

Goitre Coed Fach Farm, Goitre Coed Road, TREHARRIS, CF46 5BB

Agricultural Barn

Structural Inspection Report

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1. Introduction
2. Details of Inspection
3. Conclusions & Recommendations
4. Relevant Drawings
5. Annotated Photographs

Signed

A handwritten signature in black ink, appearing to read 'Ashley Rogers', written over a light grey rectangular background.

Ashley Rogers

B.Eng. (Tech)., C.Eng., F.I.Struct.E

1.0 INTRODUCTION

Steve Morgan Associates Ltd were appointed by Geraint John Planning Ltd, on behalf of the owner of the above, to carry out a structural inspection of an agricultural barn at Goitre Coed Fach Farm, Treharris, CF45 5BB to determine the suitability for conversion to a dwelling. The inspection was carried out during the morning of Tuesday 7th December 2021 by Ashley Rogers of Steve Morgan Associates Ltd. The weather on the day of the inspection was overcast with heavy winds and rain at the onset of Storm Bara.

No excavations or opening up of concealed areas were carried out during the inspection but will be recommended if considered necessary. No inspection of electrical or plumbing installations has been carried out within the scope of this report. The survey also excludes any inspection relating to timber rot/infestation or the presence of asbestos based products.

The building is generally a single storey; stone-built structure with a duo-pitched roof lying on a north-west to south-east axis to the north of Goitre Coed Road, with a light-weight store attached at the west corner and a, lower, cattle barn extending to the north-east and attached to the main barn along part of its north-east elevation. The whole is built in ground that falls from the north-west to south-east and has floor levels that step internally in sympathy with the outside ground levels. Along the outside of the north-west gable there is, what appears to be, stone rubble from a previous construction stacked against the wall. To the south-east there is a more modern agricultural building that screens the majority of that gable wall of the stone barn. Internally the main barn is not subdivided into separate rooms but has two floor levels that correspond to the external levels. Note: we have been provided with drawings prepared by OAD Studio and for simplicity they have used an orientation of north to south, to be consistent references to the drawings and photographs will retain these references.

The roof to the main structure is a more recent replacement consisting of gang-nailed trusses and finished in corrugated metal sheets.

2.0 DETAILS OF INSPECTION: Refer also to the attached photographs and abstracts from drawings.

2.1 Stone Barn – West Elevation:

There are several existing doors and windows in this elevation that are framed in brickwork and have timber lintels that support the wall and / or roof over depending on the location. There are other, infilled openings, towards the south end, and a crack towards the upper section of the wall adjacent to the corner; this is possibly associated with the former openings and there is a straight, un-bonded joint internally at the corner.

2.2 Stone Barn – North Elevation:

This elevation is a gable wall at the higher level and is partially concealed externally by stone rubble along the lower level. There is some banding of a paler coloured stone that maybe associated with a previous structure. Internally the wall shows evidence of a possible redundant fireplace. There are no other obvious openings and the bonding to the side walls appears to be in the form of intermittent tie stones as opposed to continuous bonding along the full height.

2.3 Stone Barn – East Elevation:

There are two openings in this elevation, an original brick framed window and a modern door that appears to have been set into an existing opening that has been modified and as a result the upper section of stone either side has “run” back away from the frame. Internally the wall is undisturbed apart from the door and window.

2.4 Stone Barn – South Elevation:

Externally this gable could only be viewed obliquely as a result of the proximity of the steel structure; the general plane of the wall appears good, but the south-west corner seems to form a slight buttress and this section of wall may have once continued along, what is now, the line of the newer barn. There is evidence of a former doorway towards the west end, and this is boarded over internally.

2.5 Cattle Barn:

This is built against the north-east side of the stone barn and is enclosed along the north-west and north-east by stonework with the fourth, south-east. side being formed in blockwork. The roof is formed in profiled metal sheets on a basic system of rafters and purlins.

