



NORTHLIGHT HERITAGE House of Dun Mausoleum

REPORT: 84 Montrose, Angus

PROJECT ID: 4360161

DATA STRUCTURE REPORT **Standing Building Survey**

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House of Dun Mausoleum

NGR: NO 66762 59850

Data Structure Report

on behalf of

The National Trust for Scotland

Cover Plate: Perspective view (from NW) of the House of Dun Mausoleum point cloud.

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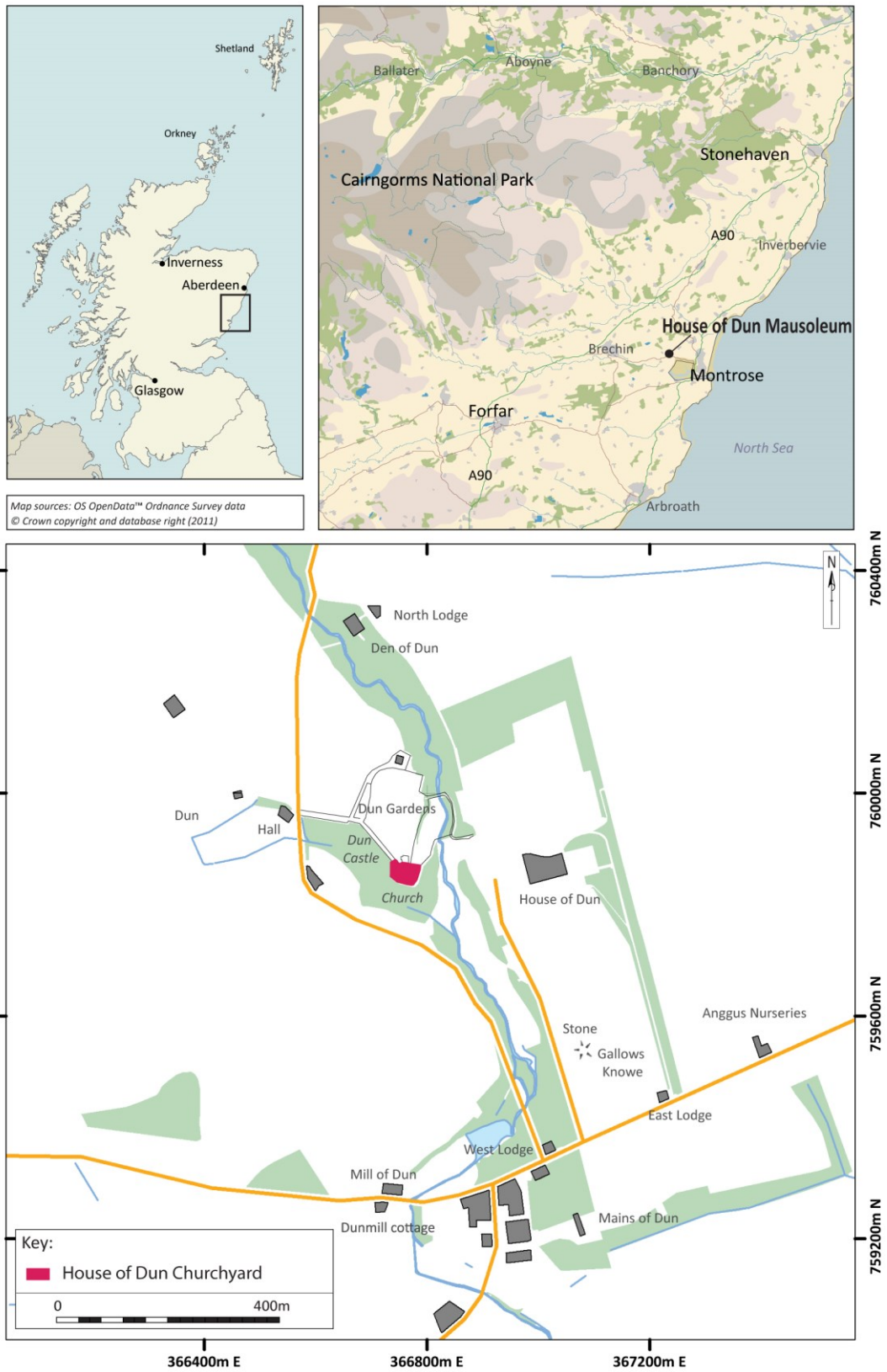
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Illus. 1: Location plan.

