

Tactile safety inspection of high-level fabric

REPORT St Andrews Cathedral PIC035



June 2022



HISTORIC
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CONTROL SHEET

Document Control

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Authors:	[REDACTED]
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Version Control

Version	Date	Status	Prepared by	Amendments
V0001	01/02/2022	Draft	██████████	First draft
V0002	09/03/2022	Draft	██████████	Updated version of Report template
V0003	24/05/2022	Draft	██████████	Cover updated & draft issue
V0004	09/06/2022	Draft	██████████	Identified Risk drawings added
V0100	21/06/2022	Approved	██████████	Approved

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High-Level Tactile Inspection: Report - Introduction



PIC ID # ↓	PIC035	Site name	St Andrews Cathedral		
Inspection start	01/11/2021	Inspection end	17/11/2021	Submission	21/06/2022
Lead assessor	[REDACTED]				
Other assessors	[REDACTED]				

Introduction:

The High-Level Fabric Inspection of St Andrew's Cathedral was lead by [REDACTED], Historic Building Fabric Assessor (HBFA) and carried out with [REDACTED] (HBFA) from 1st - 17th of November 2021.

The site is split into 32 High Level Inspection zones, most of which were inspected during this time. The inspection was carried out from MEWPs and ladders and rope access contractors.

HLF Inspection Risk Matrix:

HES-T1C-HLF-RAS-X-X-V0102-RiskMatrix

Consequence \ Probability		1	2	3	4	5
		No injury	Minor injury	Moderate injury	Major injury	Fatal or life-altering injury
5	Fabric fall almost certain	5	10	15	20	25
4	Fabric fall highly likely	4	8	12	16	20
3	Fabric fall likely	3	6	9	12	15
2	Fabric fall unlikely	2	4	6	8	10
1	Fabric fall highly unlikely	1	2	3	4	5

RISK RATING	RISK SCORE RANGE
High	15 - 25
Medium	10 - 14
Low	1 - 9

Re-inspection frequency: (in years)

[REDACTED]



		Annual Visitor Numbers				
		up to 5 k	5-20 k	20 - 100 k	100k - 2m	over 2 m
Identified Risk Rating	Low	5 years	5 years	5 years	4 years	4 years
	Medium	3 years	3 years	2.5 years	2 years	2 years
	High	1 year	1 year	1 year	1 year	0.5 year

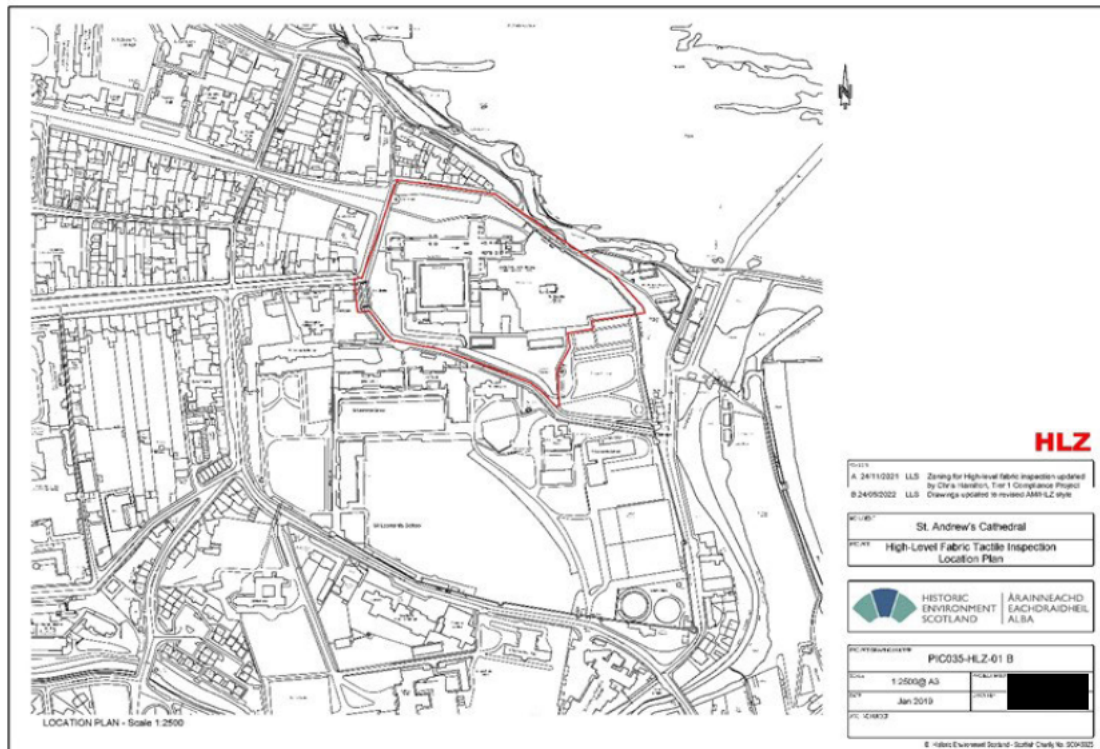
HL Zones:

Zone:	Colour:	Zone Name:
1		West front tower
2		South aisle - North face
3		South aisle - South face
4		Cloister East walk - West face
5		South Transept
6		East gable tower
7		Cloister East walk - East face
8		Refectory (Warming house/ museum)
9		Undercroft
10		West range
11		Prior's house
12		St Rule's tower
13		St Rule's chancel internal
14		St Rule's chancel external
15		The Pends east external face
16		The Pends
17		The Pends boundary wall - internal Western section
18		The Pends boundary wall - internal Eastern section
19		Cemetery south west boundary wall - external
20		Cemetery south west boundary wall - internal
21		Cemetery east boundary wall - internal
22		East Gate
23		North Boundary wall - internal
24		North west entrance gate
25		West entrance gate
26		North Boundary wall - external
27		North East Precinct wall - external
28		Cemetery south boundary wall - south
29		Cemetery wall East face
30		Cemetery wall West face
31		The Pends boundary wall external Western section
32		The Pends boundary wall external Eastern section

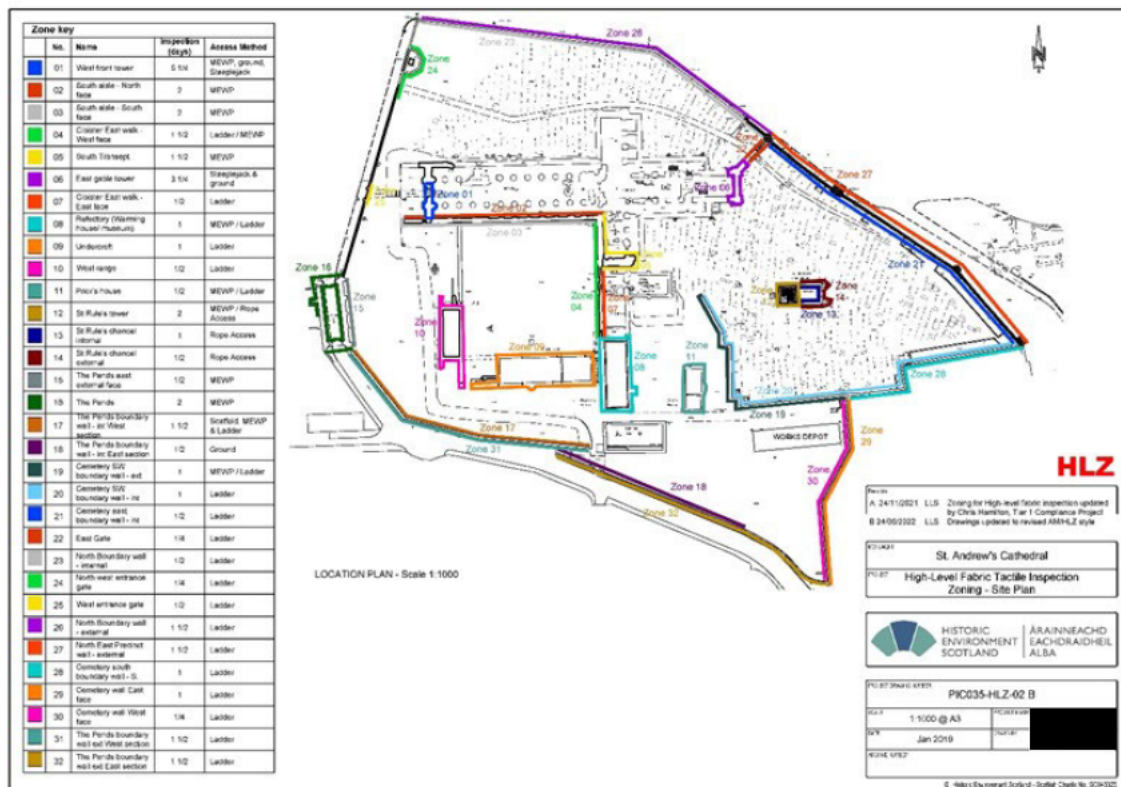
High-Level Tactile Inspection: Report - High-Level Zoning Drawings