3.0 **CONCLUSIONS AND RECOMMENDATIONS INCLUDING REFERENCE TO THE PROPOSALS:**

The following items were considered as requiring further consideration: -

- (i) The design of the main, pitched roof and the flat roof over the annexe will need to be considered with respect to the materials to be used, the form of the roof and the available supporting structure.
- (ii) The barn will require a new floor slab with the necessary insulation to adjust the floor levels and comply with current regulations. The relevant levels are not detailed on the Planning Drawings, but the access is shown to be at the lower level with no indication of any changes in level internally. It is therefore assumed that the existing floor level in the north end of the main area will need to be lowered. It is not known, within the scope of this report, what is the form or level at which the walls are founded. It is often the case in older agricultural buildings that the walls simply terminate at a relatively shallow depth and no, or minimal, thickening of the wall to spread the loads. The form of the wall below ground will need to be established and a suitable course of action considered. If the north end of the floor is lowered, then the levels may be below the external ground level and suitable tanking required.
- (iii) The existing walls do not appear to meet the required 'U' values. Any additional wall or improved insulation characteristics of the existing wall should consider the extent of the existing foundations. It is anticipated that the existing foundations will not be wide enough to accommodate an additional blockwork skin but will need to be investigated.
- (iv) All existing timber lintels will need to be checked by a specialist and treated or replaced as found necessary. Consideration will need to be given to additional or redistributed loads in checking the existing lintels and it may be found necessary to introduce additional members to reduce loads on any retained members.

CONCLUSIONS AND RECOMMENDATIONS INCLUDING REFERENCE TO THE PROPOSALS (Continued):

- (v) There are a number of areas of existing infill that have straight joints that are not adequately bonded to the walls at the side, this also applies at corners. It is important that walls have structural continuity, and this can be achieved by cutting out and re-bonding or introducing mechanical or resin ties across the joints. Where walls are to be exposed the former proposal is most applicable whilst at corners where two walls meet, a form of tie bars would be preferred.

In addition, the following should be considered during the redevelopment of the property: -

- (a) Excavations close to the external walls should be supervised by a suitably qualified Engineer. All new walls, including internal walls will need to be built off suitable foundations based on site conditions. The form and depth the “foundations” to the existing, retained, walls should be investigated to determine their suitability to accommodate the proposed alterations.
- (b) Excavations should not be continuous at a lower level than the existing wall as this will affect the stability of the wall.
- (c) Any excavations that are carried out for investigations, drainage, incoming and outgoing services must be carried out with due regard to the existing structure. With respect to service trenches, these should be formed at right angles to the walls. Levels of new foundations and floor levels are also to be considered with respect to any existing foundation levels.
- (d) The level of the base of the wall should be established prior to commencement of the works.

**CONCLUSIONS AND RECOMMENDATIONS INCLUDING REFERENCE
TO THE PROPOSALS (Continued):**

- (e) External ground levels should be maintained to avoid destabilising the external walls. Where necessary internal tanking may be required.
- (f) Rainwater should be discharged positively away from the building to prevent the risk of undermining of the existing foundation. If soakaways are to be used, these should be located at least 5m from the building and at a lower level than the foundations to the building.
- (g) All growth adjacent to, and within, the walls is to be removed and roots killed off. Roots are not to be grubbed up or removed, whilst live, from walls to avoid disturbance to foundations and wall structure.
- (h) Internally and externally, the stonework will require careful raking out and re-pointing. There are a number of areas that will require more intensive work. Areas may require to be re-built with stones tied across the cracks or bonding by the insertion of specialist sock anchor ties from the outside.

Subject to the above, it is considered that the property is suitable for conversion.

4.0 RELEVANT DRAWINGS:

Front Elevation (West)

Side Elevation (From N)

Rear Elevation (East)

Side Elevation (From S)

REVISION NOTES:

