

# Structural Inspection Report Woodbank House & Stables Luss Road Balloch

On behalf of **TSL Contractors Ltd**



Project Ref: 35854 | Rev: 1 | Date: May 2017



## Document Control Sheet


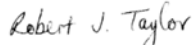
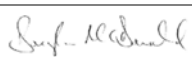
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Revision	Date	Description	Prepared	Reviewed	Approved

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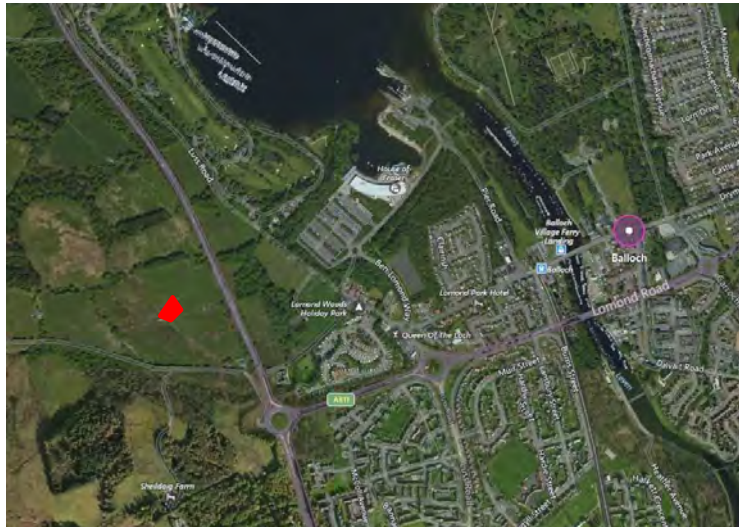
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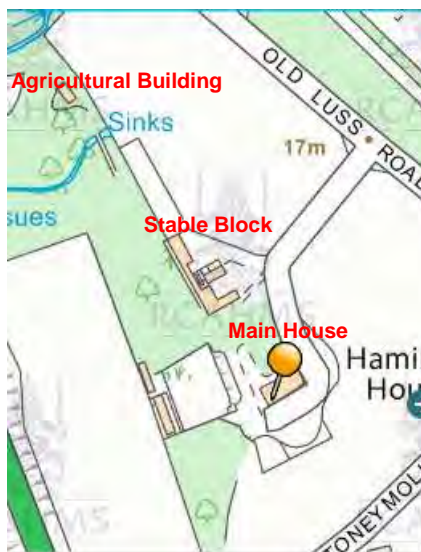
# 1 Introduction

## 1.1 Background

- 1.1.1 The site of Woodbank House, the former Hamilton House Hotel, Balloch is currently being considered for redevelopment.
- 1.1.2 The hotel grounds are located between Luss and Old Luss Road in Balloch. The house location is marked in red on the location plan below.



- 1.1.3 PBA's Structural Engineers visited the site on 8<sup>th</sup> May 2017 to carry out a visual inspection of the former Woodbank House Hotel and Stable blocks for TSL Contractors Ltd. For the inspection, the weather was dry and warm with a light breeze and the buildings were dry following a dry spell. The purpose of this report is to advise on the structural stability/safety of the existing buildings and to inform development proposals for the site.
- 1.1.4 There are three buildings on the site, the Main House, the stable block and an agricultural building as shown in the plan below.



## **1.2 Report Structure**

- 1.2.1 Each building is reviewed in a separate section of this report with recommendations for demolition/treatment as appropriate. The main house and stable block are both Grade A listed and have been on the Buildings at Risk Register since 1990. All three buildings are in a ruinous condition.
- 1.2.2 Our recommendations are based on the structural stability of the buildings only.
- 1.2.3 Determination of the buildings suitability for development should also consider the views of the Conservation Architect.

