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ROSCOMMON COUNTY COUNCIL

RETAINING STRUCTURE AT QUARRY LANE, BOYLE, CO. ROSCOMMON.

VISUAL SURVEY REPORT

JANUARY 2025

Roscommon Co. Council,
Aras an Chontae,
Roscommon,
Co. Roscommon.



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DOCUMENT APPROVAL

PROJECT	Survey of Retaining Structure at Quarry Lane, Boyle, Co. Roscommon.	
CLIENT / JOB NO	Roscommon County Council	7345
DOCUMENT TITLE	Visual Survey Report	

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ROSCOMMON COUNTY COUNCIL
RETAINING STRUCTURE AT QUARRY LANE, BOYLE, CO. ROSCOMMON.
VISUAL SURVEY

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ROSCOMMON COUNTY COUNCIL
RETAINING STRUCTURE AT QUARRY LANE, BOYLE, CO. ROSCOMMON.
VISUAL SURVEY

1. INTRODUCTION

Jennings O'Donovan & Partners Limited were contacted by Vincent Walsh, Roscommon County Council, by phone on Wednesday 27th November 2024.

Mr. Walsh requested a report on an existing retaining structure in Boyle and wished to arrange a site inspection.

Jennings O'Donovan were instructed to carry out a visual inspection, with a view to preparing a report on the condition of the structure.

The structure supports an apartment complex comprising 6 No. units. The apartment building is block built, with fibre cement slates to the roof. It was not possible to ascertain the form of construction of the foundations.

Brendan Maloney, on behalf of Jennings O'Donovan, visited the site on Tuesday 03rd of December and Thursday 19th December 2024.

The inspection of the structure consisted of a visual survey only. We have not inspected the interior of the existing apartment complex adjacent to the retaining wall or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the structure is free from defect.

Weather conditions were generally dry.

This report has been prepared solely for our client and only for their information.

The inspection did not include any opening or disturbance of any element of the structure.

The inspection does not take into consideration the Planning status of the property/development. No search or examination was undertaken for Local Authority

Planning, Building Bye Law, Building Regulation Files or documentation relevant to the property and the site (or site development where appropriate) to which it is part.

For the avoidance of doubt, the survey is not in accordance with the scope and procedures of I.S. 465: Assessment, Testing and Categorisation of Damaged Buildings Incorporating Concrete Blocks Containing Certain Deleterious Materials and Amendment 1:2020 which is in relation to pyrite and mica. We shall not have any liability whatsoever or however so arising in respect of any claim, losses, liability, cost, expense or other costs directly or indirectly arising out of the identification or exposure to pyrite or mica or materials or products containing pyrite or mica or other deleterious materials.

2. OVERVIEW AND CONDITION OF STRUCTURE

2.1 Overview

The structure comprises a stone / rubble and concrete retaining wall. A block wall has been built on top of the original stone / concrete and rubble wall during the construction of an apartment development (Planning Ref 00/259).

The wall surrounds the apartment complex contained within Folio RN19458F.

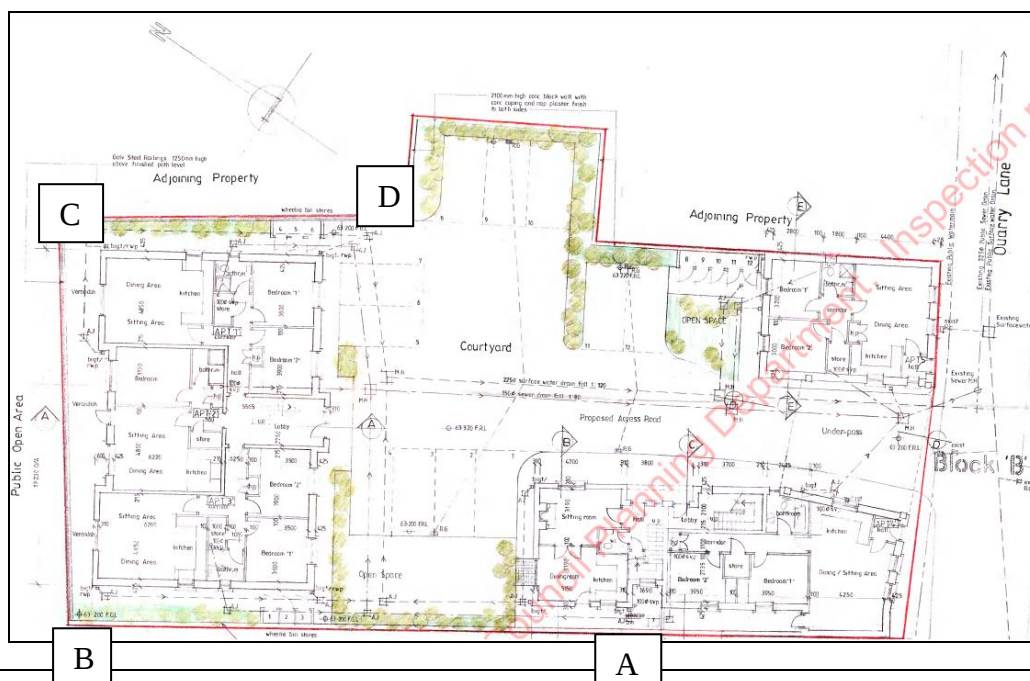
The overall height of the wall varies significantly from the south end to the north, from ground level to approximately 5.0m (above ground) at its highest point.

