

STRUCTURAL ENGINEERS REPORT

Addendum report

PROPERTY ADDRESS

Wayside
Pexhill
Cronton
Wirral

CLIENT

North West Contracts Widnes Ltd
Wilmere Park
Wilmere Lane
Widnes
WA8 5UP

REPORT REFERENCE

19-AC-3748a

DATE

29th November 2019

Rev	Description	Issued by	Checked	Date
0	1st Issue	AC		28.02.2019
1	Addendum report to main report of 28-02-19	AC		26.11.2019

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Author	Signature	Date
Anthony Clarke CEng BSc FStructE MICE CARE Consultant		26.11.2019

Reviewed	Signature	Date
Anthony Clarke CEng BSc FStructE MICE CARE Consultant		26.11.2019

1.0 THE BRIEF

ADS Structural were requested by Dale Kenningham of North West Contracts Widnes Ltd to undertake a further visual inspection of the property previously known as Wayside. The hanging and damaged structure had been removed and a scaffold erected around much of the perimeter of the building allowing closer inspection. The shell of the extension has been constructed. The visit was made on the 19th November 2019 by Mr Anthony Clarke, A Conservation Accredited Engineer.

1.1 THE SITE AND INSPECTION DETAILS



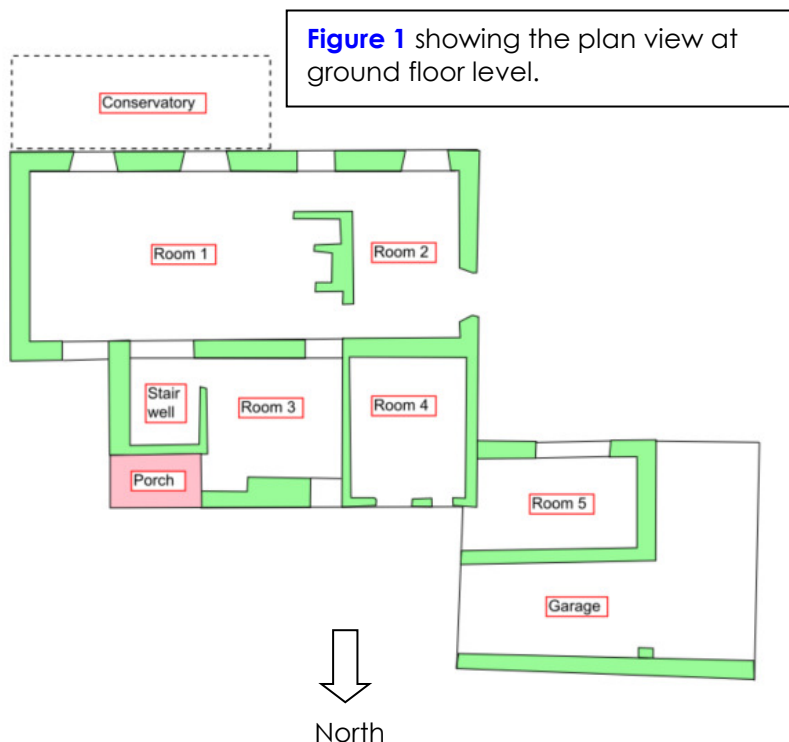
Image Courtesy of Google maps

The site is located on the North side of Cronton in the metropolitan Borough of Knowsley. The house is a C17/C18 load bearing masonry structure located in a large plot of land surrounded by trees and close to the disused Pexhill quarry. The building is accessed by a tarmac road

For further details about the building, its site and the method of inspection the reader should refer to the earlier report dated 28th February 2019.

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2.0 DESCRIPTION OF THE BUILDING



This building is grade II listed. It comprises three distinct blocks:

- a) Rooms 1 & 2
- b) Stairwell, rooms 3 & 4
- c) Room 5 & the garage

Each of these blocks represent the staged development of the site, being:

- Room 1-2 Earliest
- Room 3-4 then
- Room 5 / garage

The building is predominantly a stone load bearing structure although sections of the North elevation are constructed in brickwork. It is understood that this was a repair of the wall following a fire many years ago.

2.1 COMMENTS ON 2ND INSPECTION

Removal of the hanging roof and clearing of the debris within the old building has taken place. The erection of the exterior scaffolding has allowed a closer inspection of the high level courses of masonry. The findings of the inspection are shown on the updated drawings in section 3 of this addendum report. We would comment as follows:

North Elevation: SK1

- a) The hanging roof has disturbed the masonry. Removal of the roof to the later extension has left the laterally unsupported gable pike frail. The top 3 or 4 courses of the brickwork is well weathered. Slight pressure on the face of the wall causes it to move. A heavy gale is likely to cause the top section to fail. See Photo 1
- b) There is a large hole on the face of the wall on the line of the chimney shaft. A combination of heat damage and exfoliation of the stone face had led to this damage. See Photo 2

South Elevation: SK2

There is no change in this wall however 75% of the wall is already missing or leaning and needs to be rebuilt. The remaining wall that can be retained is so fragmented it is questionable whether it should be totally rebuilt.