REVISION PLANING
Rev 1 - Date: 18th August 2020 Notes: Planning submission

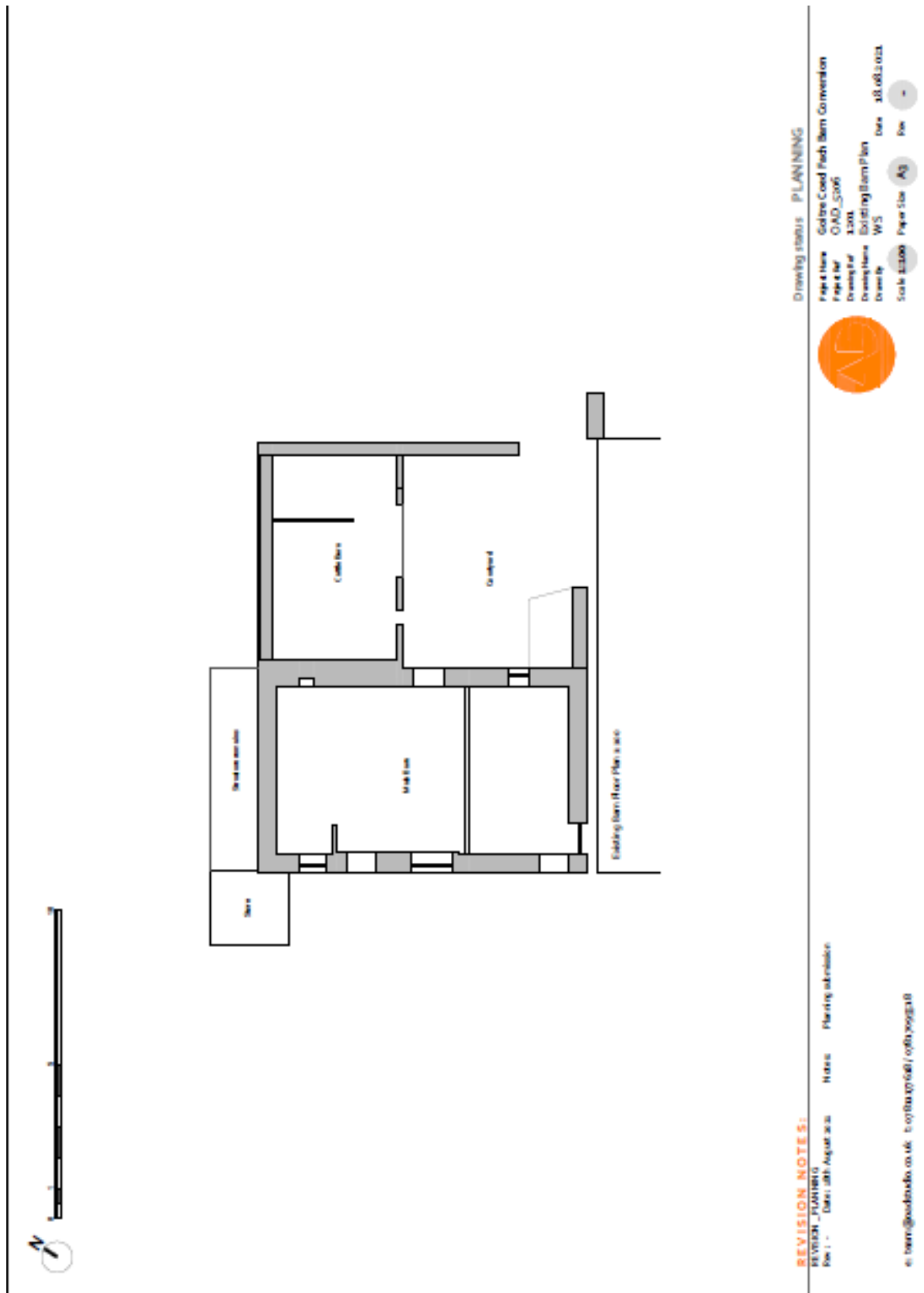
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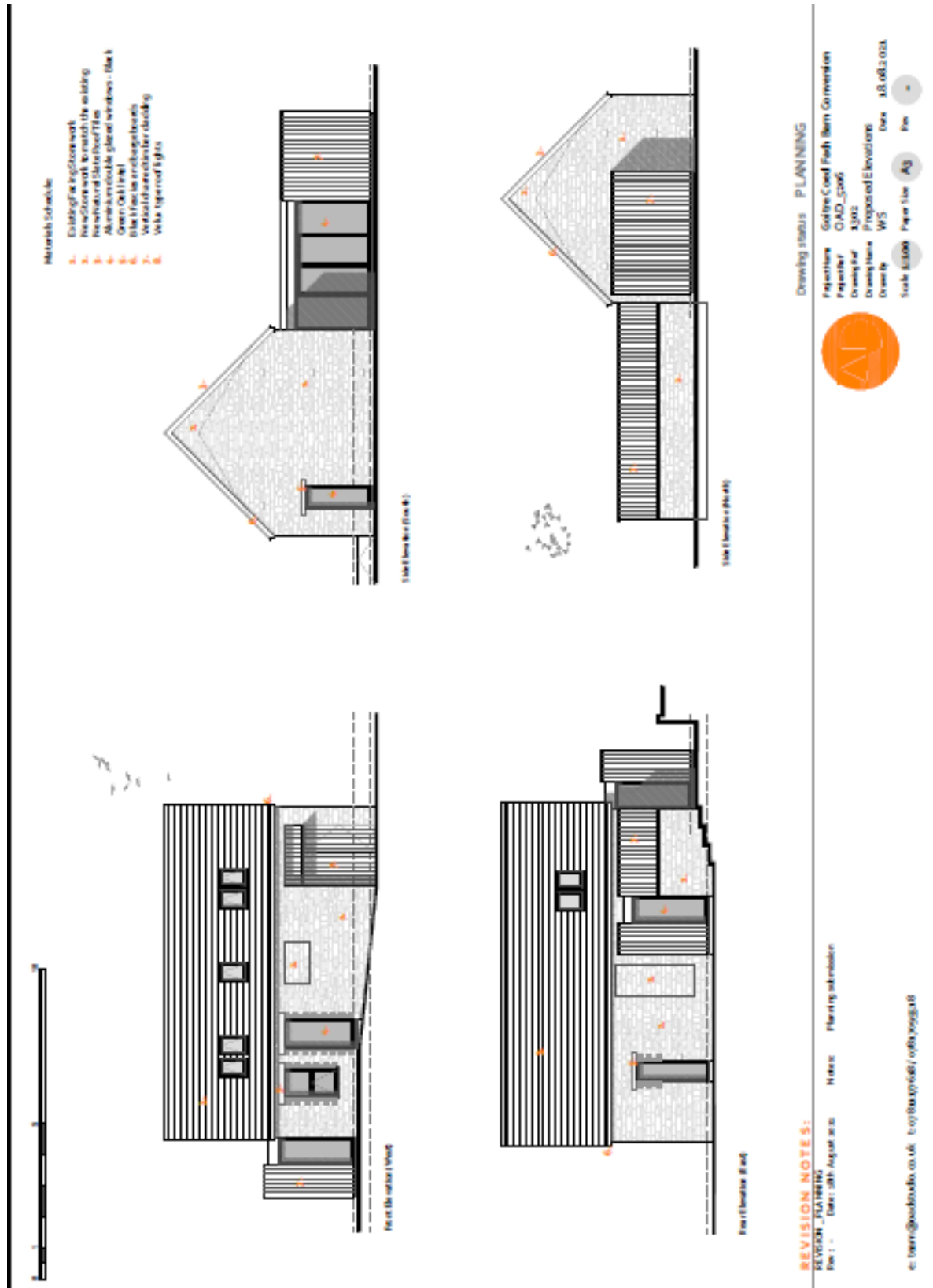
- 1. Existing stone work
- 2. Existing (if left) stone work
- 3. New stone roof
- 4. Painted timber windows
- 5. Black doors - unfinished
- 6. Timber cladding board

