minor alterations include the creation of new doorway openings where windows originally existed in both the rear farmhouse wall and the brick courtyard wall. The opening width will be retained so the original lintels and brick arches will not be affected by the works. The masonry below the original window openings will be carefully removed to form the doorway.

The new Orangery extension will extend across the full width of the courtyard with a small external courtyard retained at the Eastern end of the building. A new external reinforced concrete retaining wall will facilitate the proposed change in levels created by this lowered courtyard.

The new flat roof structure for the Orangery will be constructed from timber with steelwork framing a large centrally located roof lantern. The steel beams will be supported on the existing stone and masonry walls via mass concrete padstones cast into the walls.

The existing glass roofed greenhouse adjoining the courtyard is also to be re-roofed with reclaimed tiles to match the existing surrounding building. To enable these works, the existing structure supporting the glazing will be fully removed and replaced with a system of traditional timber rafters.

Refer to Appendix A for drawings indicating the structural works required to facilitate the proposals.

4. Structural methodology

When designing the structural alterations described above, preservation of the retained, listed building fabric has been a priority.

The works associated with the Orangery extension require minimal alterations to the existing walls of the main building with the exception of the padstones supporting steel framing and the new door openings described in Section 3 above. In each case the masonry will be cut using hand held equipment with allowances for making good the retained masonry either side of the cuts using original material salvaged from the demolition works.

The potential requirement for underpinning the courtyard wall will be undertaken in a carefully controlled sequence and will not require the removal of any of the existing masonry fabric with the exception of the brickwork planter adjoining the wall. Removal of this planter will expose masonry which is currently covered by the soil within the planters. The condition of this newly exposed masonry will be assessed once the planter is removed with allowances made for making good any areas of cut or deteriorated brickwork with reclaimed materials to match the existing in a lime based mortar.

A methodology for any underpinning works (should they be required) is provided below.

Lowering of floor level and underpinning walls:

- The Contractor shall be responsible for ensuring that their operations do not in any way impair the safety or condition of the existing structure or the adjacent properties. They shall provide any temporary supports required for this purpose, and shall carefully inspect the condition of the structure both before and during the execution of the work and immediately inform the Engineer and Architect if they consider that any more stringent procedure than that specified is necessary.