East Elevation: SK3

- a) The full extent of the distortion of the gable pike is visible and confirms that reconstruction is necessary.
- b) The brickwork immediately below the wall plates to the rear extension is loose and the mortar weathered. The loose masonry needs rebuilding.

West Elevation: SK4

The roof removal has exposed the brickwork at wall plate level. The brickwork immediately below the wall plate is loose and the mortar weathered. The loose masonry needs rebuilding. See Sk4

Spine wall Elevation SKs 5 & 6

The junction of the spine wall appears to have been cut in the past to create an opening for the rear extension. The junction of the two walls is a tapering joint which will need some local rebuilding and tying of the two walls together.

3.0 DISCUSSION AND RECOMMENDATIONS

The inspection from the external scaffold shows some further areas of masonry will need disassembling and rebuilding. This raises two issues:

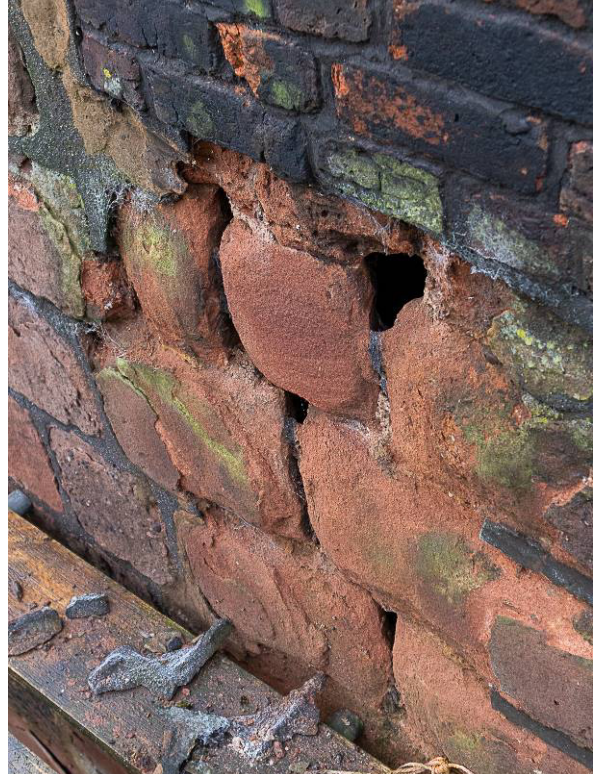
- i) The piecemeal removal of masonry is not a particularly good structural repair. The south wall for instance is substantially being replaced. This means that sections of it will be on new foundations and the rest, a mixture of new and old, will be on the historic foundation. For this particular wall we consider it would be more appropriate to disassemble the sections of the wall that are left; record their details and location; construct a new foundation and then rebuild the wall to the original profile.
- ii) The removal of the hanging roof together with the damage to the first floor has left sections of these walls laterally unrestrained

Typical photographs



Photograph 1

View looking onto the north elevation showing the outward lean of the chimney: the weathered top of the wall and the laterally unrestrained gable pike.



Photograph 2

Stonework on the North wall at the chimney stack. Note the void at the exfoliated stone face which has been caused by the combined action of heat and weathering of poorer quality stone. The brickwork above is smoke stained and is believed to be part of the second phase extension



Photograph 3

View looking onto the internal face of the East elevation of the original building showing the extent of the loss of roof and wall fabric. This closer inspection confirms the need to disassemble and rebuild the gable pike and the masonry below the eaves corner. The chimney shaft has had the inner face rebuilt. It appears to be poorly bonded. Localised rebuilding and new ties will be required to ensure stability of this wall.



Photograph 4

View looking onto the internal corner of the north return and the east elevation. The short wall (RHS of this photo) was the original house's rear elevation. This wall has been severed when the 1st phase extension was constructed. The junction of the two walls has a wide open joint which will need local rebuilding.

