



Barn 1
Pant Glas Farm
Bryncoch, Neath

Structural Engineers Report

Job No. 965

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P02 – Report reissued following visit on 26th April 2023. No significant changes.

Content

1. INSTRUCTION
2. CLIENT
3. GENERAL PROPERTY DESCRIPTION
4. LOCATION
5. FLOODING
6. MAIN ROOFS
7. RAINWATER GOODS
8. CHIMNEY STACKS
9. MAIN EXTERNAL WALLS
10. DAMPNESS ISSUES
11. EXTERNAL JOINERY
12. FLOORS
13. WINDOWS AND DOOR LINTELS
14. FOUNDATIONS AND SETTLEMENT
15. CELLARS
16. INTERNAL PARTITIONS
17. BELOW GROUND DRAINAGE
18. RETAINING WALLS
19. RECOMMENDATIONS FOR REPAIR
20. GENERAL EXTENT AND LIMITATION OF SURVEY

APPENDIX – Drawings – General Plan

1. INSTRUCTION

kPa Consulting Engineers have been appointed to carry out a Full Structural Survey at each of two Barns called Barn 1 and Barn 2 at Pant Glas Farm, Bryncoch, Neath. The contents of this report are in accordance with and subject to the 'kPa Survey Inspection Terms and Conditions' document.

The contents of the report are for the instructing party only, and will not extend to any third party in terms of information contained therein or express liability of this Practice. Similarly, no reproduction of the whole or part of the report is to be undertaken without the written consent of this Practice.

2. CLIENT

Client Details: Mr Johnson
Pant Glas Farm
Bryncoch
Neath
SA10 7YW

Date of Inspection: 2nd May 2013 and 26th April 2023

3. GENERAL PROPERTY DESCRIPTION

Occupied/unoccupied: Both barns are currently unoccupied but used for storage

Freehold/leasehold: Freehold

Approximate Age of Building: Unknown (Predates 1876)

Barn 1 comprises of an original barn which has been extended to the south east and also to the south west forming an L shape on plan. The barn is of slate roof covering on either trussed rafters to the extension or cut timber rafters to the original barn which are supported on masonry external walls. The masonry external walls are of stone to the original part of the barn and are cavity wall construction to the extension part of the building. The cavity wall construction is dense blockwork inner skin and a random stone masonry external skin.



Photo 3.1



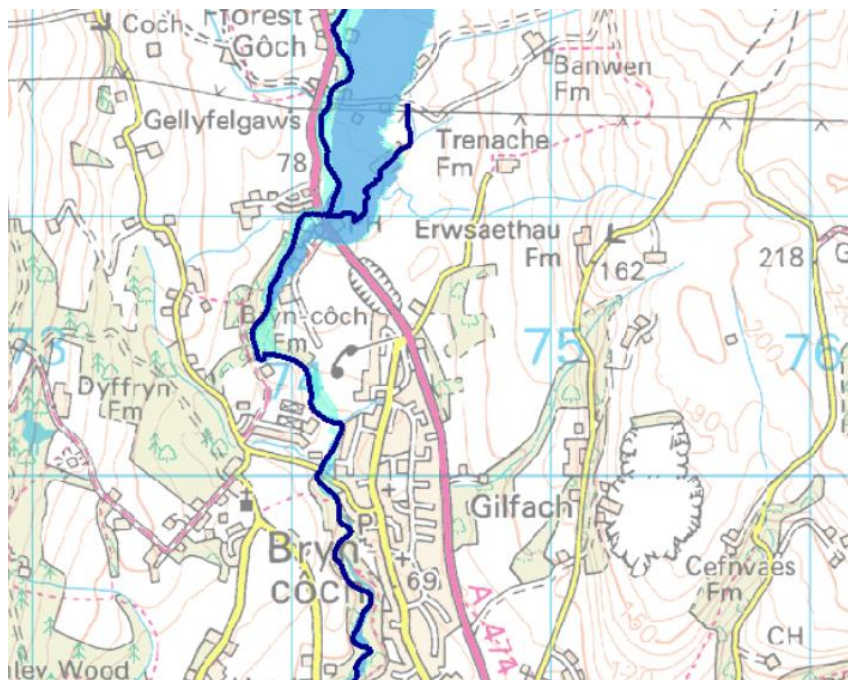
Photo 3.2

4. LOCATION

The site is located to the east of Bryncoch village high which is on the top of a hill high above the Neath Valley.

