INSPECTION REPORT
ON THE CONDITION OF
ST LUKE'S CHURCH SPIRE, HEYWOOD
2019

Presented to:	**Presented by:**
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Contents

1. Introduction

In November 2019, a close visual and tactile inspection of the Spire, external and internal was completed by Skyline technicians.

Objectives of the inspection were:

i) Closely examine the fabric of the structure for visible defects.
ii) Examine internal structural steelwork for signs of corrosion and measure any lost material.
iii) Check embedded ends of all ferrous members.
iv) Check supporting structure of the different floor levels within the spire.
v) Check the condition of the internal roof frame.
vi) Record type, size and location of all the defects identified.
vii) Photograph defects.
viii) Provide a detailed illustrated report of the findings of the inspection.

2. Access Methods

All works were carried out by trained operatives using the Skyline Industrial Rope Access System in accordance with current Health and Safety recommendations. All our Personal equipment for protection against falls and Codes of practice are based on and comply with BS ISO 22846 2012.

3. Inspection Techniques

All significant defects were noted and a representative number of defects were photographed. Each defect recorded was assigned a reference number and described by means of a standard defect description and relevant dimensions.
The location of each defect was recorded on the drawings of each face.

4. Presentation of Inspection Results

4.1. Summary of Findings

Contains a summary of the results, describing the most significant findings and the overall condition of the areas inspected.

4.2. Defect Codes of Findings

Photographs and drawings are cross-referenced to the defect schedules by means of the defect code.

4.3. Defect Schedules

Contains all the results of the close visual inspection in the form of a schedule of specific defects.

4.4. Drawings of structure by elevation.

Marked up drawings of all aspects of the spire. The position of all defects are marked on these photographs with the defect reference number.

4.5. Defect Photographs

Photographs of a representative sample of the defects recorded during the close visual inspection.

5. Summary Internal Spire

5.1. Old Bell Frame

The embedded ends of the frame have been re-pointed, no cracking was seen in the new mortar.

5.2. 3rd Floor

The angle iron which supports the third floor is well rusted but currently intact. The angle iron is in places embedded but often supported by embedded heavy steel folded plates, these appear to be in good condition and no bed lift or cracks were visible around this ironwork.

5.3. 4th Floor

This floor is supported by timber beams, the beams are embedded and we found no signs of rot at the point of entry. The framework which supports the internal roof is simple but still intact. The internal roof has failed. There are pigeons inside the spire and this top 4th floor is covered in pigeon detritus and excrement.

5.4. Timber louvres

The timber louvres are generally in good condition. Each louvre is mounted on a pivoting shaft, all the louvres within each belfry opening are linked by timber straps so they open and close in unison. It is a very nice system which is well designed and well made. A few of the linkages have failed but could be repaired. The anti-pigeon netting is fitted badly and impinges on the movement of the louvres.

5.5. Holding down mechanism

The soffit is formed by two large stone slabs, the holding down rod enters the soffit into a loose fitting hole. The holding down rod is approximately 30mm dia. and well rusted. The HD rod runs to the holding down beam approximately 7.5m below, there are 2no. couplings within its length. At the mid-point two heavy timber boards are clamped around the rod and embedded into the walls of the spire, they are approximately 300 x 100 x 2300. (We think these boards are to prevent the holding down rod from oscillating) The top faces of the boards have some wet rot, a sharp probe penetrated 25mm. The main holding down beam is a ferrous RS Channel, this is in good condition. No cracks or bed lift was visible at the point of entry to the embedded ends of the beam, approximate size 90 x 230 x 3200. The holding down rod is in tension.

5.6. Stonework

The stonework to this upper internal section of the spire has degraded / missing mortar and is sometimes open jointed, particularly around the quoins. The condition of the mortar improves at about 2m below the upper lucarne vents.

6. Summary External Spire

6.1. Weather vane and capstone

The weather is rotating freely and the capstone is intact. The top of the spire feels stable.
The beds below the capstone and the top 3m of the spire are in reasonable condition. Below this level the joints are more open on the windward sides.

6.2. Stonework to main spire and tower

A few of the stone mouldings are failing, with degraded / cracked stone or shaling surface.
More serious cracking due to corroding ferrous scaffolding inserts, was found on all faces and at many levels.
The anti-pigeon netting has failed on several of the windows and opening on the spire and tower. The netting has been fixed to the face of the windows, with many screws drilled directly into the dressed stonework. The netting to the bell louvre windows prevents the louvres from opening fully.

