

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

REPORT  
Inverlochy Castle  
PIC075



December 2022



HISTORIC  
ENVIRONMENT  
SCOTLAND

ÀRAINNEACHD  
EACHDRAIDHEIL  
ALBA

# CONTROL SHEET

## Document Control

|                   |   |
|-------------------|---|
| Title:            | Tactile safety inspection of high-level fabric<br>Report PIC075 Inverlochy Castle |
| Authors:          | [REDACTED]  |
| Document created: | December 2022   |
| Reviewed by:      | [REDACTED]  |
| Date Reviewed:    | 03/05/2023  |
| Approved by:      | [REDACTED]  |
| Date of Approval: | 03/05/2023  |
| Version Number:   | V0001   |

## Version Control

| Version | Date       | Status   | Prepared by | Amendments            |
|---------|------------|----------|-------------|-----------------------|
| V0001   | 12/12/2022 | Draft    | [REDACTED]  | N/A Document Creation |
| V0100   | 03/05/2023 | Approved | [REDACTED]  |                       |
|         |            |          |             |                       |
|         |            |          |             |                       |
|         |            |          |             |                       |
|         |            |          |             |                       |

Template version: PICxxx-T1C-HLF-REP-YYYYMMDD-X-V0500-Report

# High-Level Tactile Inspection: Report - Introduction



|                         |               |                       |                          |                   |            |
|-------------------------|---------------|-----------------------|--------------------------|-------------------|------------|
| <b>PIC ID # ↓</b>       | <b>PIC075</b> | <b>Site name</b>      | <b>Inverlochy Castle</b> |                   |            |
| <b>Inspection start</b> | 03/04/2023    | <b>Inspection end</b> | 21/04/2023               | <b>Submission</b> | 03/05/2023 |
| <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 03.04.2023 - 21.04.2023

The HLM Inspection Team assessed 25/25 zones covering the whole monument, using a range of high level access equipment. 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 \ 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) **NO DATA AVAILABLE**

|                        |        | 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:

HL Zones:

| Zone: | Colour: | Zone Name:                      |
|-------|---------|---------------------------------|
| 1     |         | Outer South Tower boundary wall |
| 2     |         | Main gateway                    |
| 3     |         | Outer East Tower boundary wall  |
| 4     |         | Southeast Curtain Wall external |
| 5     |         | South Tower external            |
| 6     |         | Southwest Curtain Wall external |
| 7     |         | West Tower external             |
| 8     |         | West Curtain Wall external      |
| 9     |         | North Curtain Wall external     |
| 10    |         | North Tower external            |
| 11    |         | Northeast Curtain Wall external |
| 12    |         | East Tower external             |
| 13    |         | Southeast Curtain Wall internal |
| 14    |         | Southwest Curtain Wall internal |
| 15    |         | West Curtain Wall internal      |
| 16    |         | North Curtain Wall internal     |
| 17    |         | Northeast Curtain Wall internal |
| 18    |         | South Tower internal            |
| 19    |         | West Tower internal             |
| 20    |         | North Tower internal            |
| 21    |         | East Tower internal             |
| 22    |         | East Boundary Wall External     |
| 23    |         | East boundary wall internal     |
| 24    |         | South Boundary Wall External    |