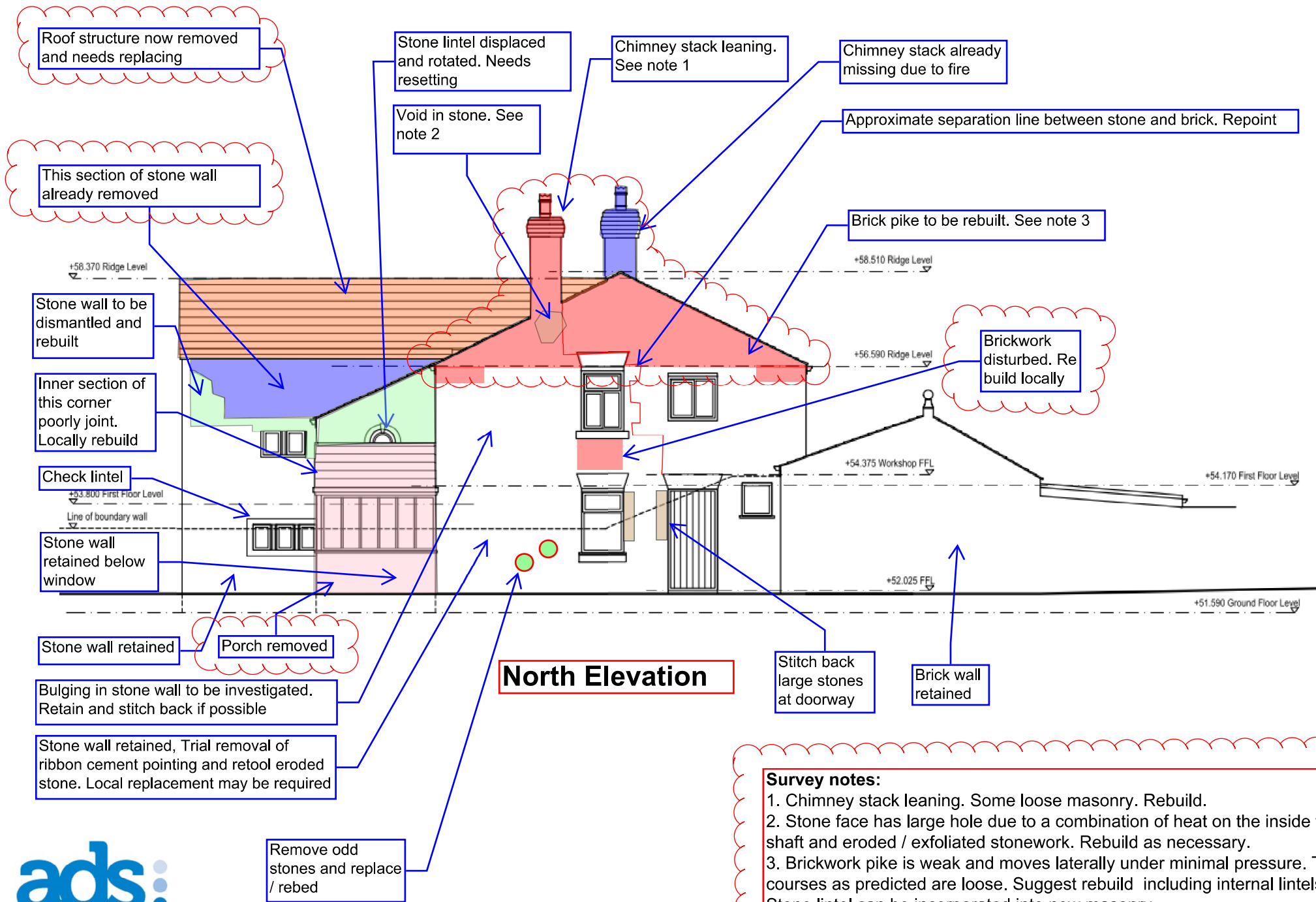


Photograph 5

View looking onto the internal corner of the north and west elevations. The spine wall is in the foreground. Note the lean on the chimney stack and poor condition of the spine wall.

4.0 DRAWINGS

The drawings contained within the original report have been updated and are included in this section. The alterations have been shown by a red curved revision line around the area concerned.



The whole of this stone wall gable is in poor condition and will need many areas of local rebuilding

Lintel out of level and needs resetting. Prop, reset and rebuild masonry over

This section of stone wall already removed

Chimney stack leaning. See note 1 on SK1

Chimney stack retained and to be repaired

Roof structure removed

Cut face of old floor beam. Check timber for infestation.

2No diagonal lines of wider joints and crack in stonework. Wall leaning

Stone wall to be dismantled and rebuilt. Confirmed necessary

Outrigger already removed. Wall behind

Outrigger already removed

+58.370 Ridge Level

+56.320 Eaves Level

+53.800 First Floor Level

+51.590 Ground Floor Level

Extension shell complete

Check foundation as this appears to have dropped. Possible underpinning required

South Elevation

Consider recording and then disassembly of this wall and rebuild on new foundations

Timber lintel condition needs to be checked. Evidence of fire damage alongside.

Single stone pillar leaning. Take down, check foundation and rebuild

Modern brickwork below window

Stitch back large stones at doorway both sides.

Damaged stonework internally. Lintel to be retained due to external carving. Prop lintel, dismantle stone reveal, rebuild lower stonework, reset large upper stone and stitch back to main body of wall

Stitch back large stones at doorway both sides.

Stone lintel failed and dropped. Needs replacing and front face carved to suit existing. Install new inner lintel and repair stone bearings

External face of wall poor. Remove ribbon cement pointing. Local rebuild and fully repoint.