Abstract

A standing building survey was carried out of the B-listed House of Dun Mausoleum, Angus on behalf of the National Trust for Scotland. The survey included desk-based research into archives and primary and secondary sources. A fieldwork phase involved analysis, photography and terrestrial laser scanning of the structure. The survey has identified evidence for four main phases of the building's development:

Phase 1: Medieval (late 14th-century origins)

Phase 2: Remodelling and repair in the early 18th century

Phase 3: Conversion to a mausoleum

Phase 4: Modern maintenance and repairs

The building preserves evidence of its medieval fabric in the east elevation and parts of the north and south, with other features in the burial vaults and west gable possibly original. The documented remodelling and repairs in the early 18th century are evident in raised walls and enlarged window apertures. The conversion to a mausoleum involved dismantling the western part of the structure, levelling and raising walls, creating an additional burial chamber and inserting barrel vaults. The vaults contain several burials of Erskine family members.

The building has several pressing conservation issues, including a cracked asbestos butterfly roof, inadequate drainage provision, inappropriate finishes and the degraded state of the burials. This report offers an assessment of the significance of the heritage assets, based on evidential, historical, architectural/aesthetic and communal social values. It also proposes strategies for conserving significance and for further evaluation, including redressing the drainage issues, recording and restoring the burials to a fully interred state to respect right of sepulchre, maintaining a watching brief on structural works and repairs and carrying out targeted research to answer questions raised as a result of the survey.

1. Introduction

- 1.1 This report presents the results of standing building survey of the House of Dun Mausoleum, a National Trust for Scotland property. The standing building survey was carried out by Northlight Heritage on 8th-11th November 2013, and involved terrestrial laser scanning, photography, written recording and analysis. It was supported by a programme of desk-based research into the history of the building. The work was carried out in advance of planned conservation works to the Mausoleum.

Constraints & Limitations

- 1.2 The desk-based research included the records of the family of the Erskines of Dun, held in the National Records of Scotland. As Thompson notes in Lelong et al (2001, 8), the Erskine archives have not been catalogued and are not stored in chronological sequence. Their cataloguing and detailed examination would involve a significant and time-consuming piece of research beyond the scope of this study. The research carried out for this report therefore employed a focused approach based on the assessment of relevance, using the available bundle descriptions a guide to identifying and examining those it appeared would contain material that might be relevant to the church of Dun and the Mausoleum.
- 1.3 The Written Scheme of Investigation for the survey (Appendix 3) specified that 'All principal vertical surfaces of the structure will be measured and drawn at a suitable scale' and the laser scanning and analysis focused therefore on the building's elevations.
- 1.4 The WSI also specified that the survey should seek to identify 'What historic changes have been made to the roof construction'. The roof itself was not safely accessible during the survey. The asbestos tiles which form the roof covering are saturated and friable, and accessing the roof would have placed the field team in breach of the *Health & Safety at Work Act 1974*, the *Control of Substances Hazardous to Health Regulations 2002* and the *Control of Asbestos Regulations 2012* (HSE 1974; 2002; 2012). The National Trust for Scotland were kept informed by e-mail during the fieldwork about problems regarding access. The field team did record the roof photographically from the parapet, and this has provided useful information on its current character. Because the asbestos tiles mask the underlying vaults and their relationships with the walls, it is unlikely that laser scanning of the roof in its current state would yield further information about historic changes to the roof construction, although observation during any future removal of the tiles could provide an opportunity to note and record evidence for changes.
- 1.5 On the ground, the base of the Mausoleum wall is visible on the east where there is a narrow chamfered plinth (022), but elsewhere the raised ground levels make it impossible to see if the base course continues around the whole structure. Heavy rendering on the elevations also masks the fabric in places. Inside the Mausoleum, the inner chamber (2) was not accessible because of the risk of disturbing the human remains inside it. The scanning and photography were therefore carried out from the doorway in accordance with the Written Scheme of Investigation (Appendix 3), which specifies that 'All contractors must exercise the upmost [sic] sensitivity while on site, with the disturbance of any human remains constituting a breach of contract.' Because of this limitation, it was not possible to discern the relationship between the chamber and the north wall of the Mausoleum.