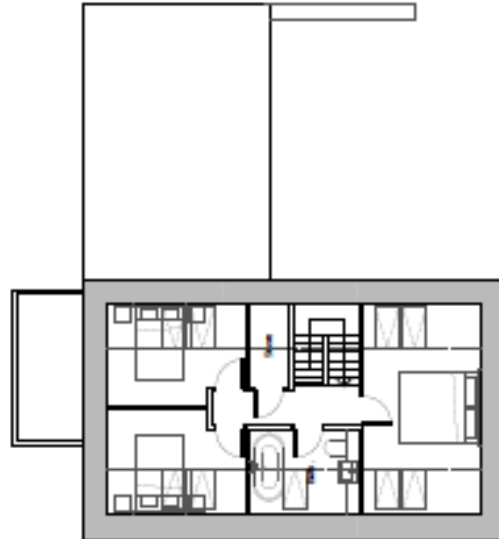
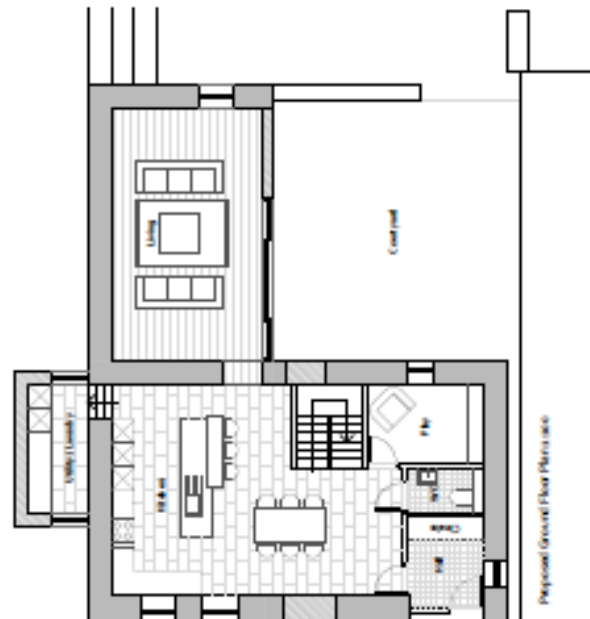
Drawing status: PLANING