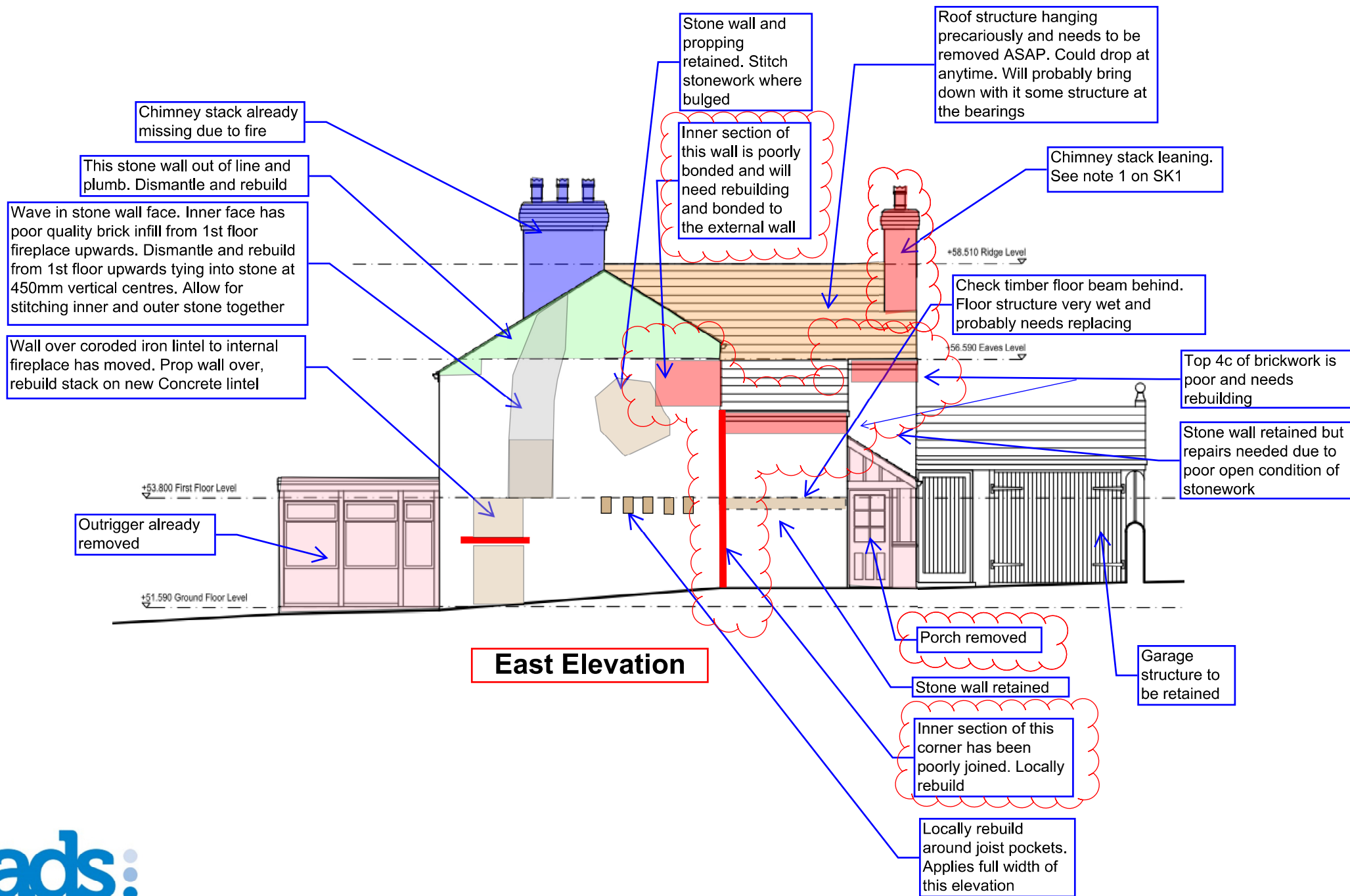
SK 2 Details of extent of further stone removal and repairs required

