GLAS 2020

Chris Southgate Conservation Engineer with Southgate Associates

Typical structural issues and possible fixes!

- Structures are capable of lasting thousands of years in museum conditions
- There is a reason for deterioration of fabric and structure which if understood gives rise to a conservative repair
- Minimum intervention involves understanding the process and only repairing areas which are defective
- The standard “cost per square foot” approach to conservation projects does not apply for the minimum intervention approach
- A detailed survey is required to abstract likely costs
- Survey being carried out by rope access

DUNBOY CASTLE (£10M)

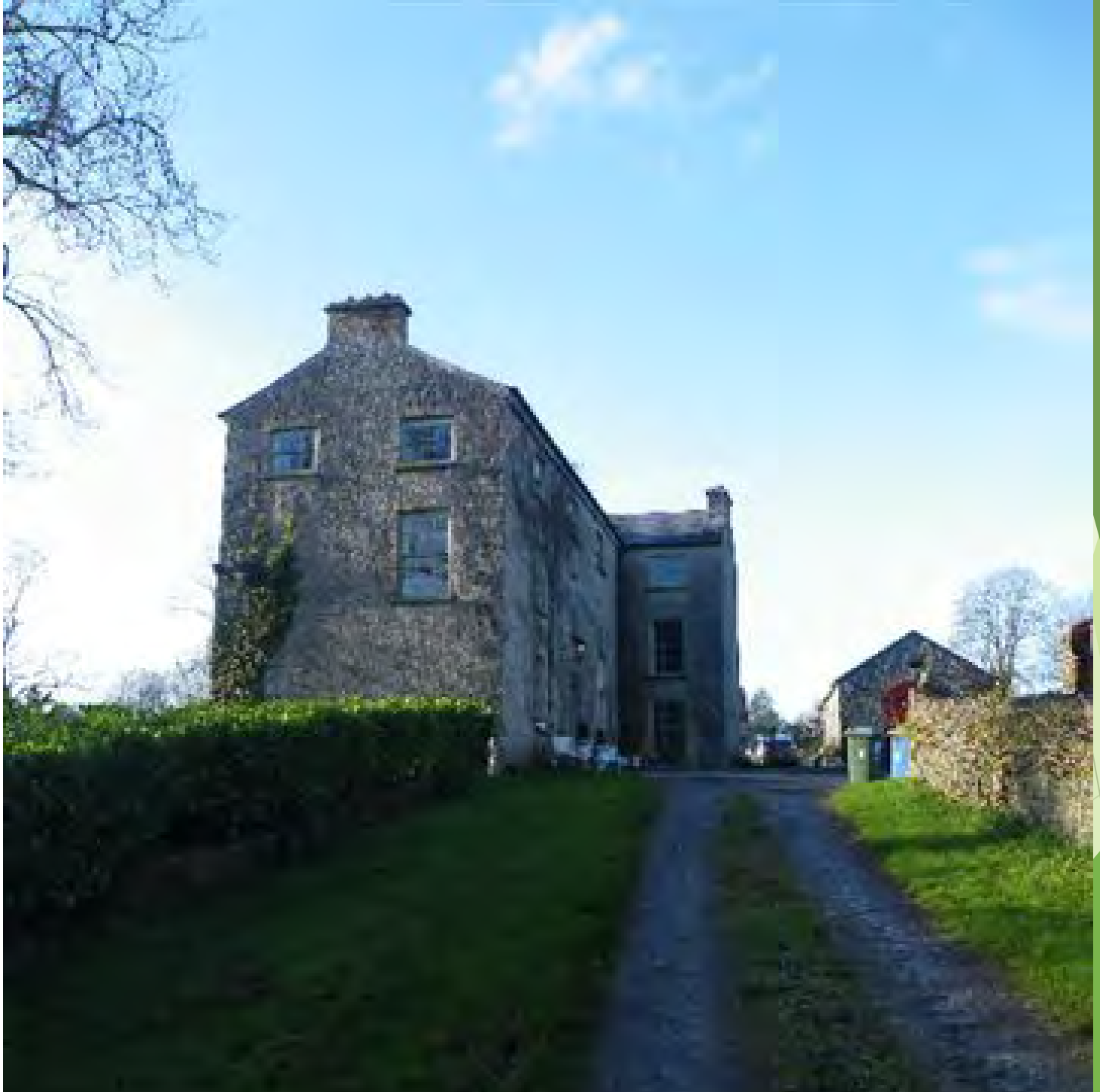
Causes of deterioration

- Sun
- Wind
- Pollutants
- Loading
- Fire
- Wear and Tear
- Foundation movement
- Rising dampness

- But the greatest of these is the result of rain and moisture related deterioration

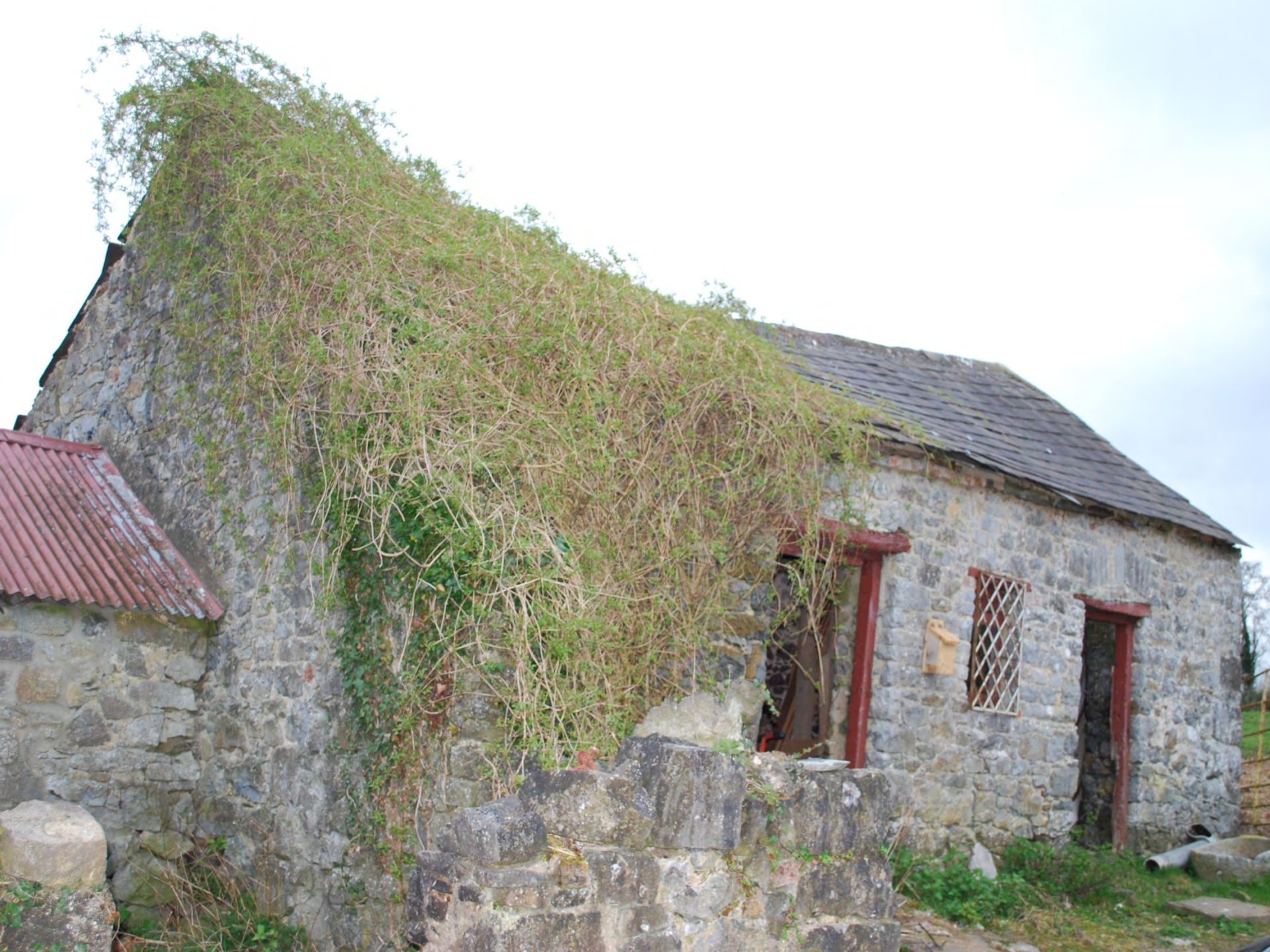
Marybrook House

10 years ago I attempted to literally knock an agricultural building into shape on my own property



Walls to the 17th century outbuilding were leaning out about 300mm

THIS WAS CAUSED BY ROOF FAILURE IN THE COLLAR TIES



The roof had literally pushed walls outwards causing major cracks in the gable walls

- This is quite a common problem with traditional buildings in general
- I am showing an extreme case here