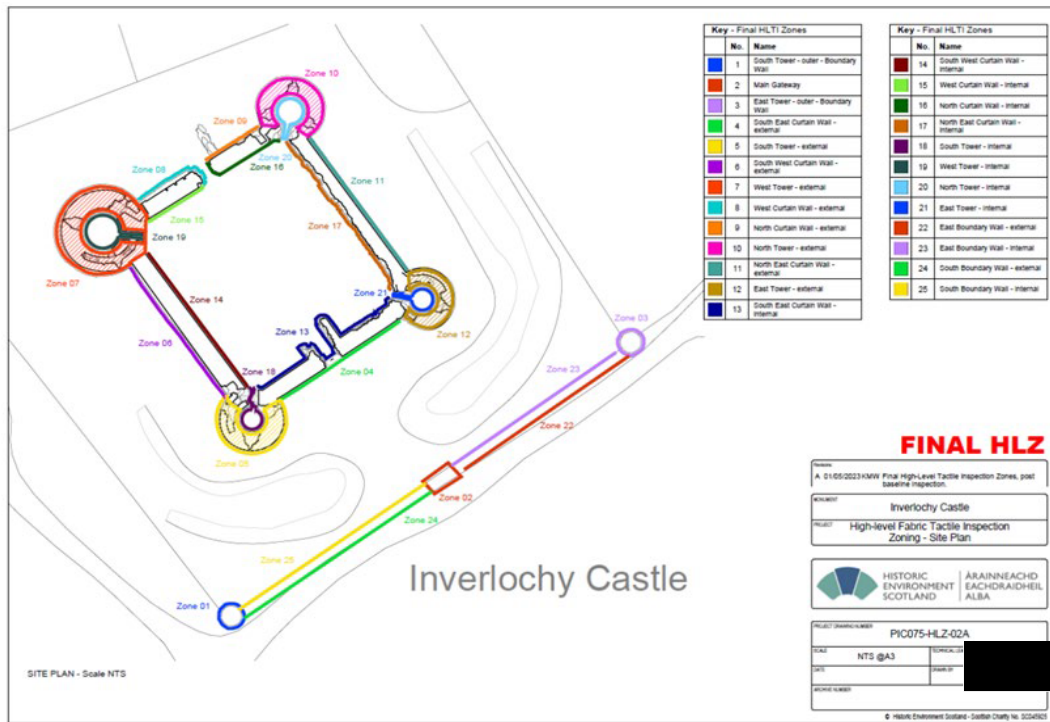


|    |  |                              |
|----|--|------------------------------|
| 25 |  | South Boundary Wall Internal |
|----|--|------------------------------|

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



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



[PIC075-HLZ-02A](#)

# High-Level Tactile Inspection: Report - Summary dashboard



|   |           |                        |  |
|---|-----------|------------------------|--|
| PIC ID#   | PIC075    | Site name              |  |
|   |           | Submission             |  |
|   |           | Number of zones        |  |
| Select zone of which data should be displayed ↓ | All zones | Number of observations |  |

## Identified Risk



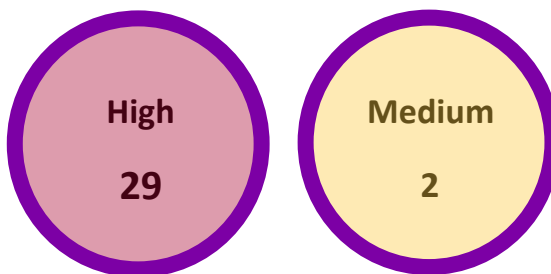
## Residual Risk

After Inspection Action



## Residual Risk

Mitigated with applied Access Restriction in place



| Inspection Action:                           |                                       |  |   |                          |                              |
|--|---------------------------------------|--|---|--------------------------|------------------------------|
| Monitor Observation<br>= No immediate action | Plan Repairs<br>= No immediate action | Fabric detached<br>During tactile inspection<br>(Former Class V) | Access Restriction<br>Risk of fabric falling and causing harm |                          |                              |
|  |                                       |  | Full site, notifiable   | Partial site, notifiable | Partial site, not notifiable |
| 26   | 31                                    | 63   | 7   | 10                       | 20                           |

|                   |         |     |
|-------------------|---------|-----|
| Inspection types: | Tactile | 151 |
|                   | Visual  | 0   |



## Key comments:

### KEY FINDINGS

- Site currently closed
- Zone 3 access restriction removed after consultation with Region and Heritage
- Partial inspections carried out at Zones 4,5,10,12,16,17 due to loose masonry on wall head level
- Would recommend site stays closed with more fencing required to stop unauthorised access

### PREDOMINANT RISKS:-

- Loose masonry on wall heads. Although site is closed secure fencing has been breached on a few occasions by teenagers. More robust fencing will be required as discussed with Regional Management: Link below in "Linked Drawings" section.

