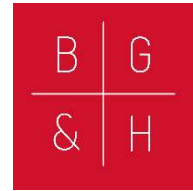


MILNROW LIBRARY
SPECIALIST INVESTIGATIONS
EMERGENCY WORKS
January 2022



Bradshaw Gass & Hope LLP
Architects Consulting Engineers Quantity Surveyors
21 Silverwell Street Bolton BL1 1PR

MILNROW LIBRARY
SPECIALIST INVESTIGATIONS
EMERGENCY WORKS
January 2022

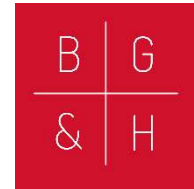


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1.0 INTRODUCTION

Bradshaw Gass and Hope LLP was commissioned in December 2020 to carry out a Condition Survey of Milnrow Library, with specific attention to the roof and window condition but with a general overview of the fabric.

The findings of this initial survey are indicated on the attached drawings, with reference to the photographs contained in this report. The survey was carried out on 4 and 15 December 2020.

The initial survey was carried out from ground floor level and without accessing any roof voids or upper roof areas. The recommendations made on the drawings are from this limited perspective and recommendations are made for further investigation/enabling works to understand more fully the nature and implications of any defects or decay.

During this initial survey a number of issues become apparent that warranted further investigation and some that may require urgent reactive maintenance. These are indicated in the original report and formed the basis of the further investigations.

Specialist surveys were carried out as follows:

- Historic leaded Lights – Survey by Pendle Glass (Appendix A)
- Structural by Conservation Structural Engineers Blackett-Ord (Appendix B)
- In addition, high level access was provided for inspection by the Conservation Architect of the roofs, ventilation turret, copings, and high level flashings and windows. This was enabled by Bullen Conservation with the assistance of Bradford Roofing and Robinson Preservations Ltd, timber and rot specialists.

Investigations were carried out in January 2022 and it was discovered that, in addition to the issues raised in the original survey and further investigated on site, there were two issues that presented an imminent risk to the health and safety of those accessing the building and to the long term survival of the building and its fabric.

- The upper three meters of the entrance gable have become detached from the roof and adjacent structure and now rocks when pressed. This is directly above the main entrance to the library. In addition, the apex coping stone is completely un-bonded and remains in place through gravity alone. There appear to be no securing dowels or ties. The gable appeared to be relatively stable but could be at risk of collapse in high winds.
- Two piers that flank the main entrance are formed of stone blocks and appear to be stack bonded to the gable and lower masonry. The central stones to these piers are displaced from the face of the gable and wall by up to 20mm and appear to be either fully detached to the central area or displaced by corroding iron cramps or ties. The central blocks are displaced sufficiently to present a real risk of collapse if not addressed.
- Two of the original Art Nouveau leaded lights are heavily buckled and one in particular is at a high risk of becoming further displaced and falling.

As these issues are considered as urgently in need of attention, it is proposed that they are addressed as outlined in the following notes, to prevent injury to the public and to ensure the continued retention and repair of the original fabric of this important heritage asset.

2.0 DISPLACED GABLE

The upper section of the entrance gable, above the level of the stair window, is currently unrestrained and rocks freely when pressed. It is not clear what restraint was originally in place or what has caused the integrity of the panel to be compromised. Original iron cramps, ties or dowels may have corroded to release the panel or open joints and the impact of freezing trapped water may have fractured the lower bedding plane where there is an open joint and relatively flat head detail.

The panel is at a real risk of future collapse and as the level of integrity between the panel and the wall cannot be assessed without dismantling, it is proposed that an intervention is made to provide temporary support for the panel while a full proposal for its future careful dismantling and re-instatement is devised and submitted for listed building approval.

Inspection within the roof void revealed a brick internal skin to the gable and relatively meagre roof spars and purlins that appeared not to offer significant restraint to the panel. There was a visible crack to the internal face of the brickwork at the level of the brickwork and this appeared to co-ordinate with the external crack.

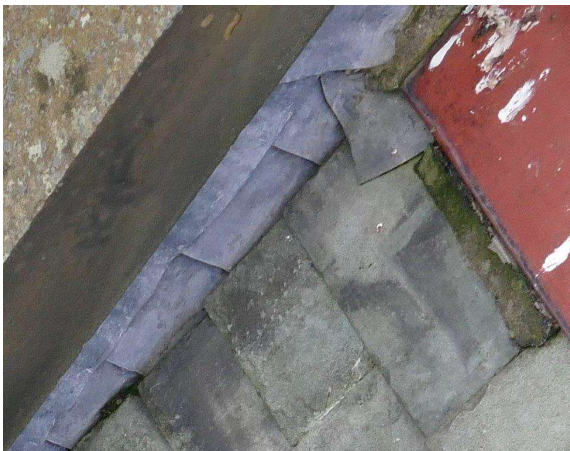
Internally, there were also extensive signs of water ingress and sustained dampness at the foot of the loose panel where it is bedded on to the stair window lintol.



The top panel of the entrance gable can be rocked on its bed joint, three metres below at the head of the stair window.



The apex capping stone is de-bonded and remains in position by gravity. It can easily be lifted off the gable. An open joint is visible above.



Displacement of the gable appears to have stretched the soakers, reducing their lap with the cover flashings to 30mm in places. This is a likely source of water ingress.



The upper section of the gable is loose and is flanked by two piers with raised heads. The central panel appears to be un-bonded and the right hand pier has displaced to the south. The stonework of the pier is also displaced below.

2.0 DISPLACED GABLE (continued)

The rear of the loose panel, where it is bedded on to the head of the stair window, shows open cracks internally as well as externally and is likely to be from past water ingress and failure of the bed joint.