6.3. Pointing

Pointing to the spire is badly degraded on the South, SW and West faces. The SE and NW in slightly better condition and the East NE and North are generally in much better condition.
The broaches on the West corners of the tower are in poor condition.

There are many old ferrous scaffolding fixing which have corroded and cracked the surrounding stone.

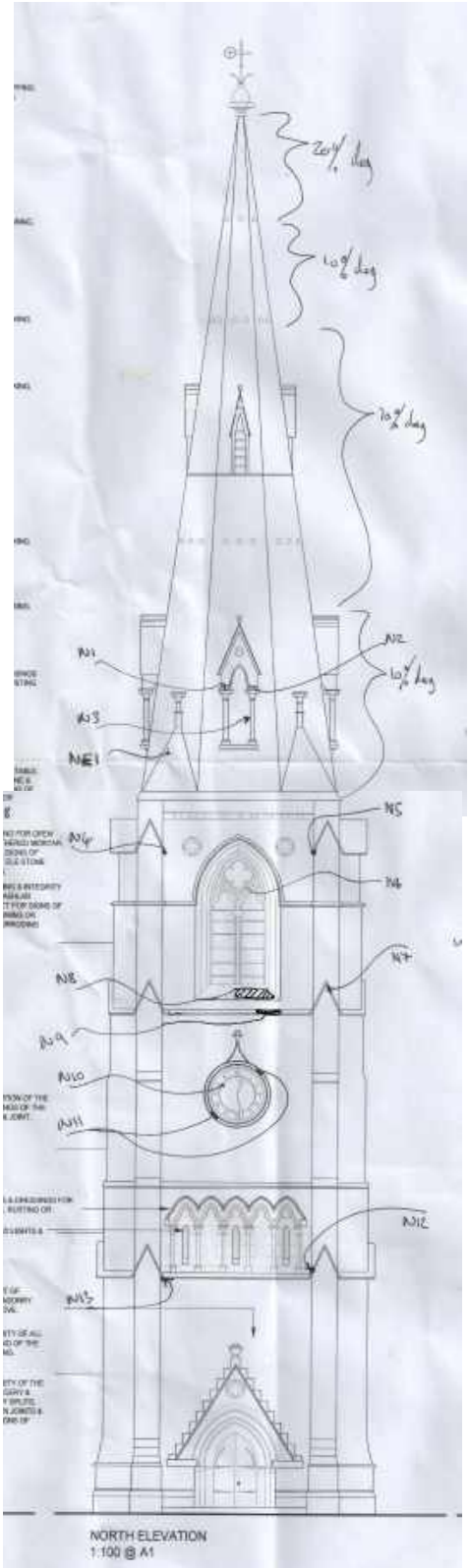
7. Defect Schedules

Head					
Code	**Description of defect**	**Height**	**Width**	**Depth**	**Photo ?**
	North Face				
N1	Stone cracked, multi directional. Ferrous scaffolding fixing	550	<5		P
N2	Stone cracked, horizontal. Ferrous scaffolding fixing	,2	400		P
N3	Stone cracked, removed. Ferrous scaffolding fixings	220	150		P
N4	Stone missing, degraded	60	600	50	P
N5	Stone missing, degraded	60	600	50	P
N6	Stone tracery, diagonal crack	130	HL		
N7	Stone eroded / missing	150	60	<60	P
N8	Stone sill surface shaling	250	900	<10	
N9	Stone string course cracked / degraded	200	500		P
N10	Clock light rust				P
N11	Stone surround to clock-face degraded	50	150	<10	
N12	Stone gablet to buttress cracked	450	<2		P
N13	Stone gablet to buttress cracked	400	<1		
	North West face				
NW1	Stone quoin cracked, ferrous scaffolding fixing				
	East Face				
E1	Stone diagonal crack lucarne gable	70	1		
E2	Stone quoin cracked, lucarne gable	<10	500		P
E3	Lucarne jamb spalled, ferrous scaffolding fixing	200	150	<50	
E4	Lucarne jamb spalled, ferrous scaffolding fixing	150	150	<40	
E5	Netting failed				
E6	Vertical crack in stone	120	HL		
E7	Stone moulding surface degraded	200	400	<5	
E8	Stone Quatrefoil cracked, ferrous scaffolding fixings	200	1		P
E9	Stone Quatrefoil cracked, ferrous scaffolding fixings	200	1		
E10	Stone tracery cracked	450	<1		P
E11	Timber louvre missing				
E12	Stone jamb degraded	40	350		
E13	Netting failed				
E14	Timber strap loose	600	50		
E15	Stone sills cracked	950	<2		
E16	Stone gablet eroded				
E17	Stone Clock surround surface shaling	250	50	<5	
E18	Stone Clock surround degraded	400	70	<30	
E19	Stone string moulding degraded	75	700	<60	P
E20	Stone string moulding surface degraded	75	600	<12	
E21	Stone string moulding surface degraded	75	500	<10	
E22	Stone string moulding surface degraded				
E23	Stone string moulding surface degraded	75	350	<12	
E24	Stone hood moulding degraded	75	450	<10	

