CIVIL & STRUCTURAL CONSULTING ENGINEERS

Trinity Church, Retaining Wall

Structural Survey

For

Rigg Construction Ltd.

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Web: m2structural.co.uk
Phone: 01225 285073

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1.0 Introduction

M^2 Civil and Structural Limited were appointed to inspect and report on the retaining wall at Trinity Church, Trowbridge. Part of the wall had previously fallen down along the western boundary. The inspection was carried out on Tuesday 8th November at 11:00am. The weather was sunny and cold.

The wall in question is of stone construction and approximately 2.4m high. The wall is retaining for approximately 1.2m of this. There is a row of trees directly behind the wall at the higher, church side.

2.0 General

We have not inspected woodwork 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 property is free from defect.

This report letter is prepared for the sole use of you and your professional advisers. We accept responsibility to you alone for the stated purposes that the report will be prepared with the skill, care and diligence reasonably expected of a competent Chartered Engineer, but accept no responsibility whatsoever to any person other than you. Any other person relies on the report at his own risk.

3.0 Observations

- The wall was leaning visibly towards the pavement.
- There were large cracks along the wall.
- There was evidence of previous repairs completed in a cement mortar, as opposed to a suitable lime mortar.
- There was significant growth of vegetation to the rear of the wall, with some lesser growth on the front.
- The trees to the rear of the wall would be considered mature, however these have been pollarded. This will restrict root spread somewhat, however given the proximity of the wall the root system will still affect the adjacent wall.

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Figure 1 - Cracking to wall and cement mortar

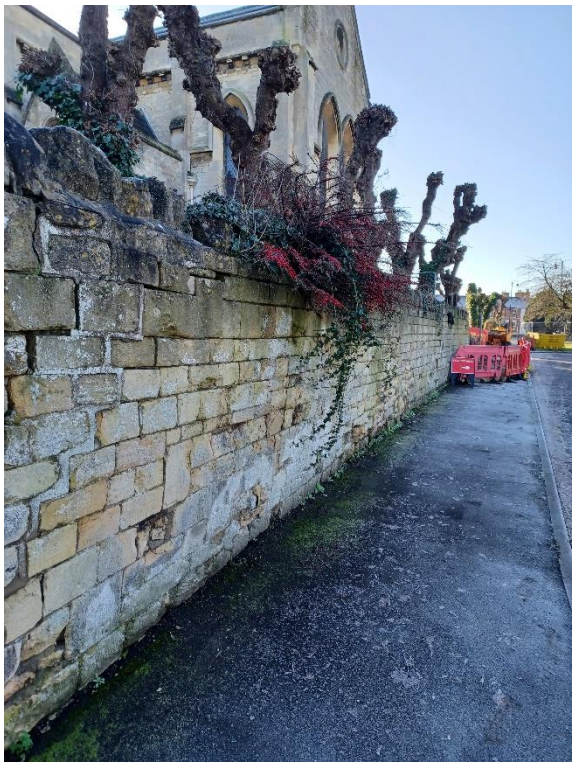


Figure 2 - Visible lean and cement mortar



Figure 3 - Lean to wall and vegetation



Figure 4 - Trees to rear of wall and vegetation

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4.0 Discussion

It can clearly be seen that the wall is in a state of disrepair. An existing section has already collapsed. It is thought that this is due to a combination of factors. Due to the age of the wall it is unlikely that there is any formal land drainage behind the wall. This will lead to a build up of water, creating greater pressure behind the wall.

Vegetation on the wall will degrade the mortar, this will over time lead to greater instability of the wall. Repairs have been carried out in a cement mortar which lacks the flexibility of a lime mortar and will cause stresses within the wall to distribute unevenly.

The presence of trees behind the wall is the greatest issue. Trees create changes in moisture content of soil, depending on season and their current water demands. This results in either shrinking or swelling of the soil. This swelling effect will cause the retained ground to exert pressure on the wall, which will result in the outward lean.

The wall in its current condition represents a significant risk to public health and safety as collapse would occur onto the public footpath.