Click on link below image to open drawing in PDF viewer:



[PIC035-HLZ-01B](#)



[PIC035-HLZ-02B](#)

High-Level Tactile Inspection: Report - Summary dashboard



PIC ID#	PIC035	Site name	St Andrews Cathedral	
Submission	21/06/2022	Number of zones	32	
Select zone of which data should be displayed ↓	All zones	Number of observations	206	

Identified Risk



Residual Risk

After Inspection Action



Residual Risk

Mitigated with applied Access Restriction in place



Inspection Action:

Class V Report = Fabric detached during tactile inspection	Access Restriction = Risk of fabric falling and causing harm			Monitor Observation / Plan Repairs = No immediate action
	Full site, notifiable	Partial site, notifiable	Partial site, not notifiable	
30	0	3	3	167

Inspection types:	Tactile	206	Visual	0
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Key comments:

KEY FINDINGS:

The ruined remains of St Andrew's Cathedral are predominantly constructed from local soft sandstone exposed to coastal wind and salt erosion. The masonry was generally found to be tightly pointed with only occasional vegetation growth e.g. on wallheads. The high gable ends of the cathedral were visually inspected



from a safe distance to ensure that the steeplejacks were safe to fix ladders into joints (with the required SMC). This was unsuccessful as the strength tests for the fixings failed at both gable ends. The gable ends therefore still require to be inspected either from a design scaffold or sufficiently large MEWP.

PREDOMINANT RISKS:

Surface scaling resulting in boss and partially detached surfaces was the primary decay observed. The stone is at times unexpectedly friable with small fragments coming away easily during examination. Localised failure of pointing material has resulted in loose or boss mortar sections that are at risk of falling and the loosening of some stones. Occasional loosened wall head stones were identified but immediately repaired under Section 17. The red sandstone used in the 19th century reconstruction of the refectory and undercroft (zones 8 and 9) is prone to surface scaling but the low building height of these and all structures other than St Rules Tower and the cathedral ruins generally resulted in low- medium risk scores of of identified defects (OBS).

High-Level Tactile Inspection: Report - Access Scope



PIC ID #	PIC035	Site name	St Andrews Cathedral
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Access methods: Select all methods used to conduction inspection ↓

MEWP	Yes	Design Scaffold		Alloy Tower Scaffold	
Rope Access	Yes	Steeplejack	Yes	Ladder	Yes
Ground	Yes	Binoculars / Photo		UAV	
Other method		If yes, details:			

Ground protection / tracking required:	Yes
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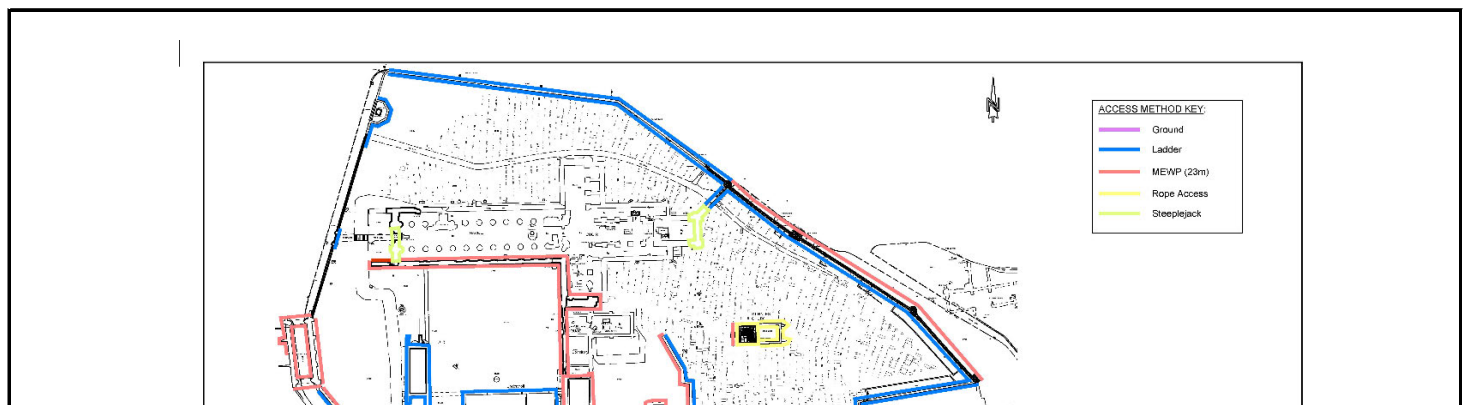
External Contractor appointed for access requirments:	Yes
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Inspection info:

Limitations of inspection:	Zones 16, 27 and 31 were inspected during August 2021 and are not included in this report. Due to insufficiently strong joints, the gable ends of the cathedral (zones 1 and 6) could not be accessed by steeplejacks as planned. A further inspection phase is required and design scaffold options and ground protection/access ramps for larger MEWP access are being considered.
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Areas not inspected:	Zones 4, 16 and 31 were inspected by the Tier1 team during the sample inspection process in August 2021. Zones 26, 27 and 32 were inspected by the MCU during summer 2021. These zones are not included in this report. Zones 28 and 29 have not been inspected and would require ladder access from burial plots in the council owned graveyard. Due to insufficiently strong joints, the gable ends of the cathedral (zones 1 and 6) could not be accessed by steeplejacks as planned. A further inspection phase is required and design scaffold options and ground protection/access ramps for larger MEWP access are being considered.
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Click on link below image to open drawing in PDF viewer:



High-Level Tactile Inspection: Report - Access Scope




LOCATION PLAN - Scale 1:1000

ACCESS METHOD

DATE: A 24/10/21 IIS: Access for high level fabric inspection updated by Chris Hamilton, Tier 1 Compliance Project
S 24/06/20 IIS: Design proposals to include ADRH 2 page

CLIENT: St. Andrew's Cathedral

PROJECT: High-Level Fabric Tactile Inspection
Access Method - Site Plan

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PROJECT ID / IIS: PIC035-HLZ-03B

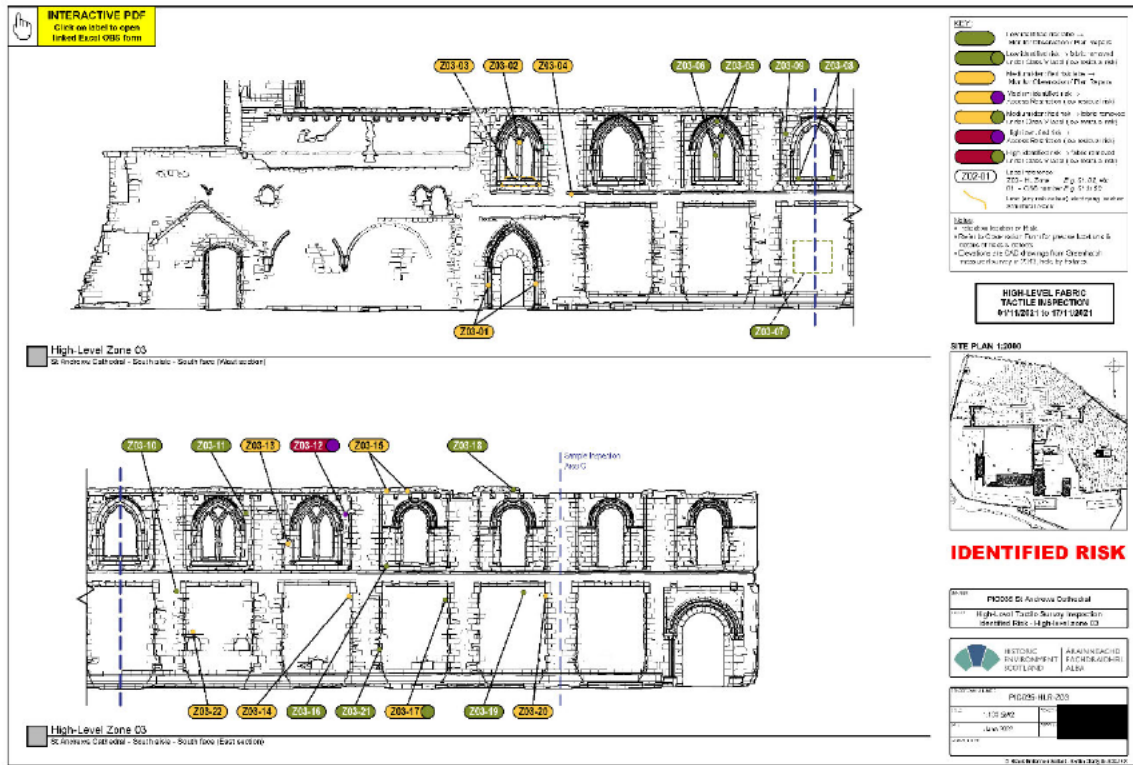
SCALE: 1:1000 @ AS	PROJECT NO:
DATE: JUN 2019	DATE:
ISSUE NO:	

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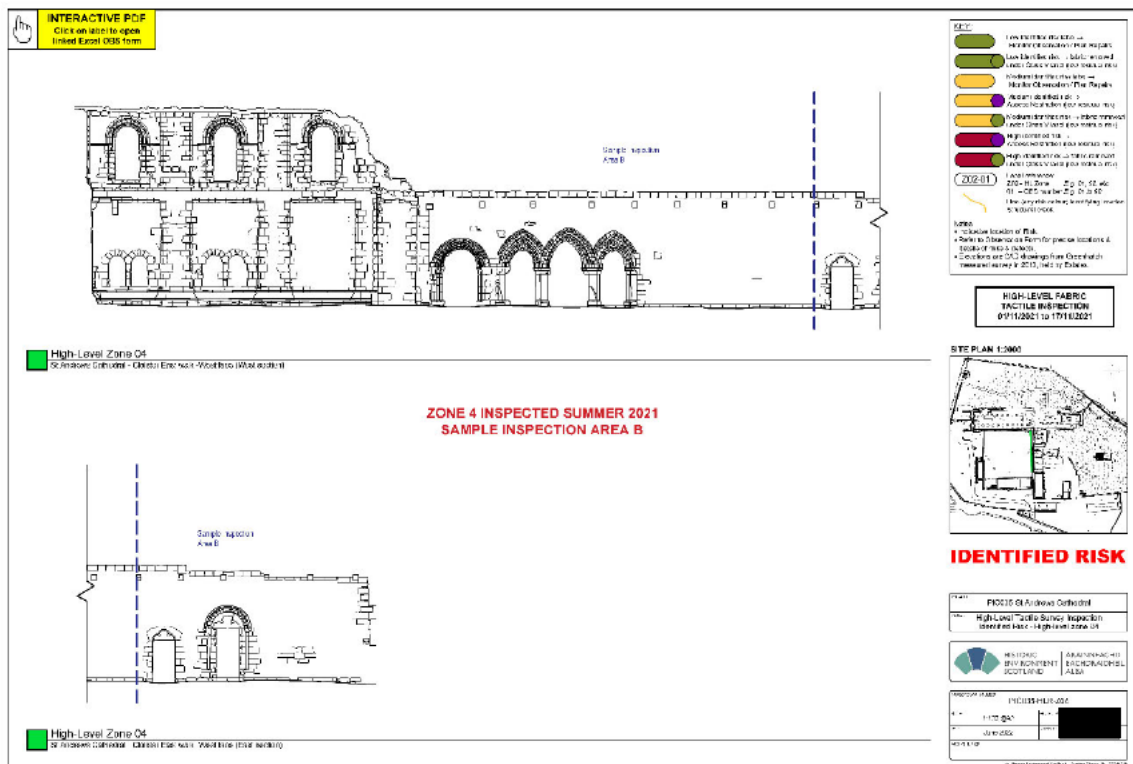
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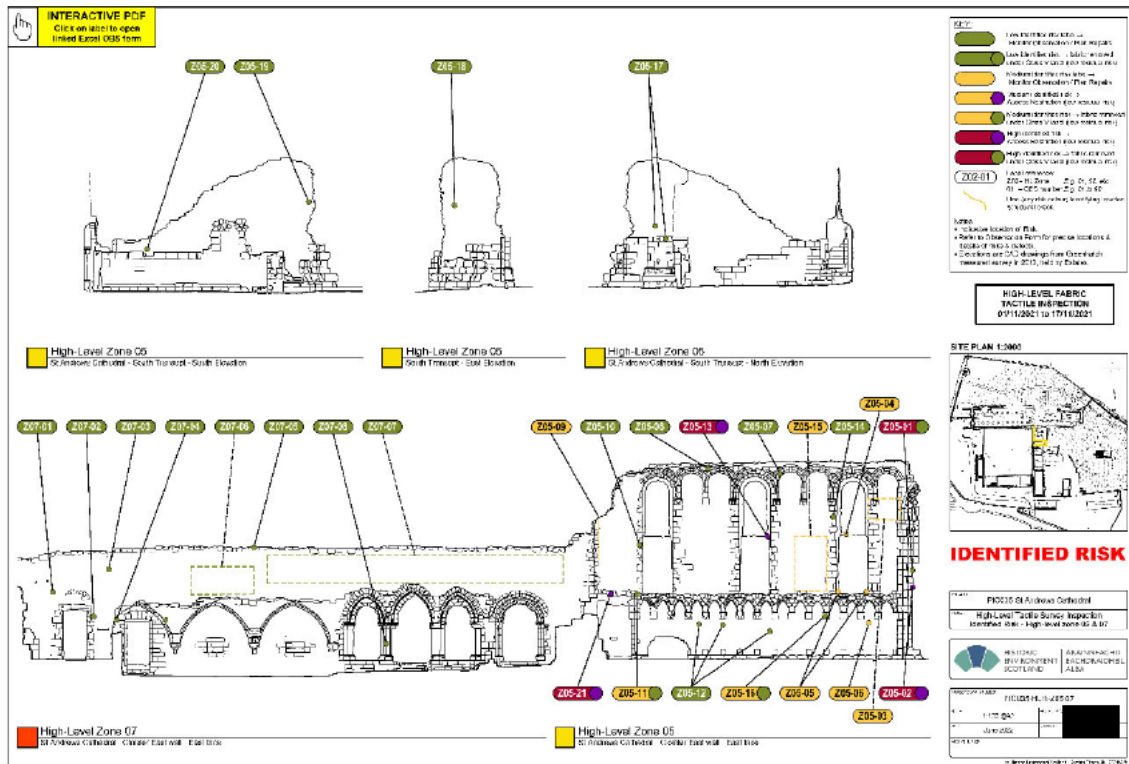
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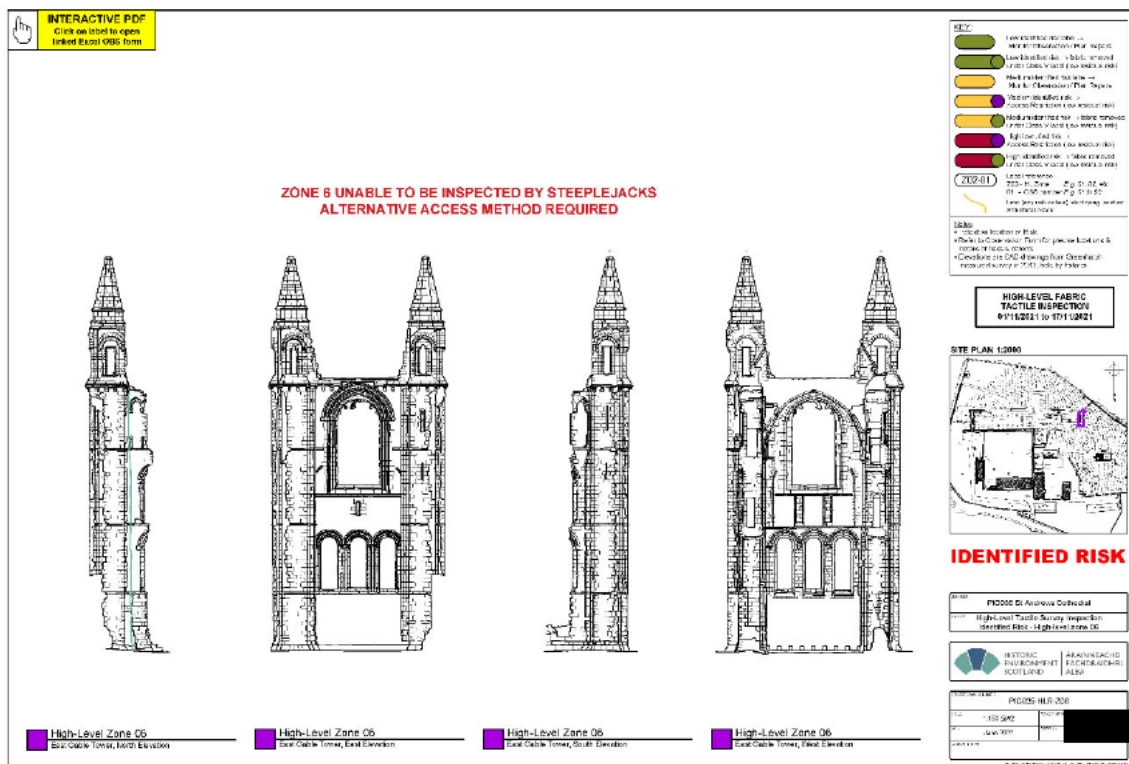