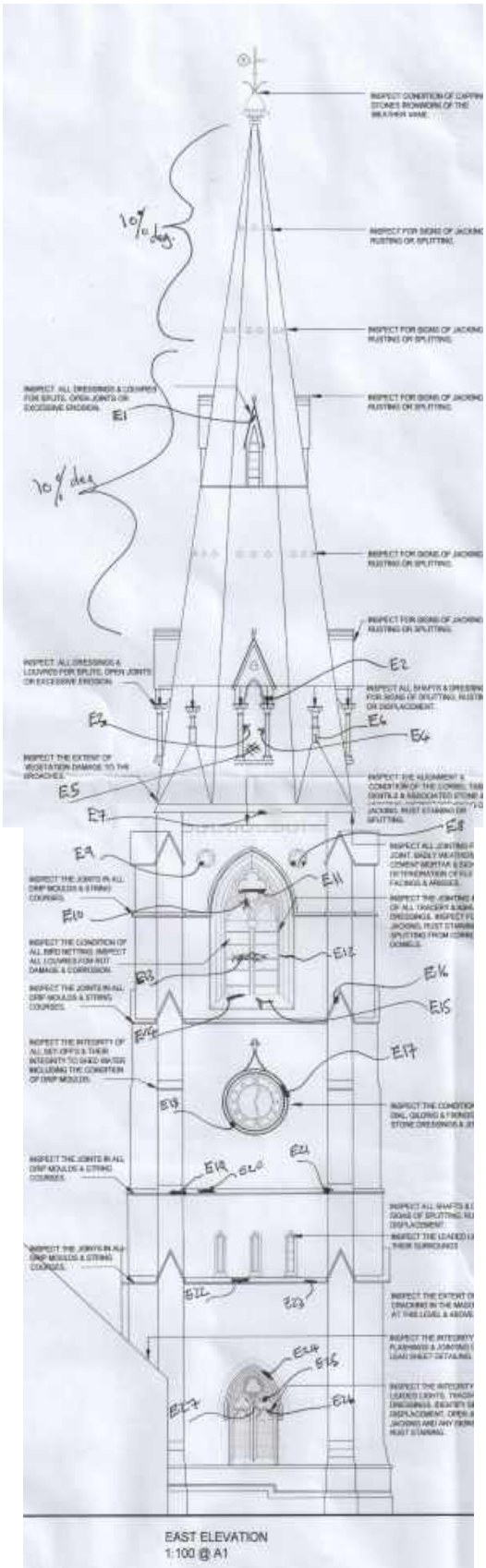
E25	Glass cracked	60			
E26	Stone tracery cracked	130	HL		
E27	Stone mullion cracked	120	<1		
	South Face				
S1	Small tree, removed				
S2	Stone coping to lucarne gable missing	150	70	70	
S3	Buttress capstone displaced by tree	30			
S4	Dentil corbels surface shaling	6			
S5	Stone mullion and capital degraded	<40			
S6	Stone cracked, rusting glazing bars				
S7	Stone moulding degraded	75	650	<20	
S8	Stone moulding degraded	75	500	<20	
S9	RWP fixing loose / failed				
	South West				
Sw1	Stone quoins cracked ferrous scaffolding fixings				
Sw2	Stone quoins cracked, ferrous scaffolding fixings				
	West				
W1	Ferrous fixings in Lucarne face, diagonal crack	<1	550		P
W1	Ferrous fixing in lucarne face, cracks	0.5	400		P
W2	Jackdaw debris behind lucarne netting				
W3	Ferrous scaffolding fixing. Stone cracked	2	300		
W4	Tracery cracked	150	<5		P
W5	Stone string moulding cracked / degraded	100	250		
W6	Stone quoin cracked	250	<20		P
W7	Clock face glass broken				P