Cracks are pointed in lime mortar and grouted with lime

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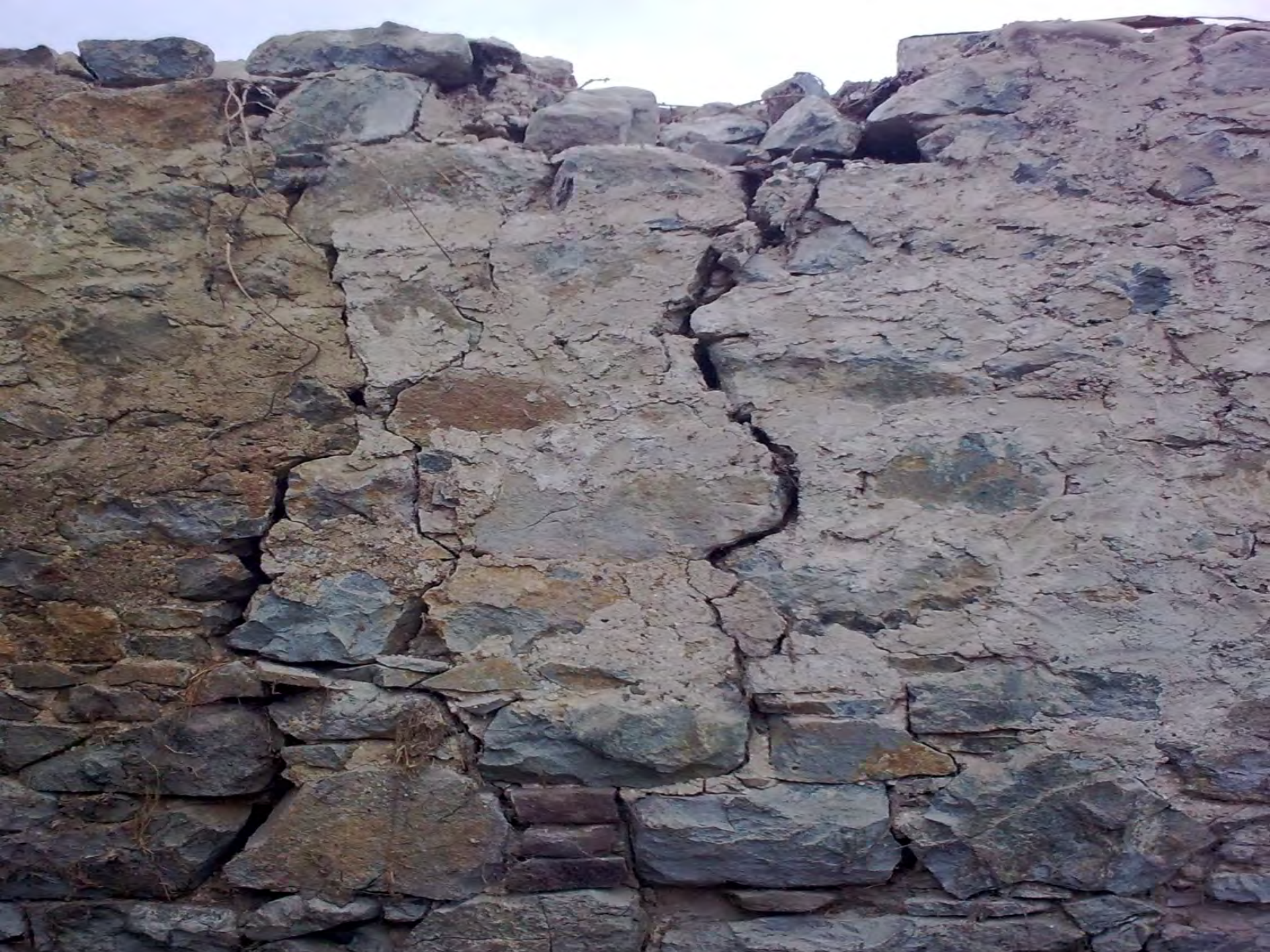
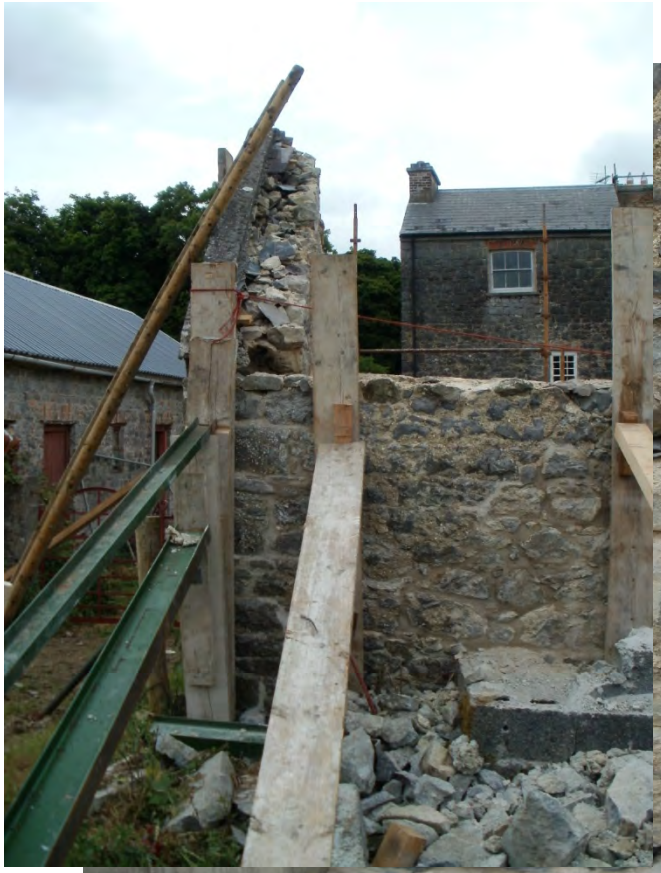
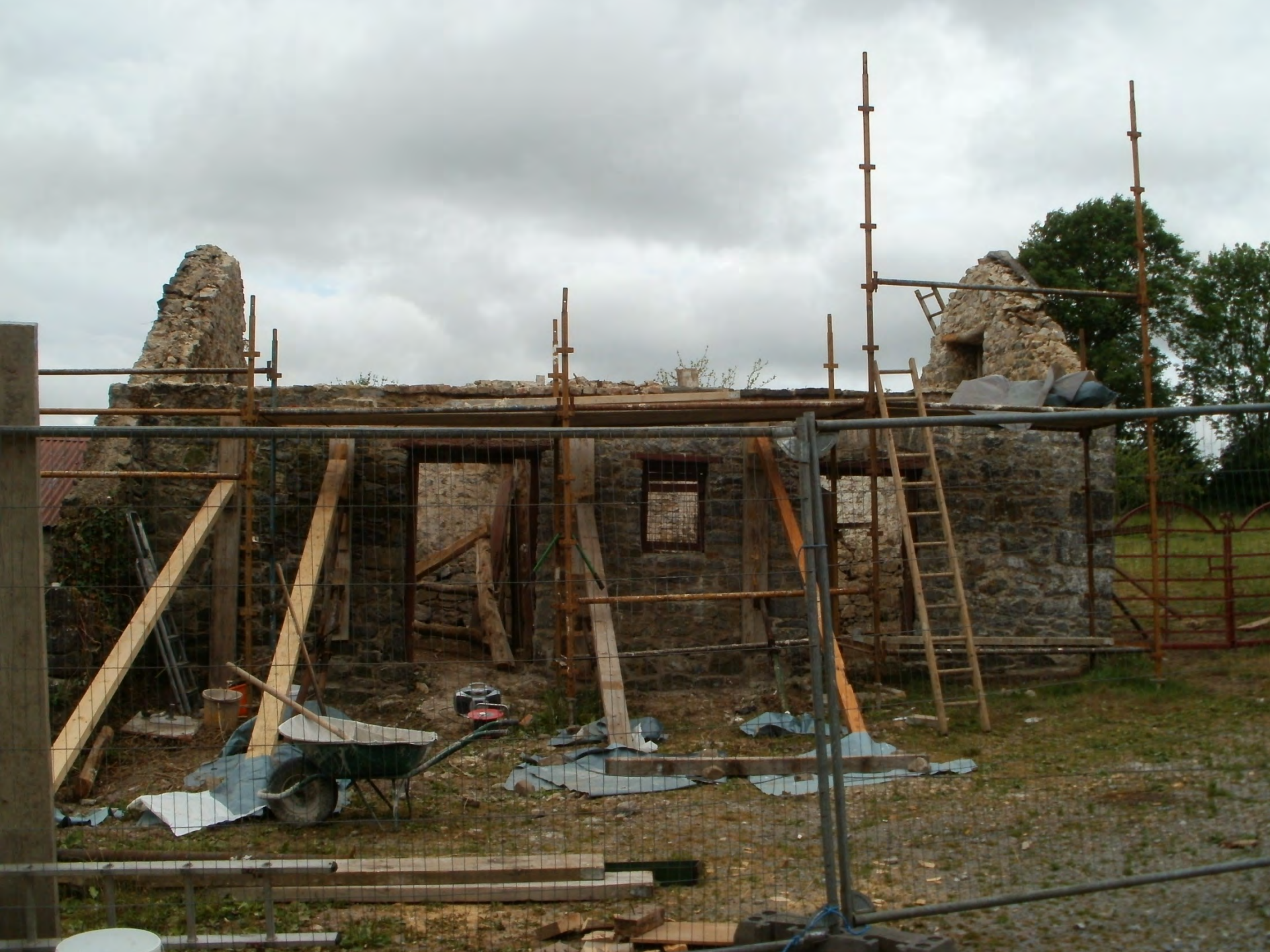
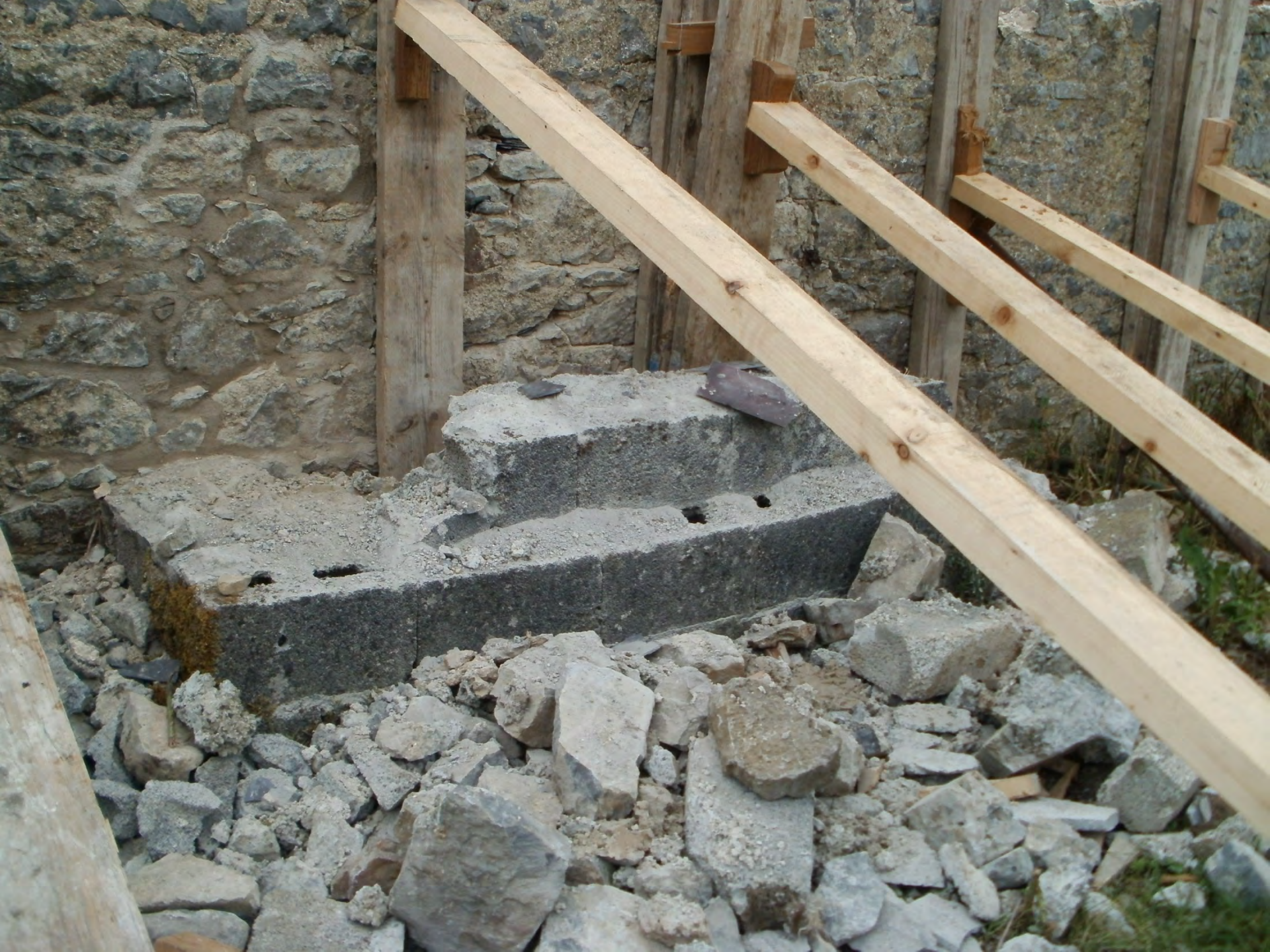