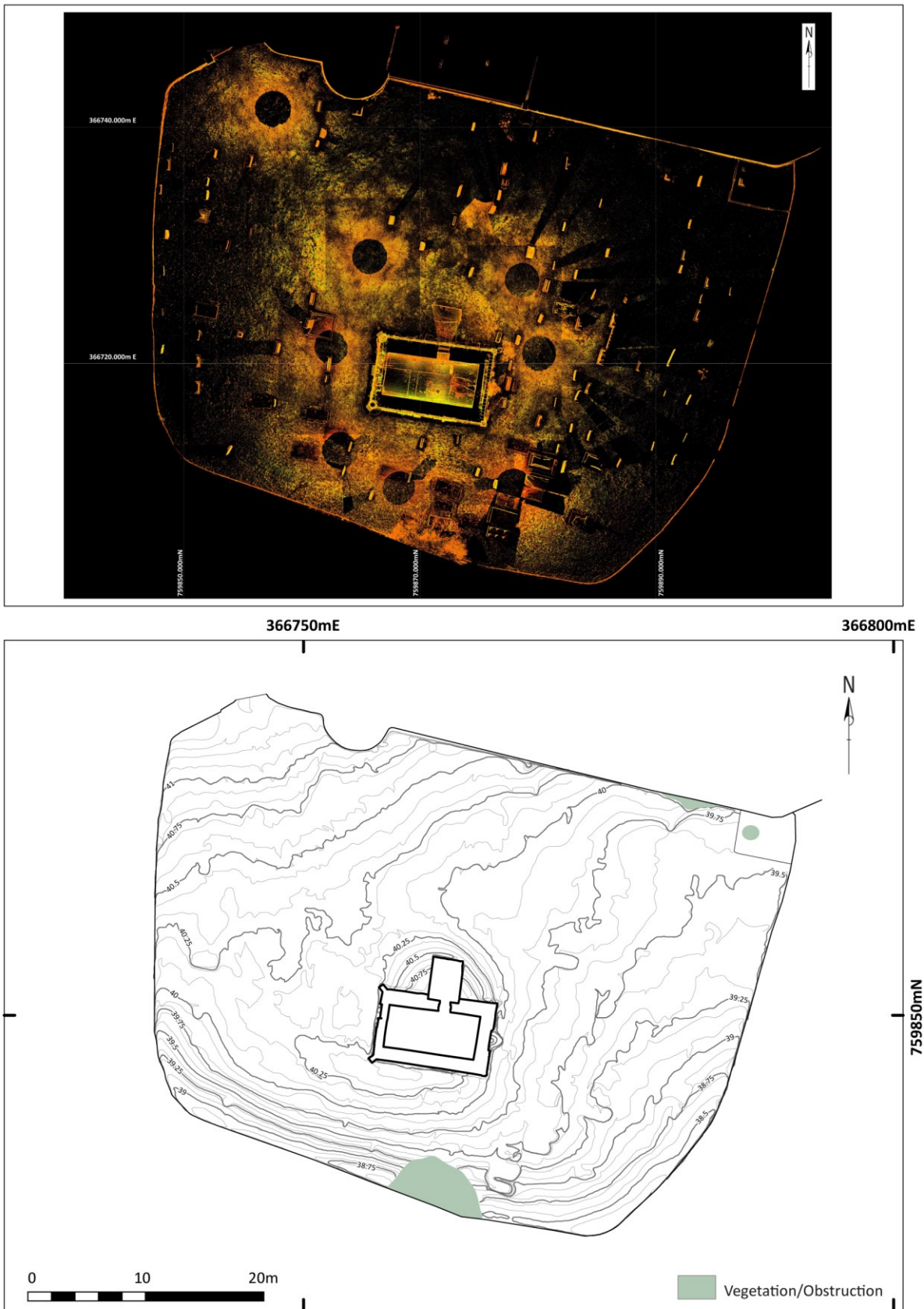
Guide to Content of the Report

- 1.6 The content of the report follows guidance set out in the Written Scheme of Investigation (Appendix 3) and in the Institute for Archaeologists' Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings (2008). It first sets the context for the survey, describing the site, the