PROPOSAL:

It is proposed that a temporary restraint and bracing frame is installed within the roof void with the front angle resin bolted into the compromised gable from behind to provide temporary support.

The steel frame is to be braced and tied back to the existing roof structure behind. The final detail for this is to be agreed on site to suit the timber alignment and section sizes. Full details of the scheme, proposed by the Care registered Structural Engineer, are given in the appendix C.

A crach deck or suitable safety line will be required for the accessing of this roof space and templates will need to be taken on site for the steelwork to then be fabricated and installed.



External open joint to the stair window head at the base of the loose section of gable panel,. There are also open joints in stonework below where there is extensive water staining internally.



Within the roof void behind the compromised gable there is visible cracking at the base of the compromised panel that appears to coincide with the plane of the fracture externally.



Roof spars offer little real support to the gable and appear not to be strapped or tied to the gable in any way..



The brickwork to the side of the gable, which coincides with the south east pier and capping, is displaced and lifted. This may have been displaced by the movement in the external pier. This should be assessed during the future dismantling.

3.0 DISPLACED CORNER PIER AND DISPLACED STONEWORK

The entrance gable is flanked by two piers that extend beyond the height of the gable and are capped with raised stone pinnacles.

The south pinnacle has a very noticeable rotation to the south. The North pinnacle has a slight rotation to the south east and this is visible in the displaced mortar joint in the photograph below.

There appears to be little or no tying in of the gable panel with the piers and there is an open joint to both sides that is open to water ingress and may too have contributed to the failure of the gable panel.

Both open joints show a lateral displacement, suggesting that the piers have already rotated away from the gable panel.

The crack also extends below the level of the displaced gable panel and is very evident in the displaced stonework of the piers at the level below.



Open joint where the gable panel meets the corner finial. Water can freely run into the joint and into the core of the stone wall.



The south pier and finial has a distinct lean to the south which has further opened the joint to the gable panel



A crack has developed along the junction of the left hand pier and the wall and a significant open joint and displacement to the right hand side.



4.0. DISPLACED LEADED GLASS LIGHTS

Two central panels to WF3, the two panels of the central section of the Oriel window, are buckled within the surrounding leaded lights and are at risk of falling. The panels appear to be original art nouveau panels and require to be completely re-leaded, along with the whole light, to ensure their longevity and survival.

It is proposed that, while the scaffolding is in place, the opportunity is taken to secure these two lights to prevent them from failing and the glass being damaged. It is proposed that the glass is secured in its current location until a full scale of repair works can be submitted for Listed Building Approval. If, on closer inspection, it is found the at the lights cannot be satisfactorily be secured on site, it is proposed that they are removed by a conservation leaded glass specialist and are re-leaded in readiness for when the window and its adjacent stonework are repaired.



The central 2 panels of the original light have buckled outwards and are only supported by the lead comes. These are vulnerable to wind damage, to further distortion during hot weather or to any impact from the interior of the building.

5.0 SUMMARY OF PROPOSALS

In view of the issues raised above, the temporary scaffolding that was installed for the surveys, has been left in place to allow the urgent carrying out of temporary restraint works to the gable and piers and the potential securing or removal of the compromised leaded glass panels. Permission is requested to carry out the following works:

- The installation of temporary support works to the entrance gable and its side piers. These are detailed in the Care Structural Engineer's drawings included in appendix B to this report.
- The lifting and re-setting of the capping stone at the apex of the entrance gable cornice. (This is to be re-bedded into a lime mortar as a temporary measure with a proposal for it to be restrained with stainless steel dowels under a later Listed Building Application).
- The carrying out of pointing to the currently open joints between the copings of the gable and between the lower coping and the projecting finial of the side piers.
- The carrying out of pointing works to the fractured bedding joint at the base of the panel, that is currently loose, and of the open joints in the window head below (that have been allowing water to enter the fabric and compromise the internal plaster above the window)
- the carrying out of pointing to the vertical open joints between the central wall panel and the side piers.
- The fabrication and installation of a steel support framework, as detailed on the Structural Engineer's drawings, to provide lateral support to the compromised gable and to restrain and brace it back to the roof structure behind.

Note: An outline specification for the temporary pointing works is given on the attached drawing 2215.29.403, along with notes to identify the areas of proposed emergency works.

6.0 LEGISLATIVE POSITION

Permission is requested, under the provisions of Section 9.3 of the Planning (Listed Buildings and Conservation Areas) Act 1990 for the works outlined in this report to be carried out for the following reasons:

- The works are urgently necessary in the interests of Health and Safety and for the preservation of the building.
- The proposed works to the entrance gable high level masonry will be subject to a later Listed Building Application for their permanent repair and the current works are to afford temporary support to prevent the gable and pier stonework from collapsing.
- The proposed works are considered the minimum measures immediately necessary.

7.0 APPENDICES

Appendix A. DRAWING 2215.29.403- EMERGENCY WORKS ELEVATION AND SPECIFICATION NOTES

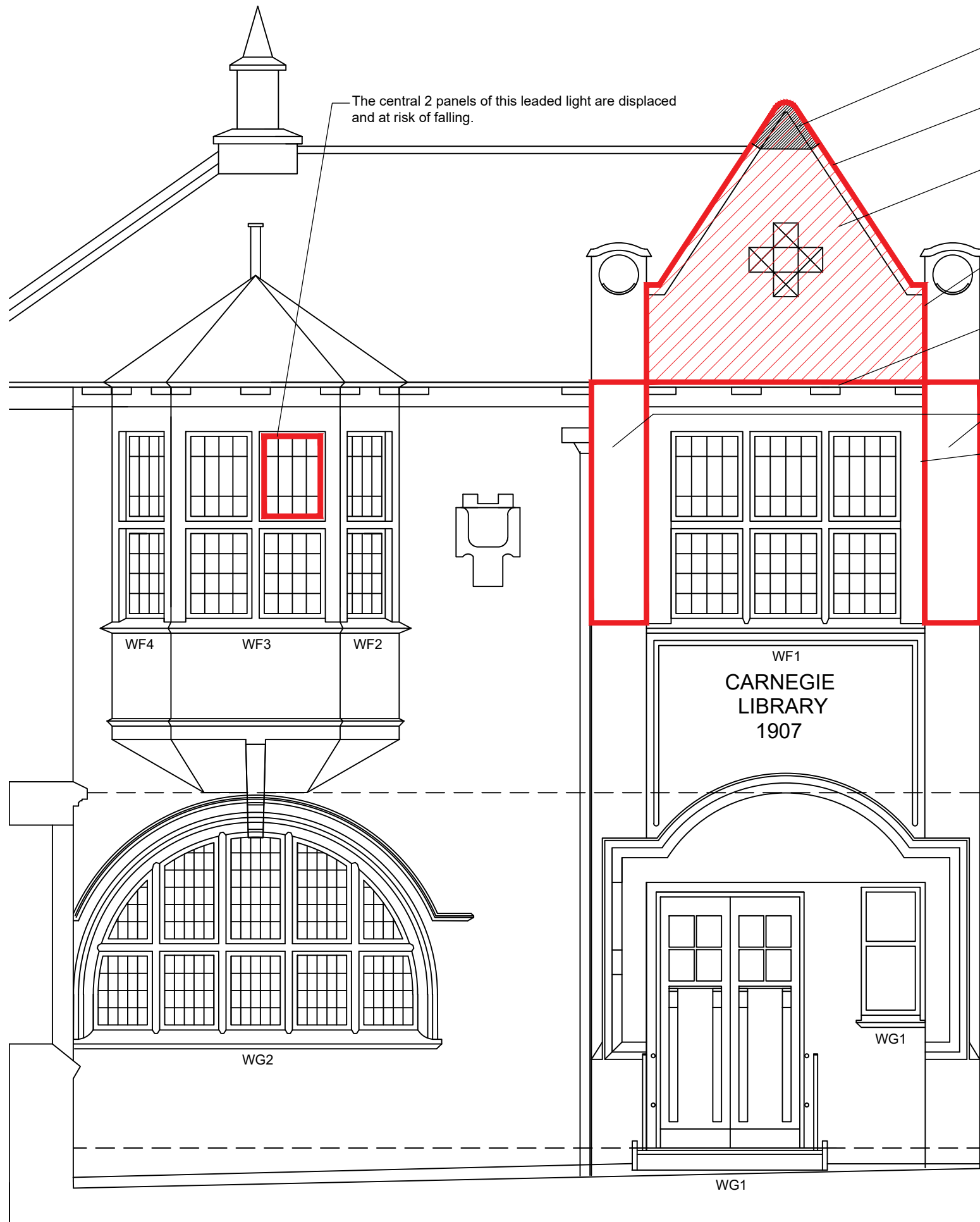
Appendix B. DRAWINGS X49 SK10 Rev A – STRUCTURAL PROPOSALS – RESTRAINT OF THE PILLARS

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Appendix D PENDLE GLASS – LEADED LIGHT REPORT

Appendix E STRUCTURAL REPORT

16 MAY 2022



ENTRANCE ELEVATION (TO NEWHEY ROAD)



Apex coping of entrance gable to be lifted and re-set in a new lime mortar bedding.

Open joints in the coping to be re-pointed in lime mortar to shed water.

Panel edged and hatched in red to be temporarily secured as this is no longer restrained by the adjoining masonry or roof and can be easily rocked.

Open joint between central panel and pier to be re-pointed in a lime mortar to control water ingress into the fabric and around any potential iron fixings securing the masonry of the pier..

Open Joint at the foot of the gable spandrel, where it meets the window head, to be carefully raked out and re-pointed to minimise water ingress..

Sections of the vertical pier that have become displaced and require temporary support are edged in red.

Open joint between the wall and piers to be re-pointed in a lime mortar to control water ingress into the fabric and around any suspected iron fixings securing the masonry of the pier.

GENERAL NOTES/SPECIFICATION.

Works only to be carried out following the preparation of an appropriate methodology and RAMS by the Contractor, to be submitted to the Principal Designer.

Works to be carried out by a Specialist Conservation Contractor with proven experience of lime pointing and working on the conservation and repair of Listed Buildings

Appropriate measures to be taken to protect adjacent parts of the fabric to prevent damage during the works.

Lime pointing works to be carried out by an experienced lime pointer and ensuring appropriate preparation, pointing and nurturing of the mortar to achieve a good fill, set, compaction, surface texture and integrity of finish. It is proposed that an NHL 2 hydraulic lime is used in conjunction with a Leighton Buzzard fine sand and a Nosterfield graded and washed river sand to provide a good sacrificial mix for these temporary repairs. Samples are to be prepared for approval by the Conservation Architect with an initial mix of one part lime to one part leightin Buzzard to two parts of Nosterfield washed river sand. The Nosterfield is to be graded as required to ensure that no aggregate exceeds on third of the joint width.

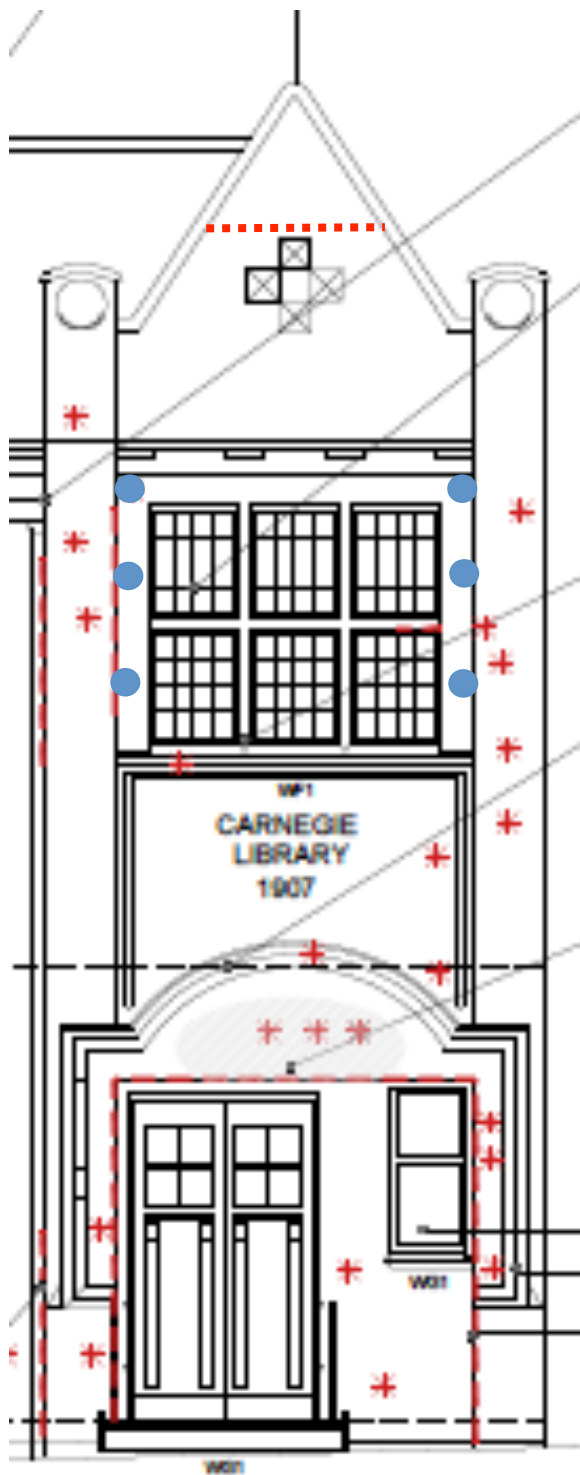
Joints that are to be pointed are to be carefully raked out with hand tools to a minimum depth of twice the joint width or 20mm, whichever is the greater. The joints are to be raked to a clean square profile and brushed to remove all loose material and debris.

Great care is to be taken to minimise any damage to the arrises of the ashlar facings. Joints are to be cut back with hand tools, working into the joint , away from the arris. The use of a feine cutter will be considered only with approval and following demonstration on site to ensure that the fragile face bedded facing stones are not damaged. Other mechanical hand tools are not permitted.

Joints are to be thoroughly wetted prior to re-pointing, to control shrinkage. Mortar is to be a dry mix, to just form a ball in the hand and is to be pressed into the joints to sit just proud of the arrises. Care is to be taken to avoid getting mortar on the stone facings. After the initial set this is to be compacted back into the joint with a churn brush to address any immediate shrinkage cracks. Once sufficiently set the joints are to be brushed with a churn brush to remove any laitance and expose the aggregate. Finished joints to sit very slightly back from the edges of the joint.

Pointing work is only to be carried out when temperatures are to remain above 5 degrees for a minimum of 72 hours and all pointing is to be nurtured by protecting it with Hessian, dampended repeatedly if required, to ensure that the mortar remains damp long enough to fully carbonate (A minimum of 72 hours) and to protect from excessive heat or wind exposure.

status			
This drawing is ©Bradshaw Gass & Hope LLP and is not to be copied, reproduced or re-distributed either in whole or in part without the prior written permission of the originator.			
The originator shall have no responsibility for any liability, loss, cost, damage or expense arising from or relating to any use of this document other than for its intended purpose on this project.			
This drawing shall be read in conjunction with all other relevant drawings, specifications and associated documentation. Any discrepancies, errors or omissions are to be reported to the originator before proceeding with work.			
All dimensions are to be checked on site by the contractor prior to proceeding with any work.			
Hazard Identification 			
ref	hazard	date	
This drawing is to be read in conjunction with the Sturctural Engineer's drawings reference X49:SK10A & SK11A			
ref	revision	by	date
B G & H Architects Consulting Engineers Quantity Surveyors			
21 Silverwell Street Bolton BL1 1PR t: 01204 525321 email@bghbolton.co.uk www.bghbolton.co.uk			
Bradshaw Gass & Hope LLP			
client ROCHDALE BOROUGH COUNCIL			
project MILNROW LIBRARY REPAIRS TO THE ROOF AND WINDOWS			
drawing FRONT ELEVATION EMERGENCY REPAIRS			
drawn by	AGR	date	MAY 2022
checked by		date	
scale	1:50 Approx		A3
dwg no	2215.29.403		rev



New restraint to pillars

The existing stone pillars are not bonded to the stone face. There is a vertical mortar joint that has broken down and is allowing water to enter.

Behind the stone face is brick.

New restraint anchors to be drilled into the stone bed joint horizontally, but at an angle of about 60 degrees and to penetrate the brick core behind.

Each pillar to have 3 No restraint anchors. Consisting of 6mm dia stainless steel threaded bars, in a 10mm dia hole, anchored full depth with a Hilti resin applied under hand pressure from an application gun.

Care to be taken to avoid resin overspill onto stone face.