8. Marked up drawings

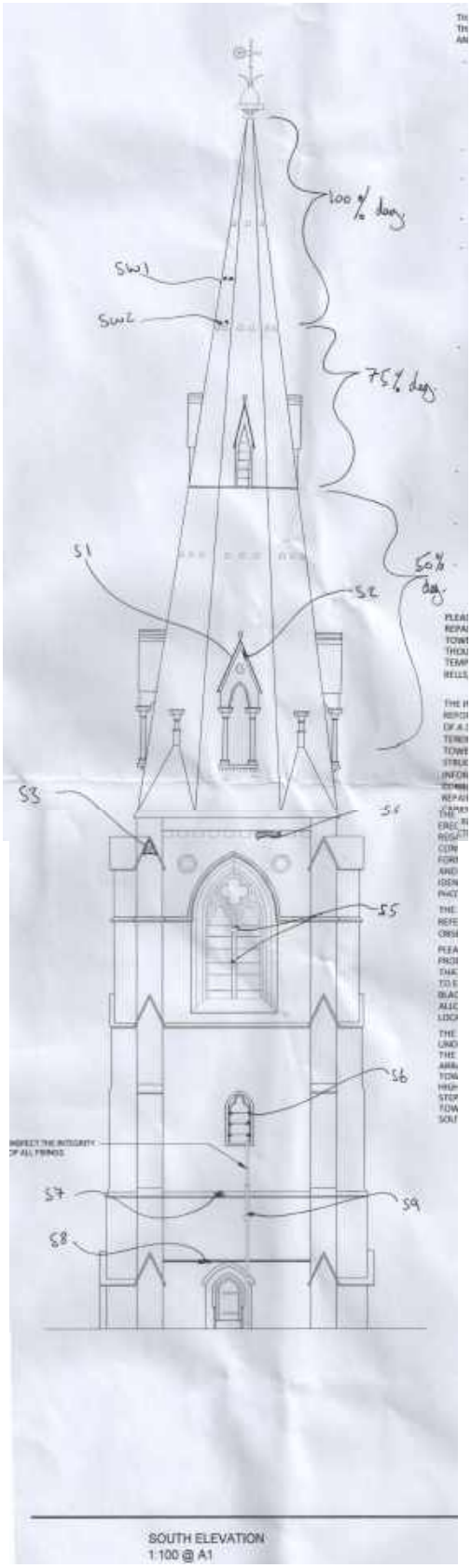
8.1. North



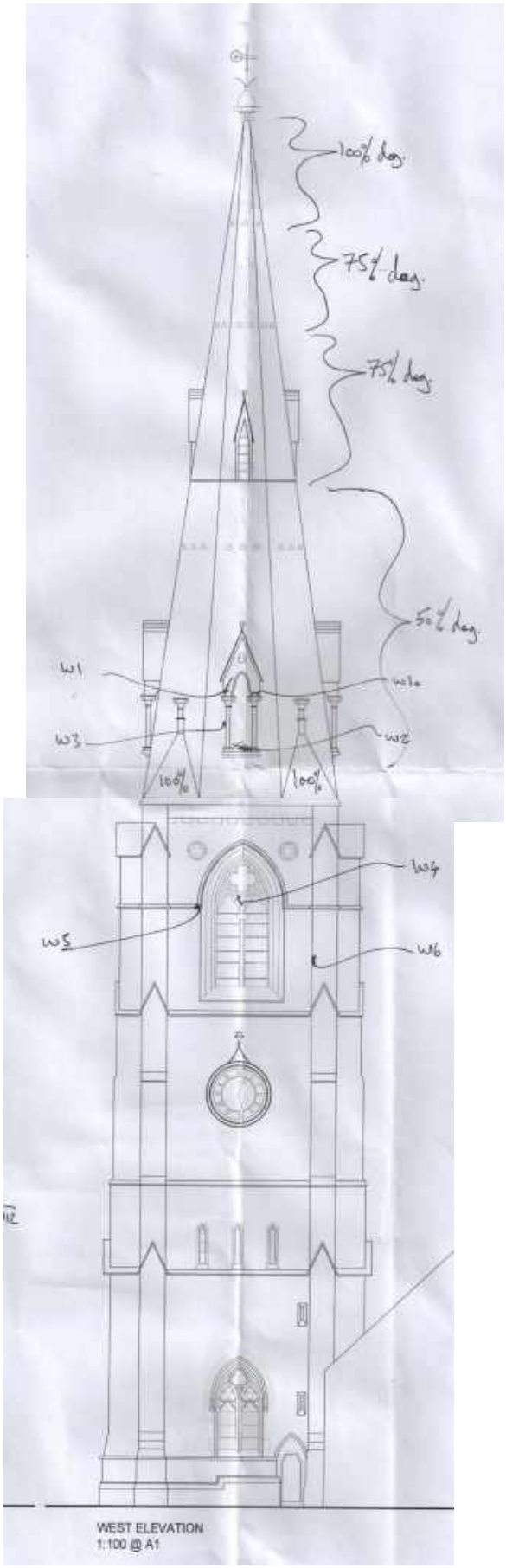
8.2. East


E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E13
E14
E15
E16
E17
E18
E19
E20
E21
E22
E23
EAST ELEVATION
1:100 @ A1

8.3. South


100% dam
SW1
SW2
75% dam
S1
S2
50% dam
S3
S4
S5
S6
S7
S8
S9
SOUTH ELEVATION
1:100 @ A1

8.4. West


100% deg.
75% deg.
75% deg.
50% deg.
W1
W1a
W3
W2
100%
100%
W4
W5
W6
WEST ELEVATION
1:100 @ A1

9. Photographs

9.1. Weather vane and capstone

Weathervane

Capstone

Spire top course

9.2. Pointing

Pointing West face

Pointing West face

Pointing South West face

Pointing South face

Pointing North face tower

9.3. Defects: North face

N1

N2

N3

N9