## 2 Woodbank House

### 2.1 Introduction

- 2.1.1 Woodbank House (formerly Hamilton House Hotel) at Luss Road, Balloch was built in 1774 and a later extension was added around 1880. The building has been out of use since 1981 and has been on the buildings at risk register since 1990. The building has not been maintained since 1981. Following a fire in 1996 a dangerous buildings notice was served and a partial demolition was carried out for safety reasons. The building had been a ruinous shell since 1996. The photograph and plan below show the various elevations considered in this report.



Photograph 1 - Aerial Photo of main house



Figure 1 - Elevation Key

- 2.1.2 We have reviewed the information available for the building which includes the buildings at risk register and a structural report issued by ODIN Consulting Engineers in February 2010.

### 2.2 Inspection

- 2.2.1 The building is fenced off to prevent access as it is in a dangerous condition. The inspection was therefore carried out from outside the building and from a raised access platform at high levels over the building.



## 2.3 East (Main) Elevation

- 2.3.1 This elevation appears to originate from the 1774 building. The elevation has dressed ashlar stonework to door and window surrounds with squared rubble stonework between ashlar areas. The ashlar stonework would originally have been covered with lime render.
- 2.3.2 The dressed stone is in reasonable condition and the wall is generally plumb. However, the wall condition varies, there are areas of erosion and the mortar joints are failing. The cope stones are badly eroded and need replaced, as highlighted below in red.
- 2.3.3 This is the original Georgian Elevation and is visible, between the trees, from Old Luss Road and we understand that it is of historic significance.
- 2.3.4 Some cracks are evident to the north, as highlighted in orange on Photograph 2 below: related to bulging of the north gable, as highlighted below.
- 2.3.5 This elevation must be propped from outside, utilising the window openings, throughout the demolition clearance and proposed works.
- 2.3.6 All existing lintels are failing. The south first floor window has a timber safe lintel (shown in yellow) which needs replaced, as do the concrete lintels (highlighted in green) in the remaining windows as they are all cracked. All lintels need replaced in all elevations.
- 2.3.7 The squared random rubble between the window mullions is of varied quality and is eroded in some areas. The wall is to be repaired and joints raked and pointed with a suitable lime mortar prior to rendering the walls with a suitable lime render.
- 2.3.8 The floor has collapsed, as such only the external stone skin remains between the ground and first floor windows, as highlighted in orange. This occurs throughout all elevations.



Photograph 2 – East Elevation  
Down takings for safety shown in red.



## 2.4 South East Elevation

- 2.4.1 This gable elevation appears to originate from the 1774 building.
- 2.4.2 The wall is in poor condition following a partial collapse. A large area of the internal stonework skin has collapsed and the remaining wall is unstable. We recommend that this wall is demolished down to ground level, as highlighted red on photograph 3. The stone can be set aside for re-building.
- 2.4.3 As the wall is not visible out with the site due to trees, this elevation may have less historic significance and may be able to be removed. Future proposal and the conservation architect will inform the decision of whether this wall is to be re-built.
- 2.4.4 The East elevation and Rear East elevation will need to be propped prior to this demolition of the south wall, for stability.



Photograph 3 - South East Elevation  
*Down takings for safety shown in red.*

## 2.5 Rear East Elevation

- 2.5.1 This elevation appears to originate from the 1880s extension.
- 2.5.2 The walls are in good condition. Cope stones are missing. The crack to the south indicates rotation of the southern wall outwards. We recommend that loose stones are removed and that the wall heads are remediated, highlighted below in red.
- 2.5.3 As the wall is not visible out with the site due to trees, this new extension elevation may have less historic significance and may be able to be removed. Future proposal and the conservation architect will inform the decision of whether this wall is to be demolished.
- 2.5.4 The south-east wall should be demolished for safety reasons; the rear east elevation must be fully propped prior to any demolition.
- 2.5.5 If this wall is to be kept, it will need to be propped for stability throughout the demolition, clearance and proposed works. If the wall is to remain, the stone should be repaired and joints raked and pointed with a suitable lime mortar prior to rendering the walls with a suitable lime render.