Rev A 28.03.2022 – First Issue



**Blackett-Ord Conservation
Engineering**

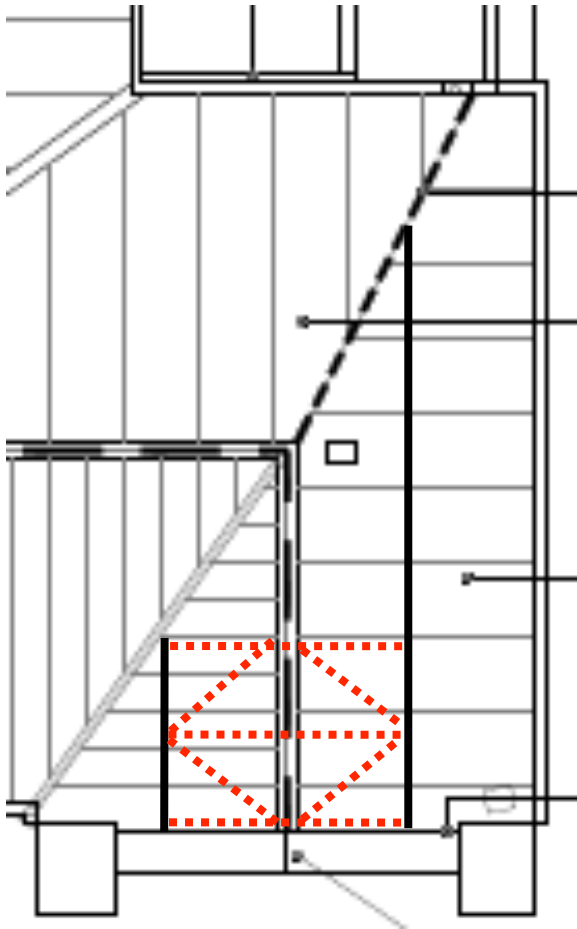
Studio 546, 5th Floor, Horton House, Exchange Flags, Liverpool, L2 3PF
Tel: 0151 353 7130 - email: ian@blackett-ordconservation.co.uk

Milnrow Library

Stone Gable - Elevation

Remedial Restraint Work

Job No: X49 Date: Mar 2022 Drg No SK10 Rev A



New restraint to gable

The stone face, brick backed existing gable can be rocked and is unstable. There is insufficient lateral restraint from the roof structure and this now needs to be enhanced.

Either on top, or below the existing timber purlins, insert a steel angle frame, coach screwed to the timber and resin anchored to the brickwork of the gable.

Consisting of 70x70x6 RSA, primed with a zinc rich primer. Each end fixed to timber with 1No 10mm dia x 50mm long hexagon DIN571 BZP coach screw.

Angle at the face of the brick to be fixed with 6No M10 x 150mm long Hilti HAS-U A4 stainless steel anchor rods, each with a Hilti HVU-TZ capsule resin.

Angle to angle connections to be achieved using M10 grade 4.6 black bolts, 1No per member end.



Rev A 28.03.2022 – First Issue



**Blackett-Ord Conservation
Engineering**

Studio 546, 5th Floor, Horton House, Exchange Flags, Liverpool, L2 3PF
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Milnrow Library

Stone Gable – Roof Plan

Remedial Restraint Work

Job No: X49 Date: Mar 2022 Drg No SK11 Rev A

MILNROW LIBRARY

SURVEY OF LEADED LIGHTS



PENDLE STAINED GLASS LTD.
JANUARY 2022

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1. INTRODUCTION
2. PLANS OF BUILDING
3. ENTRANCE
4. COMPUTER ROOM
5. FIRST FLOOR
6. INTERNAL WINDOWS
7. CONCLUSION

1. INTRODUCTION

SCOPE OF REPORT

To assess the condition of all the leaded light windows in the library

ADDRESS

57 Newhey Road, Milnrow, Rochdale, OL16 3PS

The library is a Grade II listed building. It was built in 1907 with a donation from the Scottish-American steel magnate and philanthropist Andrew Carnegie. The architects were Butterworth and Duncan

INVESTIGATION

Site visited by Leon Conway and Danny Morton of Pendle Stained Glass Ltd. on 14th January 2022 on a cold sunny day. Access to the windows was mainly internal and external for the ground level windows. All windows were assessed individually and each window was touch surveyed from at least one side