There is a gentle slope across the site from North to Southeast. The site is at approximately 155m above ordnance datum.

5. FLOODING



Flood Risk Map from Environment Agency

Flood Risk for SA10 7YW

A floodplain is the area that would naturally be affected by flooding if a river rises above its banks, or high tides and stormy seas cause flooding in coastal areas.

There are two different kinds of area shown on the Flood Map. They can be described as follows:

Dark blue ■ shows the area that could be affected by flooding, either from rivers or the sea, if there were no flood defences. This area could be flooded:

from the sea by a flood that has a 0.5 per cent (1 in 200) or greater chance of happening each year;

or from a river by a flood that has a 1 per cent (1 in 100) or greater chance of happening each year.

Light blue ■ shows the additional extent of an extreme flood from rivers or the sea. These outlying areas are likely to be affected by a major flood, with up to a 0.1 per cent (1 in 1000) chance of occurring each year.

These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements.

Clear ■ shows the area where flooding from rivers and the sea is very unlikely.

There is less than a 0.1 per cent (1 in 1000) chance of flooding occurring each year.

The majority of England and Wales falls within this area.

This property outside the flood plains shown on the Environment Agency Flood maps and is therefore very unlikely to flood. The properties are approximately 1m above the lane alongside the property boundary and therefore are very unlikely to flood from local sources.

Note:

The Environment Flood Risk Map only covers flooding from rivers and the sea. Flooding can occur at any time and in any place from sources such as rising ground water levels, burst water mains, road drains, run-off from hillsides, sewer overflows etc.

6. MAIN ROOFS

Original barn

The roof to the original barn is covered in natural grey slate tiles fixed to treated timber battens which are in turn fixed to cut timber rafters which span from the wall plate level onto a purlin and up to the ridge board. The purlins are in turn supported on 2 nos. triangular trusses. All timbers appear to be in good condition and inspection of the internal eaves shows the wall plate to also be in sound condition. Internally the slates are not flaking and appear to be in sound condition. Some roofing slates have cracked or slipped.

Roof to extension

The roof to the barn extension are of timber trussed rafters which span between external walls and in turn support felt and timber battens to which the grey natural slates are fixed. All timberwork is in sound condition; the trusses appear to have horizontal binders but do not have diagonal chevron bracing. This should be installed. Also the gable walls should be checked for lateral restraint at high level. No lateral restraint straps could be seen.

The ceiling level of the roof space to the extension has been insulated in some parts but not completely. The underside of the trusses has been plaster boarded. There are 3 nos. hatches.

All lead work appears to be in good condition. The main roof to the existing barns appears to have dipped in some areas. It is possible that some rafters might have slipped on their supports due to corrosion of fixings. These should be inspected when access is available to these areas.



Photo 6.1 – Original Barn Roof



Photo 6.2 – Extension Roof

7. RAINWATER GOODS

The gutters are black uPVC half round which lead to round black downpipes which discharge onto the ground in some places and into gully pots in other places. These gully pots are believed to drain to the existing drainage. All gutters appear to be in good condition.



Photo 7.1 – South West Elevation

8. CHIMNEY STACKS

There are no chimney stacks evident to this building either externally or internally.

9. MAIN EXTERNAL WALLS

Original barn

The external main wall to the existing barn is approx. 450mm wide and of solid random stone construction set in a lime based mortar. The lime based mortar has been pointed with ordinary portland cement. All walls appear vertical and stable. There are no signs of cracking or structural distress to the building.

Extension

The extension part of the building is constructed from dense concrete block inner skin cavity wall construction with a stone outer leaf. All walls appear vertical and stable.



Photo 9.1 – North West Elevation



Photo 9.2 – North East Elevation

10. DAMPNESSE ISSUES

All rooms of the building appear to be well ventilated. On the day of the survey there is a stiff breeze and the sun is shining so any moisture on the walls is likely to have dissipated. Masonry is difficult to check for dampness with a hand held probe and therefore has not been carried out.