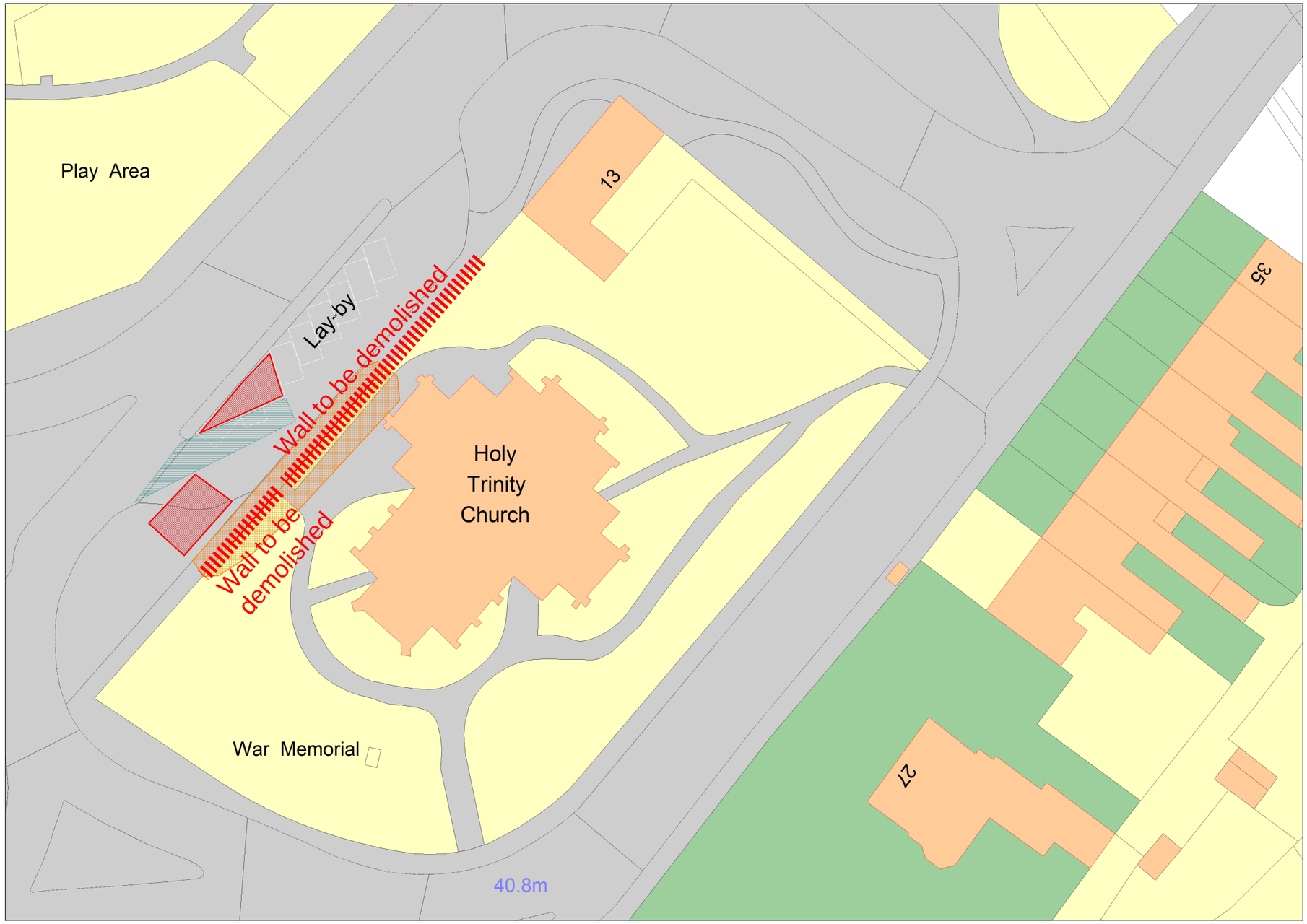
5.0 Recommendations

- Wall to be demolished to the extents shown in Appendix A.
- Trees to be removed to prevent recurrence of the issue. Replacement trees maybe planted however these should be a suitable distance from the proposed wall and should be small in nature, such as cherry trees or similar.
- Wall to be rebuilt as per options in Appendix A.

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Appendix A

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REV	DESCRIPTION	DRAWN	CHK'BY	DATE
P1	PRELIMINARY ISSUE	MD	MD	25.01.23