Photograph 4 – Rear East Elevation  
*Down takings shown in red*



## 2.6 South Elevation

- 2.6.1 This elevation appears to originate from the 1880s extension.
- 2.6.2 As the wall is not visible out with the site due to trees, this new extension elevation may have less historic significance and may be able to be removed. Future proposal and the conservation architect will inform the decision of whether this wall is to be demolished.
- 2.6.3 The two central chimneys are unstable. The walls supporting the chimneys are slender and the floors which originally provided restraint have collapsed. These chimneys should be demolished down to first floor level in the first instance, as highlighted in red on photograph 5 below.
- 2.6.4 The external walls are in good condition but cope stones are missing. We recommend that loose stones are removed and that the wall heads are remediated.
- 2.6.5 If the wall is to remain, it will require to be propped throughout the demolition, clearance and proposed works. If the wall is to remain the stone is to be repaired and joints raked and pointed with a suitable lime mortar prior to rendering the walls with a suitable lime render.



Photograph 5 – South elevation

*Down takings for safety highlighted red, unstable floors behind highlighted yellow and missing timber floors highlighted in purple.*

- 2.6.6 Behind the south elevation the concrete second floor is constructed of concrete deck spanning within the steel beam depth, shown in yellow on Photograph 5. The floor cannot be safely accessed/inspected due to the debris from the partial demolition and past collapses. Visual inspection from ground level at the North appears to show large deflections in the East span. The steelwork supporting the floor appears to be very corroded. This floor and internal spine walls should be demolished down to ground level. Photograph 6, taken from the east, shows the extent of the walls and floors.

- 2.6.7 The timber ground and first floors, highlighted purple on Photograph 5, are no longer in place throughout the building, highlighted in purple. Wall restraint is missing in these areas as such the wall requires to be propped.



Photograph 6 – View of the walls and slab behind the south elevation (taken from the east)  
*Priority down takings for safety shown in red*



## 2.7 West Elevation

- 2.7.1 This elevation appears to originate from the 1880s extension.
- 2.7.2 As the wall is not visible out with the site due to trees, this new extension elevation may have less historic significance and may be able to be removed. Future proposal and the conservation architect will inform the decision of whether this wall is to be demolished.
- 2.7.3 The chimney in this wall appeared stable.
- 2.7.4 Behind the west elevation the concrete second floor is constructed of concrete deck spanning within the steel beam depth, shown in yellow on Photograph 5. This floor and internal spine walls should be demolished down to ground level. Photograph 6, taken from the east, shows the extent of the walls and floors
- 2.7.5 The timber ground and first floors are no longer in place throughout the building. Wall restraint is missing in these areas as such the wall requires to be propped.
- 2.7.6 The stonework forming the external wall on this elevation was badly weathered and joints were open and loose. There appears to be some areas of cement render repair which should be removed. The cope stones are damaged /missing and need to be replaced/repared, as highlighted on Photograph 7. Due to the poor condition of the stone and the copes on this elevation, the high-level wall should be removed.
- 2.7.7 There are some large bushes/trees growing at gutter/cope level on this wall. This vegetation should be removed as soon as possible to avoid a collapse on site.
- 2.7.8 If the wall is to remain, it will require to be propped throughout the demolition, clearance and proposed works. If the wall is to remain, the stone is to be repaired and joints raked and pointed with a suitable lime mortar prior to rendering the walls with a suitable lime render.



Photograph 7 – West Elevation  
*Demolition highlighted red and badly corroded stone highlighted yellow.*

## 2.8 North (Rear) Elevation

- 2.8.1 This elevation appears to originate from the 1880s extension. As the wall is not visible out with the site due to trees, this new extension elevation may have less historic significance and may be able to be removed. Future proposal and the conservation architect will inform the decision of whether this wall is to be demolished.
- 2.8.2 This wall is in poor condition, the east corner of the wall has partially collapsed, leaving a large area of unstable wall. This section of wall should be demolished as soon as possible to avoid collapse and is highlighted on photographs 7 and 8.
- 2.8.3 There are some large bushes/trees growing at gutter/cope level on the corner of this wall and the west elevation. The vegetation has lifted the copes and there is a gap between the copes and the wall below. The vegetation should be removed as soon as possible to avoid a collapse on site.
- 2.8.4 If the wall is to remain, it will require to be propped throughout the demolition, clearance and proposed works. If the wall is to remain, the stone is to be repaired and joints raked and pointed with a suitable lime mortar prior to rendering the walls with a suitable lime render.