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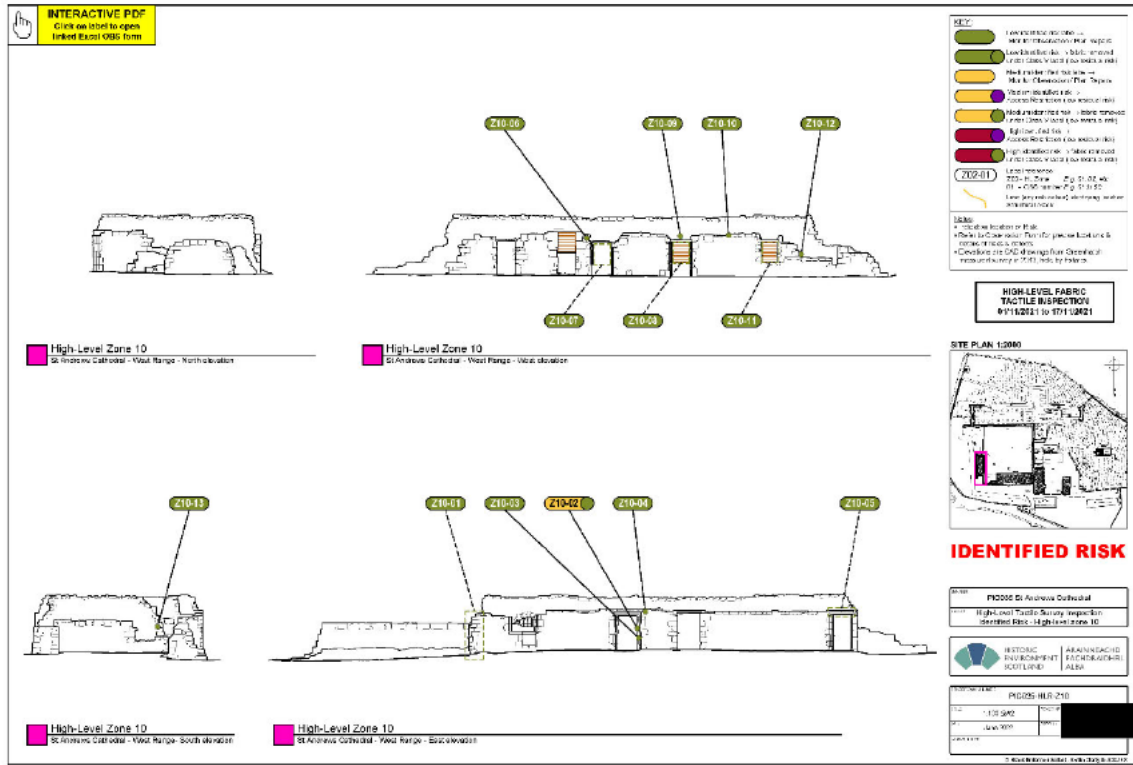
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PIC035-HLR-Z06



