



Figure 1: Athlone Castle (Discover Ireland)

**STAGE 2A REPORT – STRUCTURAL AND CIVIL  
APPRAISAL AND REPORT FOR REDEVELOPMENT OF:**

**Athlone Castle  
Athlone, Co Westmeath**

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# 1. Introduction

## 1.1. Background and Brief

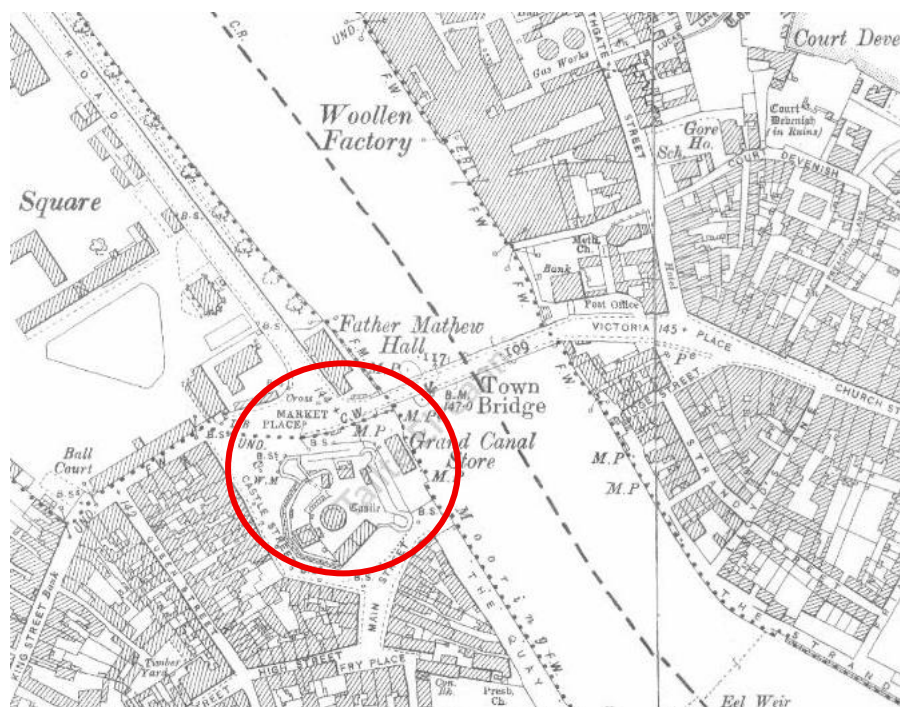
CORA Consulting Engineers were appointed as Structural and Civil Engineers by Westmeath County Council as part of the team led by Galmstrup Architects for the redevelopment of Athlone Castle.

The aim of this report is to provide an overview of the structural condition of the building - only in areas of proposed interventions, and to explore structural schematic design for the interventions.

This report has been prepared following a visual inspection of the building in the current form.

## 1.2. Brief description of structure

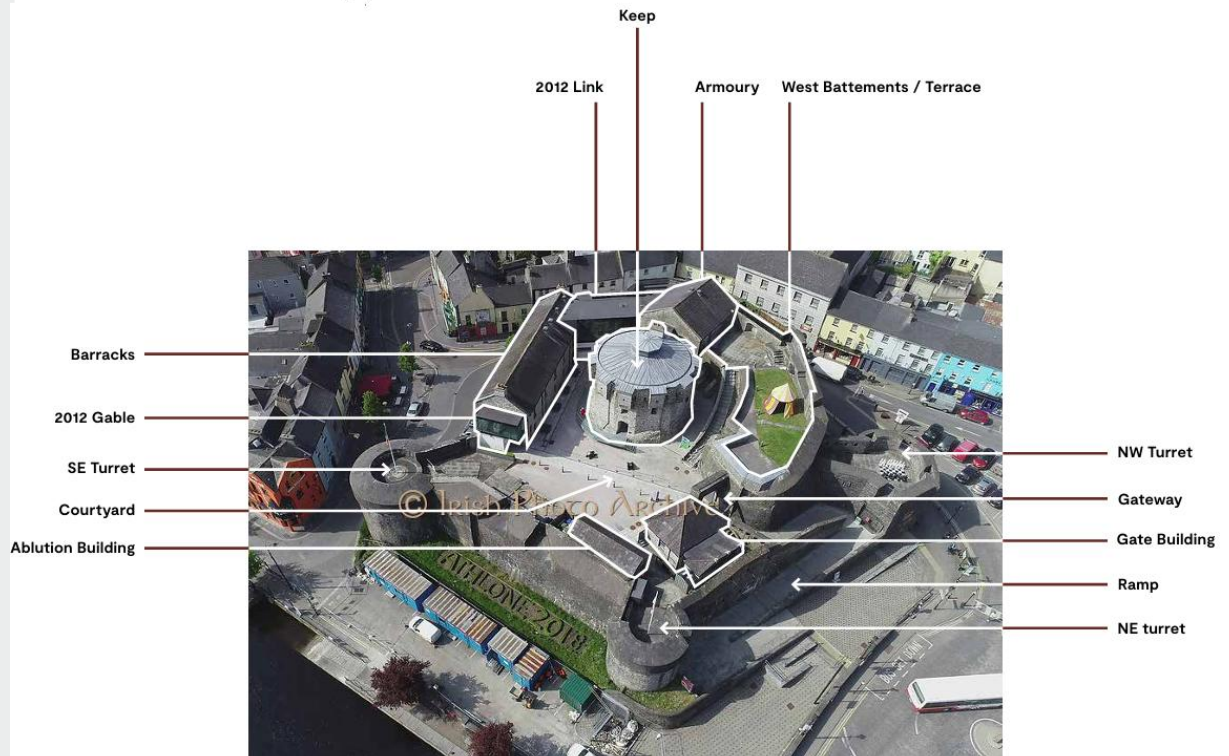
Athlone Castle is a Protected Structure, being recorded on the RPS (RPS No. 70), and it is also included on the National Inventory of Architectural Heritage (NIAH) (Reg.No. 15000352) with Archaeological, Architectural, and Historical categories of interest. The castle's keep is a National Monument in Athlone town, Co Westmeath under Westmeath County Council. (RMP Number WM029-042002-).



**Figure 2: OSI Historic 25" map with Athlone Castle circled**

The stone castle originates from the early 13<sup>th</sup> Century. Over the centuries, the castle has undergone many changes in ownership and structural additions. Presently, the castle serves as a museum exhibition with the most recent structural alterations occurring in 2011-2012.

The Castle and its auxiliary buildings will be referred to as outlined in the plan below throughout the report:



**Figure 3: Extract from Galmstrup Architects Stage 1 report**

### 1.3. Method of appraisal and report limitations

Background information and previous works drawings, supplied by Westmeath County Council were investigated early in the project, specifically Civil and Structural Tender drawings from the 2011-2012 works, and are referenced throughout this report. These drawings include:

- C-010 Proposed Drainage Layout Plan
- S-001 Foundation Layout Plan
- S-002 Ground Floor Layout Plan
- S-003 First Floor Layout Plan
- S-004 Roof Layout Plan
- S-010 Section A-A

An inspection was carried out by Lisa Edden and Alyssa Lennon of CORA Consulting Engineers on the 27<sup>th</sup> of June 2025. This inspection was limited to a visual inspection from the ground of areas of proposed structural intervention. This is not a structural condition survey of the castle.

No height for hire or invasive works were carried out or samples taken or tested.

Structural inspections are carried out on the following conditions unless otherwise agreed in writing: -

Structural inspections are concerned with the strength and stability of the basic structure: some aspects of non-structural matters such as services, fittings, completions and finishes, doors and windows, water and weather-tightness etc., may be noted in passing and commented on but are not dealt with comprehensively.

Inspections do not deal comprehensively with the condition of timber and the presence or extent of fungal or insect infestation: a timber treatment specialist's advice must be sought in relation to these matters.

Matters of asbestos identification should be undertaken by a certified consultant with the appropriate insurances and any comment in relation to this material should be for information purposes only to give the client direction on the same.

It is not possible to state that structural elements that are covered, unexposed or inaccessible are free from defects. This includes all drainage runs. A CCTV survey/hydrostatic test can be commissioned to determine the integrity of the drains if requested.

Planning permission and bye-law matters, or fire risk assessment are not considered. An architect's advice should be sought in relation to these. Inspections do not extend to legal rights of ownership such as boundary lines.

Dimensions or areas quoted are approximate. Information relating to non-physical details is given in good faith and no responsibility is accepted for its accuracy or validity.

Reports on inspections and appraisals shall be for the private and confidential use of the client for whom the report is undertaken and should not be reproduced in whole or in part or relied upon by third parties for any use without our express written authority.

Initial structural inspections shall be considered as preliminary only. No opening up to expose the structure and no structural calculations are carried out, apart from those referred to above. Opening-up works are only representative of construction details and/or defects at that location only. Inspections are limited to noting and commenting on visible defects which might be symptomatic of structural distress. A more detailed full back analysis and appraisal can be carried out on request.

## 2. Observations and Commentary

### 2.1 Overall site

The castle is located on Castle Street, adjacent to the Athlone Town Bridge over the River Shannon.

The castle grounds are surrounded by Castle Street to the west, Main Street to the south, The Quay to the east and Custume Place to the north.

There are considerable level changes from each road, with the castle and its buildings situated much higher than Main Street and The Quay. The battered masonry walls are retaining an approximate 9m level difference.



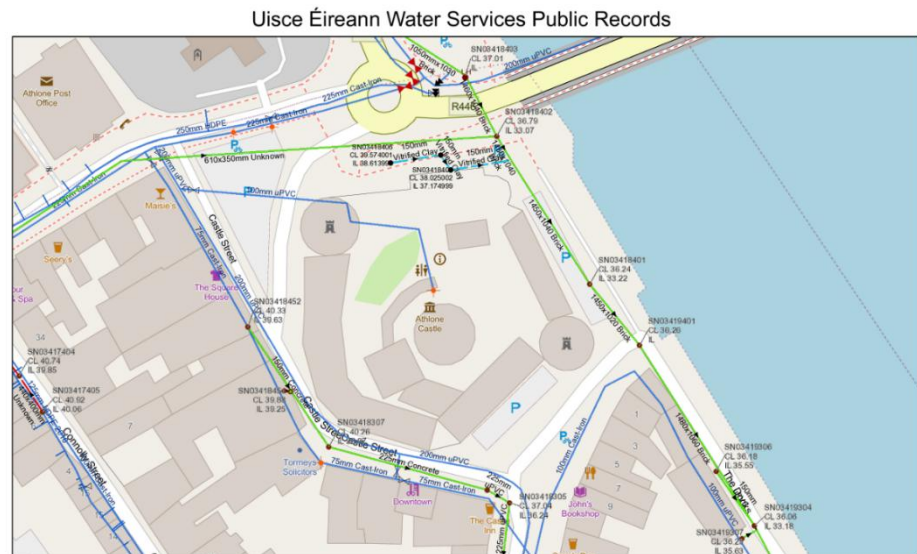
**Figure 4: View of Barracks and 2012 Gable from Main Street**

The route into the castle grounds is at the northwest corner, between Custume Place and Castle Street. The entrance into the castle grounds is a cobbled ramp.

### 2.2 Water services and Flood risk

The public combined sewer runs north to south under The Quay, to the east of the castle. The existing drainage system within the castle grounds appears to have been redeveloped in the 2012 works. From civil drawings from the 2012 works, there is an existing combined manhole within the castle grounds, adjacent to the Barracks extension. This is connected to the public sewer manhole in The Quay parking area.

The water supply is shown in blue in figure 5 below. There is a fire hydrant within the grounds of the castle, adjacent to the entrance gate.



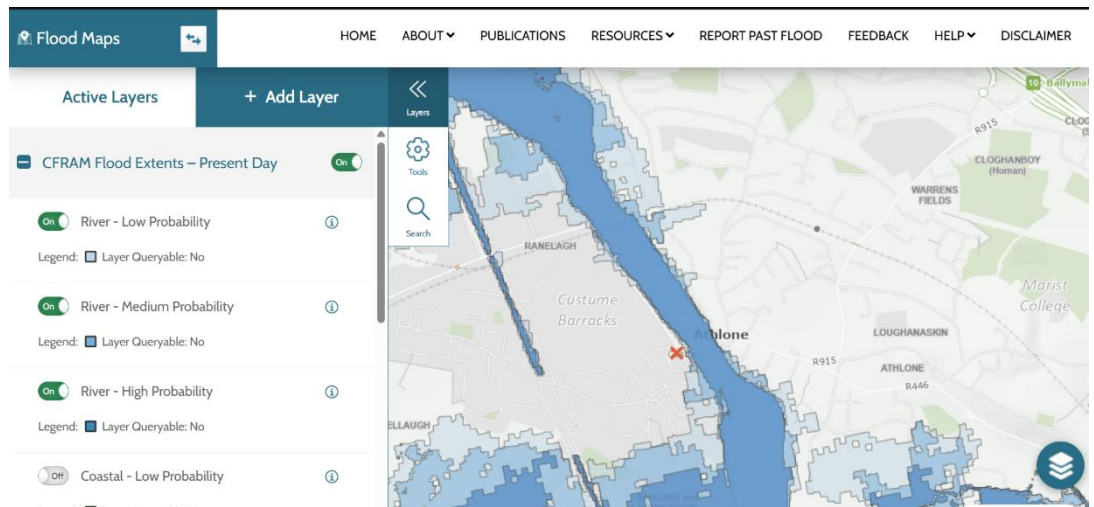
**Figure 5: Uisce Eireann Water Services Drawing**



**Figure 6: Public Sewer manhole circled**

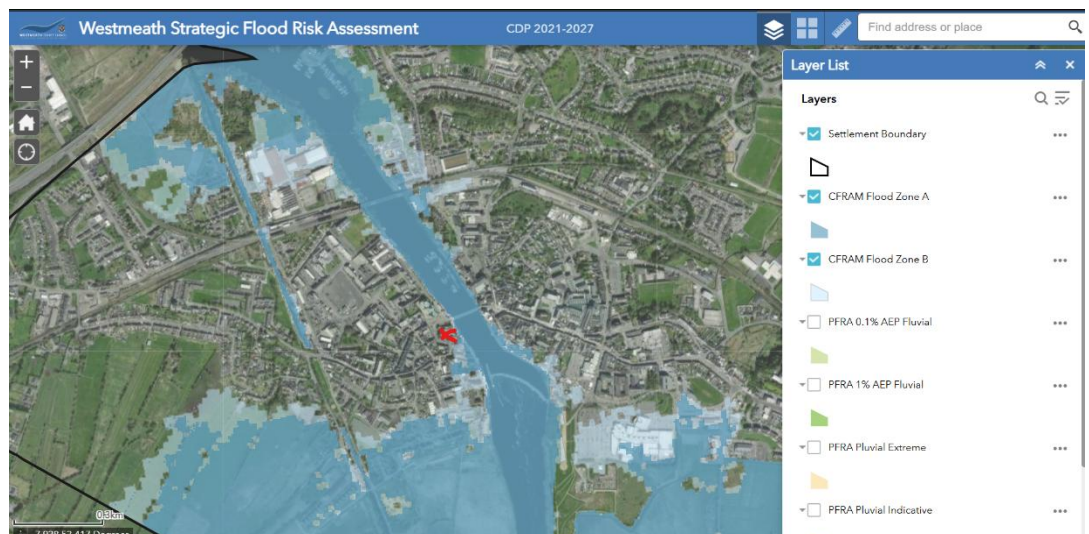
A preliminary study of the flood risk to the area was carried out. The site is located adjacent to a quay of the River Shannon, but sits approx. 9m above surrounding ground level.

The OPW's Eastern CFRAM study produced flood risk maps and the assessment of fluvial flood plains over the eastern region of Ireland. The OPW have consolidated this information onto the <https://www.floodinfo.ie/map/floodmaps/> website. The figures below show that the site is outside the 0.1% AEP, 1.0% AEP and 10% AEP fluvial flood events.



**Figure 7: Fluvial Flooding (0.1%, 1.0% and 10% AEP)**

In consultation with the Westmeath County Councils flood mapping, the site is outside of Flood zone A and B, with no risk of flooding.



**Figure 8: Westmeath County Council Flood Mapping**

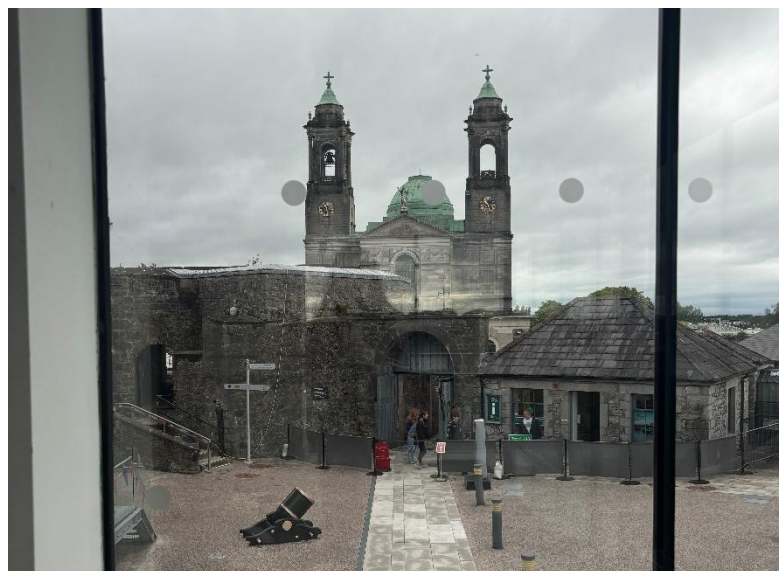
### 2.3 Gate Entrance and Courtyard

On entrance to the castle, there is 2no. archways. The first is a cast in situ concrete frame. This has been cast into the battered limestone masonry walls. Following the concrete frame is a semi-circular cut stone arch which frames the gate into the grounds.



**Figure 9: Entrance to castle grounds**

The castle grounds are surrounded by masonry boundary walls. The castle has 3no. turrets. Currently, 2no turrets can be accessed by the public, the southeast and northwest turret. The northeast turret is not accessed by the public and is being utilised as back of house storage. Adjacent to the northeast turret is the gate building. This is being used as an information desk. There is an office and toilet block to the south of the northeast turret. There is outdoor plant adjacent to this block.



**Figure 10: View of courtyard and gate building**

## 2.4 Keep

The keep is set centrally within the castle grounds. The keep is a rubble limestone masonry structure with a rounded battered base. The internal finished floor level of the ground floor is approximately 900mm above the external castle ground level. There is an existing steel framed ramp and steps to the entrance door. Many of the steel fixings have corroded.



**Figure 11: Keep building**

Internally, the ground floor is finished with stone flags. The build up between the ground level and the stone flags is currently unknown. From the ground, the underside of the historic timber 1<sup>st</sup> floor can be observed. The majority of the timbers are original, with localised joist replacement where a previous stair opening has been infilled. The main ceiling beams are 270mm deep x 140mm wide. The joists, which bear an inch above the beams are 160mm deep x 80-100mm wide.



**Figure 12: Historic 1st floor**

There is a hatch in the ceiling, to which the void between the historic 1<sup>st</sup> floor and the current 1<sup>st</sup> floor can be seen. The current 1<sup>st</sup> floor was a 2012 addition, and the structure is outlined in the Structural Plans for the works. The floor structure is a steel grid of 203 x 60 UC beams infilled with 225mm deep x 44mm wide timber joists. The steel beams have intumescent paint, which can be observed from the ceiling hatch.



**Figure 13: View inside void of underside of 2012 floor structure**

The underside of the keep roof can be seen from the 1<sup>st</sup> floor. There was no access to the roof to obtain element measurements or assess condition.

Note, no opening up works were carried out to confirm accuracy of the 2012 works Structural drawings.

## 2.5 Barracks and Gable

The barracks building of the castle was subject to much alteration in the 2012 works.

An extension to the northeast of the castle was constructed, now referred to as the 2012 Gable, to facilitate a new reinforced concrete stair and glass façade.

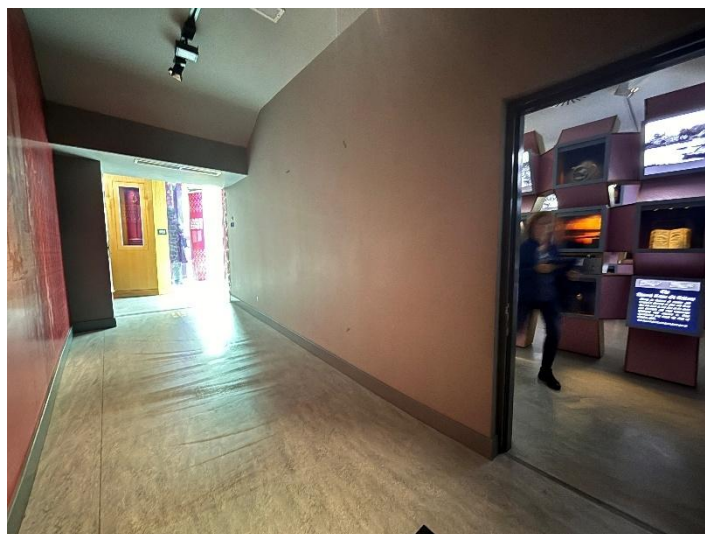
At ground level, reinforced concrete strip foundations were introduced in the gable and at the south of the barracks for a timber stud partition. The floor was replaced with a new concrete slab with radon barrier according to the 2012 works structural plans. The first floor consists of a steel beam grid with timber joists infilled in the barracks and cantilevering reinforced concrete slab at the gable end. Note, no opening up works were carried out to confirm accuracy of the 2012 works Structural drawings and no inspection of the roof structure was carried out.



**Figure 14: Barracks and 2012 Gable**



**Figure 15: Internal view of 2012 Gable**



**Figure 16: Ramp to link building**

## 2.6 2012 Link and Armoury

Between the barracks and the Armoury, a building was constructed in the 2012 works to link the two. The link comprises of reinforced concrete foundations for a new steel stair, new blockwork lift shaft for platform lift and new blockwork external wall. The ground floor is a reinforced concrete slab with radon barrier. The first floor consists of a steel beam grid with a combination of infilled timber joist floor and reinforced concrete slab. Steel stairs were introduced to link access into the Armoury.



**Figure 17: Access to Armoury from 2012 Link**

The 1<sup>st</sup> floor build in the Armoury is currently unknown and to be investigated. At roof level, there are existing boxed out trusses.



**Figure 18: Armoury Building**

## 2.7 Terrace and Garden

Access to the terrace is through a fire escape door in the Armoury and via an external cobbled stone stair adjacent to the entrance to the castle grounds. There are existing galvanised access covers along the base of the wall to the Armoury. These were not opened up or investigated.



**Figure 19: Access to Terrace from Armoury**

The terrace is a combination of paving stones and soft grass landscape and planting. There are existing stones steps which facilitate access to an existing water tank and to the wall tops.



**Figure 20: Terrace and Garden**



**Figure 21: Stone steps**

### 3. Proposed Works

#### 3.1 General

The proposed structural works are outlined below.

#### 3.2 Drainage

No alterations to the existing drainage system on site are proposed. Any new pop ups are proposed to be connected to the existing drainage system.

#### 3.3 Keep

Externally, it is proposed to dismantle the current steel frame steps from the courtyard into the keep, retain the existing ramp and construct new steps. The existing foundations will be retained, reused and extended.

Internally, a new stair is proposed from the ground floor to the 1<sup>st</sup> floor of the keep. The new stairs will be formed with steel stringers and steel folded plate treads and risers. The stringers will be supported to the underside of the first flight, up to half landing, with steel columns onto spreader beams, which will distribute the load across the existing stone flags, mitigating the requirement for excavations and foundations.

Alterations to the historic timber 1<sup>st</sup> floor are limited to the removal of some joists. All historic beams will be retained.

Alterations to the current 1<sup>st</sup> floor include cutting back of existing 2012 steel beams and removal of joists. New steel beams will be required to support trimmed beams and stairs. 2no. beams will require pocketing into existing masonry walls with padstones.

#### 3.4 Barracks and Gable

The existing reinforced concrete stair that was constructed in 2012 is proposed to be demolished and location of access to the 1<sup>st</sup> floor to be reconfigured. A new steel framed stairs is proposed. The new stairs will be formed with steel stringers and steel folded plate treads and risers. The stringers can either be pocketed into existing walls or supported from below with new blockwork/steel structure on extended reinforced concrete strip foundations.

Alterations to the 1<sup>st</sup> floor include the removal of a portion of the existing reinforced concrete slab. This will require new support in the form of a steel frame. A new infill reinforced concrete slab is proposed to be dowelled into the existing slab and be supported on the new steel frame and existing blockwork walls. The existing glass curtain walling at 1<sup>st</sup> floor is to be fully retained in situ. Some new openings and widening of some existing openings are proposed in existing blockwork walls. To facilitate this, new prestressed reinforced concrete lintels will be required.

To the south end of the barracks, it is proposed to remove the partitions to the ramp on both ground and 1<sup>st</sup> floor and replace with new guardings. The new guardings will be fixed back to the existing 2012 structures.

### 3.5 Link/Armoury/Terrace

It is proposed to replace 2no existing doors with airlock doors. One at the ground floor entrance to the link building and another at the 1<sup>st</sup> floor exit from the Armoury to the Terrace. The airlock structures will be 2no. pairs of 2no. steel portal frames, portalised in both axes for stability. Internal and external pairs will be separated to help mitigate any thermal losses. The ground floor link airlock can be fixed to existing foundations constructed in 2012, with an extension to the width of the strip. The terrace airlock will be founded within the 1990s interventions.

It is proposed to reduce the level of the soft landscaping in the garden, thus requiring the need for an additional stone step to the external steps. A new guardrail is proposed to the steps and landing. New guardrails are proposed throughout the site. Guardrails can be resin fixed into existing stonework joints.

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