



**REBUILDING RETAINING WALL AT ST ANDREW'S CHURCH, KIRKBY
MALZEARD**

HERITAGE STATEMENT

Commissioned by

Harrogate
BOROUGH COUNCIL

Report 18523-Y-RP-003

Rebuilding retaining wall St Andrew's Church, Kirkby Malzeard STRUCTURAL APPRAISAL REPORT

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1 INTRODUCTION

1.1 Overview

- 1.1.1 The project relates to a 40m long length of the churchyard retaining wall at St Andrew's Church, Kirkby Malzeard, North Yorkshire. The church is Grade 1 listed and the boundary wall is listed by virtue of curtilage.
- 1.1.2 The northern end and corner is to be rebuilt following collapse and the southern 30m section is to be repaired and repointed following rejection of the original proposal to restrain the section of wall between the collapse and church tower with soil nails fitted with surface mounted patrix plates.
- 1.1.3 The scheme is to rebuild the collapsed section of wall. This will be 700mm thick at its base and consist of an a proprietary 256mm wide precast concrete block (Stepoc) with reinforced cavity construction with reclaimed stone face outer leaf built off a 1000mm wide reinforced strip foundation. Lateral support to the wall will be provided by passive soil nail anchors. The outface stonework will be rebuilt with a slight outward bulge to align with the section being retained which will aesthetically assist blending in the rebuilt section of wall with the retained section.

1.2 Purpose

- 1.2.1 Mason Clark Associates have been commissioned to produce this document as part of the forthcoming application for listed building consent and Faculty approval to undertake the remedial works described above.
- 1.2.2 The purpose of this document is to provide the Local Planning Authority and Faculty with the necessary and appropriate information that will inform the proposals.
- 1.2.3 It is produced in response to the policies set out in Paragraph 189 of the National Planning Policy Framework, as it states;

In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

1.2.4 This document has been commissioned by Mask Coston of Harrogate Borough Council who are the applicants in this case. This document is for the sole purpose for which it has been commissioned and is to be read in conjunction with other application and supporting documents.

1.3 The Author

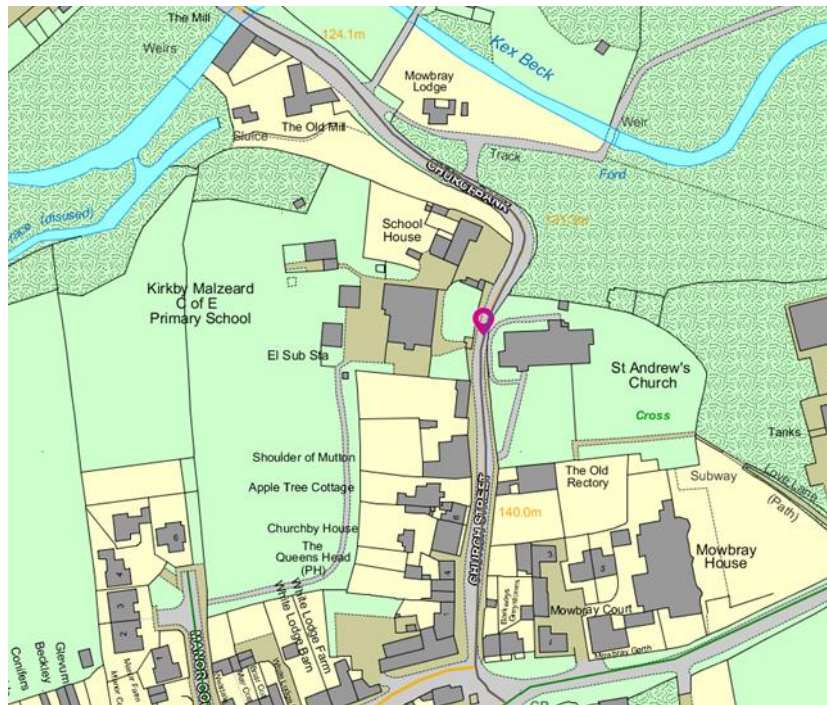
1.3.1 The author of this document, Mark Acey BSc. (Hons) MRICS, is a Chartered Building Surveyor.

1.3.2 The scheme of works is under the supervision of Gez Pegram BSc (Hons) CEng FIC MStructE, who is a Chartered Engineer Accredited in Building Conservation.

2 LOCATION AND DESCRIPTION

2.1 Site Location

2.1.1 The church of St Andrew's is located in the village of Kirkby Malzeard, North Yorkshire. The church is centred at approximately National Grid Reference SE23547 74527 and is surrounded on all sides by its churchyard.



2.2 Description

2.2.1 The wall that is subject to this programme of works forms the western boundary of the churchyard alongside Church Street (becoming Church Bank at the north end). At the southern end the wall is approximately 1m in height and the churchyard and external street ground levels are comparable. As the wall continues further to the north the adjacent street descends downhill so that by the northwest corner of the churchyard wall is approximately 4m in height and the churchyard ground level is over 3m above street level. This highest section at the north end is the location of the recent collapse. A 30m section between the collapse and the church exhibits an outward bulge and requires remedial lateral restraint to prevent further movement, however this proposal has been rejected due to the proposal having exposed patress plates fitted to the end of the soil nail anchors. As a result, the revised proposals have omitted this element of work. This 30m section of wall will remain vulnerable to collapse so will be subject to a monitoring regime.



Collapsed section to north corner



View look north along the street

3 HERRITAGE DESIGNATIONS

- 3.1 The Church of St Andrew's is a Grade 1 Listed Building. The listing description, List Entry ID 1173967) includes the following:

Church. C12, C13, C15 and restoration in 1908 after a fire. Coursed squared stone, ashlar with lead roofs. West tower, nave with north aisle and south porch, chancel with north aisle. West tower: C15, 3 stages, plinth with carved frieze, full-height offset diagonal buttresses and buttressed stair tower rising to second stage. First stage: large Perpendicular traceried 3-light pointed arched west window with hoodmould. Second stage: a small one-light ogee-headed opening to south. Band. Belfry windows, basket arched, with 3 chamfered cusped lights and hoodmould, embattled parapet with pinnacles to corners. Nave: C13, 3 bays. Plinth, offset angle buttress to east. To west bay a gabled C13 porch with diagonal offset buttresses. Chamfered pointed arched doorway with hoodmould, to top of gable a sundial. Board inner door in C12 surround; 2 orders of columns with scalloped capitals, 3 orders of arches with zigzag decoration. Other bays have 2-light 4-centred arched Perpendicular traceried windows with hoodmoulds. Plain parapet, stone coping. Gable cross. North aisle similar. Chancel: 4 bays, plinth, diagonal offset buttress to east, between central bays an offset angle buttress. Windows similar to those in nave but slightly larger. To left of central buttress a board priests door in C13 chamfered pointed arched surround with a hoodmould. Plain parapet, stone coping, gable cross. East windows: large 5-light Perpendicular 4-centred arched traceried chancel window with hoodmould. To north aisle 2 rectangular deeply chamfered windows with hoodmoulds, one above the other. Interior: arcade of 7 bays, C13, circular piers, doublechamfered pointed arches. Chancel arch similar but the south jamb is C12. In chancel is C13 sedilia of 3 seats with buttresses, ogee arches; piscina of same date. Nave and chancel have good hammer beam roofs of 1908, good oak seats and fittings of same date. The east end of the north aisle forms a chapel with Thomson (Mouseman) furniture and panelling. To wall at east, 2 blocked up C13 lancet windows. In the vestry fragments of C15 stained glass, including parts of figures.

- 3.2 In addition to the Grade I church itself the churchyard contains a number of listed associated monuments (four funerary monuments - List UIDs 1150511, 1173993, 1150469 and 1150512 and a medieval cross - 1295957). These are all located to the south and southeast of the church.

4 HISTORICAL AND ARCHAEOLOGICAL IMPACT ASSESSMENT

- 4.1 The proposed works are to rebuild the collapsed corner. Beyond the areas to be rebuilt the wall will be repointed together with localised repairs to the outer leaf of stone facing the road. Please note however that whilst repairs to the surface will help maintain the wall it will not provide any significant improvement to its structural integrity. An therefore the wall beyond the area to be rebuild will remain of structural concern.
- 4.2 The works will inevitably cause some further disturbance to the graveyard in the north corner and to the wall at the junctions with the section to be rebuilt. To mitigate this, the works will be subject to an Archaeological Watching Brief which will ensure any archaeological deposits that might be uncovered are recorded and that if any human remains are disturbed are treated appropriately. See enclosed Archaeological Watching Brief Method Statement within Appendix B.
- 4.3 The area of wall to be rebuilt will be faced with salvaged stone with coursing details to match the original wall. The mortar will be NHL 3.5 with an aggregate mix to existing areas. The wall will not be rebuilt plumb but will incorporate a slight outward bulge to assist with blending into the existing wall.
- 4.4 The soil nail pattress plates will be bedded within the wall against the face of the inner concrete block leaf. This will mean that upon completion of the outer stonework the pattress plates will not be visible.