9.4. East face

E2

E3

E4

E9

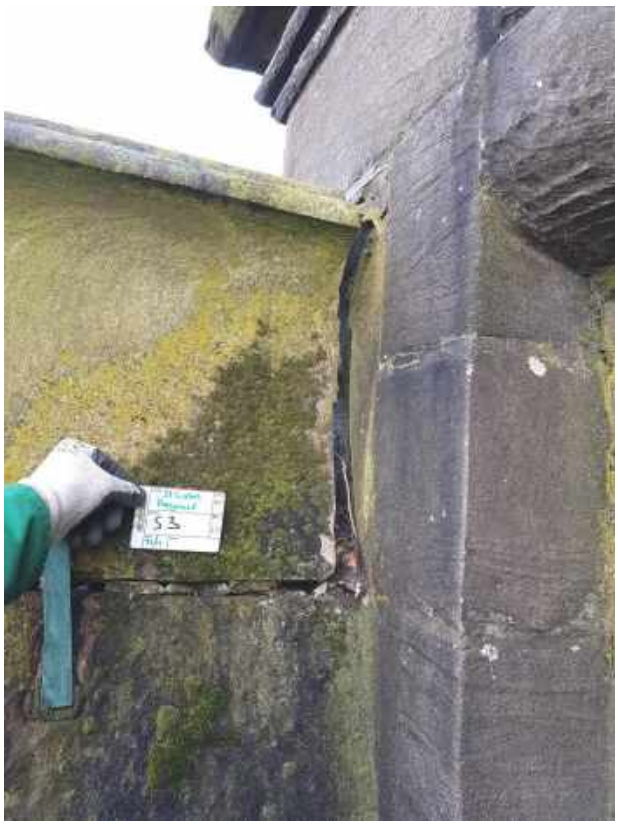
.

E10

E19

9.5. South face

S2



S3

S5 S9

SW broach

9.6. West face

W1

W1a


skyline
Location: St Lukes Haywood
Severity:
H
M
L
Remarks: W 3
Date: 21/11
Project:

W3


skyline
Location: St Lukes Haywood
Remarks: W 4
Date: 21/11
Project:

W4

W6 **West Vegetation**

W7

9.7. Internal

Soffit

Holding down rod forged lap joint

Holding down rod coupling

Boards clamped around HD rod

Wet rot to top of boards

Holding down beam

Open joints

Pointing

Pointing

4th floor pigeon detritus

Internal roof and frame

3rd floor supports

3rd floor supports

Old bell frame RSJ

West louvres

East louvres

Louvres operating but impeded by netting