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

## Linked Drawings

[Proposed Access Restrictions](#)

## Inspection Action:

| Monitor Observation<br>= No immediate action | Plan Repairs<br>= No immediate action | Fabric detached<br>During tactile inspection<br>(Former Class V) | Access Restriction                      |                          |                              |
|--|---------------------------------------|--|---|--------------------------|------------------------------|
|  |                                       |  | Risk of fabric falling and causing harm |                          |                              |
|  |                                       |  | Full site, notifiable                   | Partial site, notifiable | Partial site, not notifiable |
| 26   | 31                                    | 63   | 7                                       | 10                       | 20                           |

# High-Level Tactile Inspection: Report - Access Scope



|          |        |           |                   |
|----------|--------|-----------|-------------------|
| PIC ID # | PIC075 | Site name | Inverlochy Castle |
|----------|--------|-----------|-------------------|

## Access methods: Select all methods used to conduction inspection ↓

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

|              |  |                  |  |
|--------------|--|------------------|--|
| Other method |  | If yes, details: |  |
|--------------|--|------------------|--|

|  |     |
|--|-----|
| Ground protection / tracking required: | Yes |
|--|-----|

|   |     |
|---|-----|
| External Contractor appointed for access requirments: | Yes |
|---|-----|

## Inspection info:

|                                   |  |
|-----------------------------------|--|
| <b>Limitations of inspection:</b> | <p>Zone 3 access restriction removed after consultation with Region and Heritage</p> <p>- Partial insptions carried out at Zones 4,5,10,12,16,17 due to loose masonry on wall head level</p> |
|-----------------------------------|--|

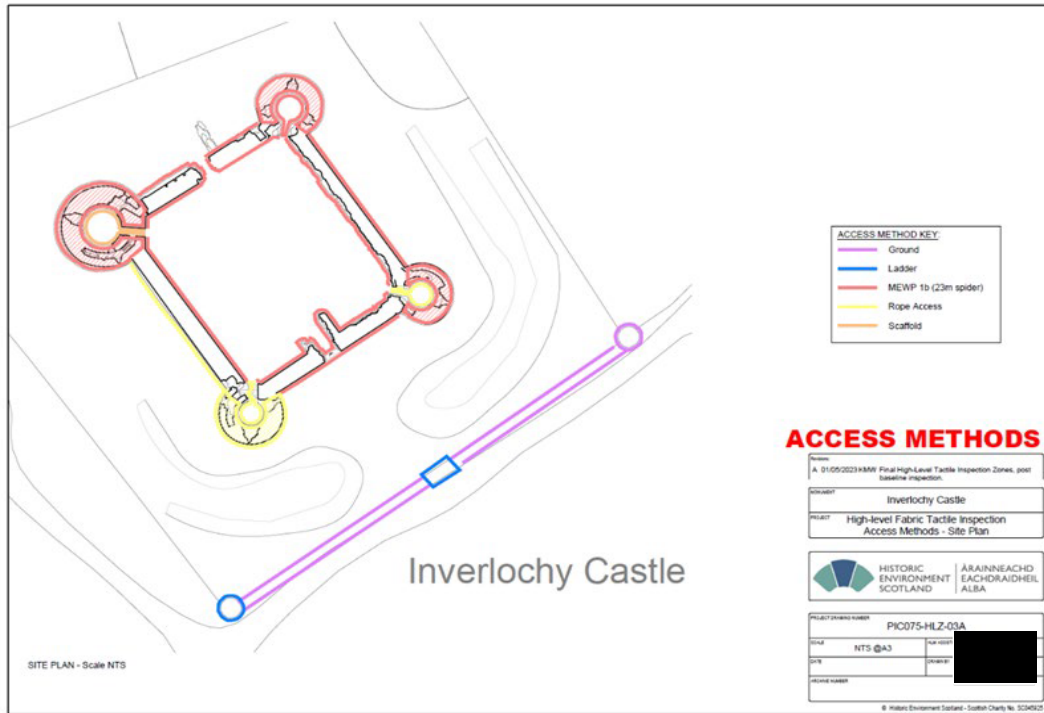
|                             |          |
|-----------------------------|----------|
| <b>Areas not inspected:</b> | As Above |
|-----------------------------|----------|