Project Name: Goitre Coed Fach Barn Conversion
Project Ref: QAD_5206
Drawing Ref: 1/000
Drawing Name: Existing Elevations
Drawn by: WS
Scale: 1:1000
Page Size: A3
Date: 18.08.2020
Rev: 1

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REVISION NOTES:

REVISION _PLANNING
Rev 1 - Taken with August 2020 Notes Planning submission

Drawing status: PLANNING

Project Name: Goitre Coed Fach Barn Conversion
Project Ref: QJAD_22005
Drawing Ref: 2.002
Drawing Name: Proposed Plans
Drawn by: WJS
Scale: 1:500
Paper Size: A3
Date: 18.08.2024
File: -



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5.0 ANNOTATED PHOTOGRAPHS:



**EAST ELEVATION: NOTE BRICK SURROUND TO OPENINGS AND
INFILLED OPENINGS AT SOUTH END:**



**EAST ELEVATION / SOUTH END: NOTE INFILLED
OPENINGS AND CRACK IN UPPER SECTION:**



**EAST ELEVATION / SOUTH END: NOTE INFILLED
OPENINGS WITH STRAIGHT JOINT:**



EAST ELEVATION INTERNAL: NOTE INFILLED OPENINGS WITH STRAIGHT JOINT AND STRAIGHT JOINT AT CORNER:



NORTH ELEVATION: NOTE RUBBLE AGAINST WALL AND PALER BAND OF STONE – STRUCTURE AT CORNER TO BE REMOVED:



NORTH ELEVATION INTERNAL: NOTE POSSIBLE FIRE PLACE WITH STRAIGHT JOINT AT CORNER:



PART OF EAST ELEVATION WITH LOWER BARN:



PART OF EAST ELEVATION: NOTE WALL TO SIDES OF DOOR:



EAST ELEVATION - INTERNAL: NOTE WALL TO SIDES OF DOOR AND LEVEL DIFFERENCES:



**VIEW ALONG SOUTH ELEVATION: NOTE POSSIBLE
FORMER WALL EXTENSION AT CORNER:**



**VIEW ALONG SOUTH ELEVATION: NOTE OPENING AT WEST SIDE –
SECTION BOARDED OFF INSIDE:**



**SOUTH ELEVATION INTERNAL: NOTE BOARDED OVER OPENING
AND WITH STRAIGHT JOINTS AT CORNERS:**



**SOUTH ELEVATION INTERNAL - DETAILS: NOTE BOARDED
OVER OPENING AND WITH STRAIGHT JOINTS AT CORNERS:**



LOW LEVEL BARN: