

High Level Masonry Project  
Tactile safety inspection of high-level fabric

REPORT  
Doune Castle & Roman Camp  
PIC061



December 2022



HISTORIC  
ENVIRONMENT  
SCOTLAND

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# CONTROL SHEET

## Document Control

Title:	Tactile safety inspection of high-level fabric Report PIC061 Doune Castle & Roman Camp
Authors:	[REDACTED]
Document created:	December 2022
Reviewed by:	[REDACTED]
Date Reviewed:	07/03/2023
Approved by:	[REDACTED]
Date of Approval:	07/03/2023
Version Number:	V0100

## Version Control

Version	Date	Status	Prepared by	Amendments
V0001	07/03/2023	Draft	[REDACTED]	N/A
V0100	07/03/2023	Approved	[REDACTED]	N/A

Template version: PICxxx-T1C-HLF-REP-YYYYMMDD-X-V0400-Report

# High-Level Tactile Inspection: Report - Introduction



<b>PIC ID # ↓</b>	PIC061	<b>Site name</b>	Doune Castle & Roman Camp		
<b>Inspection start</b>	21/11/2022	<b>Inspection end</b>	13/02/2023	<b>Submission</b>	07/03/2023
<b>Lead inspector</b>	[REDACTED]				
<b>Other inspectors</b>	[REDACTED]				

## Introduction:

The High-Level Fabric Inspection was lead by [REDACTED] (*Lead Inspector*) and carried out with a team of Inspectors (*as named above*) from 23.11.2022 - 13.02.2023.

The HLM Inspection Team assessed 31 zones covering all of the monument except one zone (Z32) , using a range of high level access equipment. Zoned drawings were updated due to significant areas ( Z18-Z32 being missed off original plan). hence the large gap between starting and completing the inspection. *For further information please refer to tab 5. Access Scope.*

N.B. For limitations of inspection and areas not inspected, please refer to tab 5. Access Scope.

## HLF Inspection Risk Matrix:

HES-T1C-HLF-RAS-X-X-V0300-RiskMatrix

Consequence		1	2	3	4	5
		No injury	Minor injury	Moderate injury	Major injury	Fatal or life-altering injury
Probability	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5

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



## Re-inspection frequency: (in years)

		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

## Link to 3D model:

<https://potree.hes.scot/data/061-DoCa-2018-42CCE3DC861835B8.html>

## HL Zones:

Zone:	Colour:	Zone Name:
1		North curtain wall. Exterior elevation
2		East curtain wall. Exterior elevation
3		South curtain wall. Exterior elevation
4		West curtain wall from South West corner to junction with Kitchen tower. Exterior elevation
5		South curtain wall/kitchen tower. Exterior elevation
6		West curtain wall/kitchen tower. Exterior elevation
7		West curtain wall from North West corner to junction with Kitchen tower. Exterior elevation
8		Entrance pend
9		North courtyard wall. Interior elevation including wall of steps
10		East courtyard wall. Interior elevation
11		South courtyard wall. Interior elevation
12		West courtyard wall. Interior elevation including wall of steps
13		South wall of kitchen tower. Internal courtyard elevation
14		East wall of kitchen tower. Internal courtyard wall
15		Castle Keepers Cottage
16		Kitchen chimney - internal
17		W Elevation Gatehouse Tower
18		Gatehouse Tower. Wall Walk. Internal wall faces
19		Gatehouse Tower. Roof. North pitch
20		Gatehouse Tower. Roof. South pitch
21		Great Hall. Roof. North pitch, wall to NW corner and vent
22		Great Hall. Roof. South pitch, wall to SW corner and vent
23		Kitchen Tower. North roof pitch (external) and North supporting wall
24		Kitchen Tower. South roof pitch (internal)

## High-Level Tactile Inspection: **Report - Introduction**

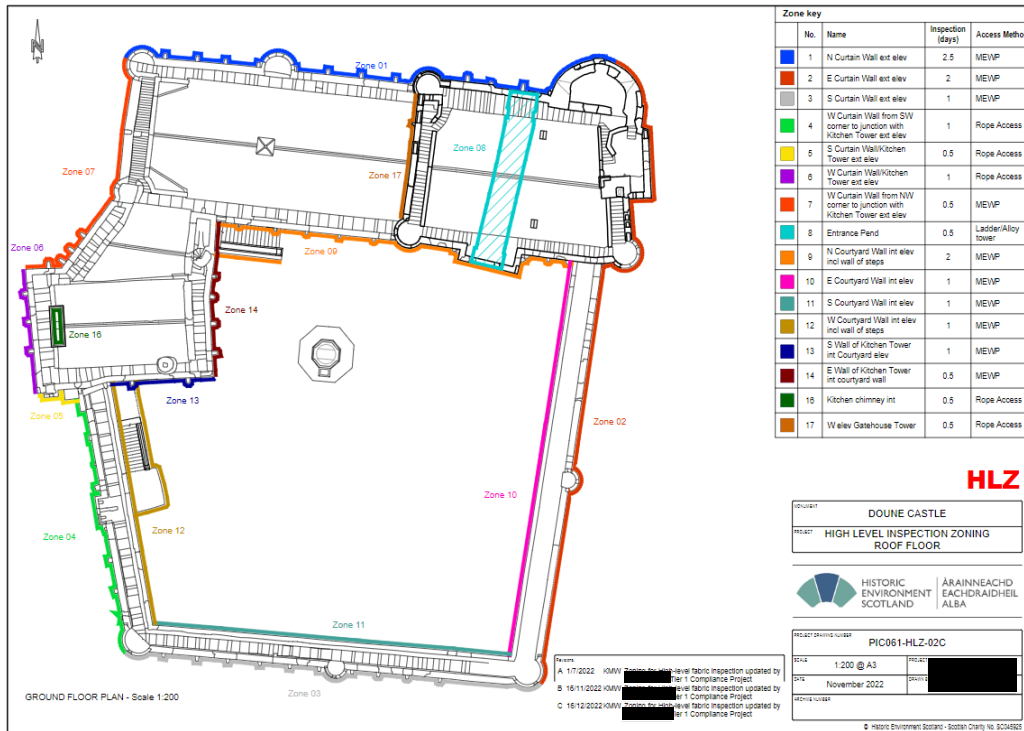


25		Kitchen Tower. Wall either side of internal roof pitches
26		Kitchen Tower. North roof pitch (internal) and N and E faces of chimney
27		Kitchen Tower. South roof pitch (external) and S and E faces of chimney
28		Kitchen Tower. South roof chimney.
29		Kitchen Tower. West gable (southern)
30		Kitchen Tower. West gable (northern)
31		Kitchen Tower. East gable (southern)
32		Kitchen Tower. East gable (northern)

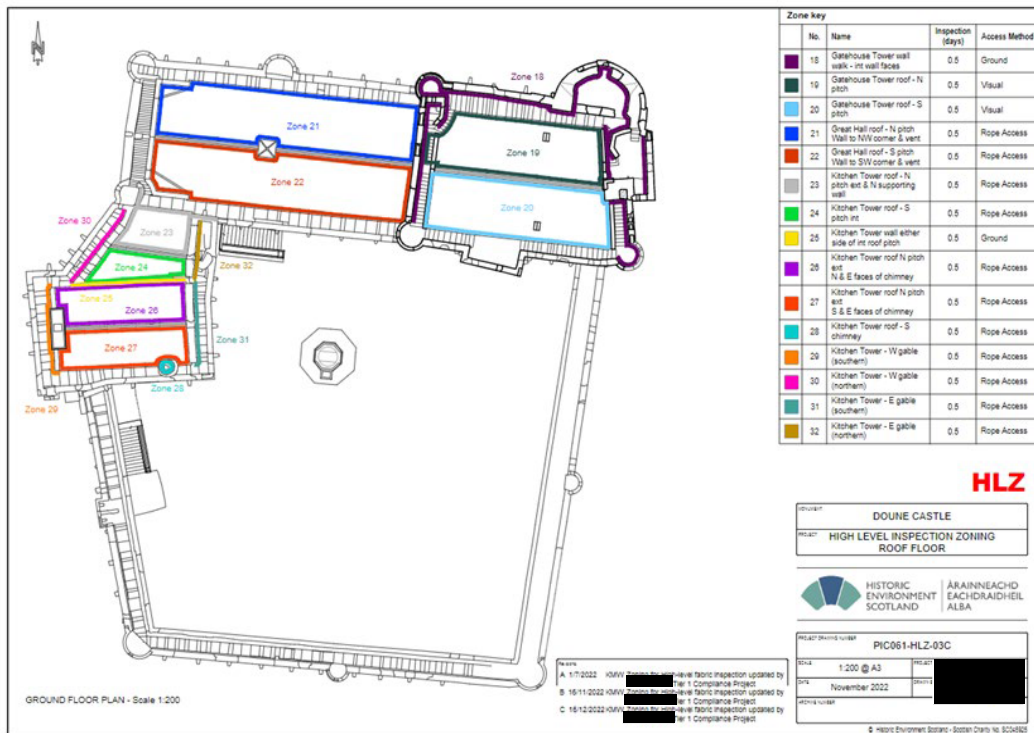
# High-Level Tactile Inspection: Report - High-Level Zoning Drawings



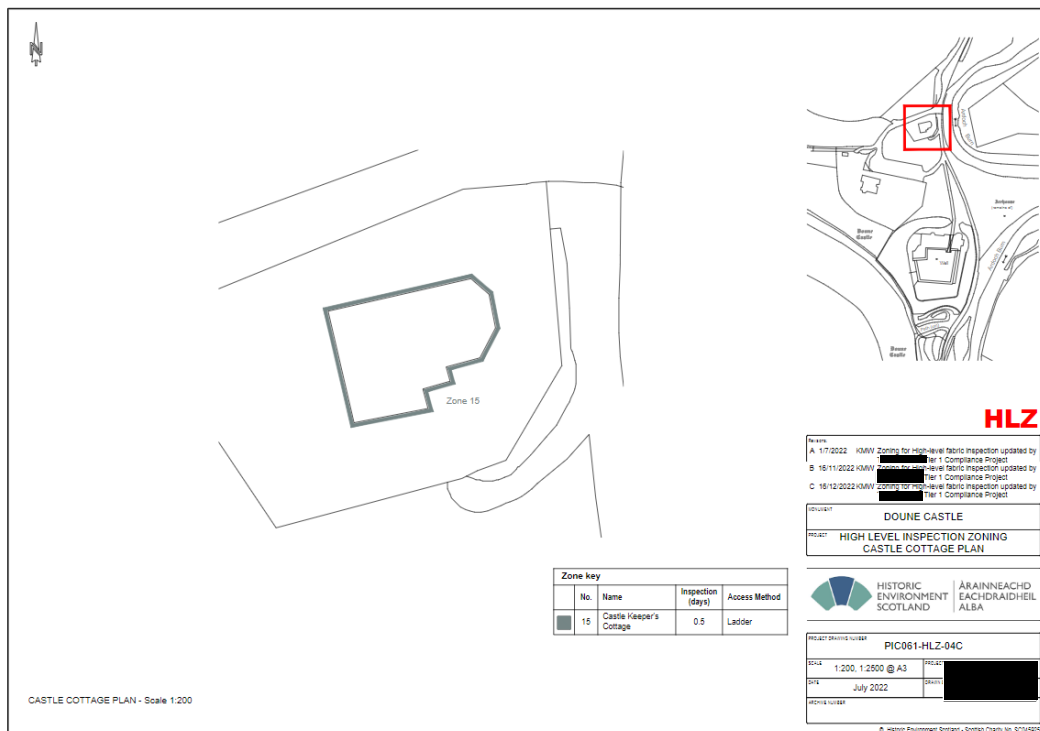
Click on link below image to open drawing in PDF viewer:



[PIC061-HLZ-02C](#)



[PIC061-HLZ-03C](#)



[PIC061-HLZ-04C](#)

# High-Level Tactile Inspection: Report - Summary dashboard



PIC ID#	PIC061	Site name	Doune Castle & Roman Camp	
Submission	07/03/2023	Number of zones	30	
Select zone of which data should be displayed ↓	All zones	Number of observations	122	

## Identified Risk



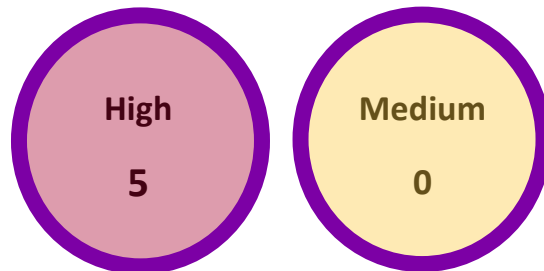
## Residual Risk

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	
22	0	1	7	92

Inspection types:	Tactile	116	Visual	6
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**Key comments:**

**KEY FINDINGS**

- Access to the exterior of the site is currently access restriction
- Recommended minor access restrictions within Castle

**PREDOMINANT RISKS:-**

- Areas where high density of visitors - Access routes throughout Castle-Weekly checks carried out as per previous inspection rota

**N.B. For limitations of inspection and areas not inspected, please also refer to tab 5. Access Scope.**



# High-Level Tactile Inspection: Report - Access Scope



PIC ID #	PIC061	Site name	Doone Castle & Roman Camp
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## Access methods: Select all methods used to conduct inspection ↓

MEWP	Yes	Design Scaffold		Alloy Tower Scaffold	
Rope Access	Yes	Steeplejack		Ladder	Yes
Ground	Yes	Binoculars / Photo	Yes	UAV	

Other method		If yes, details:	
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Ground protection / tracking required:	Yes
--	-----

External Contractor appointed for access requirements:	Yes
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## Inspection info:

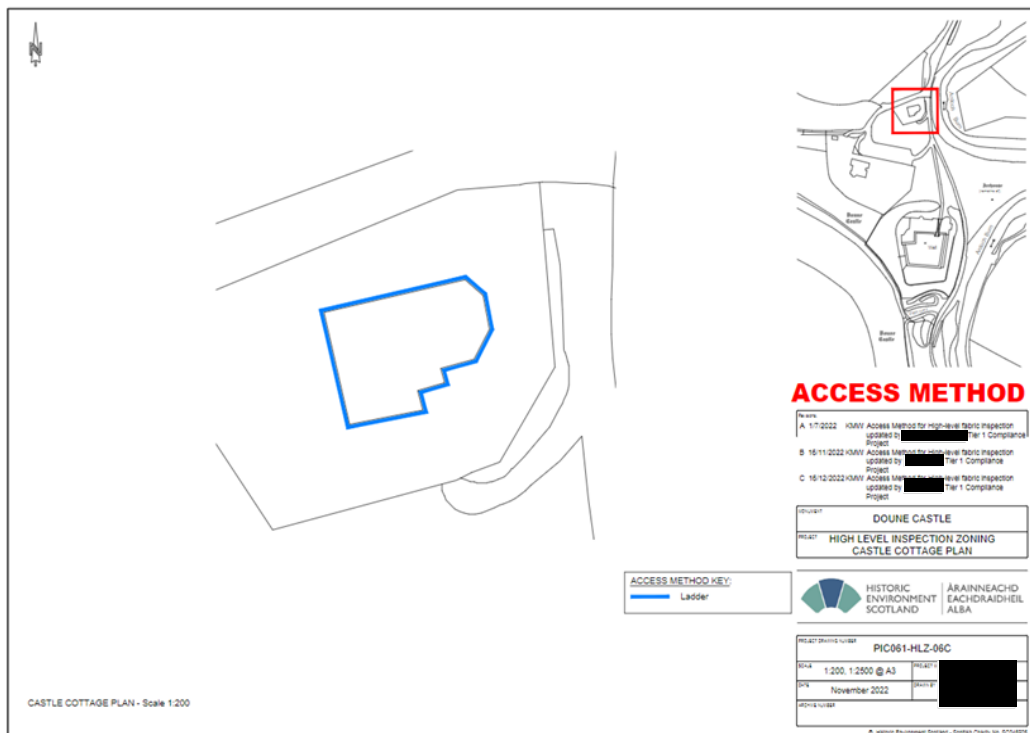
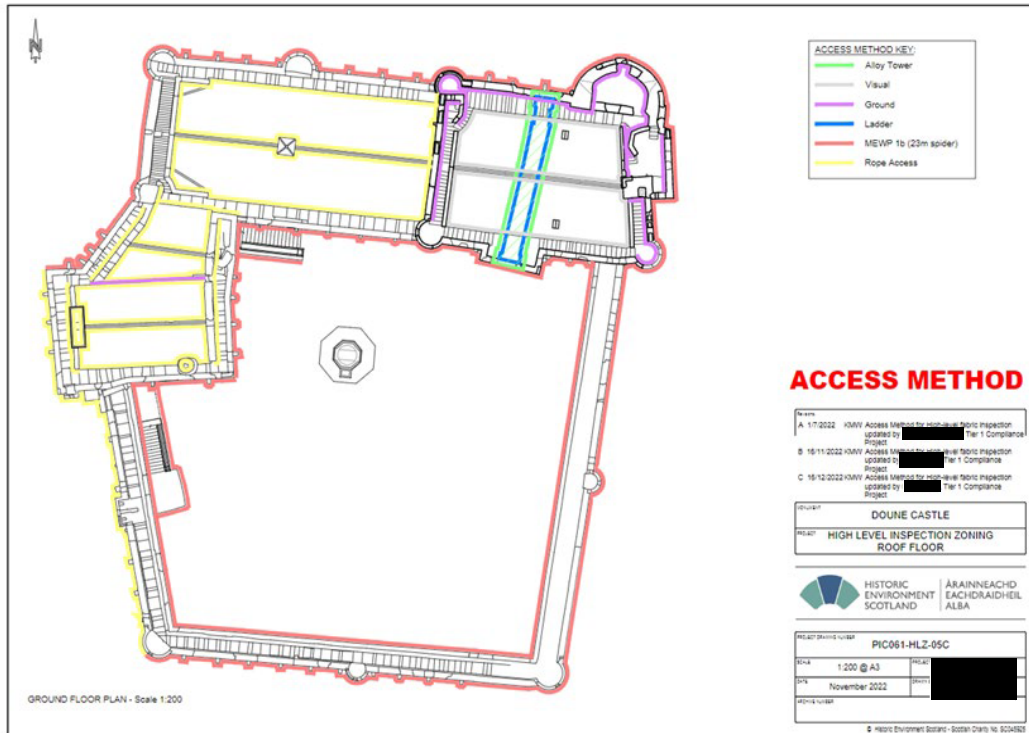
<b>Limitations of inspection:</b>	Z16- Kitchen Internal Chimney could only be partially inspected due to the upper area being too confined to access safely.
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<b>Areas not inspected:</b>	Zone 32 - Kitchen Tower East Gable (Northern.) Currently a live project.
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# High-Level Tactile Inspection: Report - Access Scope



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





Click on link below image to open Interactive PDF in PDF viewer. In PDF viewer, the drawing is an interactive PDF, click on the labels to open the relevant OBS form for further information.

**INTERACTIVE PDF**  
Click on label to open linked Excel OBS form

**HIGH-LEVEL ZONES SHOWN IN THIS DRAWING Z01 & Z07**

Z01  
PIC061 - North curtain wall. Exterior elevation

Z07  
PIC061 - West curtain wall from North West corner to junction with Kitchen tower. Exterior elevation

**KEY**

- Low identified risk label -> Monitor Observation / High Repairs
- Low identified risk - fabric removed under Class V label (low residual risk)
- Medium identified risk label -> Monitor Observation / Plan Repairs
- Medium identified risk -> Access Restriction (low residual risk)
- Medium identified risk - fabric removed under Class V label (low residual risk)
- High identified risk -> Access Restriction (low residual risk)
- High identified risk - fabric removed under Class V label (low residual risk)

**Z01-Z07**  
Label reference  
Z01-HL Zone E.g. 01, 02, etc  
01 = OBS number E.g. 01 to 99  
Line style risk colour identifying location  
Structure check

**Z01-Z07**  
Repaired by MCU  
Approx. See OBS form

**NOTES**

- Indicates location of Risk.
- Refer to Observation Form for precise locations & areas of risks & defects.
- HES photos & CAD drawings used in the production of this risk.