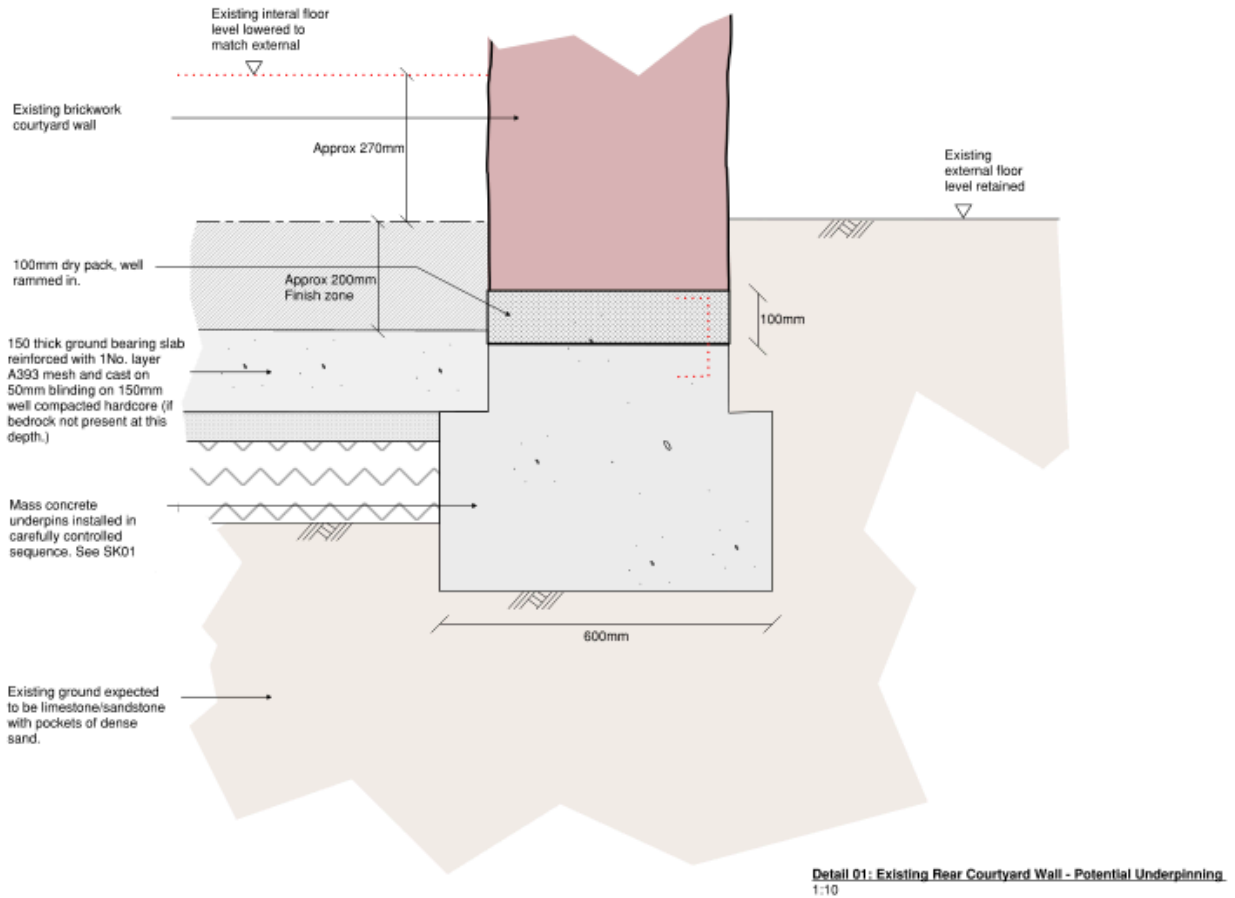


Fig. 7: Typical underpinning detail for brick courtyard wall (garden elevation)

- Before starting the work the Contractor is to check for any services that could be damaged by the work and shall provide for the maintenance of drainage services during the works and for the reinstatement of any services interrupted or disturbed by the excavations.
- Underpinning and retaining wall installation is to be carried out in short sections not exceeding 1000mm in length, in the numbered sequence shown on the drawings. (see Fig 7. Below for typical underpinning detail)
- Before underpinning, projecting portions of the existing footings are to be carefully cut off using non-percussive tools such as circular saws, and/or hand tools. The underside of the footings are to be cleaned and hacked free of any dirt, soil or loose material.
- The Engineer and Building Control Officer shall be given the opportunity of examining all excavations, prior to any underpinning or retaining walls being cast.

- Unless noted otherwise on the drawings, mass concrete underpinning is to be constructed in concrete nominal 1:2:4 mix using sulphate resistant cement and 20mm max aggregate, or designated concrete GEN 3 (C16/20) in accordance with BS8500 and BS EN 206-1.
- Underpinning is to be cast to the widths and depths shown on the drawings. As far as practicable excavation and concreting of any section of underpinning or retaining wall shall be carried out on the same day.
- Concrete underpinning is to be stopped off approximately 100mm below the underside of the existing footing, and the final pinning up over the whole extent of the latter is to be carried out with a semi-dry fine concrete, well rammed in as soon as possible after the foundation has set hard. The pinning-up concrete is to consist of 1 part by volume of sulphate resistant cement to 3 parts of aggregate (well graded from 10mm maximum size down to fine sand) with a water/cement ratio by weight of 0.35.
- Excavation to any section of underpinning shall not be commenced until at least 48 hours after completion of any adjacent section of the work.
- The joint between adjacent sections of mass concrete underpinning is to be formed by creating a rough surface against which the first section is cast. Then, having thoroughly cleaned the exposed concrete face, the adjacent section may be cast.
- The Contractor shall prepare a Sequence of Work and submit it to the Contract Administrator for their comments prior to the commencement of the work.
- The Contractor is to keep a record of the sequence and dimensions of the underpinning actually carried out including details of excavation, casting concrete and pinning up for each section.

Upon completion of the underpinning works, the bulk excavation may be commenced to lower the surrounding floor level.

APPENDIX A - STRUCTURAL DRAWINGS

Catnic ANG lintel - external leaf to allow brickwork soldier course. Non - visible masonry - use 100x100 Precast Lintel. 1No. per 100mm thickness of wall.

NEW WALL - BRICK/BLOCK CAVITY
 - External - 100mm brick to architect's spec.
 - Cavity - 100mm
 - Internal - 100mm 7.3N/mm² blockwork,
 - All in class III mortar.
 - Below DPC use engineering brick and dense concrete block in 3:1 sand:cement mortar.

Provide Ancon wall starters between new and existing masonry @ 450mm vertical c/c. (typical).

Allow for mass concrete underpinning masonry wall in carefully controlled 5- stage sequence as noted. Underpinning conservatively allowed based on variable depth of existing footings and may not be required.

Existing brickwork planter with more modern brickwork removed. Allow for replacing brickwork to retained wall where planter brickwork is toothed into original brickwork. Any new brickwork to be replaced with lime mortar to match existing. Condition of retained brickwork hidden behind planters (and requirement for further remedial works) to be further assessed once fully exposed.

New 150mm thick ground bearing slab. Cast on 50mm blinding and 150mm well compacted hardcore. Slab to be reinforced with 1No. layer A393 mesh.

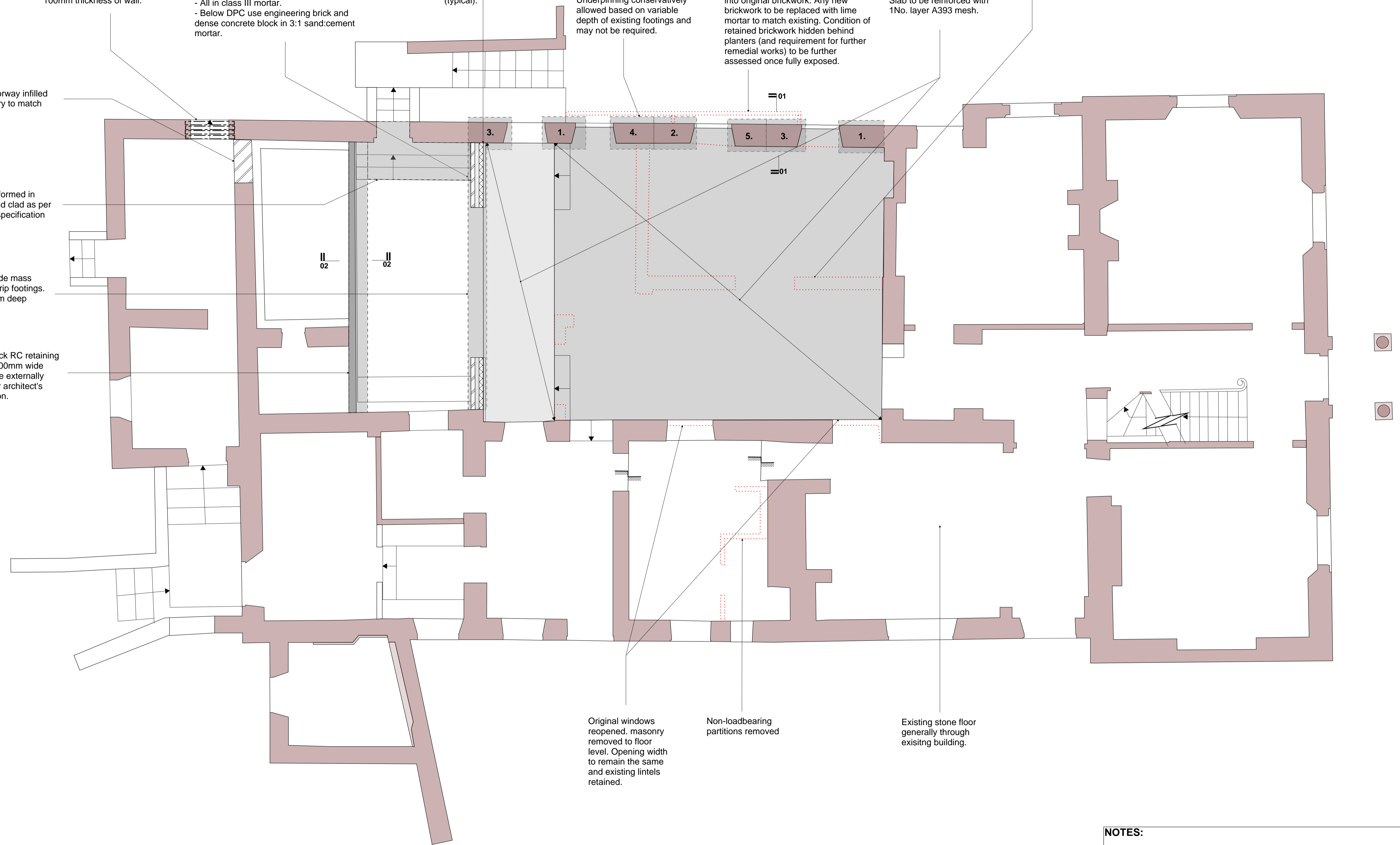
Existing infill extension removed.

Existing doorway infilled with masonry to match existing.

New steps formed in concrete and clad as per architect's specification

450mm Wide mass concrete strip footings. Allow for 1m deep excavation.

150mm thick RC retaining wall with 600mm wide based to be externally clad as per architect's specification.



Original windows reopened. masonry removed to floor level. Opening width to remain the same and existing lintels retained.

Non-loadbearing partitions removed

Existing stone floor generally through existing building.

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Project
Lamyatt Lodge - Main House
Lamyatt
BA4 6NP

Project No. 2356	Drawing No. SK01
Drawing Status Preliminary	Revision 02

Drawing Title
Proposed Ground Floor Plan

Scale
 1:50 @ A1, 1:100 @ A3

Rev	Date	By	Description
02	04/09/23	JG	For Planning
01	10/08/23	JG	For Planning

NOTES:

This drawing is to be read in conjunction with all relevant, architect's, engineer's and specialists drawings and specification.

Do not scale from these drawings.

FOUNDATIONS:

- Ground conditions expected to be bedrock, limestone/sandstone.

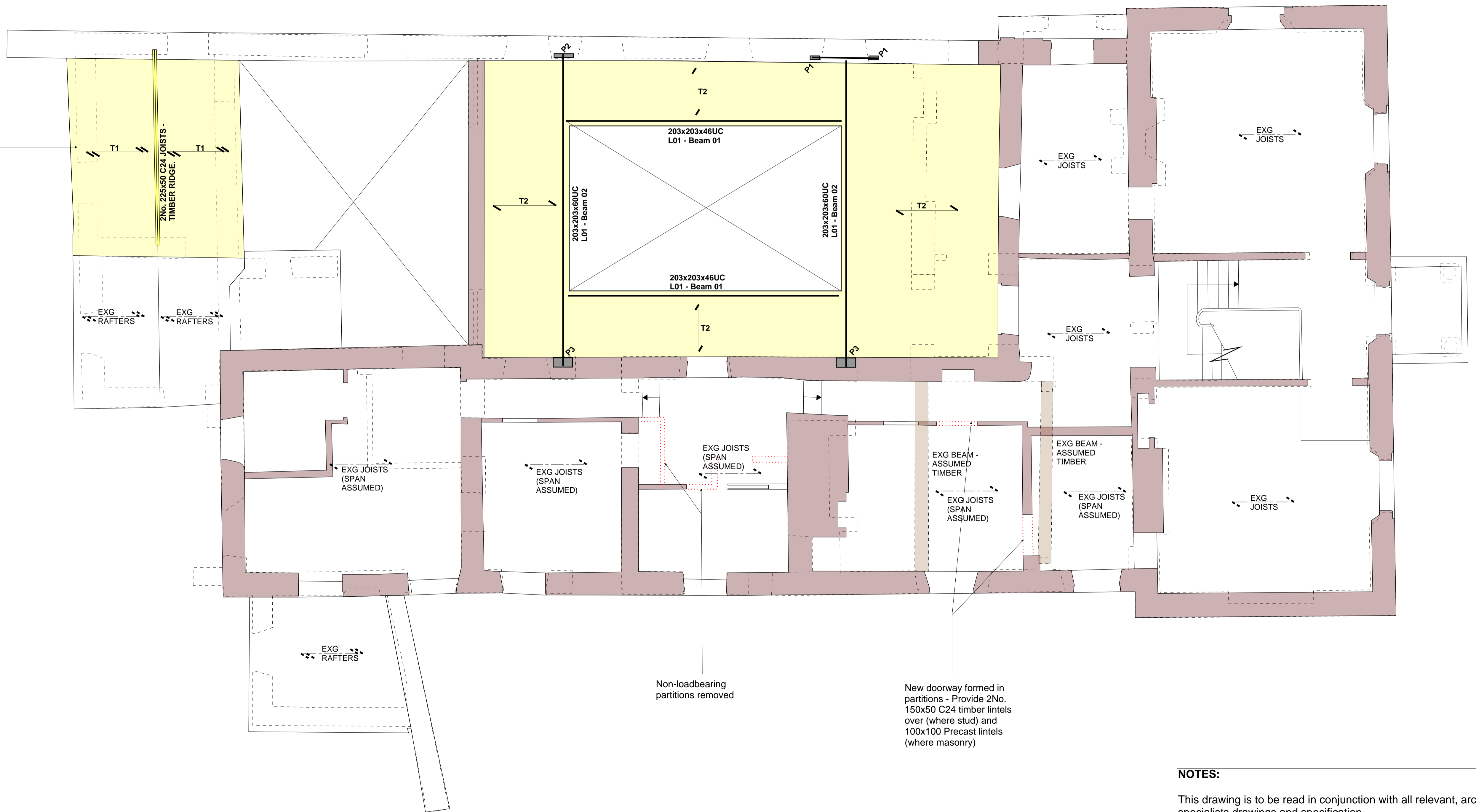
MASONRY:

- Use Class B engineering brick and dense concrete block with 3:1 Sand:cement mortar below DPC.

STEEL:

All steel grade S355
 All steel connections to use GR8.8 bolts (Min. 2No. M16 Per Connection).

Existing glass roof and associated structure removed and replaced with new traditional timber roof structure.



NOTES:

This drawing is to be read in conjunction with all relevant, architect's, engineer's and specialists drawings and specification.

Do not scale from these drawings.

STEEL:

All steel grade S355
All steel connections to use GR8.8 bolts (Min. 2No. M16 Per Connection).

PADSTONES:

P1 - 215 long x 100 wide x 150 deep mass concrete
P2 - 450 long x 100 wide x 150 deep mass concrete
P2 - 450 long x 215 wide x 150 deep mass concrete

TIMBER:

All timber, Grade C24.
T1 - 200x50 C24 Joists @ 400mm c/c with 18mm ply deck
T2 - 100x50 C24 Rafters @ 400mm c/c (may be increased to 150x50 Rafters if required for insulation requirements)