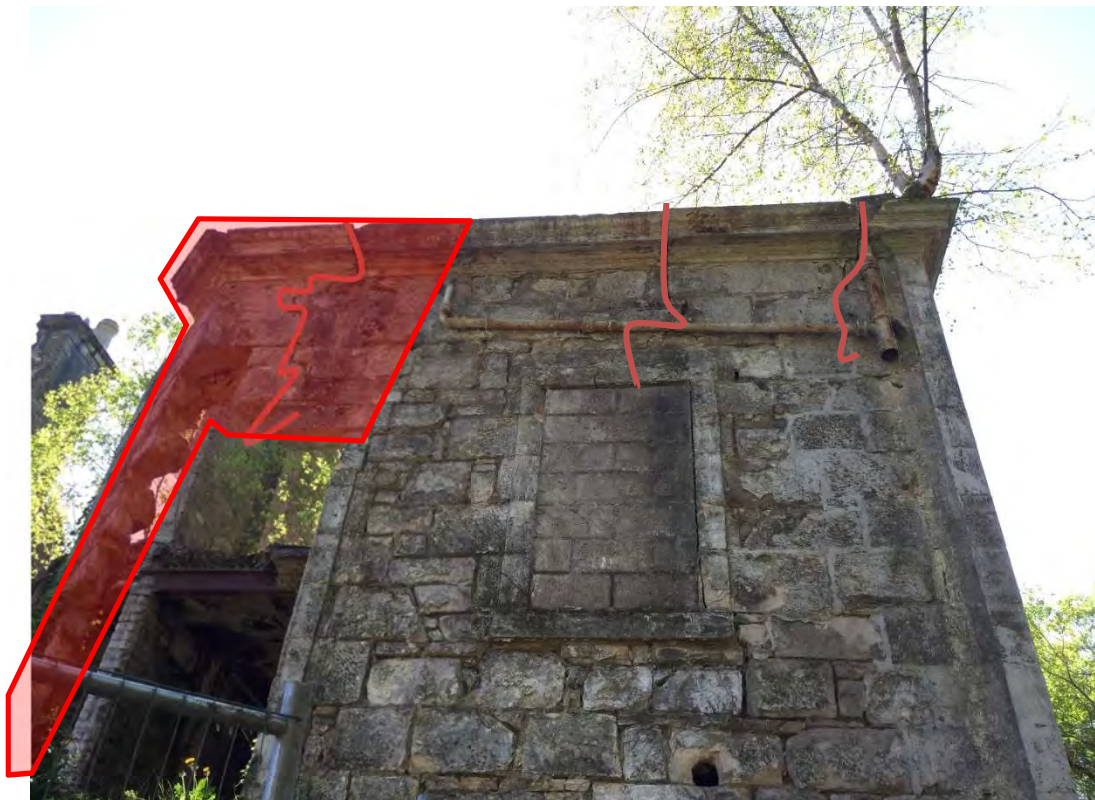


Photograph 8 – North (Rear) Elevation – East section  
*Priority down takings highlighted red.*