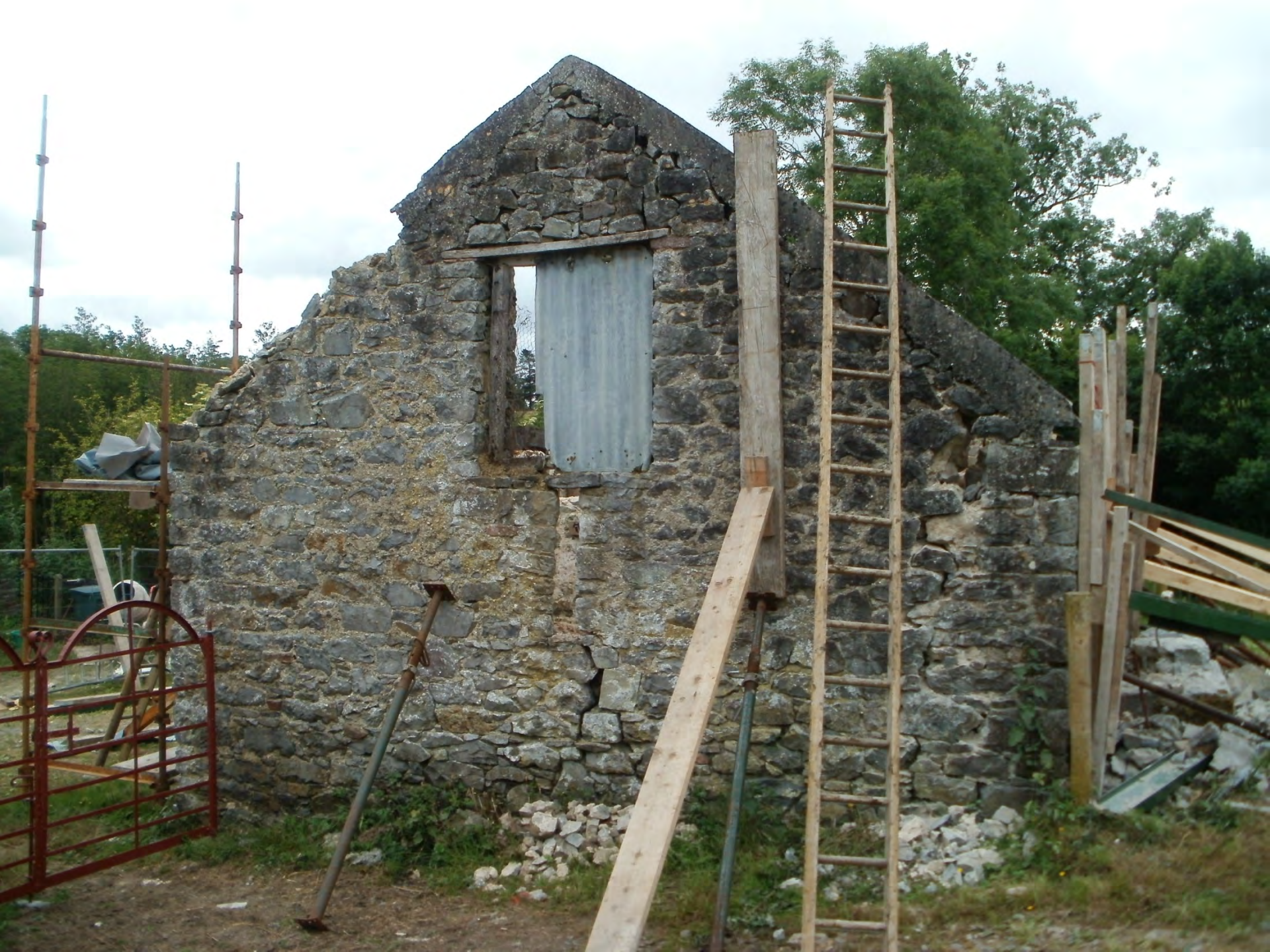
Jacking procedure

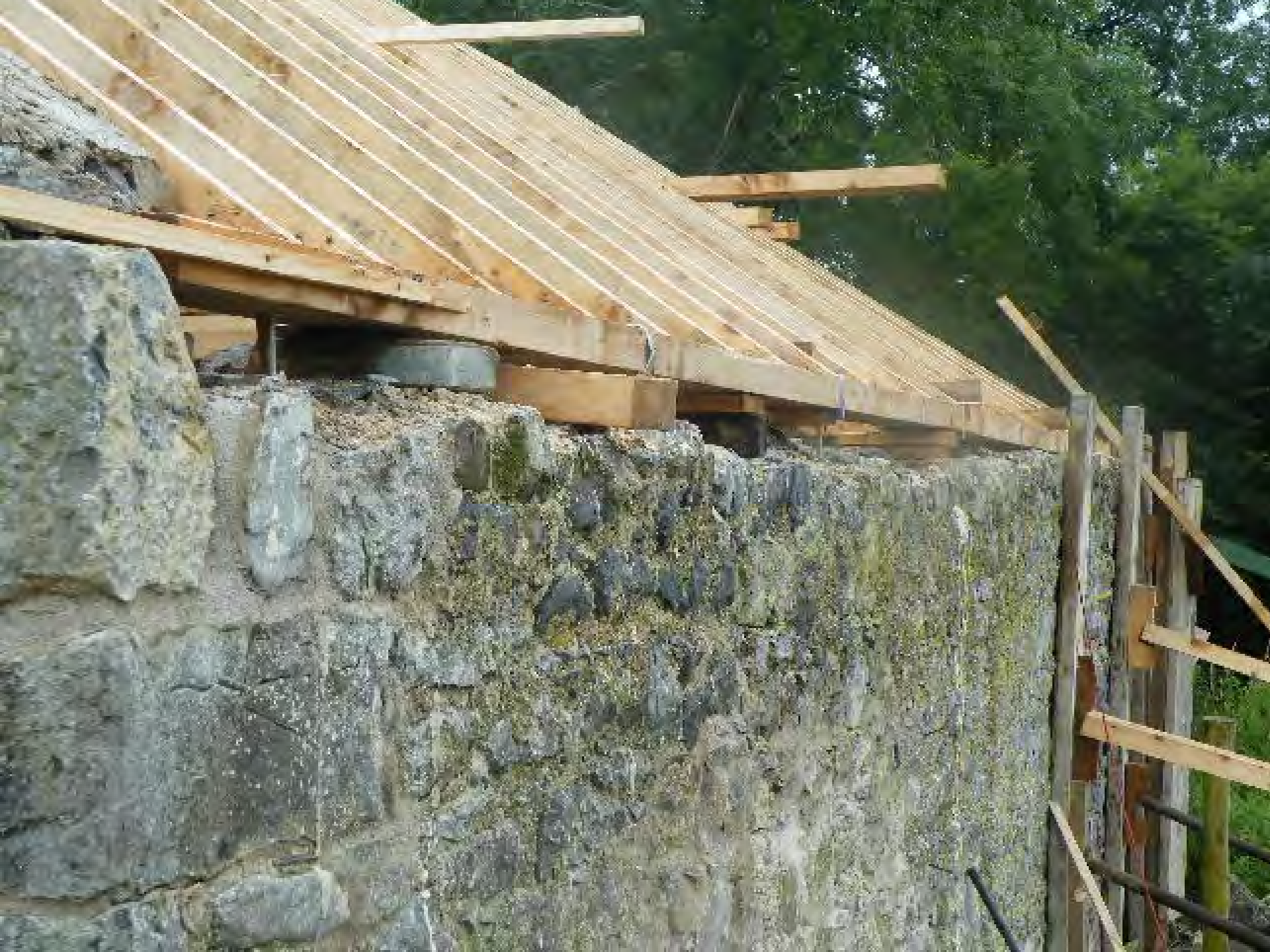


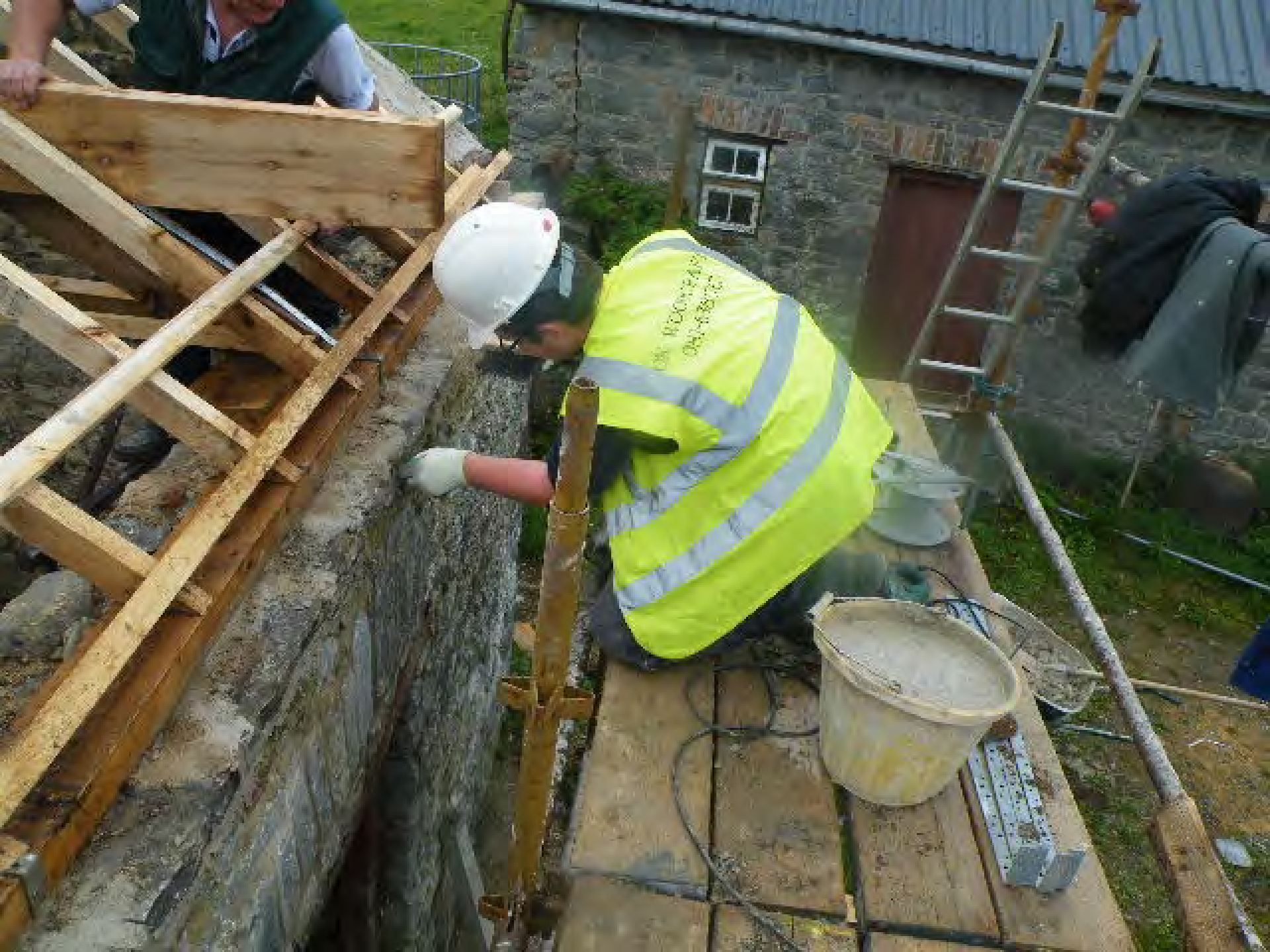


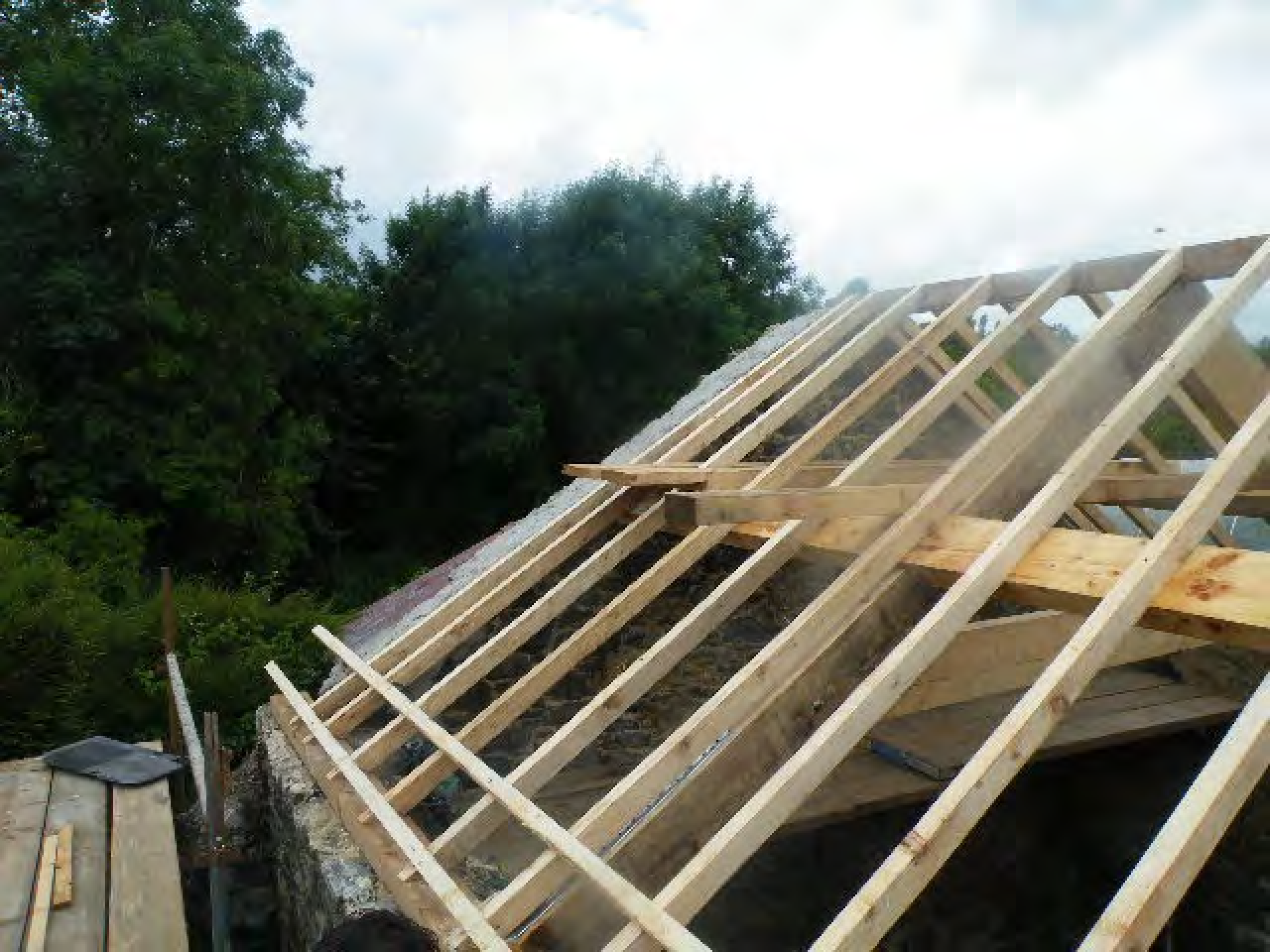
The idea came from the supports of a ship in dry dock