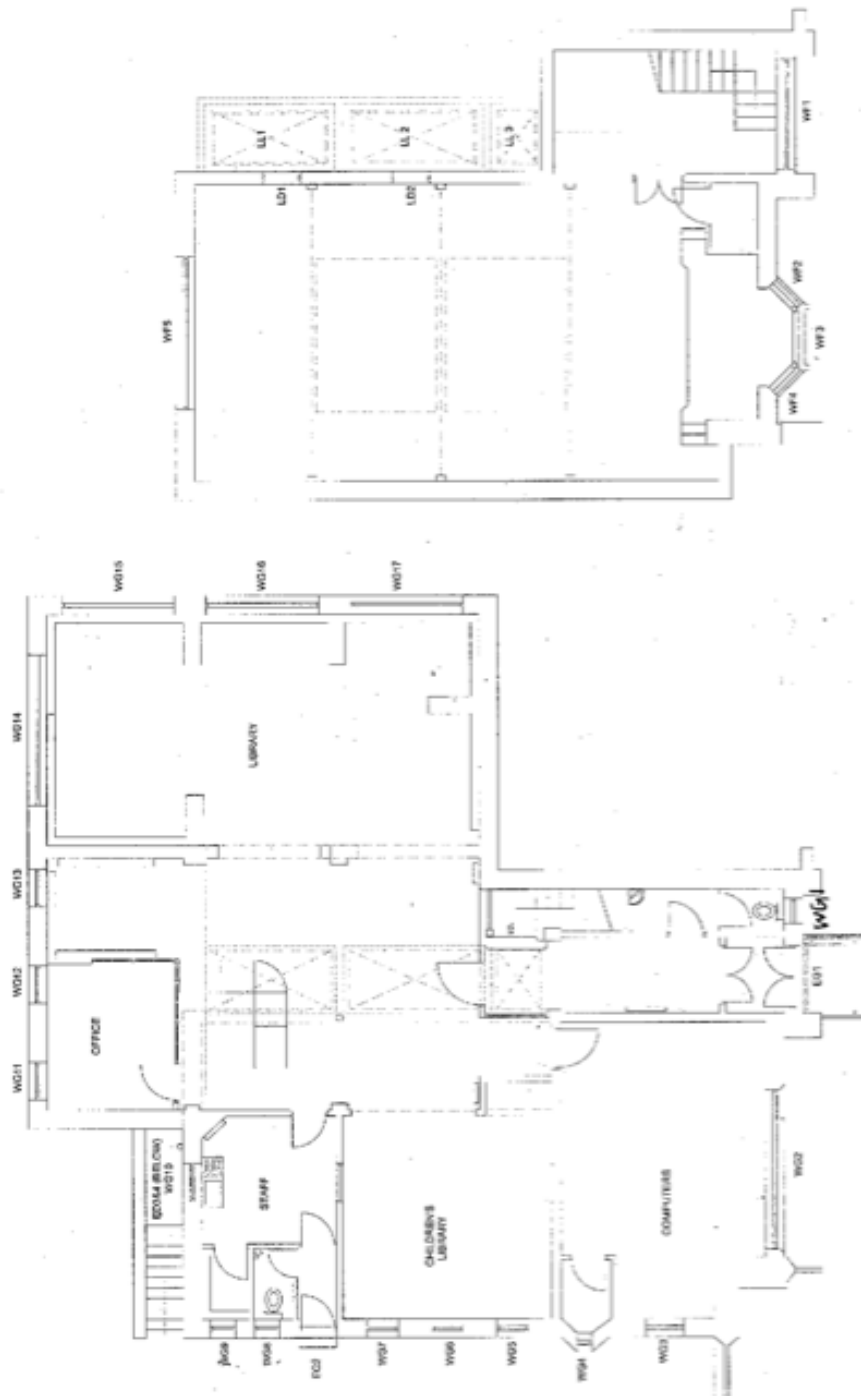
STYLE OF WINDOWS

There is a mixture of leaded lights, clear glass with stick on lead and clear glass. This report does not include any information on the clear glass windows

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GROUND FLOOR PLAN



3. ENTRANCE

ED1

Window configuration – 4-lights in each left and right door

Sizes – 8@ 9" x 11"

Saddle bars – None

Lead sizes – 3/8" flat

Glass – Clear horticultural / clear cathedral

Technique – leaded lights

Opening frames – None

Pointing / Sealant - Beading

Protection – None

Condition – Glass / lead is quite poor

All panels have broken solders

2 panels are weak and move when touched

1 cracked pane to inside right door

Recommendation – Remove all panels, re-lead and re-fit



Right door



Example of broken solder

Internal porch door (just inside from main door)

Window configuration – 6-lights in left and right door

Sizes – 2@ 20" x 40" (size of full window split into 6)

Saddle bars –None

Lead sizes – ¼", 3/8", ¾" flat

Glass – Clear horticultural / clear cathedral

Technique – leaded lights

Opening frames – None

Pointing / Sealant - Beading

Protection – None

Condition – Glass / lead is in satisfactory condition

Some panels are slightly bowing

Recommendation – No work required



Left internal porch door

WG01 (toilet window)

Window configuration – Single light

Sizes – Top 21" x 16", Bottom 21" x 28"

Saddle bars – 1 on bottom panel 3/8" round ferrous

Lead sizes – 1/2" flat, 3/8" round

Glass – Top, clear textured / bottom, clear cathedral & green amber streaky cathedral

Technique – Top, clear textured glass / bottom leaded light

Opening frames – Hopper to top panel

Pointing / Sealant – Top, putty pointing into frame / bottom, sand/cement mortar

Protection – None

Condition – Glass / lead is in satisfactory condition

Lead is oxidising

Saddle bar is rusting slightly

Glass is dirty

Hopper is rusting and not working

Recommendation – Remove leaded panel, re-lead and re-fit

Refurbish hopper or manufacture new stainless steel

Make new top leaded light in keeping with bottom (as would have been originally)



Toilet window internal



Toilet window external

4. COMPUTER ROOM

WG2

Window configuration – 10-lights

Sizes – 5@ 24" x 38", 3@ 24" x 44", 2@ 19" x 27"

Saddle bars – Lights 1,2,4,5,8,10 none, lights 7,9 2@3/8" round ferrous, light 6 1@3/8" round ferrous, light 6 3@3/8" round ferrous

Lead sizes – 3/8" & 1/2" flat

Glass – Clear horticultural / coloured cathedral / coloured muffle

Technique – 5 leaded lights / 5 stick-on lead

Opening frames – Hopper light 3, side hung lights 7&9

Pointing / Sealant – Cement mortar into stone, putty into frames

Protection – Polycarbonate on brackets

Condition – Leaded panels have been recently re-leaded and are in good condition

Fitting of windows is poor with bars missing, meaning leaded windows don't have support required

Openers don't work but they are closed and with external protection they are not required to open

Panel 5 has 2 broken panes

Recommendation – Monitor leaded lights for bowing

Repair damaged panes in-situ

Long term, replace stick-on lead panels with leaded lights (as they would have been originally), re-fit leaded lights with new saddle bars



WG2 external



WG2 internal

WG3

Window configuration – 4-lights

Sizes – 2@ 24" x 36", 3@ 24" x 38"

Saddle bars – None

Lead sizes – 3/8" flat

Glass – Clear horticultural

Technique – 2 leaded lights & 2 stick-on lead

Opening frames – None

Pointing / Sealant – Cement mortar into stone

Protection – Polycarbonate on brackets

Condition – Panel 1 has 1 broken pane, panel 2 has 3 broken panes

Recommendation – Repair damaged panes in-situ

Long term, replace stick-on lead panels with leaded lights (as they would have been originally)



WG3 in-situ

Internal door to computer room

Window configuration – Single light

Sizes – 26" x 38"

Saddle bars – 2@ 3/8" round ferrous (not tied to window)

Lead sizes – 1/2" flat

Glass – Clear horticultural

Technique – Leaded light

Opening frames – None

Pointing / Sealant – Beading

Protection – None

Condition – 1 piece of lead is loose

Panel has had a lot of previous in-situ repairs

Panel moves / rattles when touched

Recommendation – Remove, re-lead and re-fit



Computer room door



Loose lead in door panel

5. FIRST FLOOR

WF1

Window configuration – 6-lights

Sizes – 3@ 24" x 32", 3@ 24" x 36"

Saddle bars – Top lights 2@3/8" round ferrous, bottom lights 1@3/8" round ferrous

Lead sizes – 3/8" & 1/2" flat

Glass – Clear horticultural / coloured machine made

Technique – leaded lights

Opening frames – Light 2 centre pivoted

Pointing / Sealant - Cement mortar into stone, putty into frame

Protection – None

Condition – Glass / lead is very poor

All panels have broken solders

Panel 3 is badly damaged and covered externally with perspex

Lead is oxidising externally

Recommendation – Remove all panels, re-lead and re-fit

Refurbish hopper or manufacture new stainless steel



WF2 internal



WF2 external

WF2 & WF4

Window configuration – 2-lights per window

Sizes – 1@ 24" x 36", 1@ 24" x 33"

Saddle bars – None

Lead sizes – 3/8" stick-on

Glass – Clear float

Technique – Stick-on lead

Opening frames – None

Pointing / Sealant – Cement mortar into stone

Protection – None

Condition – Bottom panel to WF2 has a small crack

Recommendation – Remove and replace with leaded lights (as they would have been originally)



WF2



WF4

WF3

Window configuration – 4-lights

Sizes – 2@ 24" x 36", 2@ 24" x 33"

Saddle bars – 2@3/8" round ferrous per light

Lead sizes – ¼", 3/8" & ½" flat

Glass – Clear horticultural / coloured machine made

Technique – Top leaded lights / bottom stick-on lead

Opening frames – All lights are openers, top lights centre pivoted / bottom lights side hung

Pointing / Sealant – Cement mortar into stone, putty into frames

Protection – None

Condition – Leaded lights are in very poor condition

Top openers don't work

Bottom openers working, light 4 is missing stay

Recommendation - Replace stick-on lead panels with leaded lights (as they would have been originally)

Remove leaded panels, re-lead and re-fit

Refurbish openers or manufacture new stainless steel



WF2, WF3, WF4



WF3 top lights

6. INTERNAL WINDOWS

There are quite a few square-leaded internal windows in the main library rooms these are all in satisfactory condition. There is one damaged pane to one of the windows between the two rooms (this could be repaired in-situ although it is not in danger of falling out). The door to the staff room has had some previous in-situ repairs and the panel is slightly loose, this needs monitoring. The only panel that needs work is the door to the computer room mentioned earlier in this report



Internal windows



Damaged pane to internal window



Door to staff room

7. CONCLUSION

Some of the windows on the Library need immediate attention before they get any worse and become a danger, these are:

WF1 – This window needs re-leading but as it is high and requires a fixed scaffold externally the work could be carried out with other work (ie. stone repairs)

WF3 – The leaded lights to this window need re-leading but as it is high and requires a fixed scaffold externally the work could be carried out with other work (ie. stone repairs)

ED1 – The windows to front doors need re-leading

Door to computer room – This window needs re-leading as it is loose and as it is in a door being opened, closed and push it will deteriorate quickly

Other windows need work that is less urgent or only require work for aesthetic reasons, these are:

WF2, WF3 (bottom panels) & WF4 – All these windows are stick-on lead and would be better if they were put back to the original leaded lights especially if there is scaffold going up externally

WG1 – The glass to this window would benefit from the work recommended in the report but it would be for aesthetic purposes only

WG02 & WG3 – Work to these windows is not essential especially as they are mostly covered internally with blinds

January 2022

**Carnegie Library
Newhey Road
Milnrow
Rochdale
OL16 3PS**

**Structural Inspection
of
Front Elevation**

**April 2022
X49**



**Blackett-Ord Conservation Engineering
Studio 546, 5th Floor
Horton House, Exchange Flags
Liverpool
L2 3PF**

**Tel: 0151 353 7130
Email: ian@blackett-ordconservation.co.uk**

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Introduction

This report has been prepared in response to instructions received from Bradshaw Gass and Hope on behalf of Rochdale Borough Council. Mr P. The brief was to undertake a visual non-intrusive structural inspection and report upon the concerns raised by the Council about the structural condition, stability and integrity of some areas of the external stonework, including:

- a. Visit the library with you and utilize the benefit of an hydraulic platform to inspect areas of concern to the elevations of stonework.
- b. Inspect visually corresponding internal areas to determine if there is any difference to the degree of deformation inside to outside.
- c. As deemed appropriate check verticality of parts of the wall using a spirit level and measure.
- d. Record locations and types of defect in the wall that are of structural significance.
- e. Take a photographic record of each part of the wall elevation and use available elevation drawings to record the position of the defects.
- f. Prepare a structural condition report with recommendations for repair and their priority. Include an indication of broad order of repair costs. Include atypical photographs for reference purposes.