5 THE WORKS

- 5.1 Gravestones and memorials close to the area of collapse are to be carefully relocated for safekeeping during the contract and reinstatement on completion under the supervision of the appointed Archaeologist.
- 5.2 Removal of the loose materials including damaged and collapsed stonework. Stonework to be retained for use in the re-built wall. Following check for local services, the soil nailing can commence beginning with the stabilisation of the existing embankment. Some temporary lateral support will be required to the wall adjacent to the collapse. This may be provided by separate temporary props/shoring or by the installation of additional soil nails but the patters plates will be removed and stonework reinstated upon completion of the works. The wall is to be carefully monitored and temporary shoring introduced if the soil nailing is found to be causing any movement in the existing wall.
- 5.3 Once the temporary patters plates/embankment stabilisation and temporary shoring is in place the collapsed section will be carefully dismantled to foundation level in preparation for rebuilding.
- 5.4 The reinforced concrete wall should be constructed from a new concrete foundation in maximum lifts of 860mm, i.e. 4 courses, between concrete cavity filling. The new wall is to include weep holes to prevent build-up of water behind the wall. The pre-installed soil nails and face patters plates can be incorporated into the wall as the work progresses. Backfilling behind the wall with clean granular material should be carried out on completion of the wall when the concrete cavity fill of the reinforced masonry has gained 75% of its 28 day strength. The stone outer face is to be rebuilt using salvaged stone so far as possible with course sizing to match the adjoining wall. All stonework rebuilding is to be carried out using a Hydraulic Lime Mortar 1:3 using a moderately hydraulic lime NHL 3.5 and well grades aggregates from 2.5mm to 75 microns. All aggregates to be to BS EN 13139:2002 and to be well grades, non-staining, clean, sharp, coarse sand uncontaminated by clay and silt. All rebuilding work to be carried out during a period of suitable weather so as to avoid high and low temperatures. The curing of the completed pointing and rebedding is to be managed to prevent it from drying too quickly. This is to be carried out by protecting the pointing with suitable sheeting and applying water using a hand pump or pump action spray to dampen the repointing and surrounding stone to ensure it does not cure too fast. This process should be carried out for a minimum period for one week after the rebuilding or pointing as occurred. All mortar joints are to have a recessed joint rather than a struct or flush finish. The surface of the joint is to receive stipple finish by using a churn brush to stipple the surface of the joint.
- 5.5 The road surfacing is reinstated on completion. A building regulation compliant handrail/guard rail is to be installed behind the top of the wall to provide edge protection. The churchyard grass is to be re-seeded and any disturbed gravestones and memorials reinstated.

6 DRAWINGS AND DOCUMENTS

6.1 List of documents and drawings (including numbers) accompanying the submission:

Mason Clark Associates

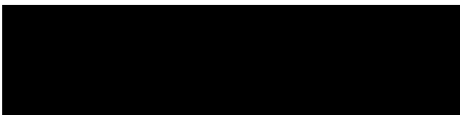
18523-Y-DR-400	Location Plan
18523-Y-DR-401- T3	General Plans
18523-Y-DR-402 – T3	Elevations
18523-Y-DR-403 – T3	Sections 1 & 2
18523-Y-DR-404 – T2	General Notes
18523-Y-DR-405-T1	Sections 2 of 2

Byland Soil Nailing

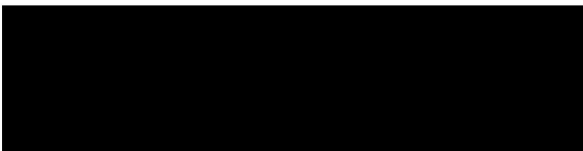
Please note these drawings require updating to reflect the revised scheme detailed above. However the design principles and calculations remain applicable to the area of wall being rebuilt.

2099-001	Soil Nail Layout
2099-002	Soil Nail Details
2099	Soil Nail Design Calculations

Signed on behalf of Mason Clark Associates (York):