Any conversion should consider tanking the lower half of the walls to prevent rising damp issues from affecting the internal finishes.

11. EXTERNAL JOINERY

The external joinery to the original barn is principally the timber facia and bargeboards and also the windows and door to the southwest elevation. The windows and door appear to be in sound condition. The facia boards however, are inverted skirting boards which are unlikely to have been properly treated. These facia boards show signs of moisture decay.

The facia boards and bargeboards to the extension part of the building are similar inverted skirting boards which have been painted. They appear to be in sound condition. There are no overhangs to the eaves at any point.

12. FLOORS

The floors in both parts of the building are ground bearing concrete slabs which all appear to be in sound condition.

13. WINDOWS AND DOOR LINTELS

The south west elevation of the existing barn has three widow and door openings. All three have flat stone arches as their lintels both internally and externally. To the north east elevation the main doorway is of approx. 2m width and has a painted steel roller shutter door with a flat stone arch over. There are 3 garage door openings to the new extension. Each opening has a steel beam to support the inner leaf and a flat plate to support the outer leaf. The steel beams supporting the inner leaf are 178mm deep by 102mm x 19mm universal beams the plate welded to the underside is approx. 10mm thick. In each case there does not appear to be any signs of distortion. However, the steels have not been treated and because they are not galvanised they are beginning to rust. All rust should be cleaned back and the beams treated with a protective paint.

There is a window opening to the south west elevation to the gable wall of the extension which has a 140mm deep precast concrete lintel to the inner leaf and some form of cast in situ lintel to the outer leaf which incorporates a flat stone arch. There does not appear to be any structural issues with this lintel.

14. FOUNDATIONS AND SETTLEMENT

There are no indications anywhere on the building to suggest that settlement has occurred. The foundations have not been exposed but could be expected to be relatively deep in the order of 1m or so the new extension but are likely to be shallow foundations to the original barn.

15. CELLARS

This property does not appear to have any cellars or basements below ground and ground floor level.

16. INTERNAL PARTITIONS

Internal partitions between the extension garages are of dense blockwork construction approx. 100mm thick. There are no significant structural issues with these walls.



Photo 16.1

17. BELOW GROUND DRAINAGE

There is no foul drainage within the barn. However, there is a surface water channel outside the two garage doors to the elevation facing north east. This drains to a gully. The gully appears to be blocked and should be cleaned.

18. RETAINING WALLS

The south east facing elevation to the extension facing the road had been rendered and painted with masonry paint. The rendered blockwork wall shows some cracking at the vertical DPC joint with the stonework section of the wall. There are no retaining walls to the property but there is an inclined bank close to the rear south east elevation of the barn which drops approx. 1m down to the lane behind. This slope is considered far enough away not to cause any instability to the rear wall of the barn extension.

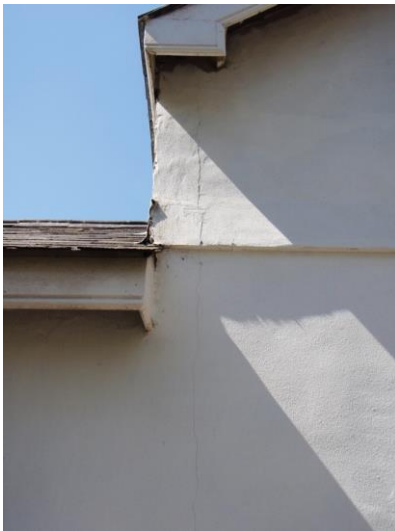


Photo 18.1



Photo 18.2

19. RECOMMENDATIONS FOR REPAIR

Some roofing slates are cracked or have slipped and should be repaired. The depressions in the roof should be investigated further and timbers re-aligned if required. The ridge tiles are out of alignment and should be re-set.

The roof trusses appear to have horizontal binders but do not have diagonal chevron bracing. This should be installed. Also the gable walls should be checked for lateral restraint at high level. No lateral restraint straps could be seen.