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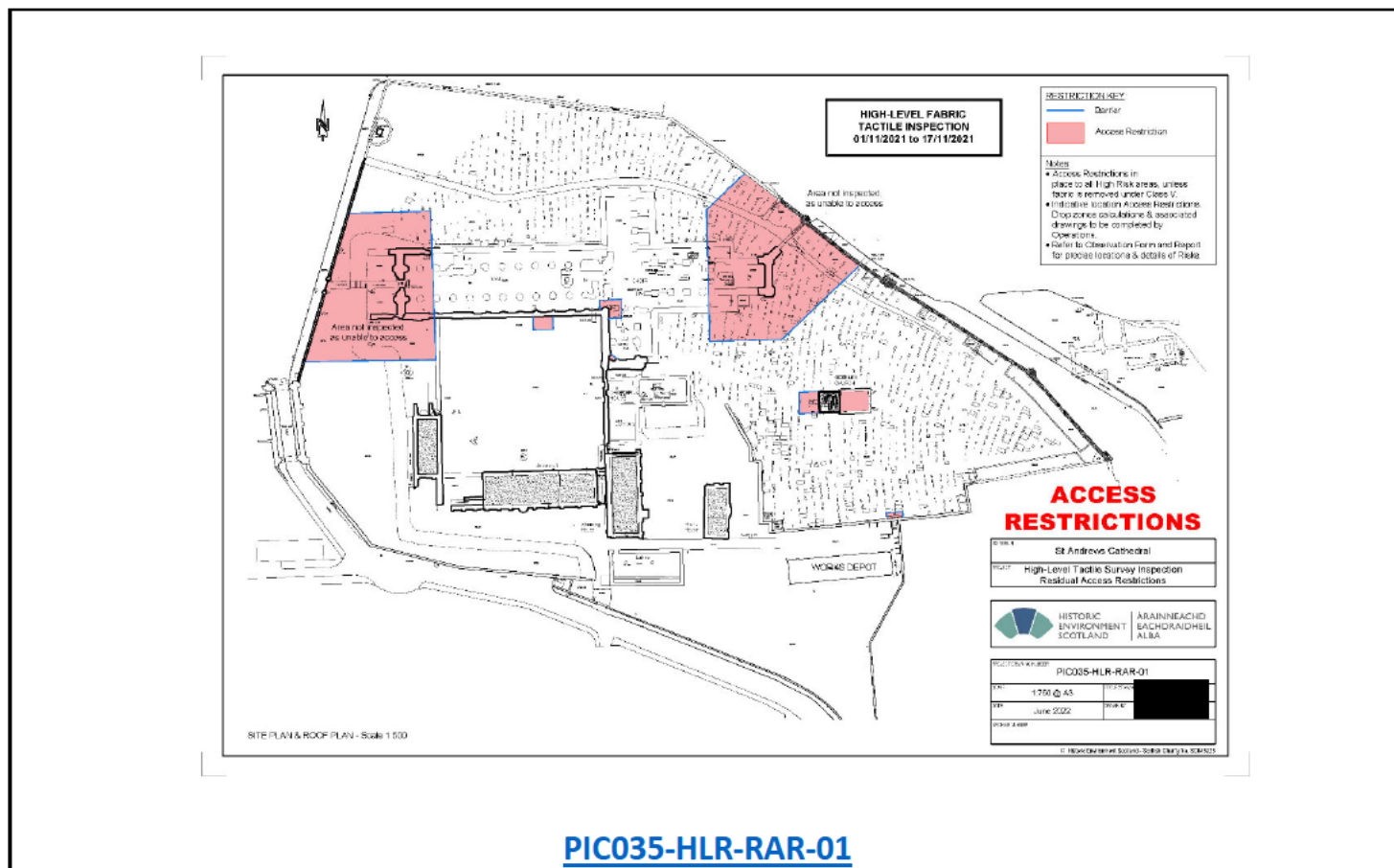
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PIC035-HLR-Z11



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