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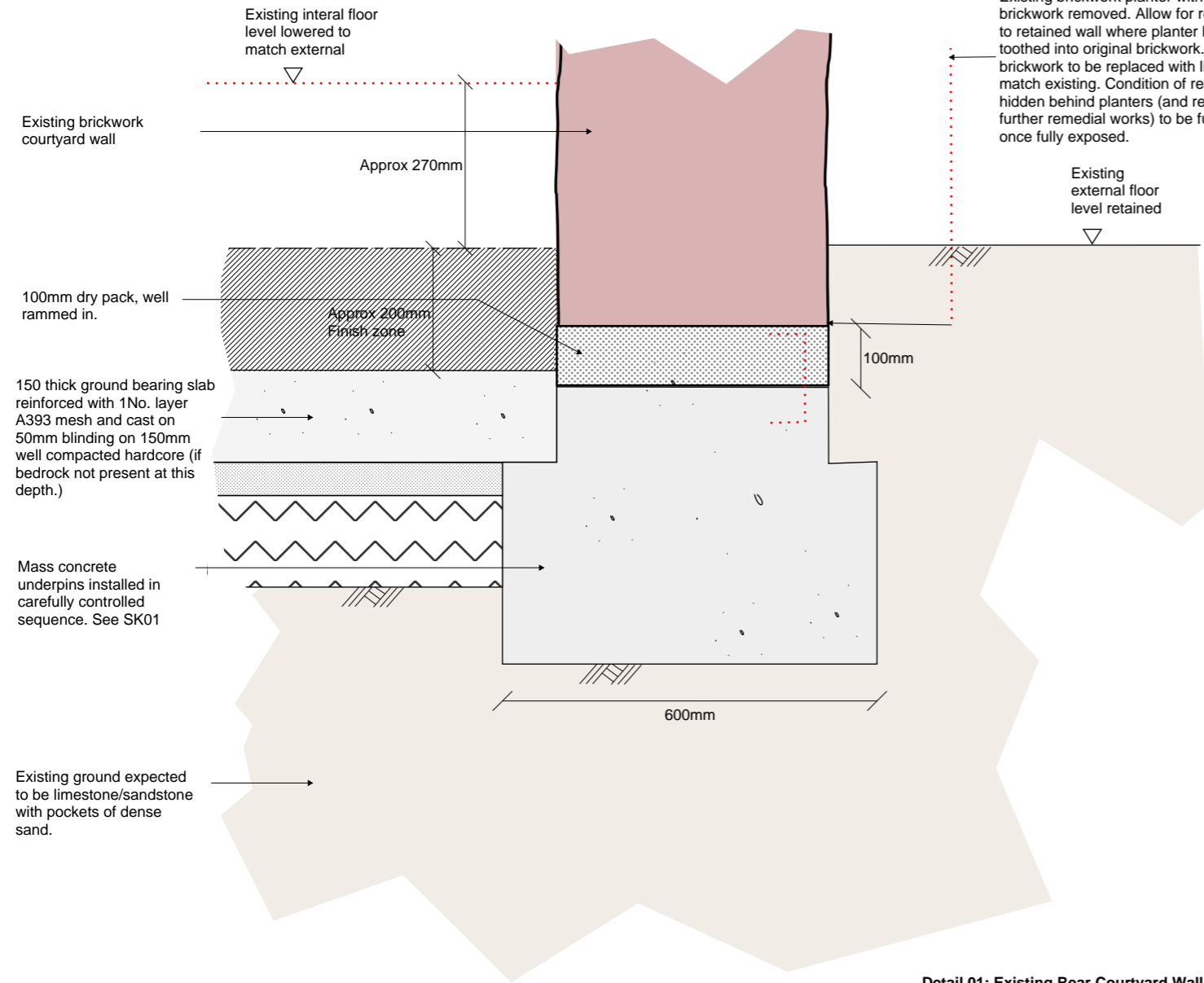
Project No. 2356	Drawing No. SK02
Drawing Status Preliminary	Revision 02