**HIGH-LEVEL FABRIC TACTILE INSPECTION 21/11/2022 to 13/02/2023**

**IDENTIFIED RISK 01**

PIC061 Doune Castle  
High-Level Tactile Survey Inspection  
Identified Risk - Z01 & Z07

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PIC061-HLR-Z01-Z07

NTS (BA2) | [Redacted]  
January 2023 | [Redacted]

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[01. PIC061-HLR-Z01 Z07](#)

**INTERACTIVE PDF**  
Click on label to open linked Excel OBS form

**HIGH-LEVEL ZONES SHOWN IN THIS DRAWING Z02 & Z12**

Z12  
PIC061 - West courtyard wall. Interior elevation including wall of steps

Z02  
PIC061 - East curtain wall. Exterior elevation

**KEY**

- Low identified risk label -> Monitor Observation / High Repairs
- Low identified risk - fabric removed under Class V label (low residual risk)
- Medium identified risk label -> Monitor Observation / Plan Repairs
- Medium identified risk -> Access Restriction (low residual risk)
- Medium identified risk - fabric removed under Class V label (low residual risk)
- High identified risk -> Access Restriction (low residual risk)
- High identified risk - fabric removed under Class V label (low residual risk)

**Z01-Z07**  
Label reference  
Z01-HL Zone E.g. 01, 02, etc  
01 = OBS number E.g. 01 to 99  
Line style risk colour identifying location  
Structure check

**Z01-Z07**  
Repaired by MCU  
Approx. See OBS form

**NOTES**

- Indicates location of Risk.
- Refer to Observation Form for precise locations & areas of risks & defects.
- HES photos & CAD drawings used in the production of this risk.

**HIGH-LEVEL FABRIC TACTILE INSPECTION 21/11/2022 to 13/02/2023**

**IDENTIFIED RISK 02**

PIC061 Doune Castle  
High-Level Tactile Survey Inspection  
Identified Risk - Z02 & Z12

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PIC061-HLR-Z02-Z12

NTS (BA2) | [Redacted]  
January 2023 | [Redacted]

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[02. PIC061-HLR-Z02 Z12](#)



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3. PIC061-HLR-Z03 (Z13-Z14)



4. PIC061-HLR-(Z04-Z06) Z10 (Z16-Z17)



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**INTERACTIVE PDF**  
Click on label to open linked Excel OBS form

**HIGH-LEVEL ZONES SHOWN IN THIS DRAWING**  
Z08 & Z09

**Z08**  
PIC061 - Entrance zone

**Z09**  
PIC061 - North courtyard wall, interior elevation including wall of steps

**SITE PLANS NTS**

**KEY:**

- Low identified risk label → Monitor Observation / Plan Repairs
- Low identified risk → fabric removed under Class V label (low residual risk)
- Medium identified risk label → Monitor Observation / Plan Repairs
- Medium identified risk → Access Restriction (low residual risk)
- Medium identified risk → fabric removed under Class V label (low residual risk)
- High identified risk → Access Restriction (low residual risk)
- High identified risk → fabric removed under Class V label (low residual risk)

**Label reference:**  
Z02-01 = Z02-01, etc.  
01 = OBS number E.g. of M 00  
Line style risk colour identifying location  
Structure crack

**202-01** Referred by MCU  
Approx. See OBS form

**Notes:**

- Precise location of Risk.
- Refer to Observation Form for precise locations & details of risks & defects.
- HES photos & CAD drawings used in the production of maps.

**HIGH-LEVEL FABRIC TACTILE INSPECTION**  
21/11/2022 to 13/02/2023

**IDENTIFIED RISK 05**

**PIC061 Doune Castle**  
High-Level Fabric Survey Inspection  
Identified Risk - Z08 & Z09

**HISTORIC ENVIRONMENT SCOTLAND** **ARAINNBACH SACHDRÀIDHEIL ALBA**

**PIC061-HLR-(Z08-Z09)**  
NTS: 0A2  
01: January 2023

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5. [PIC061-HLR-\(Z08-Z09\)](#)

**INTERACTIVE PDF**  
Click on label to open linked Excel OBS form

**HIGH-LEVEL ZONES SHOWN IN THIS DRAWING**  
Z11

**Z11**  
PIC061 - South Courtyard Wall Internal

**SITE PLANS NTS**

**KEY:**

- Low identified risk label → Monitor Observation / Plan Repairs
- Low identified risk → fabric removed under Class V label (low residual risk)
- Medium identified risk label → Monitor Observation / Plan Repairs
- Medium identified risk → Access Restriction (low residual risk)
- Medium identified risk → fabric removed under Class V label (low residual risk)
- High identified risk → Access Restriction (low residual risk)
- High identified risk → fabric removed under Class V label (low residual risk)

**Label reference:**  
Z02-01 = Z02-01, etc.  
01 = OBS number E.g. of M 00  
Line style risk colour identifying location  
Structure crack

**202-01** Referred by MCU  
Approx. See OBS form

**Notes:**

- Precise location of Risk.
- Refer to Observation Form for precise locations & details of risks & defects.
- HES photos & CAD drawings used in the production of maps.