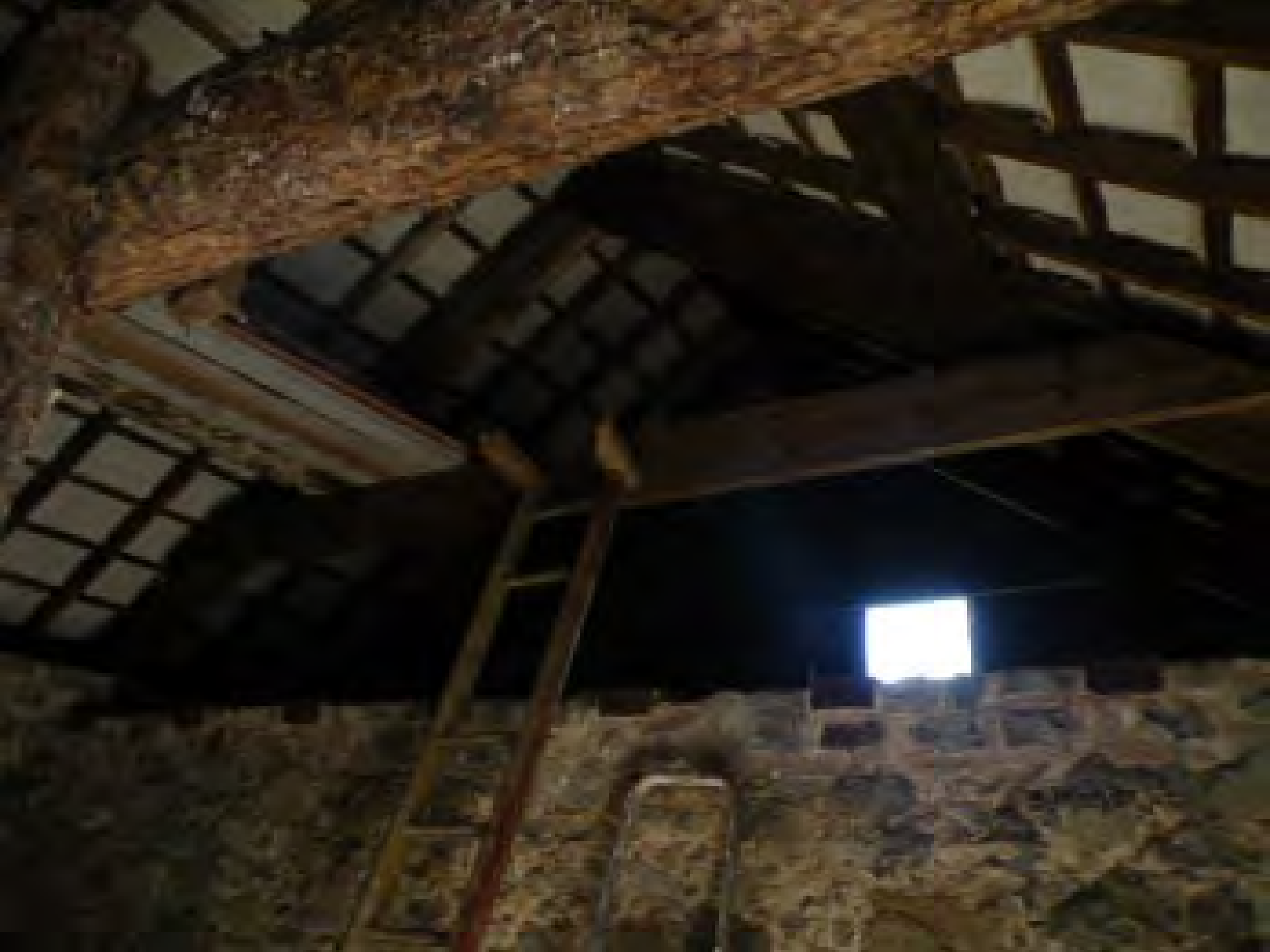


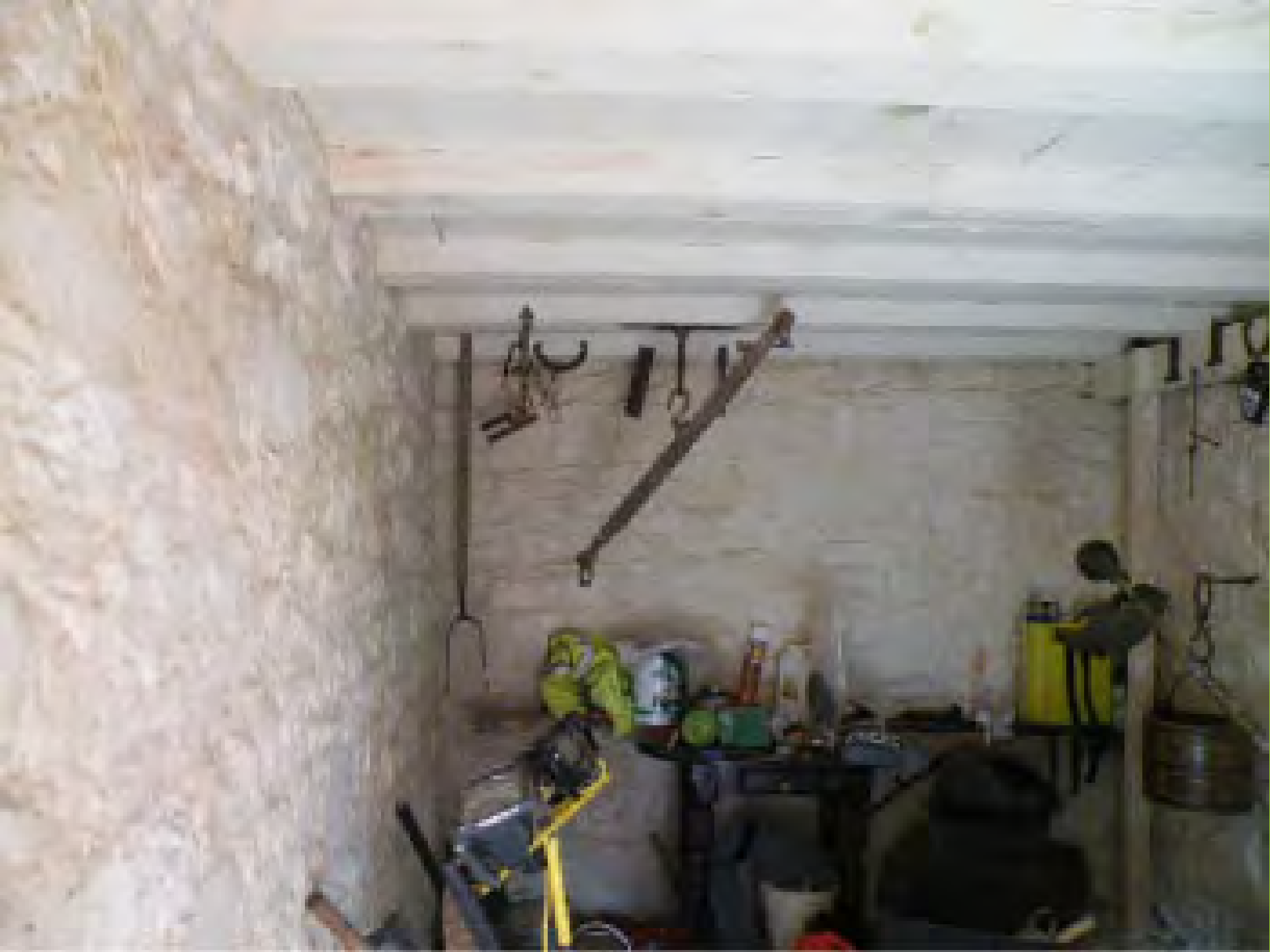


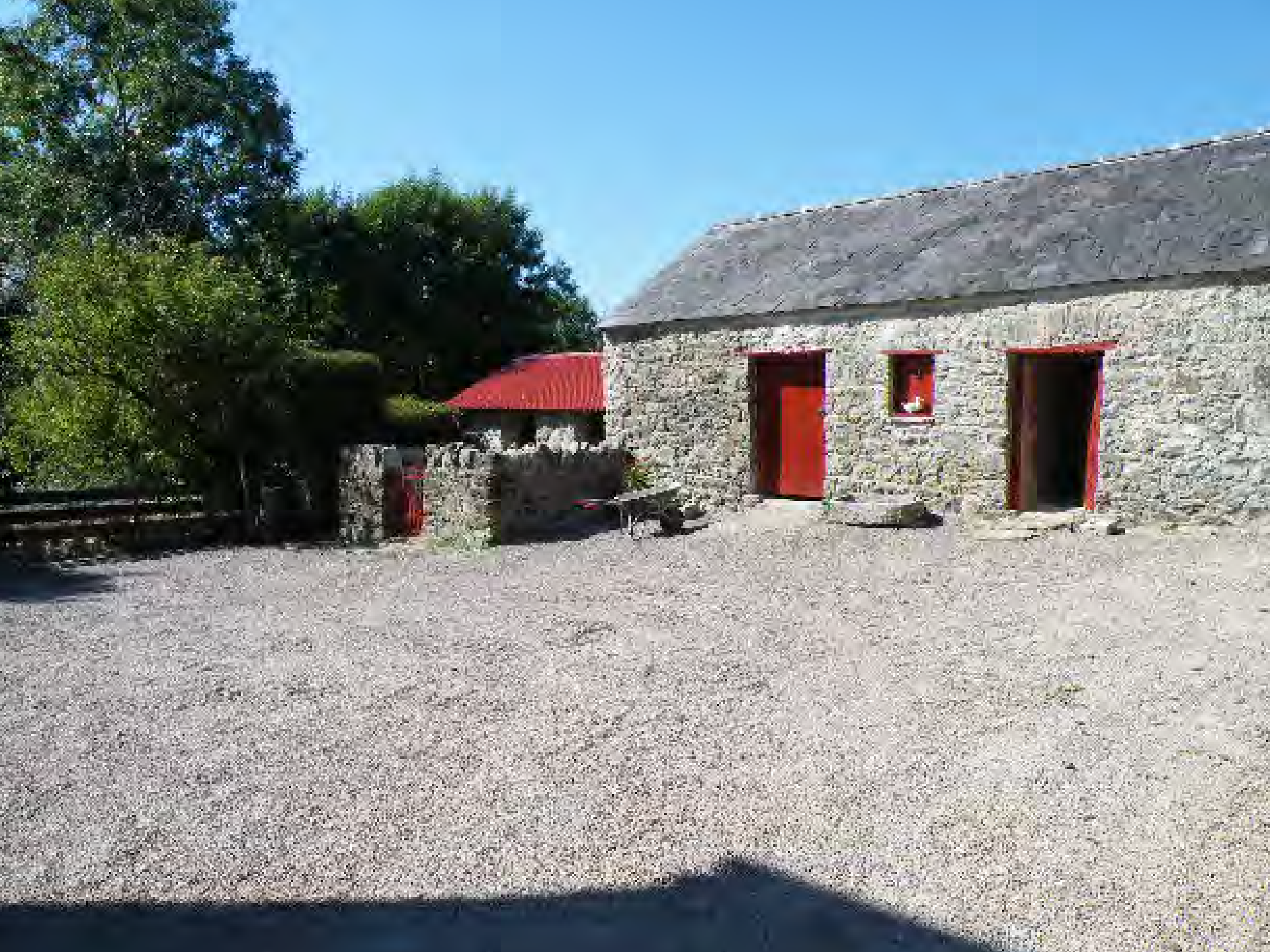


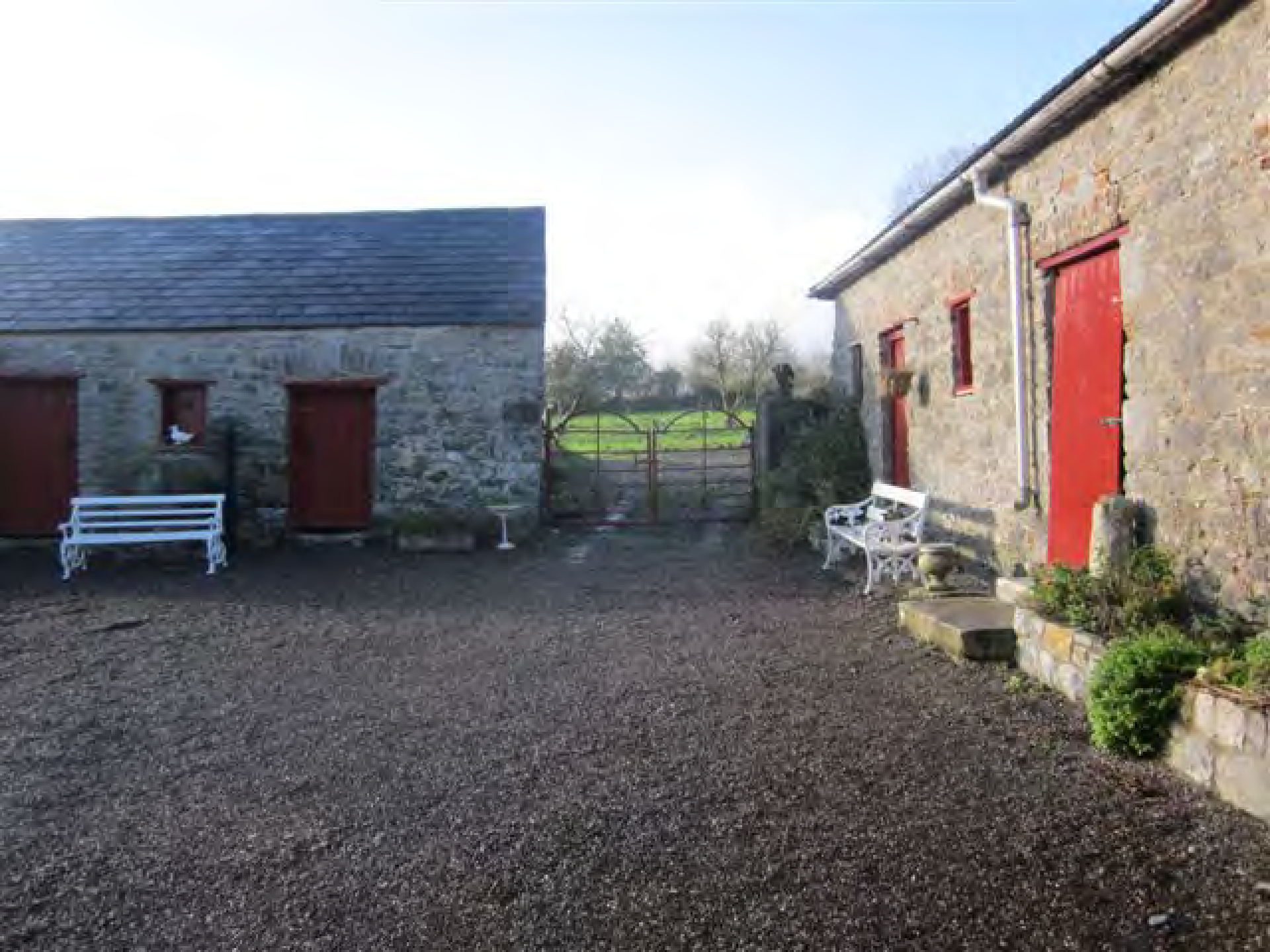












10 years later this kind of repair is becoming common practice

We feel that some if the best conservation work is for the small Glas projects. This is made possible by the generous Heritage Council managed funding under GLAS

Some projects involve conservative repair of roofs

- **Glás Scheme Ref 4051**
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- **Micheál Millerick**
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- **Glenawilling, Ballymacoda, Co. Cork**
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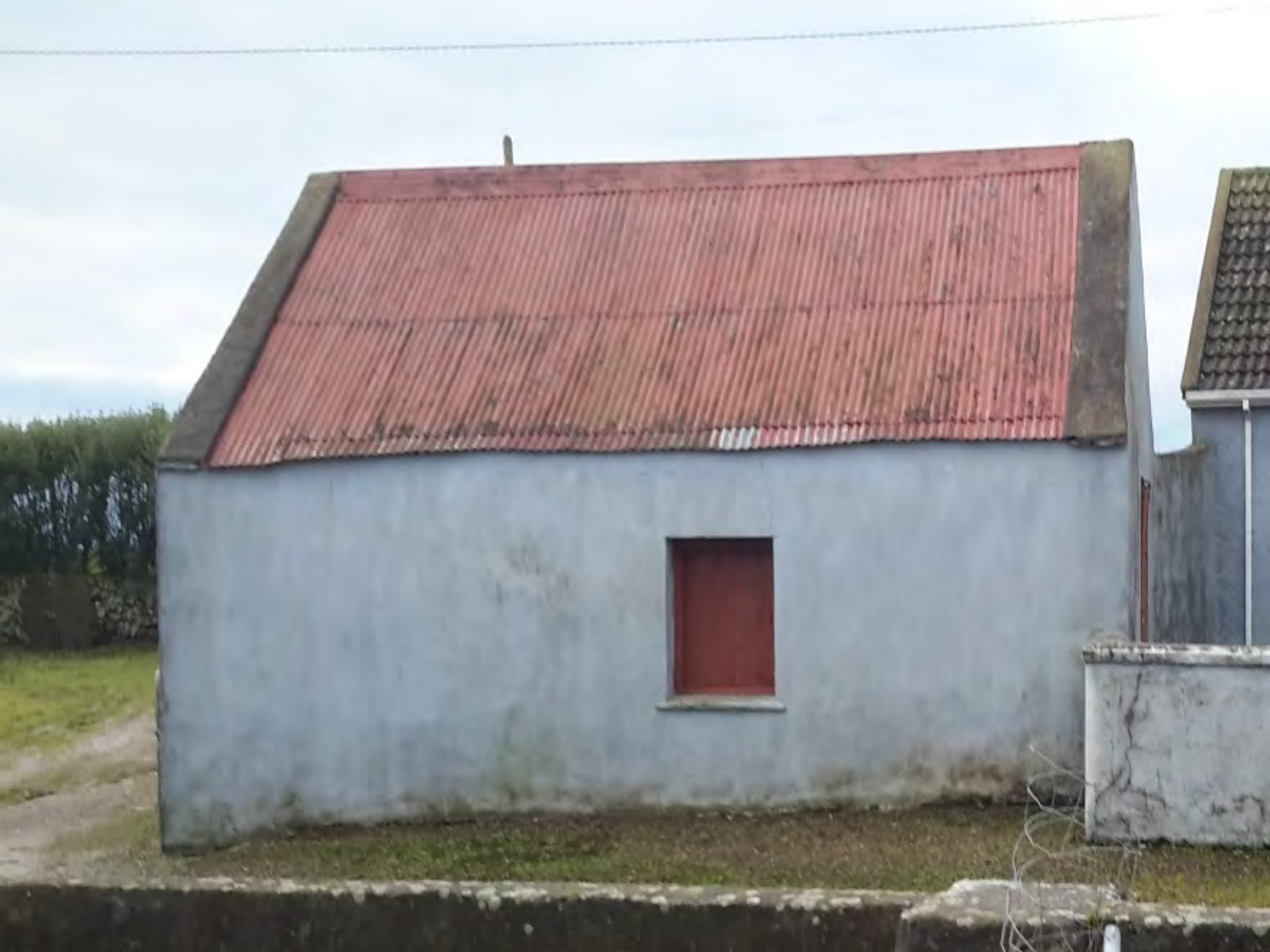
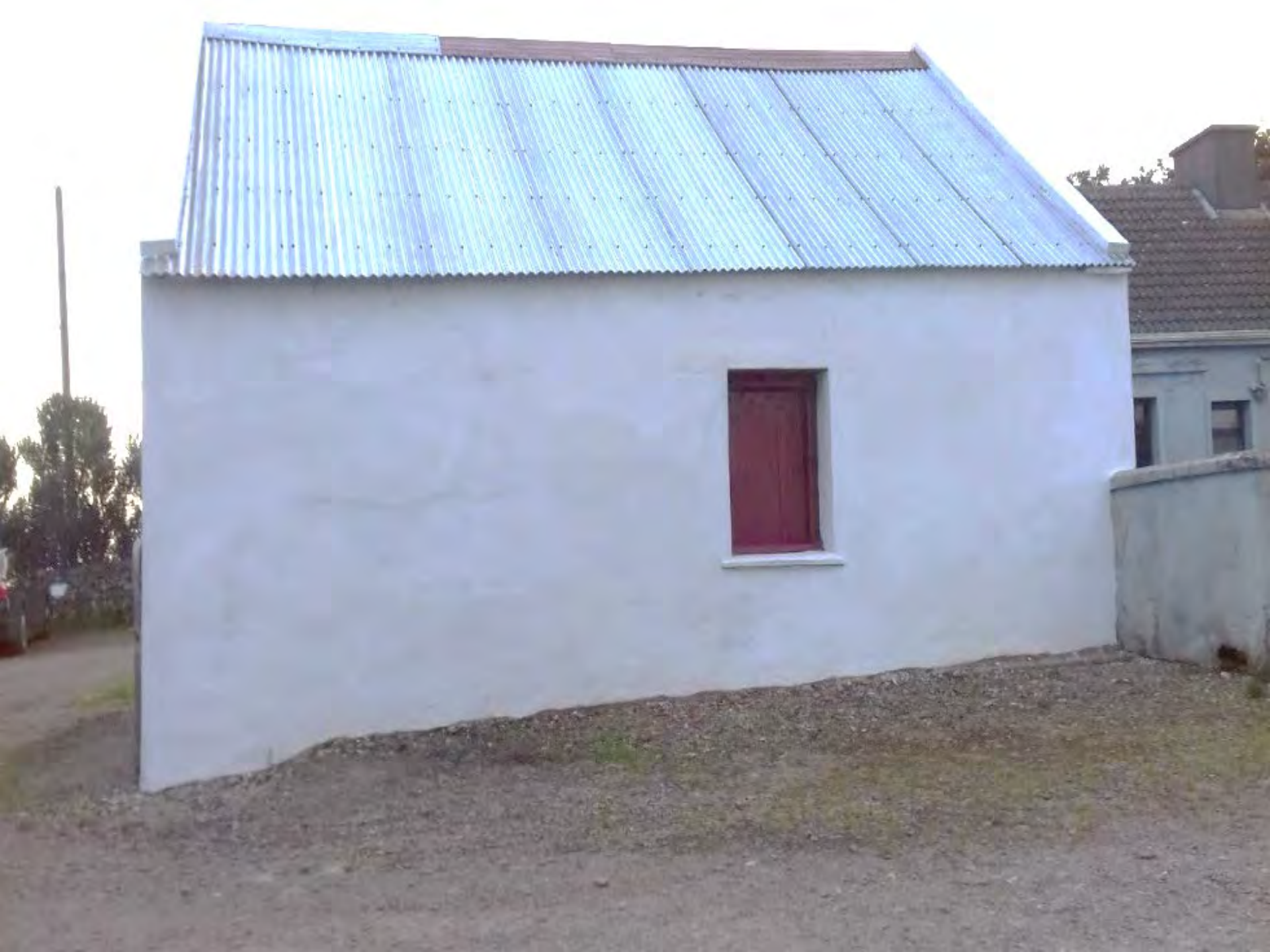
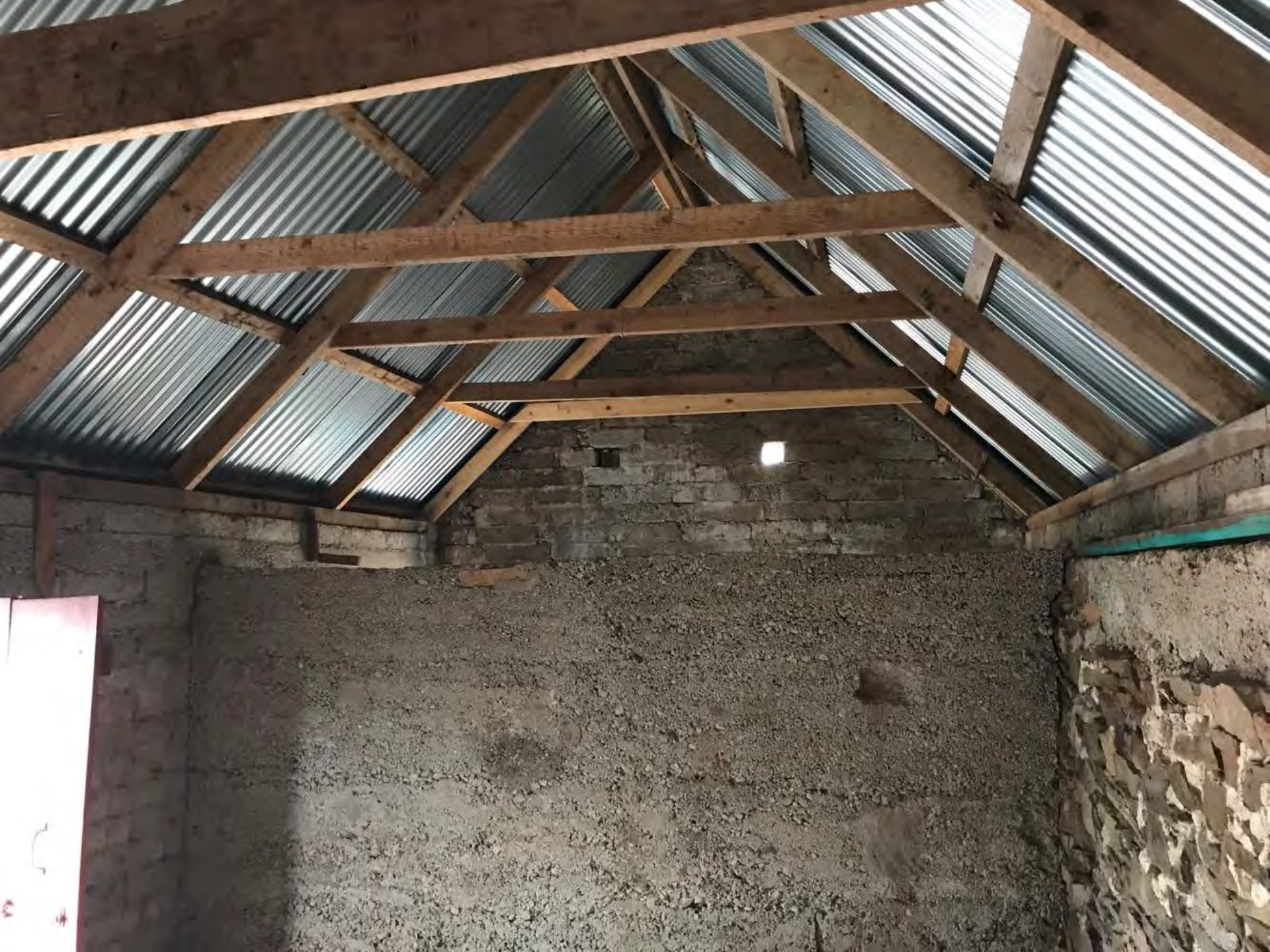
- **P25 A780**



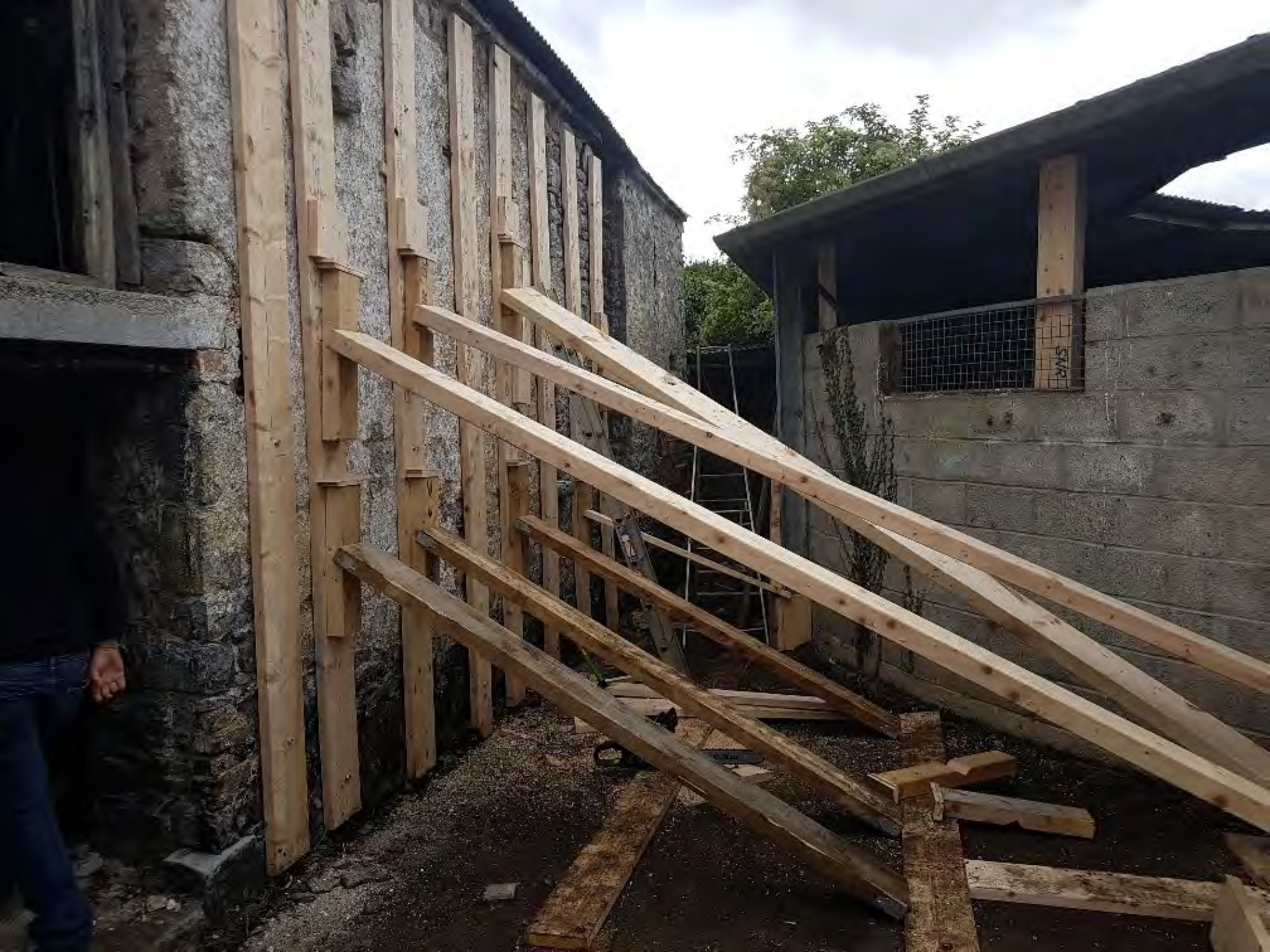




Masonry repairs

Glás Scheme Ref 4251

Brian O Keefe Doneraile , Co Cork

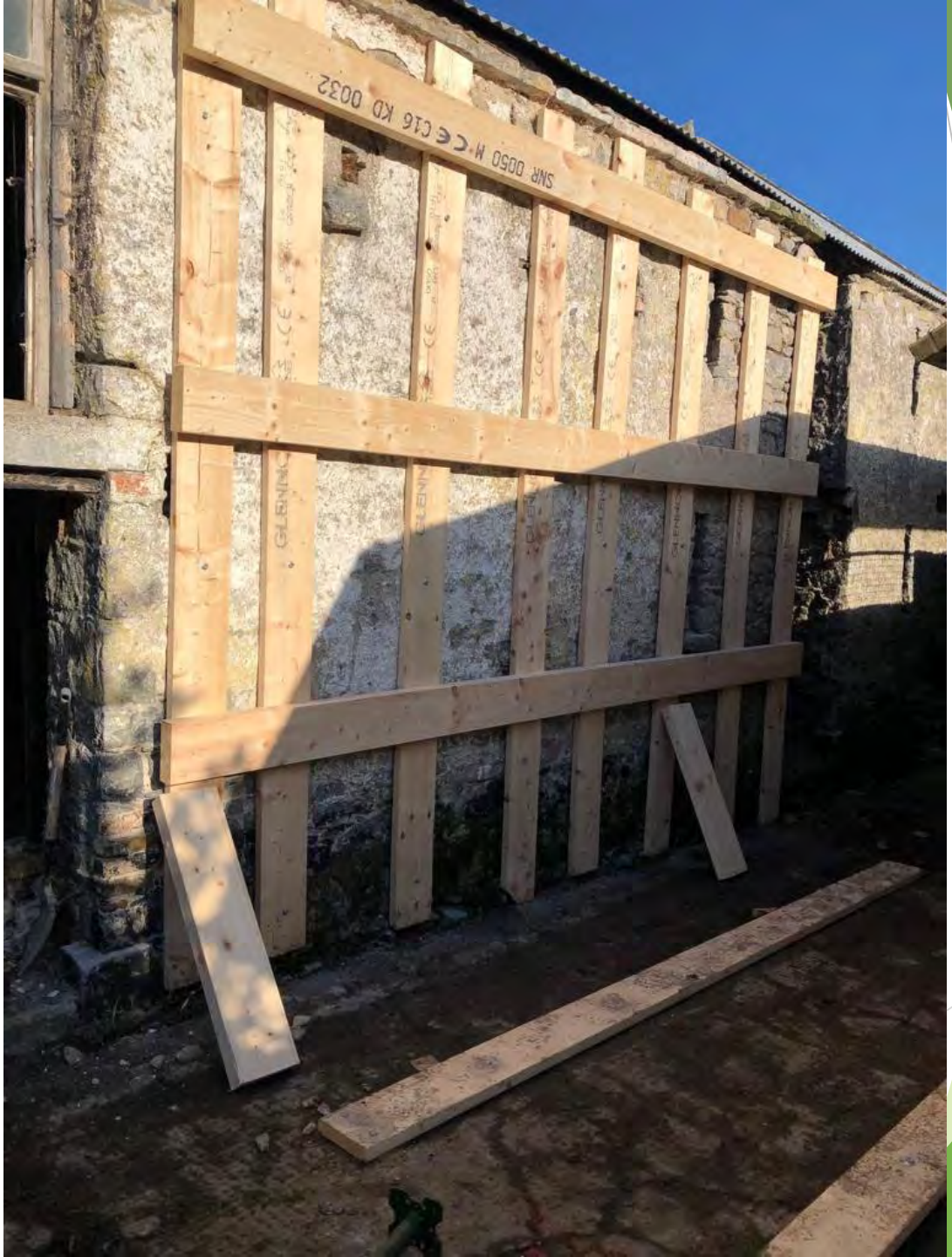


Method

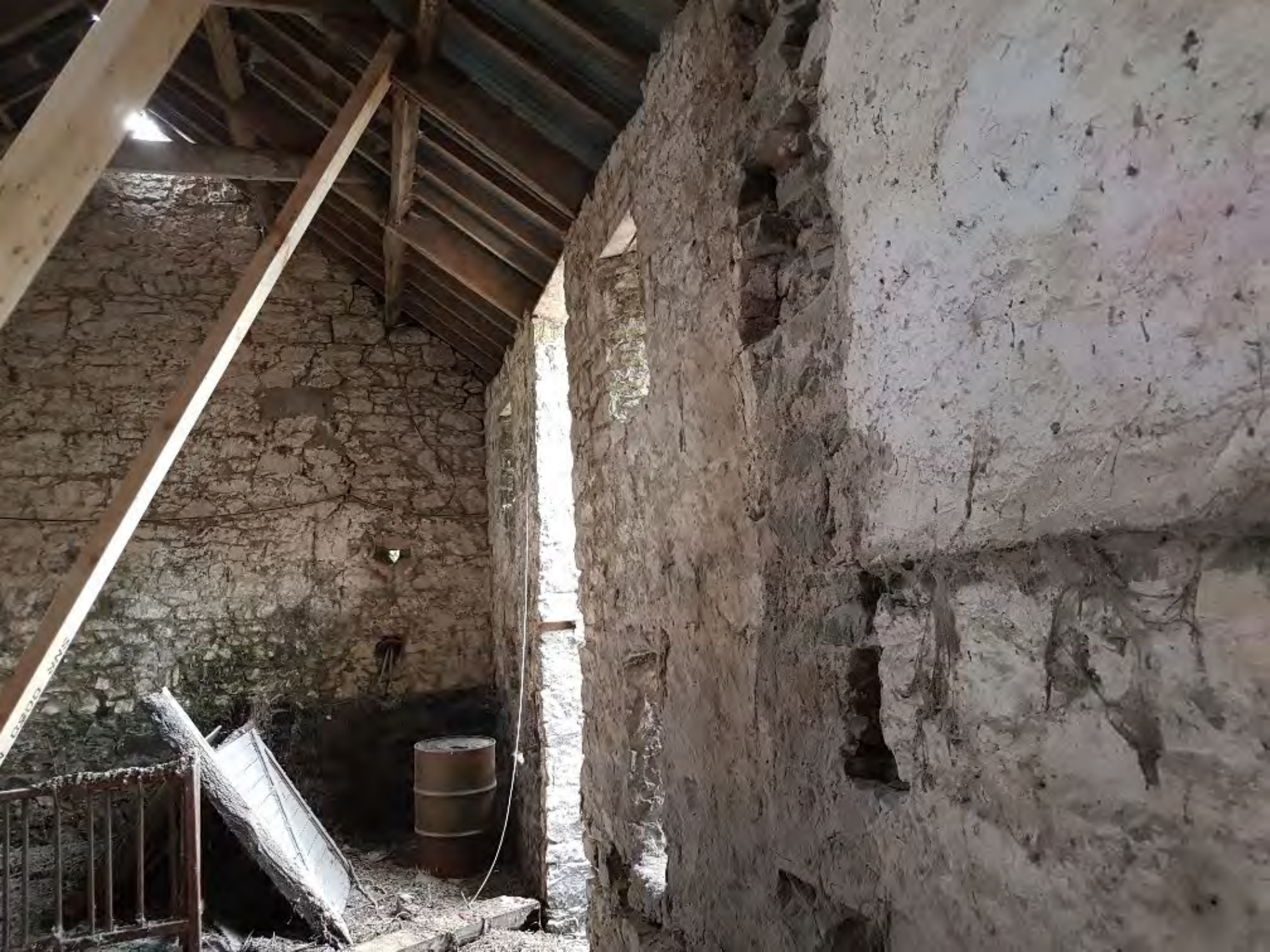
- On Saturday, 29 September following set up by the main contractor, the wall was jacked back into its original position. The walls were leaning out by about 250 mm and had moved so far that the trusses and rafters were no longer able to bear on the wall.