project aims and the objectives and methodology for the desk-based research, digital capture and analytical survey (sections 1-4). Section 5 sets out the results of the desk-based research. Section 6 presents the results of analysis of the building. Section 7 uses the results of field analysis in tandem with the results of desk-based research and study of architectural parallels and contemporary trends to present an interpretation of its phasing and development. Section 8 discusses the results, assesses the significance of the heritage assets and considers implications for their conservation and management. Section 9 lists the sources consulted and Section 10 contains appendices.

2. Site Location

- 2.1 The House of Dun estate is owned by the National Trust for Scotland and lies in the parish of Dun, Angus District, Tayside Region, centred at NGR NO 667 600. The Mausoleum sits within the burial ground, to the west of the main house (illus 1). The Burial Ground enclosure occupies the top of a steep-sided spur and abuts the southern side of the walled kitchen garden. The slopes that fall away from the enclosure wall to the adjacent valley are covered in dense woodland.



Illus. 2: Ortho-image of the mausoleum and burial ground point cloud (top) with 0.25m with contour map.

3. Aims & Objectives

3.1 The overall aim of the programme of standing building recording and analysis was to develop further understanding of the Mausoleum in support of the repair programme and of the human remains within it, in order to augment and develop current understanding of the property and contribute to wider interpretations of the development and cultural significance of the area as a whole. The main aim of the project was to achieve a more refined understanding of the structural development and chronology of the Mausoleum, in conjunction with the Heritage Impact Assessment prepared for the repair project, and to produce a detailed archaeological record of its contents.

Desk-based Research

3.2 The objectives of the desk-based research were better to understand the historic environment resource in order to:

- assess the potential for the survival of heritage assets relating to the Mausoleum and earlier church;
- assess the significance of these known or predicted heritage assets in terms of archaeological, historical and architectural interest;
- develop strategies to further evaluate the nature, extent or significance where these were poorly defined;
- assess the impact of the proposed conservation on the significance of the Mausoleum and earlier church, and
- develop strategies to conserve their significance.

Standing Building Survey

3.3 The recording and analysis of the building were designed to provide answers to three specific questions required by the repair project:

- What is the extent of the medieval fabric, and what were the early 19th-century amendments and additions?
- What are the extent, condition and age of the vaults and their contents?
- What historic changes have been made to the roof construction?

4. Methodology

Desk-based Research

4.1 The desk-based research focused on finding evidence for the character and extent of the earlier church and Mausoleum as well as evidence for any changes to their fabric or form, in order to inform the field recording and analysis and put the results into context.

4.2 The research involved examination of relevant material in the following databases and repositories:

- The register of Listed Buildings maintained by Historic Scotland;
- The Royal Commission on the Ancient & Historical Monuments of Scotland;
- The Sites and Monuments Record for Angus maintained by Aberdeenshire Council Archaeology Service;
- The National Library of Scotland;
- The Statistical Accounts of 1791-99, 1834-45, 1951-52 and 2004-5;
- National Trust for Scotland archives held at NTS Headquarters at Hermiston Quay;

- Other published material, and
 - The National Records of Scotland (amalgamated from the former National Archives of Scotland and General Register Office for Scotland), including the archives of the Erskines of Dun and other relevant papers.
- 4.3 The Erskine family archives (reference GD 123) held at National Records of Scotland have not been catalogued, although the list of bundles includes descriptions of some of the contents. As examining each bundle in detail to establish whether it contains relevant information would be a very lengthy undertaking well beyond the scope of this study, the research focused on those bundles assessed as likely to contain relevant material. Each bundle description was scanned for references to the church of Dun, burial ground and mausoleum and those containing relevant material were examined. In addition, the NRS catalogue was searched for all references to 'Dun' dating from 1300-1900, and the descriptions of the 1181 records returned were scanned for relevant material.
- 4.4 Following the phase of archival research at NTS headquarters, the NTS Archivist Ian Riches provided a list of the House of Dun Charter Room Archives that were removed from the property in 2013 and are now held at Hermiston Quay. The list was provided after the phase of desk-based research was completed and time did not allow for physical examination of the archives. However, the list was scanned for documents that appeared relevant to the mausoleum's history. Nothing of relevance was indicated by the document descriptions and dates.

Standing Building Survey

- 4.5 The standing building survey was carried out in accordance with guidelines for best practice, as set out by the Institute for Archaeologists (2008) and English Heritage (2006). It also followed the RCAHMS *Survey and Recording Policy* (2004) and English Heritage's *Metric Survey Specifications for Cultural Heritage* (Bryan et al 2009).
- 4.6 The field survey was carried out using a terrestrial laser scanner (TLS) equipped with a digital camera set for high quality imaging. This also minimised the possibility of disturbing human remains, being less intrusive and quicker than other methods. TLS survey was carried out using a Leica C10 Pulse - or Time of flight - scanner (up to 50000 points per seconds at a distance up to 300 m with 90% reflectivity). The capture included the Mausoleum structure and a 30 m radius of its immediate topographic context, providing height points to create a precise contour map of the graveyard (excluding areas of obstructed by grave-slabs and tombstones). The conditions for the survey were good for the time of year, although daylight was rather limited.
- 4.7 English Heritage (2007) offers guidance on the appropriate sampling resolutions or point densities for TLS, depending upon the type and size of archaeological and architectural feature. The House of Dun Mausoleum might be categorised as large stone masonry, which under those guidelines would warrant 5mm; however, the guidelines were established to suit the laser scanning technology available at the time of publication and are now somewhat out of date. Following initial examination of the building and because of the excessive repairs to the stonework and heavy rendering that masks details, it seemed more appropriate to choose a scanning resolution at 3 mm. This did not add time to the capture, as the distance resolution was set to 30 m and a range filter can be set to 100 m; such filters were not available in 2007. The dataset was geo-referenced to the British National Grid (OS 1936) using RTK-GPS with a Leica GS08 Smart Rover at vertical and horizontal accuracy of 0.018 m.
- 4.8 Given that the building could not be scanned from one position, the TLS survey used a traverse method

with 6" circular planar HDS targets, which are used to register the scans. The survey required 13 set-ups and 12 scans (nine external and three internal) at horizontal and vertical 0.003 m resolution at 30 m distance, with a filter range of 100 m and imagery resolution set on medium (960x960 pixels).

- 4.9 The registered ScanWorlds (ScanWorld is a collection of scanned point sets that are aligned with respect to a common coordinate system) were checked in Cyclone (version 7.4) database for coherence. It seemed appropriate to re-register the ScanWorlds, as the traverse results were not satisfying; the Mean Absolute Error was 0.000 m, but the final scan in the crypt was not aligned. The traverse was recalculated and control points had to be added manually to the final scan to register it to the rest of the traverse. The final registration diagnostic showed a Mean Absolute Error for Enabled Constraints of 0.007 m (including transformation to the British National Grid).
- 4.10 Although photographs are taken with the laser scanner, these are not exportable and can only be used to texture the point cloud. A photographic record was made of all features and artefacts identified in the survey. This included oblique, straight-on and detailed photography, undertaken using a Canon EOS 600D (horizontal and vertical resolution of 72 dpi) digital camera. Scale bars were not used, as the features photographed can be referred directly back to the point cloud for highly accurate measurements.
- 4.11 Field recording comprised the study of the principal vertical surfaces of the Mausoleum structure. The terrestrial laser scan automatically produced a stone by stone survey, but only salient features, content and analytical detail were exported from the laser scan dataset. All features and artefacts were recorded by written description, using a system of unique context numbers. Each was given a name and number and assigned a possible function, along with a note of its state of repair. Following the on-site work, the field notes were collated to develop an interpretation of the building's development and phasing. All features recorded within the point cloud can be presented as an orthographic image; the relevant ones were exported and their positions noted on at least one plan or elevation.
- 4.12 The terms used for the two vaulted chambers (Chamber 1 for the outer, western room and Chamber 2 for the inner, northern one) correspond to labels used in the NTS quinquennial surveys (e.g, Jack Fisher Partnership 1990).

5. Results of the Desk-Based Research

Previous Research

- 5.1 The House of Dun Mausoleum and Burial Ground were recorded in an historic landscape survey conducted in 2001 (Lelong et al 2001). This involved topographic survey and written and photographic description of built and archaeological features, as well as overall assessment of their significance within the context of the House of Dun estate. The Mausoleum structure was recorded in outline, as were the visible contents of the vaults.
- 5.2 In 2013, Rose Geophysical Consultants carried out resistivity survey in the Burial Ground with the aim of identifying buried remains of the earlier church. This recorded a well-defined, high resistance anomaly to the west of the Mausoleum, which does not appear to abut the standing structure (Rose Geophysical Consultants 2013). The discrete character of the responses suggested wall footings for a structure of identical width and alignment to the Mausoleum, although the results were interpreted with caution due to the presence of subsequent burials in the area. The survey also recorded a high-resistance anomaly immediately north of the Mausoleum which was interpreted as Chamber 2, the inner vault; a weak rectilinear anomaly leads from it. A narrow band of high-resistance readings immediately south of the

Mausoleum was interpreted as relating to the building's foundations. More ephemeral, apparently rectilinear high resistance anomalies recorded in the north and north-east part of the Burial Ground may relate to subsoil variations due to the presence of burials, although those in the north could indicate the footprint of a much larger structure than the Mausoleum (ibid).

Cartographic Evidence

- 5.3 Maps from the 18th century depict the surrounding landscape, but contain little detailed information about the church or burial ground. *The Roy Military Survey of Scotland* (1747-55) depicts the new House of Dun among five enclosed fields, all to the east of the Mill Burn and the Den of Dun (Illus 3). Nothing is shown on the site of the former castle or the parish church, although settlements and cultivated fields are depicted nearby at Leys of Dunn and Mill of Dunn. John Ainslie's (1794) *Map of the County of Forfar or Shire of Angus* appears to show the church in its burial enclosure, but not in enough detail to determine its size and shape (Illus 4). John Knox's *Map of the Basin of the Tay* (1850) depicts the church (by then the Mausoleum) as having two windows along its south side, with a two-storey steeple tower at its western end pierced by a window on each floor (Illus 5). However, as all of the churches on this map are shown in the same way, it is likely to be a stylised representation and not reliable.
- 5.4 The first edition Ordnance Survey map, surveyed at 25 inches to the mile in 1862 and published 1865, depicts the Mausoleum as a roofless structure in its current shape and size within the burial ground. It marks the site of Dun Castle immediately to the north-west (Illus 6). The second and third editions of the OS maps, published in 1903 and 1924 respectively, depict essentially the same structure and enclosure (Illus 7 and 8).



Illus. 3: Extract from *The Roy Military Survey of Scotland* (1747-55).



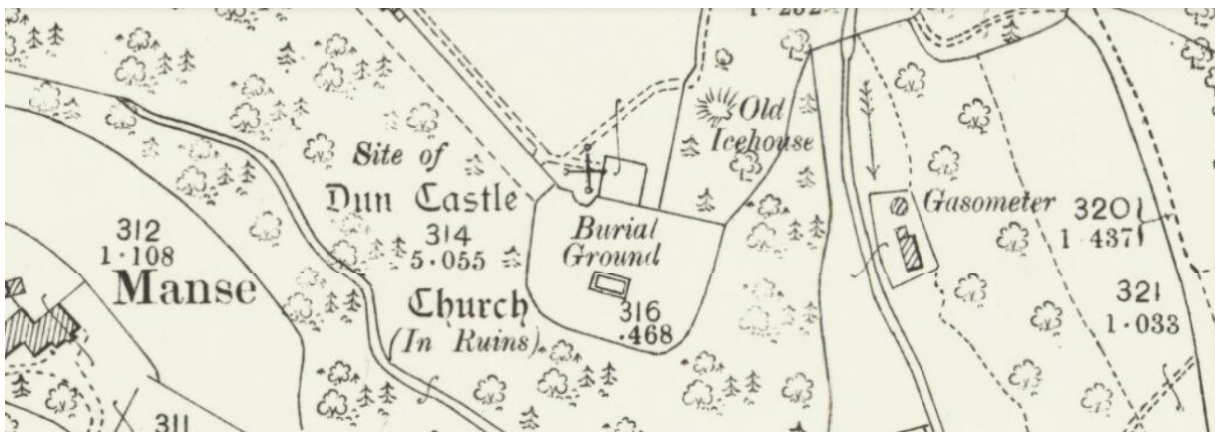
Illus. 4: Extract from John Ainslie's (1794) Map of the County of Forfar or Shire of Angus.