**HIGH-LEVEL FABRIC TACTILE INSPECTION**  
21/11/2022 to 13/02/2023

**IDENTIFIED RISK 06**

**PIC061 Doune Castle**  
High-Level Fabric Survey Inspection  
Identified Risk - Z11

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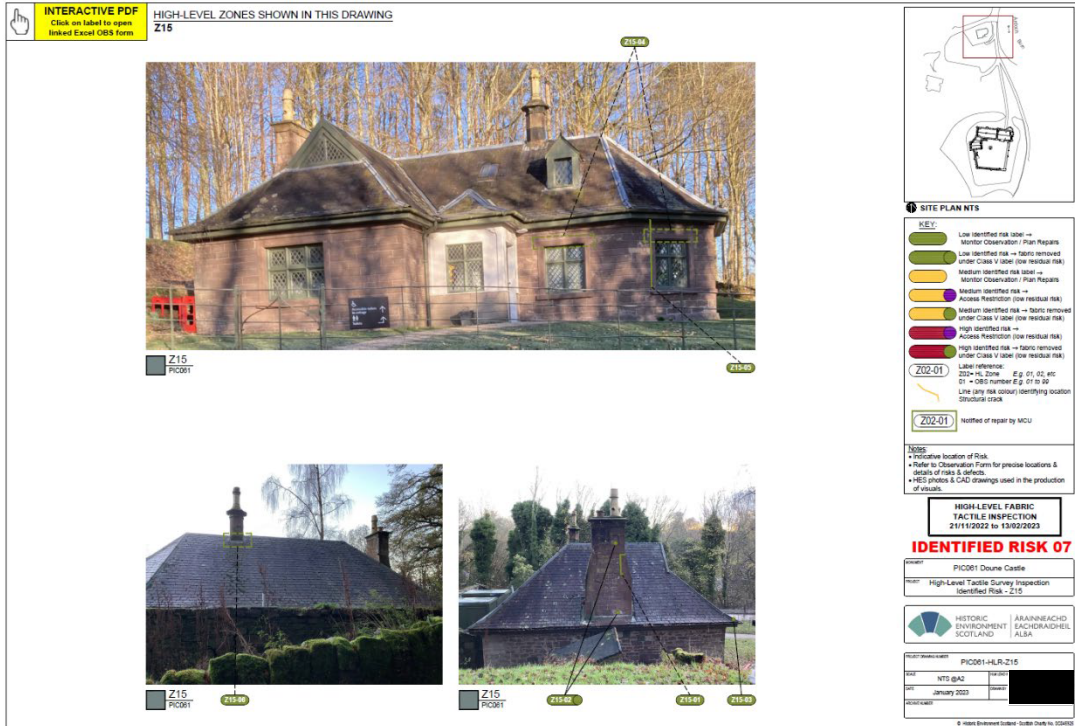
**PIC061-HLR-Z11**  
NTS: 0A2  
01: January 2023