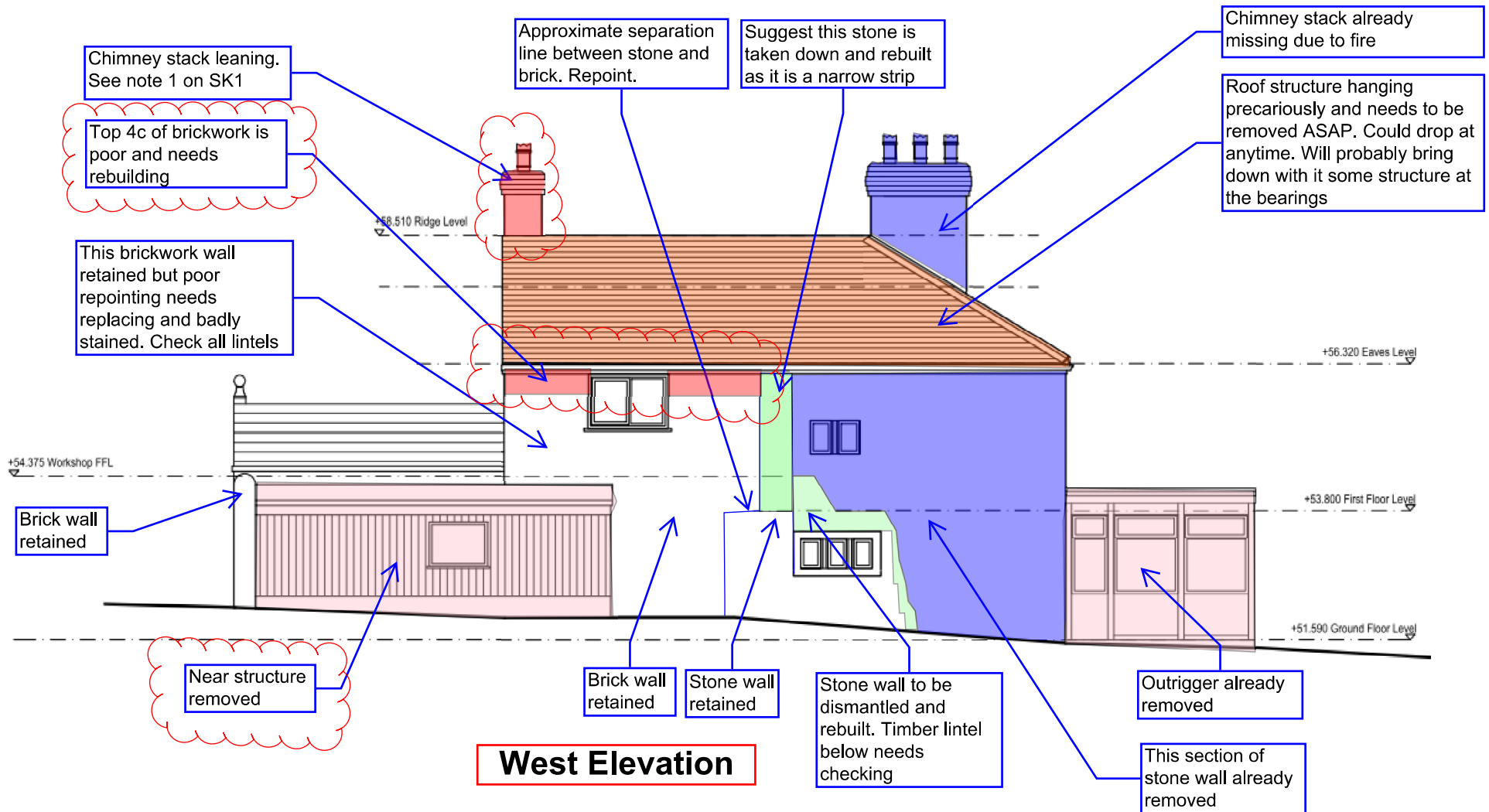
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