The following minor defects as noted within this report should be repaired. The inverted skirting boards fascia boards showing signs of moisture decay should be repaired. All rust noted on the garage door opening steel beams should be cleaned back and the beams treated with a protective paint. The blocked gully should be cleaned.

20. GENERAL EXTENT AND LIMITATION OF SURVEY

Roofs and associated elements: The roof(s) will be inspected externally from ground level (or localised vantage points). Low level roofs could be closely examined with the use of our 4 stage surveyors ladder (vertical reach: 2.80m) Internal inspection will be via adequately sized loft access hatches.

Subsoil conditions & Foundations: No trial pits will be excavated to expose the foundations or localised drainage. We will refer to our local knowledge of the subsoil conditions and speak to Building Control if necessary to understand the regional soil variations. No comment will be made on land contamination (as this is beyond the scope of this report type) and any Solicitors land check will provide only basic search material that may require you to instruct a specialist in the field to comment further in detail.

Below Ground Drainage: Drainage is inspected by lifting manholes where possible to do so and inspecting chambers and visible pipework. An inspection is made of the surrounding areas to try and determine if the property is connected to the public drainage system.

Retaining Walls: Visual inspection only and no opening up of the fabric will be carried out. The structural adequacy of the retaining wall will be based on signs of distress or lean which will be recorded.

Walls: Visual inspection only and no opening up of the fabric will be carried out.

Floors and staircases: Where fully fitted coverings are at the Building we might only be able to look at floor corners by turning back loose coverings. No floor boards will be lifted.

Kitchen Fittings: We do not comment on any Kitchen or Utility fittings.

Sanitary ware/drainage: We carry out visual inspections only of such fittings, and trace visually the flow of waste water from appliances to drains, manholes, and onto the boundary of the property. Wherever possible drain covers will be lifted.

Service Installations: A totally visual inspection only will be effected on all the water, heating, hot water, electrical, and gas installations. No efficiency calculations will be carried out, but where the visual survey highlights potential defects we will guide you to separately instruct a Specialist in the field to attend the property and report in more detail. Nevertheless, notwithstanding the Report findings it is always sensible to instruct Specialist Service Engineers wherever no guarantees or updated Certification is currently available.

Items for the Solicitor: We will not contact Statutory Boards or Local Authorities (with the possible exception of Building Control regarding subsoil conditions) – these matters will need to form part of your legal searches, but your solicitor may need our expertise in possible site specific issues arising from their searches. Other matters your solicitor should include to do:

- we will look for obvious deleterious materials on site but an enquiry should be made by your solicitor of any known products in the building.
- check for ownership of the land, rights of way and ownership of boundaries
- planning and building regulation consents
- mining activity search both past and present
- party wall awards (if applicable)
- guarantees or warranties for any element of the building, or recent work effected
- you are recommended to show sight of the Survey Report to your Solicitor.

Damage: We will take all reasonable care to prevent any damage to a building or structure. Note that if damage has already occurred to an area due to a structural defect and needs to be repaired in any case, further probing may be carried out by the Engineer. Often the possible cause of a problem can be confirmed with only minor further damage which the owner and or potential owner must accept without any recourse to the Engineer.

Proprietary Systems: Often proprietary systems are used within buildings e.g. precast concrete units, and sometimes it is not possible to determine the exact construction of such a system. The Engineer will use reasonable skill and care to determine the appropriateness of such a system for its intended use, and use published tables where appropriate.

Limitation of Survey through Instruction: The Engineer may have been told by the client, the client's solicitors or other advisors of certain information which leads the Engineer to decide that certain part(s) of the building will not need to be inspected, e.g. certain parts of the building will be demolished, or maintenance of certain parts of the building is the responsibility of third parties. Inspection of some of the items may therefore not be relevant. If this is the case, the Engineer will record these provisos prior to carrying out the survey or within the report with appropriate rationale.

Liability: Under normal circumstances, the appropriate standard of care will be the skill and care reasonably to be expected of a competent Engineer performing a survey of the type in question. The client will only look to the employer for recompense (and not to the individual) if there is a finding of negligence.

Dimensional Survey: A structural survey does not cover or record existing dimensions but may make reference to approximate dimensions where deemed appropriate to give an indication of scale.

APPENDIX – Drawings