# High-Level Tactile Inspection: Report - Access Scope



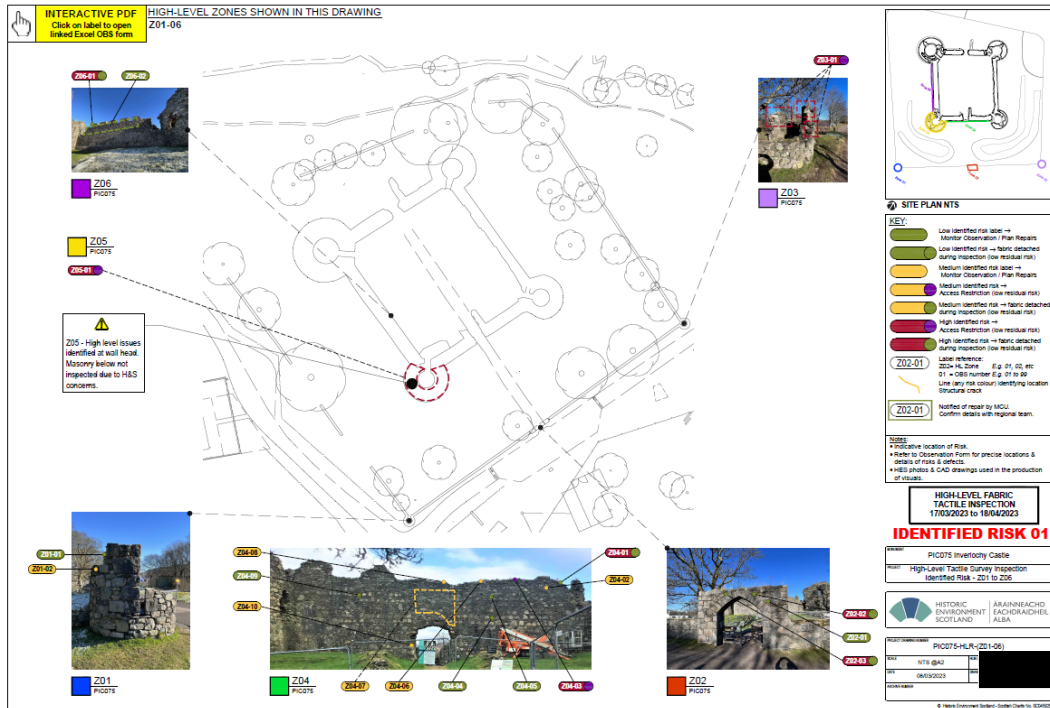
Click on link below image to open drawing in PDF viewer:



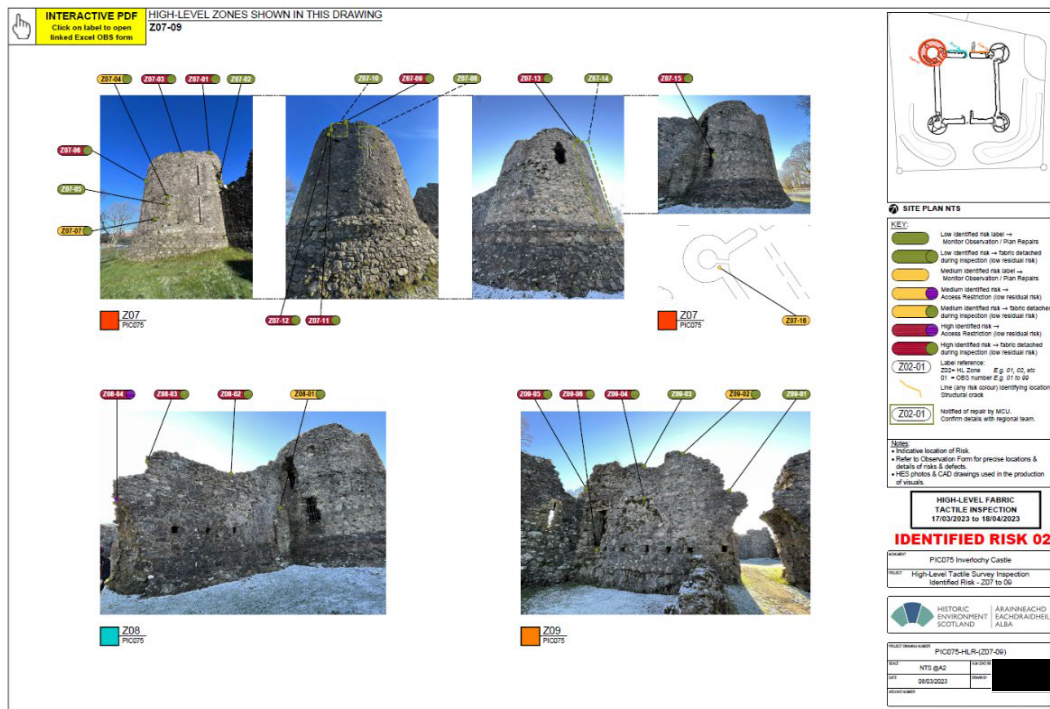
[PIC075-HLZ-03A](#)