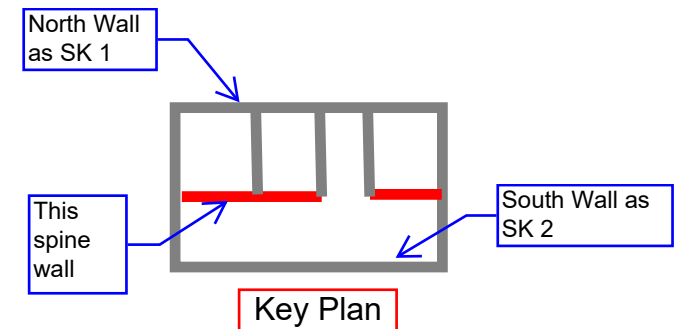
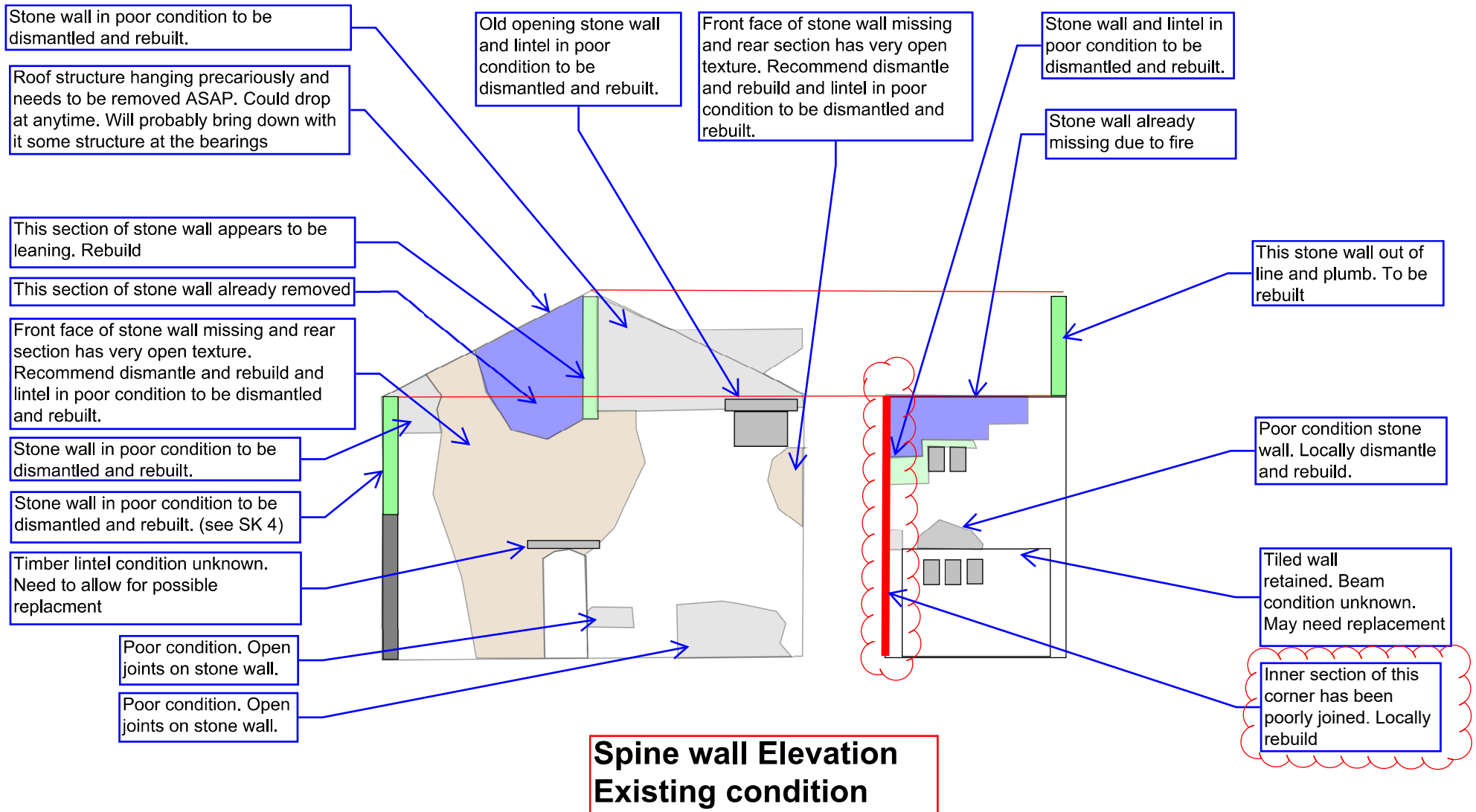
Consulting Civil and Structural Engineers