It was not possible to ascertain when the wall was constructed. Given the form of construction of the original wall, it would appear to have been in place for some considerable time.

From a review of available maps, there appears to have been some form of a walled structure at this location dating back to the early 1900's.

The current buildings on site were constructed c.2001. The development comprises two separate buildings, separated by an open courtyard.

The building at the northern end of the site (Block A) is bounded by the highest part of the retaining structure.



The retaining structure runs from point 'A' to 'B' to 'C' to 'D'.

The height at point 'A' is approximately 1m (retaining). The height at points 'B' and 'C' is approximately 5m (retaining). The height at point 'D' is approximately 1.2m (retaining).

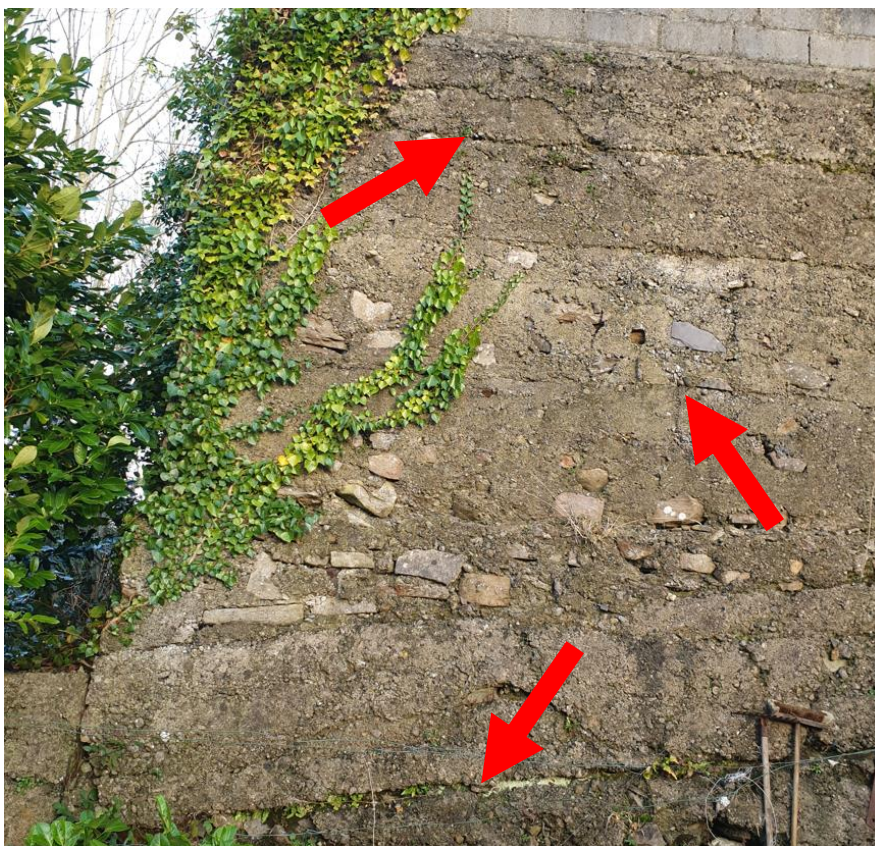
Prior to the construction of the original wall, the topography of the site would have been steeply sloping, from south to north.

2.2 Condition

The wall appears to be a mix of mass concrete (unreinforced) and masonry faced in concrete. In general, the overall appearance of the retaining structure is poor.

Cracking was evident on all faces of the structure.

There are horizontal and sloped construction cracks. These cracks developed at locations where sections of the wall were being constructed.



Examples of construction cracks indicated above.

Severe, vertical and stepped cracking was noted to the northern, eastern and western faces of the wall. These cracks are structural in nature and have potentially serious consequences for the overall structural integrity of the wall.

Tree roots and ivy have also penetrated the structure (predominantly on the northern face), further affecting the integrity of the structure.

The footpaths around the northern perimeter of the 'Block B' building are severely cracked and significant movement of the footpaths is evident.

Causes associated with failure of retaining structures include the following:-

- Design Flaws
- Stability of ground conditions
- Poor construction and maintenance
- Poor / improper treatment of surface water drainage

Note:- This site exhibits elements of all of the above.

The structure was not designed for the purpose for which it is being currently used.

The ground around building 'A' (at the northern end of the site) is showing signs of subsidence, indicating instability of ground conditions.

The retaining structure was 'generally' poorly constructed and poorly maintained. Trees and other plant material have been allowed to grow around and on the structure, specifically on the northern face of the wall.

The general treatment of surface water in and around the retaining structure is poor.

2.3 PROPOSED WORKS

The proposed works include the demolition and removal of the 'Block B' apartments building and is likely to involve the use of a digger with detachable bucket, 'concrete cutters' and / or 'multipurpose grapple'.

The dynamic loading of the plant could cause vibration in the wall which could induce failure, particularly in the areas which have already cracked.

3. CONCLUSIONS / RECOMMENDATIONS

As indicated above, the retaining structure shows signs of significant deterioration.

It has been indicated that the 'Block B' apartment structure is to be demolished.

Sequencing of any proposed demolition works, together with preparation of Risk Assessment and method statements (RAMS), incorporating 'safe zones', will need to be developed to ensure that the works do not negatively impact the already compromised retaining structure and provide a safe environment for all workers on site or users of adjacent lands.

Use of long reach excavators is recommended.

During the works, all plant and equipment should be located a safe distance from the retaining structure, in accordance with prepared RAMS.

Upon completion of the proposed works, treatment of surface water (especially at the northern end of the site) will be important to ensure that effects of ground water pressure and 'freeze – thaw' on the ground adjacent to the retaining structure, will not further negatively impact the retaining structure.

Potential options considered to support the existing structure included the following:-

- Strapping
- Encasing
- Steel Ties/Anchors
- Replacing

Strapping

This form of remedial work involves the installation of a series of steel girders, both horizontally and vertically, which generally help to support an existing structure.

In the existing situation, this may provide some protection against collapse. However, due to the compromised nature and existing condition of the structure, this cannot guarantee

total containment of the wall. Finding suitable fixing locations for installation of girders may also be somewhat problematic. Specialist temporary works and permanent works design would need to be undertaken to confirm if this option is viable.

Encasing

This involves the fixing of reinforcing over the face of a retaining structure, then shuttering and pouring concrete (or alternatively spraying concrete to require designed thickness) to create a retaining 'skin' to the exterior of the structure.

In the existing situation, this may help the overall stability of the structure. However, this does not extend to the foundations of the wall and cannot guarantee total stability of the structure. Again, specialist temporary works and permanent works design would need to be undertaken to confirm if this option is viable.

Note:- This potential action does not remediate against the existing issues identified with the wall in-situ.

Buttressing/steel ties/anchors

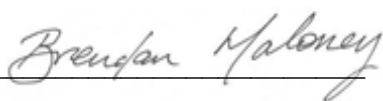
This involves installing steel rods through the retaining structure and securing anchors to the face of the wall.

Due to the form of construction and condition of the existing structure, this is not a viable option.

Replacing

This involves the total replacement of the existing structure.

This option is ultimately the best long-term solution, should it be intended to maintain a retaining structure at this location into the future. This option would only be viable once the existing building (Block 'A') has been removed.

Signed: 

Brendan Maloney

For Jennings O'Donovan and Partners Limited

Date: 29th January 2025

Client: Roscommon Co. Council
Project: Visual Survey Report
Title of Document: Survey Report
Document Issue: 1

Date: Jan. 2025
Project No.: 7345
Page No.: Appendix

APPENDIX 1

PHOTOGRAPHS





Photograph 1 Site overview – Note building at northern end of site to be demolished - indicted by red arrow.



Photograph 2 West face of structure – Note block built wall over original structure.



Photograph 3 West Face of structure. Note cracking to base of wall.



Photograph 4 West face of structure. Note significant cracking to original wall and to block wall above.



Photograph 5 West face (northern end of structure). Note general condition, including construction joint cracking.



Photograph 6 Northern face of structure – Note generally condition of structure including proximity of trees and root infiltration / penetration.



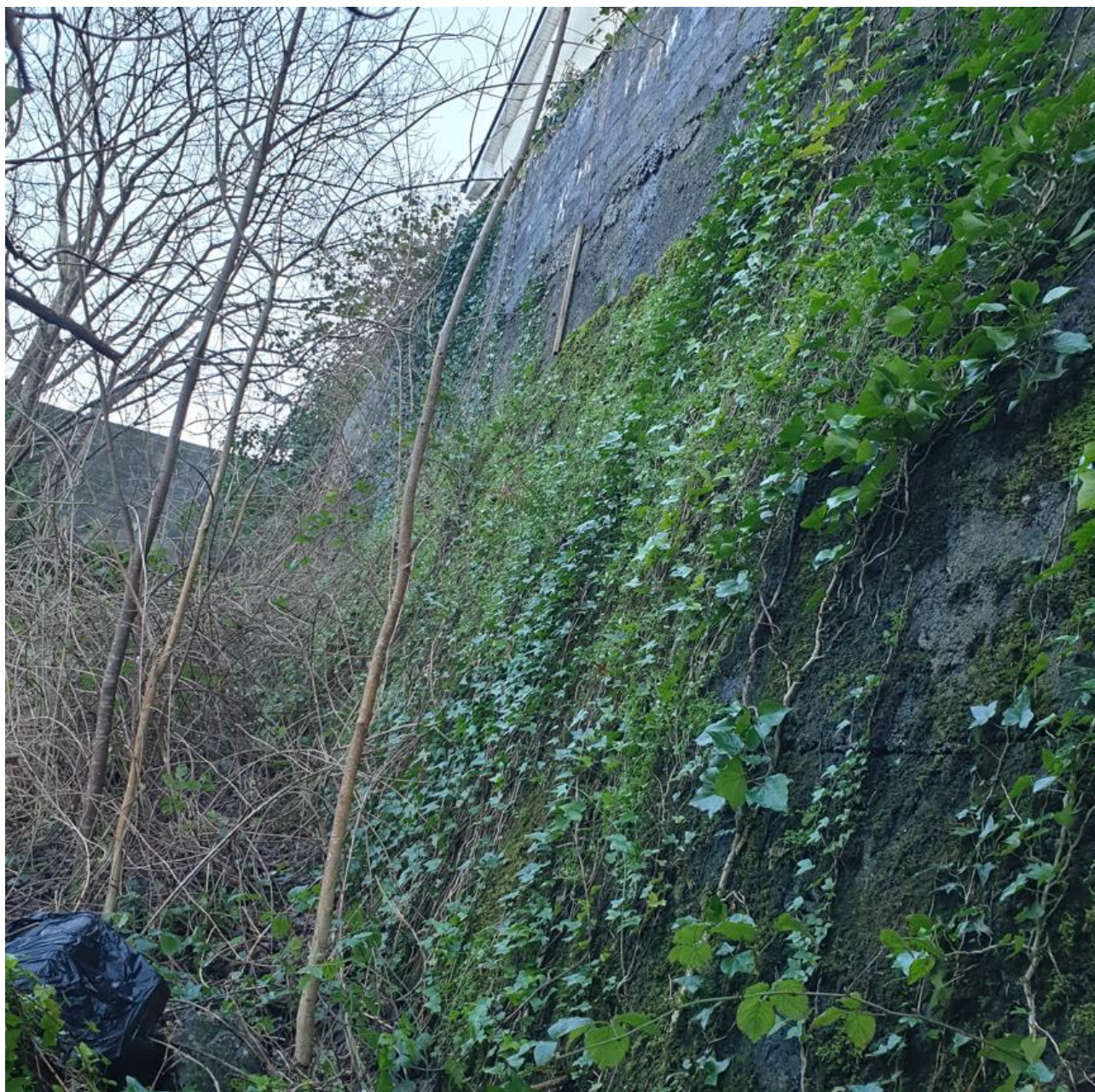
Photograph 7 Northern face of structure – Note generally condition of structure including proximity of trees and root infiltration / penetration. Location of significant cracking indicated (masked by overgrowth).



Photograph 8 Northern face of structure – Note generally condition of structure including proximity of trees and root infiltration / penetration. Location of significant cracking indicated (masked by overgrowth).



Photograph 9 Eastern face of structure – Note generally condition of structure including root infiltration / penetration. Location of significant cracking indicated.



Photograph 10 Eastern face of structure – Note generally condition of structure.



Photograph 11 North western corner of structure – Note 5m measuring staff.



Photograph 12 North Eastern corner of structure – Note 5m measuring staff.



Photograph 13 Footpath to front of northern elevation of 'Block B' building (to be demolished) – Note location of significant cracking (masked by overgrowth).



Photograph 14 Footpath to northwestern corner of 'Block B' building (to be demolished) –
Note significant cracking (masked by overgrowth).



Photograph 15 Footpath to northwestern corner of 'Block B' building (to be demolished) –
Note exposed wall, indicating significant drop in footpaths.