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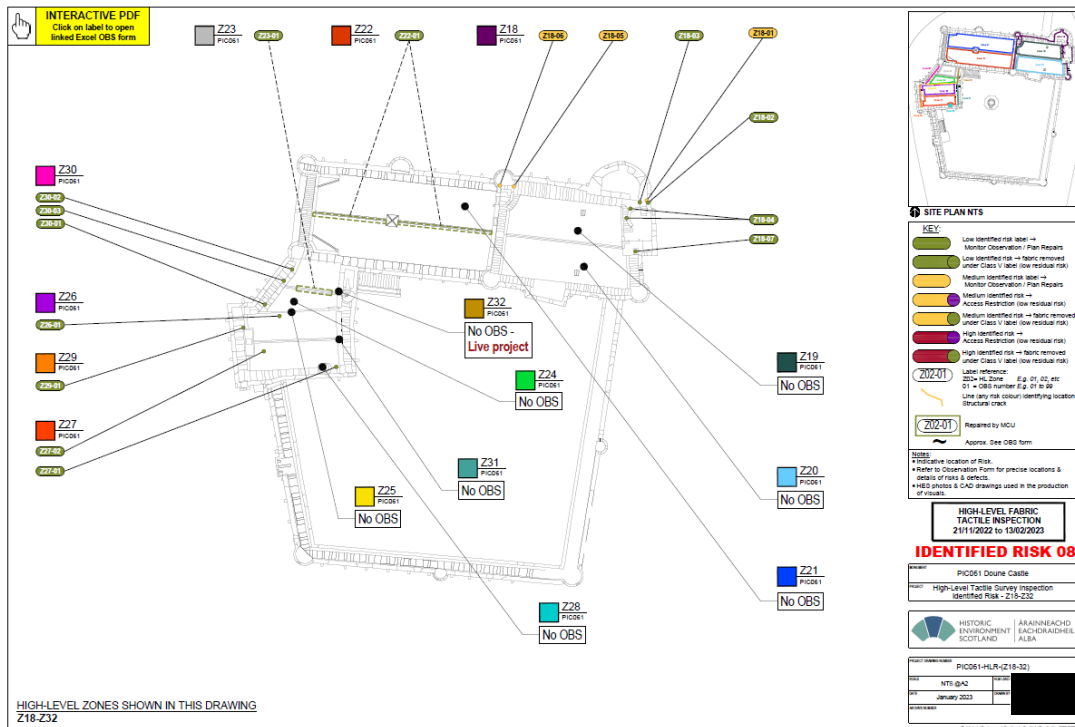
6. [PIC061-HLR-Z11](#)



Click on link below image to open Interactive PDF in PDF viewer. In PDF viewer, the drawing is an interactive PDF, click on the labels to open the relevant OBS form for further information.



7. PIC061-HLR-Z15



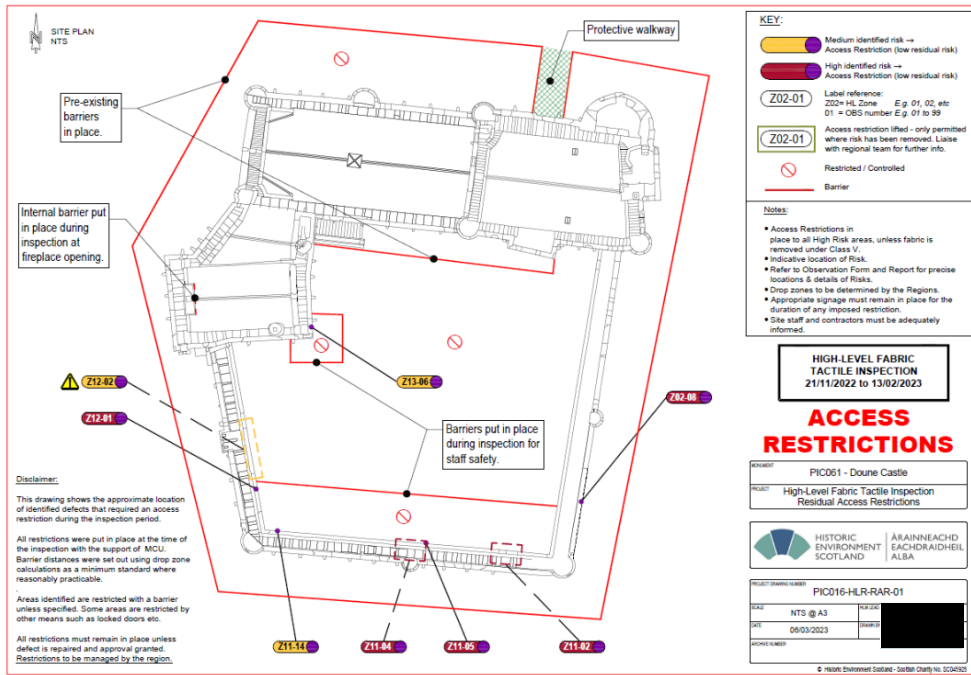
8. PIC061-HLR-(Z18-32)



# High-Level Tactile Inspection: Report - Access Restrictions Plan



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



[PIC061-HLR-RAR-01](#)