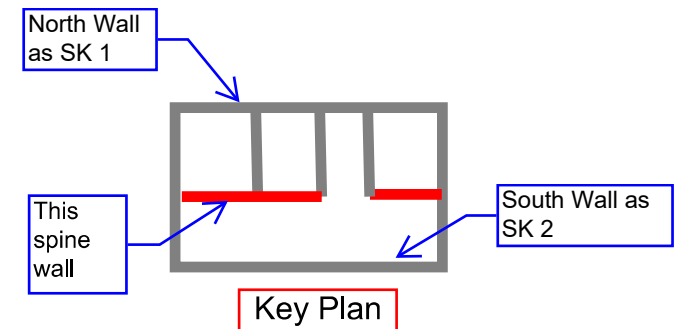
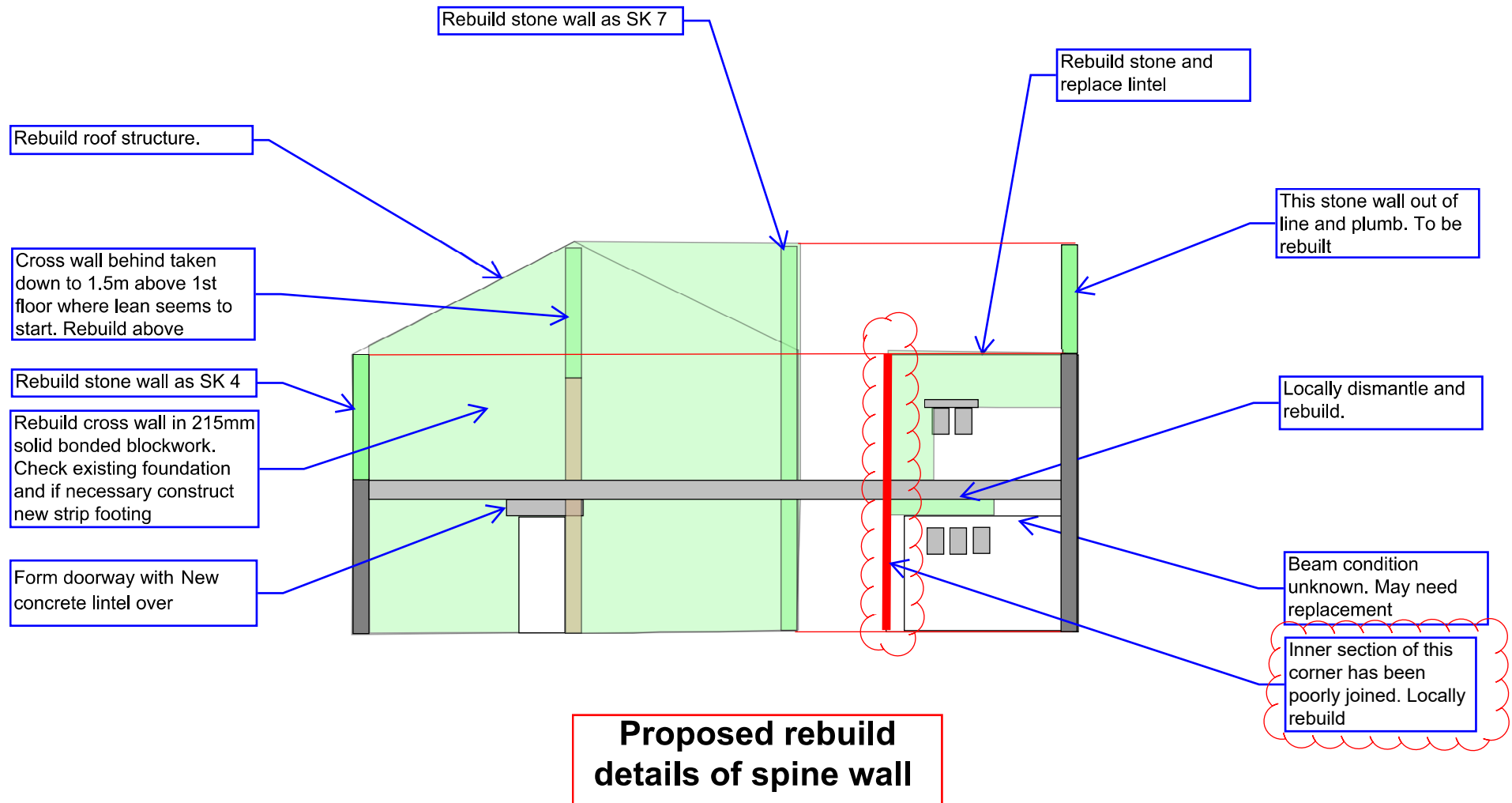
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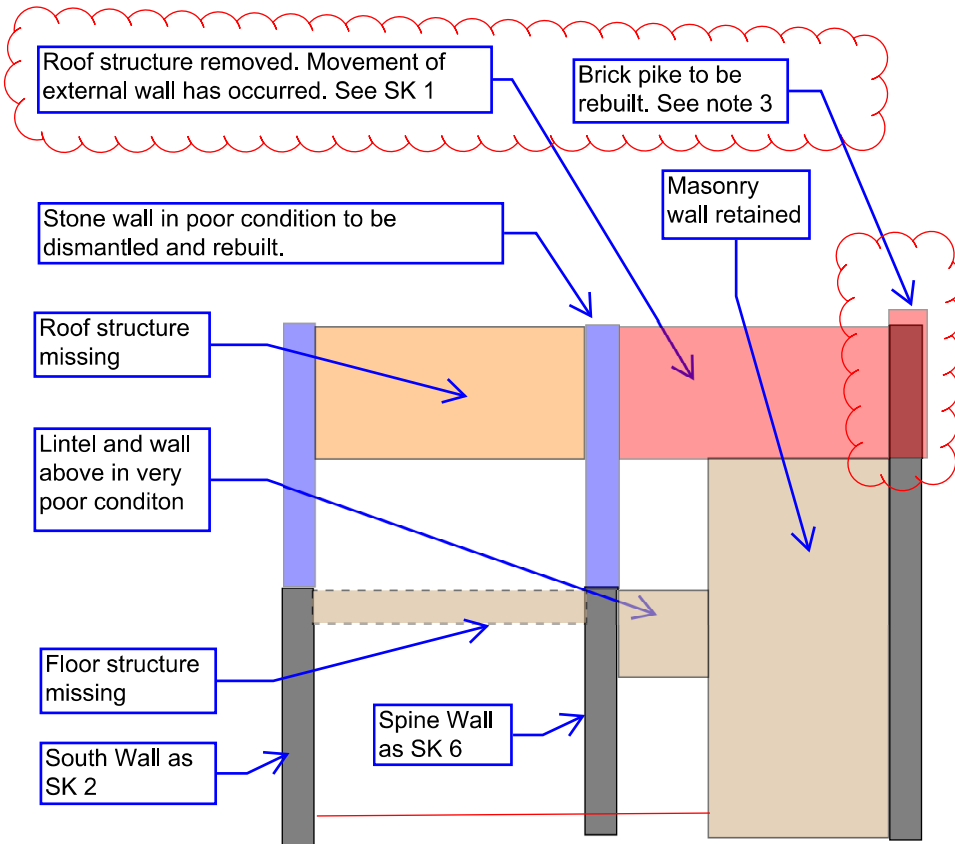
Rev A Updated following roof removal. 25.11.19