Drawing Title
Proposed First Floor Plan

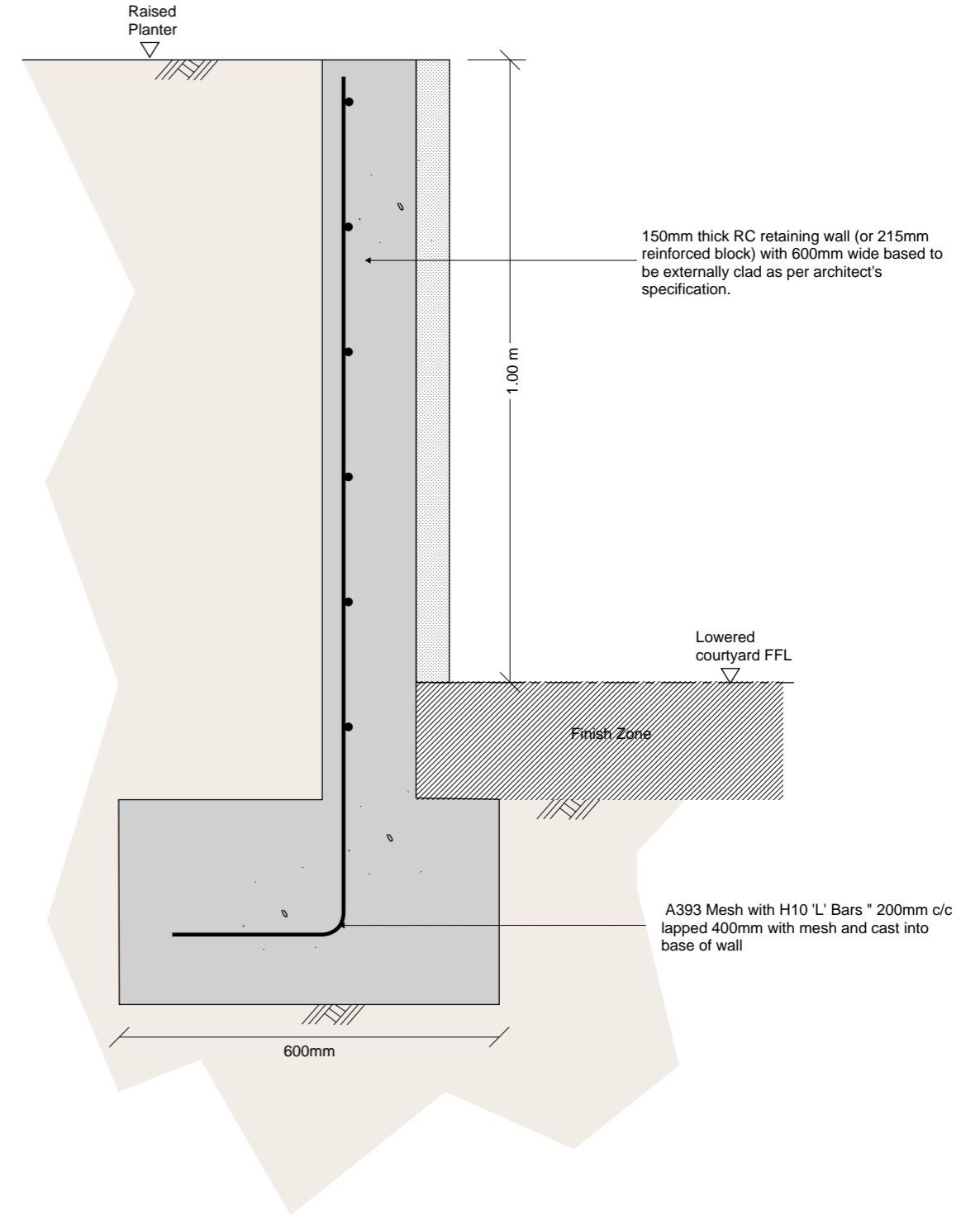
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Detail 01: Existing Rear Courtyard Wall - Potential Underpinning
1:10



Detail 02: Lowered Courtyard - Retaining wall
1:10

This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Do not scale from this drawing.

02	04/09/23	JG		For information
01	10/08/23	JG		For information

rev	date	by	chk	description
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drawing title
Proposed Ground Floor Details
Sheet 01

scale (s)	date	drawn
As noted @ A3	Aug '23	JG

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project
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project no. 2356	drawing status Preliminary
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