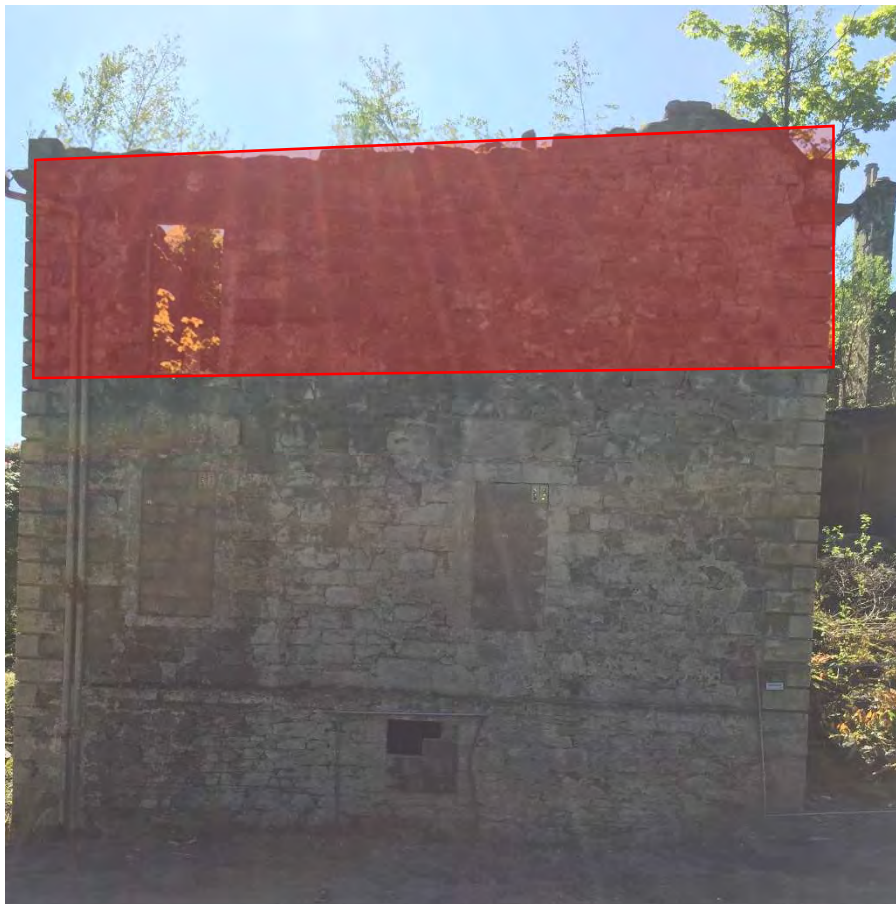
Photograph 9 – North Rear Elevation West low level  
*Priority down takings highlighted red, cracks highlighted in orange.*



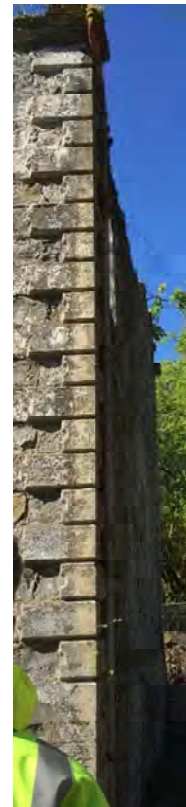
Photograph 10 – North Rear Elevation West high level  
*Priority down takings highlighted red, cracks highlighted in orange.*

## 2.9 North East Elevation

- 2.9.1 This gable elevation appears to originate from the 1774 building.
- 2.9.2 The wall is in poor condition following a roof collapse. The wall is leaning into the building and needs to be taken down to underside of first floor window level. The internal stone skin has partially collapsed and the wall is unstable. We recommend that this wall is demolished down to a safe level. The East elevation will need to be propped prior to this demolition to ensure stability.
- 2.9.3 If the wall is to remain, it will require to be propped throughout the demolition, clearance and proposed works. If the wall is to remain, the stone is to be repaired and joints raked and pointed with a suitable lime mortar prior to rendering the walls with a suitable lime render.



Photograph 11 – North east Elevation  
Down takings highlighted in red.