CLIENT:
Rigg Construction

PROJECT TITLE:
Trinity Church, Trowbridge
Retaining Wall

PROJECT REF:	FILE:	DRG NO.:	REV:
M2-2555	SK	01	P1

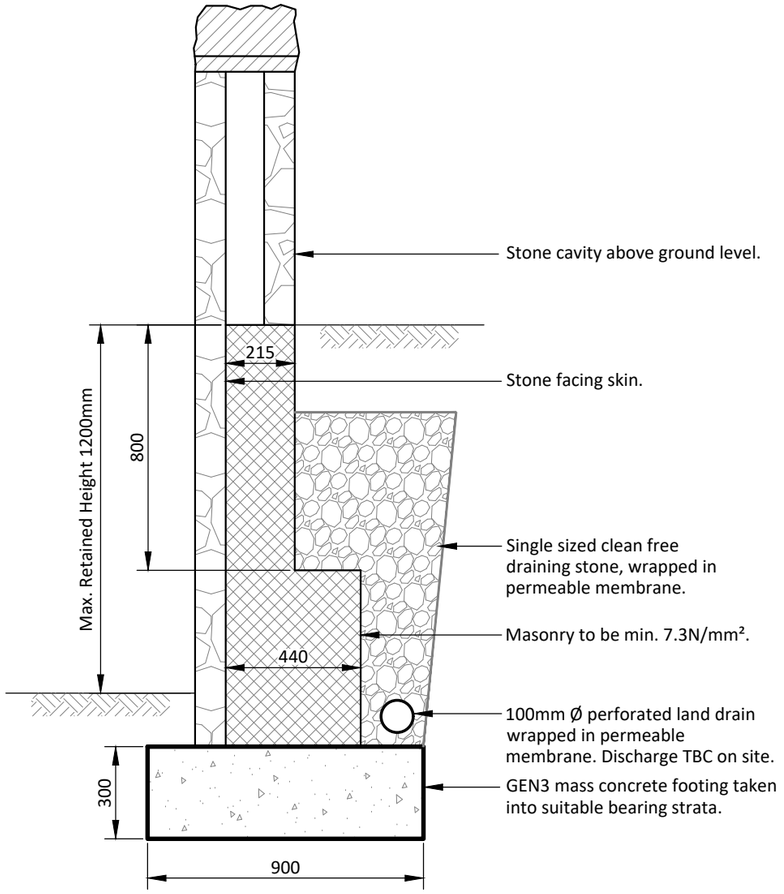
SCALE (A3):	DRAWN:	CHECKED:	DATE:
NTS	MD	MD	JAN 2023

DRAWING TITLE:
Wall Rebuild Extents

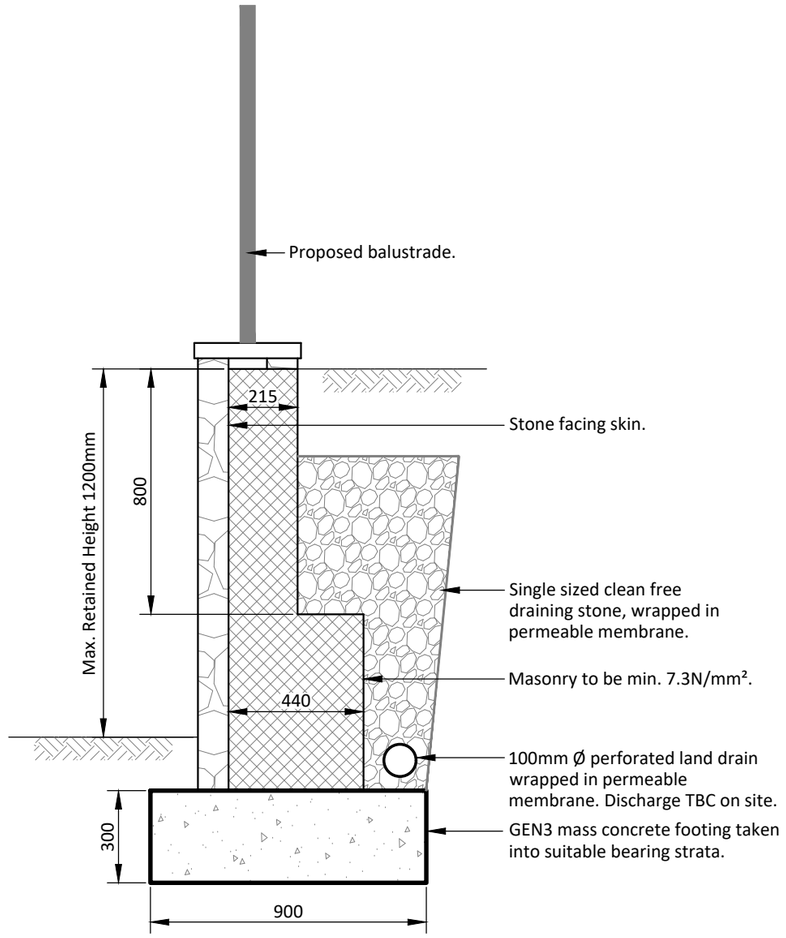
M2 CIVIL & STRUCTURAL CONSULTING ENGINEERS

W: www.m2structural.co.uk
E: info@m2structural.co.uk
T: 01225 285073

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RETAINING WALL
DETAIL
OPTION 1



RETAINING WALL
DETAIL
OPTION 2

REV	DESCRIPTION	DRAWN	CHK'BY	DATE
P1	PRELIMINARY ISSUE	MD	MD	25.01.23
P2	OPTIONS REVISED	MD	MC	03.03.23

CLIENT:
Rigg Construction

PROJECT TITLE:
Trinity Church, Trowbridge
Retaining Wall

PROJECT REF:	FILE:	DRG NO.:	REV:
M2-2555	GA	002	P1

SCALE (A1):	DRAWN:	CHECKED:	DATE:
1:20	MD	MC	JAN 2023

DRAWING TITLE:
Proposed Wall Details

CIVIL & STRUCTURAL CONSULTING ENGINEERS

W: www.m2structural.co.uk
E: info@m2structural.co.uk
T: 01225 285073

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