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.



01. PIC075-HLR-(Z01-06)



02. PIC075-HLR-(Z07-09)



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  
**Z10-12**

**KEY:**

- Low identified risk label → Monitor Observation / Plan Repairs
- Low identified risk → Fabric detached during inspection (low residual risk)
- Medium identified risk label → Monitor Observation / Plan Repairs
- Medium identified risk → Fabric detached during inspection (low residual risk)
- High identified risk → Access Restriction (low residual risk)
- High identified risk → Fabric detached during inspection (low residual risk)
- High identified risk → Access Restriction (low residual risk)

**202-01** Label reference: Z10-HL-Zone E.g. 01, 02, etc. 01 = OBS number E.g. 01 to 09. Line only risk (omit identifying location/structure crack)

**202-01** Notified of repair by MCU. Confirm update with regional team.

**Notes:**

- Indicative location of Risk
- Refer to Observation Form for precise locations & details of risks & defects.
- HEP photos & CAD drawings used in the production of assets.

**HIGH-LEVEL FABRIC TACTILE INSPECTION**  
17/03/2023 to 18/04/2023

**IDENTIFIED RISK 03**

Project: PIC075 Inverlochy Castle  
Title: High-Level Tactile Survey Inspection  
Identified Risk - Z10 to Z12

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PROJECT NUMBER: PIC075-HLR-(Z10-12)  
DATE: NTS (a2)  
DOI: 08/03/2023

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[3. PIC075-HLR-\(Z10-12\)](#)

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

HIGH-LEVEL ZONES SHOWN IN THIS DRAWING  
**Z13-16**

**KEY:**

- Low identified risk label → Monitor Observation / Plan Repairs
- Low identified risk → Fabric detached during inspection (low residual risk)
- Medium identified risk label → Monitor Observation / Plan Repairs
- Medium identified risk → Fabric detached during inspection (low residual risk)
- High identified risk → Access Restriction (low residual risk)
- High identified risk → Fabric detached during inspection (low residual risk)
- High identified risk → Access Restriction (low residual risk)

**202-01** Label reference: Z13-HL-Zone E.g. 01, 02, etc. 01 = OBS number E.g. 01 to 09. Line only risk (omit identifying location/structure crack)

**202-01** Notified of repair by MCU. Confirm update with regional team.

**Notes:**

- Indicative location of Risk
- Refer to Observation Form for precise locations & details of risks & defects.
- HEP photos & CAD drawings used in the production of assets.

**HIGH-LEVEL FABRIC TACTILE INSPECTION**  
17/03/2023 to 18/04/2023

**IDENTIFIED RISK 04**

Project: PIC075 Inverlochy Castle  
Title: High-Level Tactile Survey Inspection  
Identified Risk - Z13 to Z16

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PROJECT NUMBER: PIC075-HLR-(Z13-16)  
DATE: NTS (a2)  
DOI: 08/03/2023

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[4. PIC075-HLR-\(Z13-16\)](#)





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**INTERACTIVE PDF**  
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HIGH-LEVEL ZONES SHOWN IN THIS DRAWING  
**Z17-18**

**Z17**  
PICT05

**Z18**  
PICT05

**Z18 Panorama - Internal elevations of lower laneway**

**KEY**

- Low identified risk label → Monitor Observation / Plan Repairs
- Low identified risk → fabric detached during inspection (low residual risk)
- Medium identified risk label → Monitor Observation / Plan Repairs
- Medium identified risk → Access Restriction (low residual risk)
- Medium identified risk → fabric detached during inspection (low residual risk)
- High identified risk → Access Restriction (low residual risk)
- High identified risk → fabric detached during inspection (low residual risk)

**Z17-01** Low reference: Z17-01, etc; etc  
OBS number E.g. 01 to 02  
Site only risk occur identifying location Structural crack

**Z17-01** Notified of repair by MCU. Confirm details with regional team.

**Notes:**

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

**HIGH-LEVEL FABRIC TACTILE INSPECTION**  
17/03/2023 to 18/04/2023

**IDENTIFIED RISK 05**

Client: PICT05 Inverlochy Castle  
Asset: High-Level Tactile Survey Inspection  
Identified Risk - Z17 to Z18

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Project Reference: PICT05-HLR-(Z17-18)  
NTS: NTS:042  
DOI: 08/03/2023  
Project Name: [REDACTED]

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[5. PIC075-HLR-\(Z17-18\)](#)

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

HIGH-LEVEL ZONES SHOWN IN THIS DRAWING  
**Z19-21**

**Z19**  
PICT05

**Z20**  
PICT05

**Z21**  
PICT05

All lintels showing signs of rot. Eave lintels unstable.

Various timber lintels - please refer to OBS forms for further information.

**KEY**

- Low identified risk label → Monitor Observation / Plan Repairs
- Low identified risk → fabric detached during inspection (low residual risk)
- Medium identified risk label → Monitor Observation / Plan Repairs
- Medium identified risk → Access Restriction (low residual risk)
- Medium identified risk → fabric detached during inspection (low residual risk)
- High identified risk → Access Restriction (low residual risk)
- High identified risk → fabric detached during inspection (low residual risk)

**Z20-01** Low reference: Z20-01, etc; etc  
OBS number E.g. 01 to 02  
Site only risk occur identifying location Structural crack

**Z20-01** Notified of repair by MCU. Confirm details with regional team.

**Notes:**

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

**HIGH-LEVEL FABRIC TACTILE INSPECTION**  
17/03/2023 to 18/04/2023

**IDENTIFIED RISK 06**

Client: PICT05 Inverlochy Castle  
Asset: High-Level Tactile Survey Inspection  
Identified Risk - Z19 to Z21

HISTORIC ENVIRONMENT SCOTLAND ARAINNEACHD EACHDRAIDHEIL ALBA

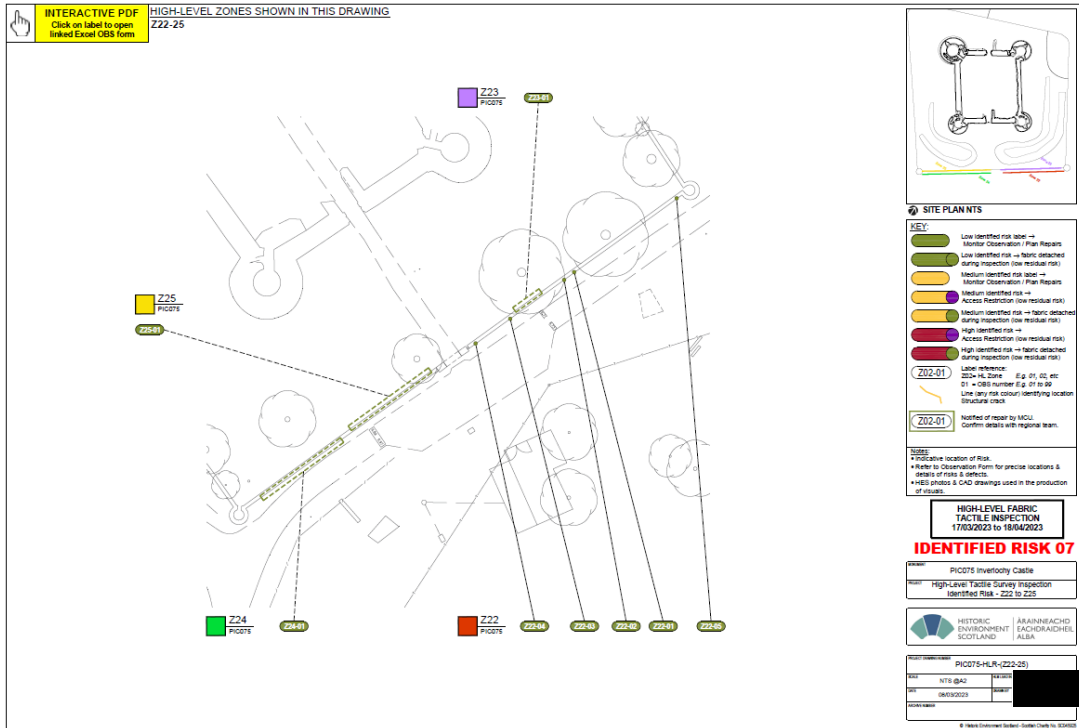
Project Reference: PICT05-HLR-(Z19-21)  
NTS: NTS:042  
DOI: 08/03/2023  
Project Name: [REDACTED]

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[6. PIC075-HLR-\(Z19-21\)](#)



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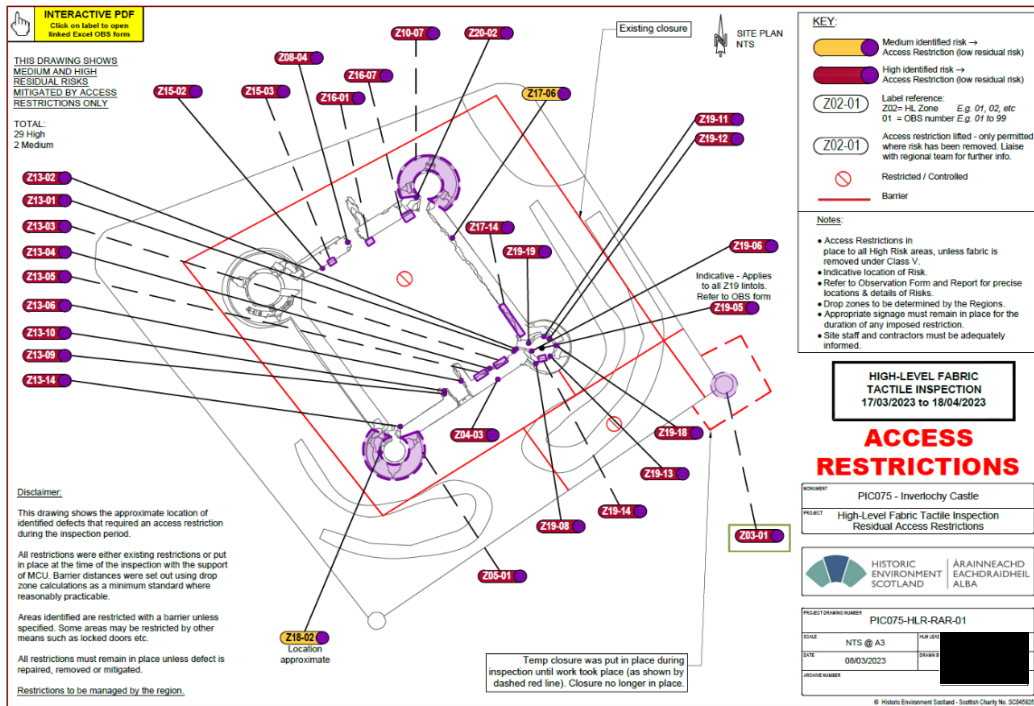
[7. PIC075-HLR-\(Z22-25\)](#)



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



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



PIC075-HLR-RAR-01