Mark Acey *BSc (Hons) MRICS*
Senior Building Surveyor



Gez Pegram *BSc (Hons) CEng FICE MStructE*
Design Team Leader

9 LIMITATIONS

- 9.1 *Our inspection and report are concerned with the structural aspects of the building such as foundations, walls and floors. We have not concerned ourselves with the condition of items such as doors, windows, and other fittings; or items such as timber infestation / decay, dampness, and testing of services to the property, unless specified in the report.*
- 9.2 *Sampling and testing of materials is beyond the scope of this report.*
- 9.3 *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.*
- 9.4 *This report is applicable to the condition and state of the building at the time of inspection. The building may be subject to deterioration in the future and the opinions expressed in this report may need to be revised accordingly.*
- 9.5 *This report is limited to the property under consideration. It does not consider the effects that adjoining properties may have, unless with prior agreement, a detailed inspection of all adjoining properties can be made.*
- 9.6 *The above recommendations do not constitute a full list of works to be carried out and refer to the main areas of work associated with structural aspects of the building, based on a visual inspection only and under the limitations of our inspection.*
- 9.7 *All building and construction works are covered by the requirements of the CDM regulations. Owners/Clients have legal responsibilities to engage persons and companies with appropriate level of skills knowledge and experience to ensure that the requirements of the CDM regulations are met. The works required will be covered by the CDM regulations 2015 and you should understand your obligations and act accordingly.*
- 9.8 *Unless specifically mentioned no comment is made in the report as to the presence of new or old mine workings or tunneling, heavy metals, chemical, biological, electromagnetic or radioactive contamination or pollution, or radon methane or other gases, underground services or structures, springs and water courses, sink holes or the like, noise or vibratory pollution, mould, asbestos and asbestos products.*
- 9.9 *The report has been prepared for the client alone and no third party should rely on it. For the avoidance of doubt, the Contracts (Rights of Third Parties) Act 1999 shall not apply to this contract.*
- 9.10 *The inspection and report will not include any liability in respect of Advice/Design in fire safety to the structure and/or any liability whatsoever in respect of any losses (whether direct or*

indirect) arising from combustibility of cladding in delivery of our Services. We shall not be liable for that part of any claim which relates to loss of profits, loss of use, loss of production, loss of contract, liquidated damages or for any cost of decamping or rehousing.

APPENDIX A

MASON CLARK ASSOCIATES OPTION STUDY

(Under Separate Cover)

APPENDIX B

DRAWINGS & DESIGN DOCUMENTS

List of drawings:

Mason Clark Associates

18523-Y-DR-400	Location Plan
18523-Y-DR-401- T3	General Plans
18523-Y-DR-402 – T3	Elevations
18523-Y-DR-403 – T3	Sections 1 & 2
18523-Y-DR-404 – T2	General Notes
18523-Y-DR-405-T1	Sections 2 of 2

Byland Soil Nailing

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2099-001	Soil Nail Layout
2099-002	Soil Nail Details
2099	Soil Nail Design Calculations

APPENDIX C

ON SITE ARCHEOLOGY SCHEME OF INVESTIGATION FOR AN ARCHAEOLOGICAL WATCHING BRIEF

(Under Separate Cover)

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Monks Cross
York YO32 9GZ
01904 438005
www.masonclark.co.uk

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Bridge design, maintenance and construction
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Highway design and maintenance
Retaining wall and slope stability solutions
Land remediation advice
Road and sewer design to adoptable standards
Section 38 and 104 Agreements
Sewer requisitions and diversions
Section 98 and 185 Agreements
Flood Risk Assessments
Coastal erosion flood breach analysis
Flood risk management / prevention schemes
Underground drainage design
Stormwater attenuation
SUDS
Ponds, lakes and balancing ponds

PROJECT MANAGEMENT

QUANTITY SURVEYING & CONTRACT ADVICE
CDM SERVICES

BUILDING SURVEYING SERVICES

Design, Remedial Repair / Improvement Schemes
Contract Administration
Building Surveys
Professional Opinion Reports
Condition Surveys & Schedules of Condition
Measured Surveys
Dilapidation Claims
Party Wall etc. Act Representation
Disabled Adaptations

EXPERT WITNESS SERVICES

Civil & Structural engineering disputes
Project Disputes
Health and Safety Regulations

STRUCTURAL ENGINEERING

Residential and commercial building structures
Education and healthcare facilities
Heavy industrial development
Feasibility studies for development sites
Building Regulations and Planning Applications
Access and maintenance gantries
Modular building design
Blast design
Subsidence management and resolution
Temporary works design and specification
Site and soils investigation
Sulphate attack specialists
Confined spaces assessments

CONSERVATION ENGINEERING

Engineer Accredited in Building Conservation
CARE Registered Engineer
Heritage and conservation engineering
Listed Building refurbishment
Historic Parks and Gardens
Scheduled Ancient Monuments
Monitoring and investigations
Liaison with Local Conservation Officers
Buildings at Risk and Managed Ruins

3D LASER SCANNING AND DATA CAPTURE

Latest Generation 3D Laser Scanning
Measured Building Surveys
Topographical Surveys
Monitoring Surveys
3D modelling (Revit, CAD, Inventor, Solidworks)
M & E Modelling
Volumetric / Level analysis
Scan to BIM
Scan data cloud hosting
Hi-Def HDR photographic surveys