Photograph 12  
– bulge in  
North east  
elevation



## 2.10 Internals

- 2.10.1 Following the 1996 partial demolition the central internal area is piled up with stones, timber and other materials, which makes the area unsafe for inspection.
- 2.10.2 The internal walls and floors are in poor condition and we recommend that only the elevations are worth saving.
- 2.10.3 The demolition will need to be carried out in a sequence to be agreed between the structural engineer and the demolition contractor. The demolition will require temporary works design to prop/support all walls which are to remain.
- 2.10.4 We recommend that the earlier partial demolition debris is cleared to allow access. The extents of clearance and demolition will need to be limited to consider the areas of unstable structure. Specifically, the chimneys and the free-standing masonry doorways, as highlighted on the photograph 6.



Photograph 13 - Internals from North east



Photograph 14 - Internals from South



Photograph 15 - Internals from North



Photograph 16 - Internals from South west

## 2.11 Recommendations

- 2.11.1 Some urgent demolition works are required in order to render the building safe, due to the instability of the building. The undernoted plan highlights the most significant areas of demolition required.
- 2.11.2 Red highlights urgent demolition, the purple highlights partial demolition and the blue shows areas already partially demolished/collapsed. The green shows areas which are to be demolished in an agreed sequence once proposals are known. Once this has been carried out and the rubble removed a further inspection can be carried out.

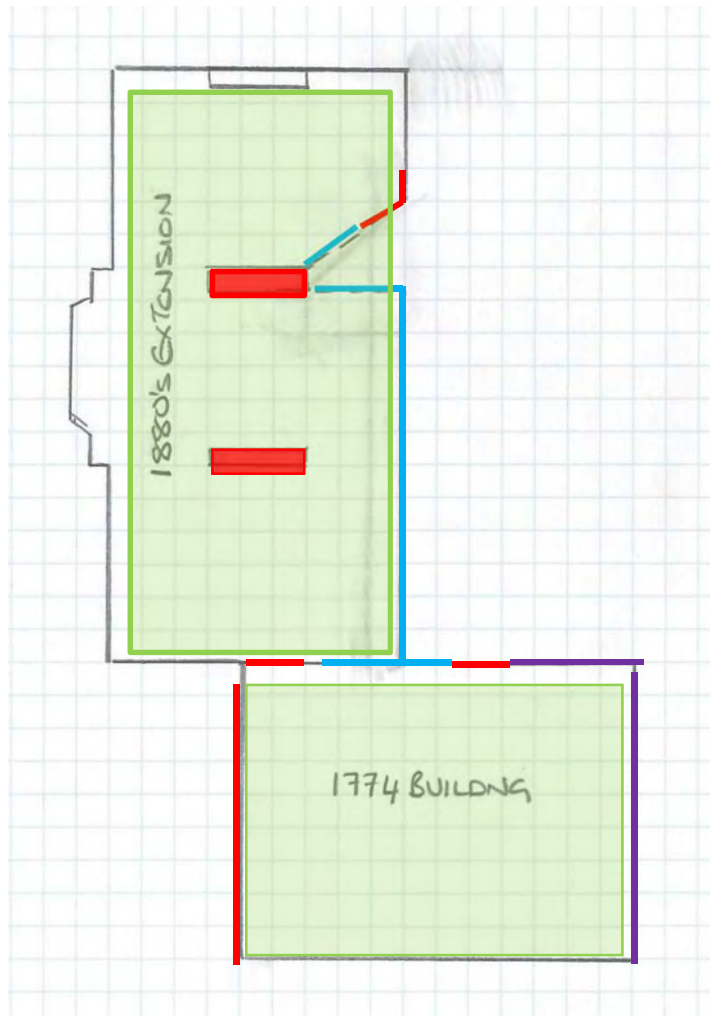


Figure 2 – Main House Summary Plan

- 2.11.3 The internal walls and floors are in poor condition, as such we recommend that only the elevations are worth saving. The extents of elevations to be saved can be agreed taking consideration of the future proposals and the Conservation Architect's report.
- 2.11.4 The demolition will need to be carried out in a sequence to be agreed between the structural engineer and the demolition contractor. The demolition will require temporary works design to prop/support the walls which are to remain.
- 2.11.5 We recommend that the earlier partial demolition debris is cleared to allow access. The extents of clearance and demolition will need to be limited to consider the areas of unstable structure, Specifically, the chimneys and the free-standing masonry doorways, as highlighted on the photos.