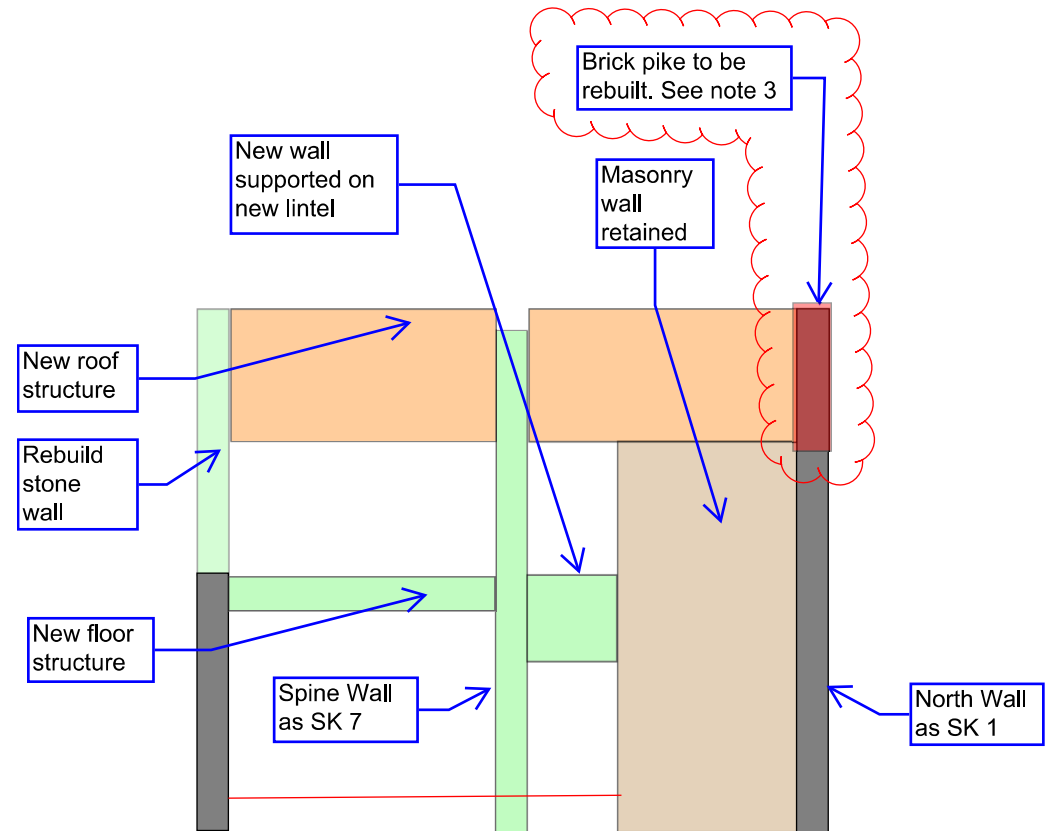




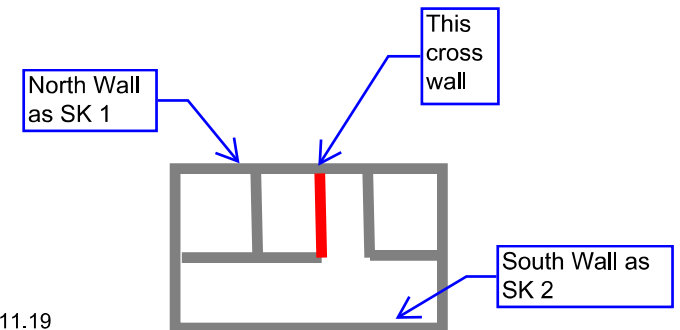




**Cross wall Elevation
Existing condition**



**Proposed cross wall
Elevation**



Key Plan

SK 7 Cross wall details.

Rev A Updated following roof removal. 25.11.19

5.0 CONCLUSION

This building has suffered a fire that has left the remaining elements in a very poor structural condition. The initial assessment was undertaken from ground level and details of what needed to be rebuilt was sent to the Local Authority's building Control and Conservation Officers. This inspection has shown that some additional sections of masonry will need disassembly and rebuilding.