- Jacking was carried out from the concrete floor and the steel columns on the adjoining shed and prior to the jacking taking place, the steel columns had to be strengthened with cross bracing. After this a chase was cut on the wall to weaken it at the base of the wall. The chase was approximately 50 mm x 75 mm deep and this produced a weak point in the wall.

- Nine vertical 9” x 2” mullions were bolted to the wall and three 9” x 2” wall plates were bolted to the concrete yard surface for jacking purposes. Five pairs of 9” x 3” raking members were placed with an angle of 35°.

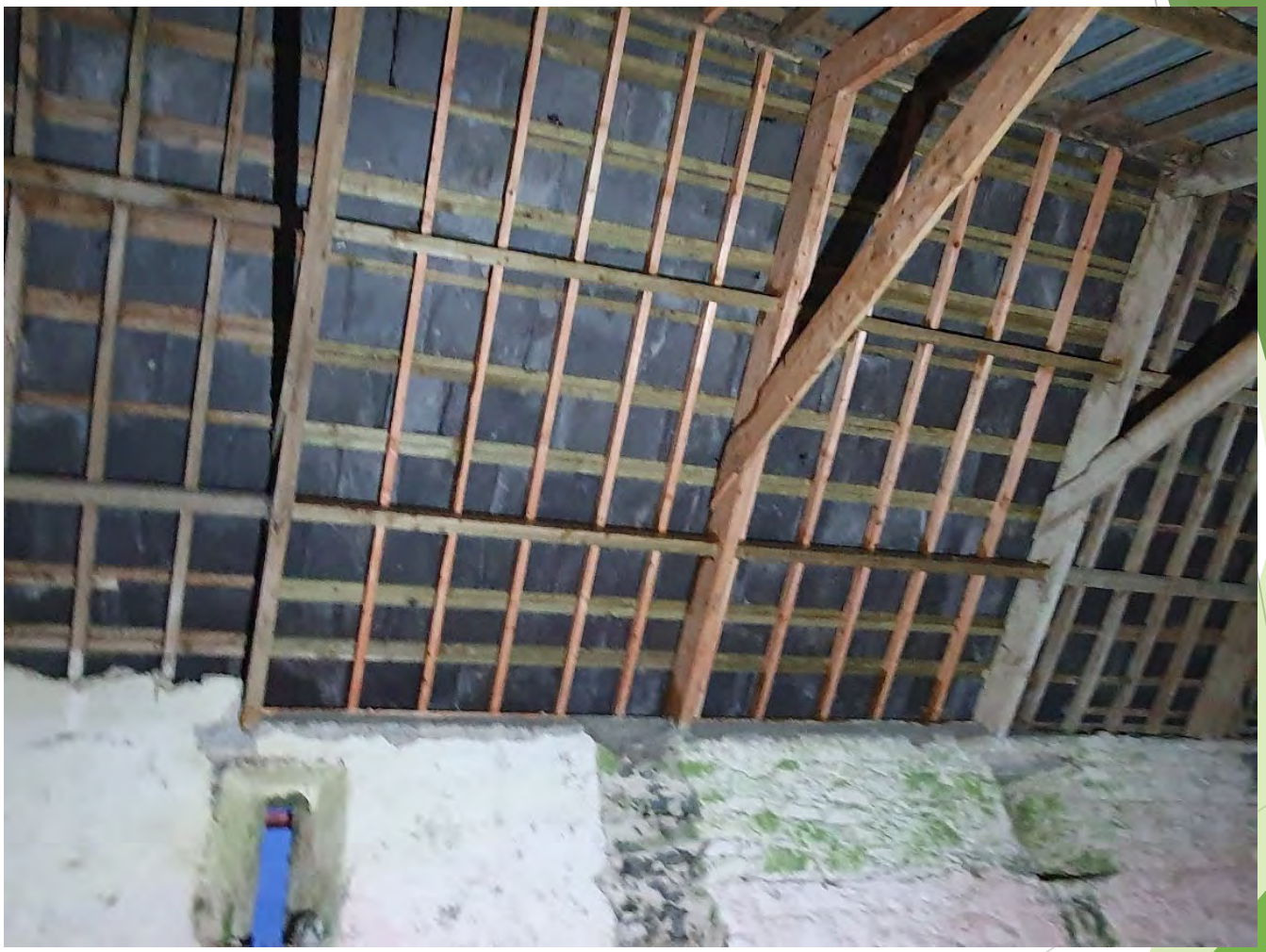

SNR 0050 M·CE C16 KD 0032

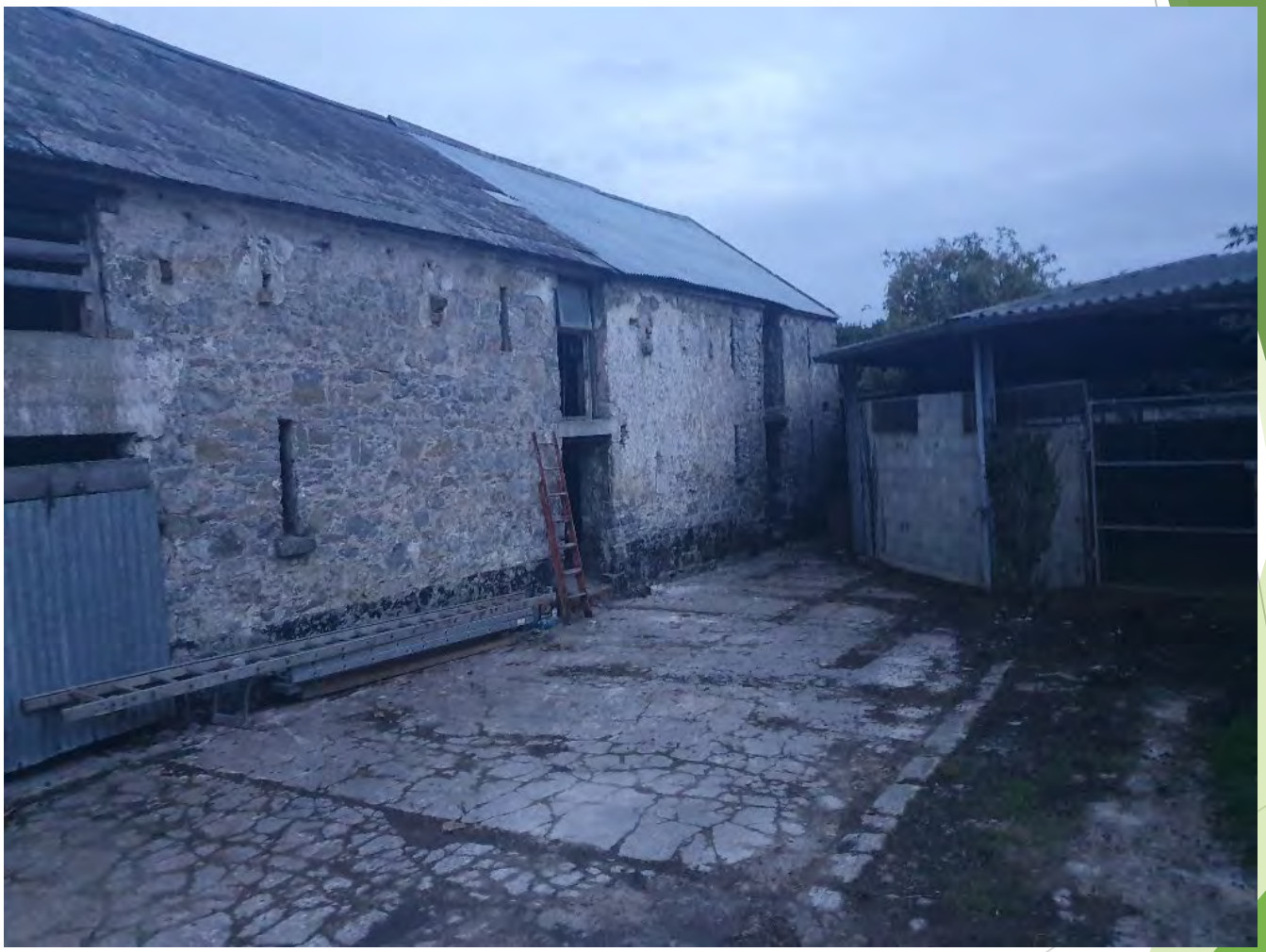
- Internally the existing roof was jacked to its original position using a system of raking 9” x 3” timbers which were jacked received distance in the position of the wall opposite. Following this wall was gradually jacked in position using two taps of a sledgehammer at each jacking point in rotation. This was carried out under the careful supervision of Chris Southgate. The wall was able to realign to its original position.



- Timber trusses were repaired and the missing truss replaced

- The end result was a building in original condition substantially original fabric and the intervention was minimal





The end