2.11.6 Stone from the demolition can be kept and where possible utilised for the new proposals.



## 3 Woodbank House Stables

### 3.1 Introduction

- 3.1.1 Woodbank House Stables at Luss Road, Balloch were built in 1774 at the same time as the main house. The records for the stables are less well documented but they have been on the buildings at risk register since 1990 and have been recorded as being in a ruinous state since 2008.
- 3.1.2 The inspection was visual and from ground level only, due to access restrictions.



Figure 3 – Reference Plan – Stable Block

### 3.2 North & South Single Storey Blocks

- 3.2.1 The North and South blocks are built with single storey stone walls and there appears to have been some additions throughout the life of the building, carried out in masonry. The single storey stone sections are generally plumb; however, they are in poor condition and in areas the stone is eroded. If the building is to be kept the masonry will need repairs and all joints would need to be fully raked and re-pointed with suitable lime mortar.



Photograph 17 – Internal views of south block



Photograph 18 – Internal views of south block





Photograph 19 – South elevation of south block



Photograph 20 – North east elevation

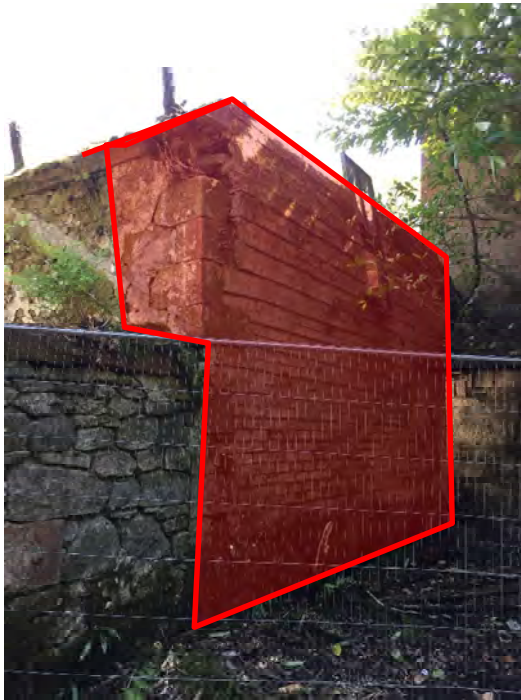
- 3.2.2 The east wall of the south block has rotated out from the building, see the undernoted photo. This is likely caused by the vegetation which is growing on the east wall. We would recommend that the vegetation is carefully removed and that the bulging wall is demolished, as highlighted below.



Photograph 21 – East end of South elevation of south block  
*Showing bulging wall and down takings in red*

### 3.3 Rear Section

- 3.3.1 The rear section is constructed in masonry, single skin brick in most areas. These sections are in poor condition and should be demolished.
- 3.3.2 The West wall of the North block has failed and is being held up by the corroded steel plates within the mortar beds. See the photo's below. For safety, this section of wall is demolished.



Photograph 22 – West wall in north block  
*Showing failure and down takings in red*



Photograph 23 – internal view of west wall in north block  
*Showing failure*

- 3.3.3 The first floor to the rear is timber joists supported on steel beams on steel circular columns. A central masonry wall approximately 3m high is also supported on the steel beam. The structure in this area is unstable, the rear wall is being supported by some trees. The timber is rotten, the steel beams and connections are very corroded and the south column has fully sheared, this risk of collapse is exacerbated by the masonry over and a large tree growing on the suspended first floor. We would recommend that the structure is removed down to at least the underside of the suspended floor, for safety, as soon as possible.