Access to undertake our visual inspection was provided to us on 21st January 2022. Our inspection was visual, non-intrusive and undertaken on foot.

This report has been prepared for the sole use of the Council, their agents, appointed professionals and statutory authorities. It is not to be relied upon by any third party and shall not be distributed to other parties, other than statutory authorities, funders or insurers, without the consent of Blackett-Ord Conservation Ltd.

Historical Background

The Library building is Listed Grade II.

The Library was first entered on the List on 21st November 2012. Entry No 141073.

The listing description is quite comprehensive and abstracted as follows:

"Public library and forecourt wall. 1907 by architects' practice S Butterworth and WH Duncan of Rochdale. Sandstone ashlar, red brick to secondary elevations, slate roofs.

Reasons for Designation

The Milnrow Carnegie Library and forecourt wall are listed at Grade II for the following principal reasons:

** Architectural Interest: local architects' practice of Butterworth and Duncan successfully combined an eclectic mix of Arts and Crafts and Art Nouveau with a touch of Mannerism in the attenuated entrance gable to produce a wellbalanced and pleasing composition, enhanced by the use of high-quality materials and craftsmanship in the relief lettering and intricate ornamentation, and the leaded and stained Art Nouveau glass.*

** Layout: the library retains its original distinctive plan form with a central, top-lit borrowers' hall and lending library from where the librarian could supervise the large interconnecting reading room and the open-fronted boys' room, as well as the more enclosed ladies' room, with a lecture hall on the first floor, originally shared with the adjacent town hall offices.*

** Interior: the entrance hall and library rooms retain their highly-glazed, coloured dado tiles, with the staircase balustrade and the majority of original library and lecture hall fixtures and fittings remaining, including doors, framing with leaded glazed overlights to wider openings, and fixed oak bookcases in*

Figure 1 - Abstract from Historic England listing entry.



the parquet-floored, barrel-vaulted reading room, all of which combine to give a period character to the building."

Structural Observations

General Structural Form

The building consists of load bearing masonry constructed from brick with an ashlar stone external face. In some locations the outer skin of stone is coursed with a rusticated / rock face. The roof is timber, with trusses, purlins and jack rafters. The roof is finished in slate.

Windows, single glazed metal frame, have stone carved mullions, transoms and cills.

In overall structural terms we would consider the building to be in a fair condition with evidence of periodic maintenance and historic interventions.

Structural Defects Observed

The following structural issues were observed from the access scaffolding to the front elevation:

- The roof stone gable above the main entrance doors could be rocked back and forth, suggesting that very little restraint was being provided by the pitched roof structure behind. Coping joints were also noted as being open and the apex coping loose. (**Note:** subsequently a structural restraint detail was prepared as urgent works to make the gable more secure.).
- The two vertical ashlar stone pillars to the sides of the entrance appear almost stack bonded, with evidence of movement in their joint with the main wall. This joint also exhibited signs of historic repointing. (**Note:** subsequently a structural urgent works detail was prepared to pin the upper levels of the pillars back to the main wall.).
- To the right hand side of the stair landing window, individual pillar stones have displaced laterally. We consider this to be of longstanding.
- The majority of the elevation exhibited signs of open mortar joints, historic repointing and areas of established vegetation.
- The sandstone we would consider to be relatively soft, with evidence of weathering and surface delamination. In places the surface lamination was loose and needed to be stabilised with a stiff brush whilst the scaffold was in place.
- The main oriel window projecting from first floor is clad in stone, with the window mullions and transoms of carved stone. Externally the entire window has deformed and is out of level and out of vertical, leaning generally towards the left hand corner of the building façade.
- The carved stone forming the window return reveals with the main wall have large vertical joints, suggesting that movement has been present for a long time. This is further evidenced by the presence of an internal structural steel frame, that has bolt fixings / anchors into the back of the stone mullions and head.
- In addition to the oriel window movement and displacement of the stone at joints, there is stress cracking evident in the right hand cill stone, cracked glass and vertical cracks in the mullions. Some of the crack patterns in the

mullions is indicative of embedded metal shim corrosion and expansion, but local investigations at the joint revealed no shims at all. There is however still a possibility of the presence of metal dowels across the joints. Even if these were non-ferrous, the distortion forces against and around the dowels could be sufficient to display the stress cracks visible in the stone. Also a remote possibility is that the fixings from the internal frame may be causing the crack patterns visible externally.

- The left hand corner returns and forms the side wall in red smooth faced brickwork. We understand this area has had a link corridor between the Library and the adjacent building removed in the past. There is visual evidence externally of an intervention and alteration to the brickwork in this area, including the insertion of a material similar to a cavity tray. This work appears incomplete with displaced bricks and open mortar joints.

Recommendations

We would propose the following structural remedial work interventions:

- Introduce restraint to the roof gable within the roof void.
- Pin back the upper courses of the two stone pillars.
- Dismantle and replace defective stone to the window onto the internal staircase.
- Remove loose stone surface laminations.
- Remove and replace inappropriate or missing mortar from the stone joints across the entire elevation.
- Dismantle and replace the defective stones forming the oriel window. Including at the time of the works further physical investigations to determine the construction and condition of the soffit of the oriel bay. The aim being to remove the internal metal frame.
- Point and complete works to the side wall return brickwork.

Next Steps

We would suggest the following:

- Consult with the Local Planning Authority to determine the scope of a Listed Building Consent Application.
- Prepare a budget estimate of the cost of remedial works to discuss with the Local Authority a suitable programme of works and budget.



Blackett-Ord Conservation Engineering

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Appendix 1

Atypical photographs taken during our inspection of 21st January 2022.