Photograph 24 – first floor of rear section  
*Showing priority down takings for safety in red*



Photograph 25 – West wall of rear section  
*Showing unstable walls and trees.*



Photograph 26 – West wall of rear section  
*Showing unstable walls and trees.*

### 3.4 Recommendations

- 3.4.1 Due to the poor condition and lack of stability, a considerable area of the building must be demolished for safety reasons. It is debatable whether the remaining sections of the building are significant enough to be retained and renovated.
- 3.4.2 Initial demolition extents for stability are noted below:
- Demolition to Ground level, shown red.
  - Demolition to at least the underside of first floor level, shown in blue.
- 3.4.3 Once the partial demolitions have been completed further investigations can be carried out to assess the remainder of the structure.

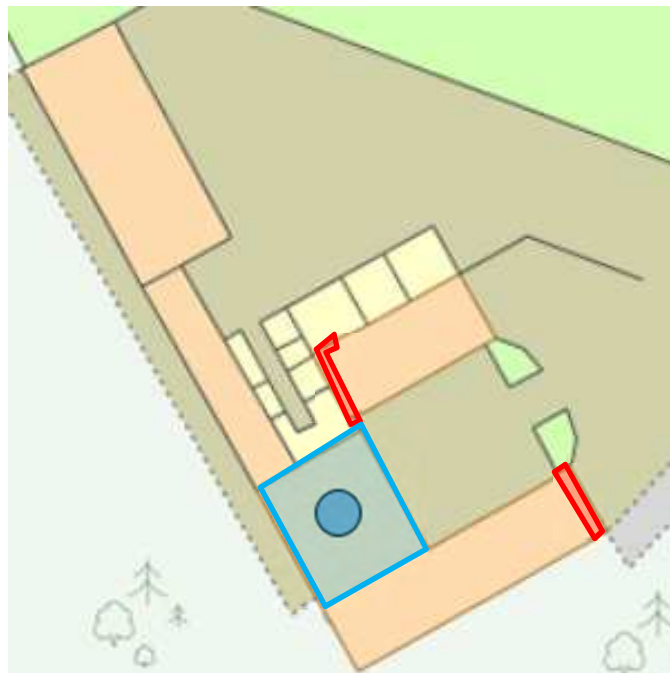


Figure 4 – Stable block summary plan

## 4 Woodbank House Agricultural Building

- 4.1.1 Woodbank House and stables at Luss Road, Balloch were built in 1774 and have been on the buildings at risk register since 1990. The age and use of this small building to the north of the site is unknown, we suspect it was an agricultural building due to the lack of a structural floor.
- 4.1.2 This small agricultural building is enveloped to the south and west by masonry retaining walls.

### 4.2 Inspection

- 4.2.1 The inspection was visual only from ground level.

### 4.3 Building

- 4.3.1 The building is small with no floor slab and has a large section of the south wall missing. The walls are in poor condition and a chimney collapse has exposed the single stone skin sections that form the flue and the wall is unstable, as shown in photographs 27, 29 and 32. Due to the instability of the south wall we would recommend demolishing the wall.
- 4.3.2 The corroded lintels are formed with steel rails and would need to be replaced if the building is to be refurbished.
- 4.3.3 Due to the instability of the south wall we would recommend demolishing the wall.
- 4.3.4 We would recommend that the building is demolished given the state of repair. If the full building is not demolished the east and west walls will need propped prior to the demolition taking place.



Photograph 27 - South wall showing collapse  
*Priority down takings for safety highlighted red.*



Photograph 28 – West wall





Photograph 29 – South wall, showing unstable flue.



Photograph 30 – Internal from the south



Photograph 31 – West wall lintel, formed with rails



Photograph 32 – South wall, showing collapse.

- 4.3.5 The retaining wall to the west of the building(as shown below) is in poor condition with numerous holes along its length. If the building is being demolished re-grading should be considered to avoid the need to replace or remediate the retaining wall.



Photograph 33 – South West Retaining wall



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