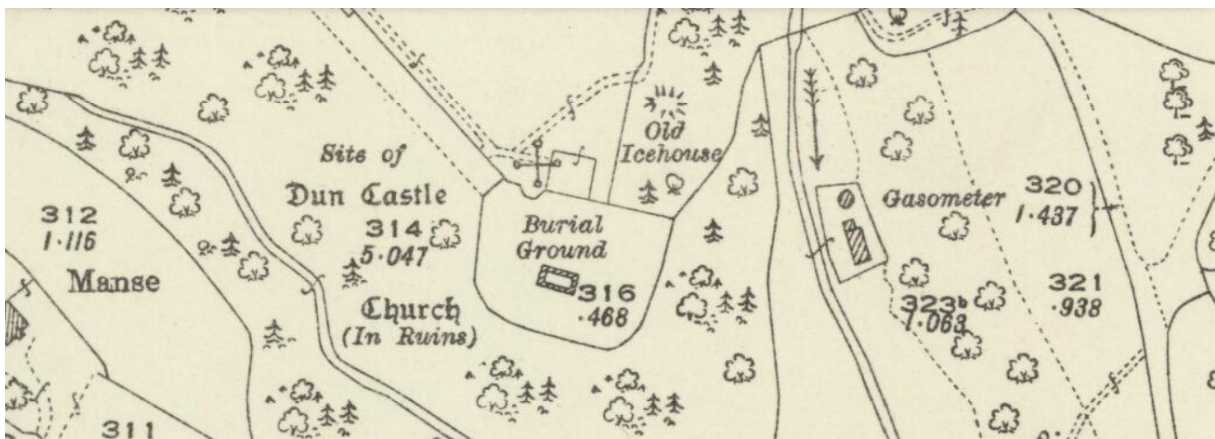
Illus. 5: Extract from James Knox's (1850) Map of the Basin of the Tay.



Illus. 6: Extract from Ordnance Survey 1st edition map (1865).



Illus. 7: Extract from Ordnance Survey 2nd edition map (1903).



Illus. 8: Extract from Ordnance Survey 3rd edition map (1924).

Documentary Evidence

- 5.5 While the precise origins of the parish church at Dun are not known, there is reasonably strong evidence for the existence of a church on this site in the medieval period, and one certainly existed prior to the Reformation, as discussed below. In the following discussion of the documentary evidence, 'NRS' refers to documents held at the National Records of Scotland.
- 5.6 The barony of Dun was purchased by Sir Robert Erskine of Erskine in Renfrewshire (Thompson in Lelong et al 2001). A bond dated 18 November 1360 and referring to 'Robert de Erskyne, lord of same and of the barony of Dun' (NRS GD1/111/1) indicates that the lands of Dun were in his possession by that date (*contra* Thompson 2001).
- 5.7 According to the Records of Dun Kirk Session (1831-1951), the parish church at Dun was dedicated to the Virgin Mary and until the Reformation it belonged to the priory of Elcho (NRS CH2/1022). MacKinley's (1910, 132) review of Ancient Church Dedications in Scotland likewise notes the church of Dun as having been dedicated to the Virgin. A dedication to Mary (Mackinlay 1910, 132) would have been consistent with a late medieval foundation. This was a period when devotion to Mary permeated Scottish society and church dedications to the Virgin were particularly popular among the aristocracy (Boardman & Williamson 2010), including the Erskines of Dun. For example, the 1360 bond cited above records that Robert de Erskyne installed two chaplains to celebrate mass at the altar of Mary the Virgin in the cathedral church in Brechin, for which he paid annually £10 sterling from the rents of the barony of Dun

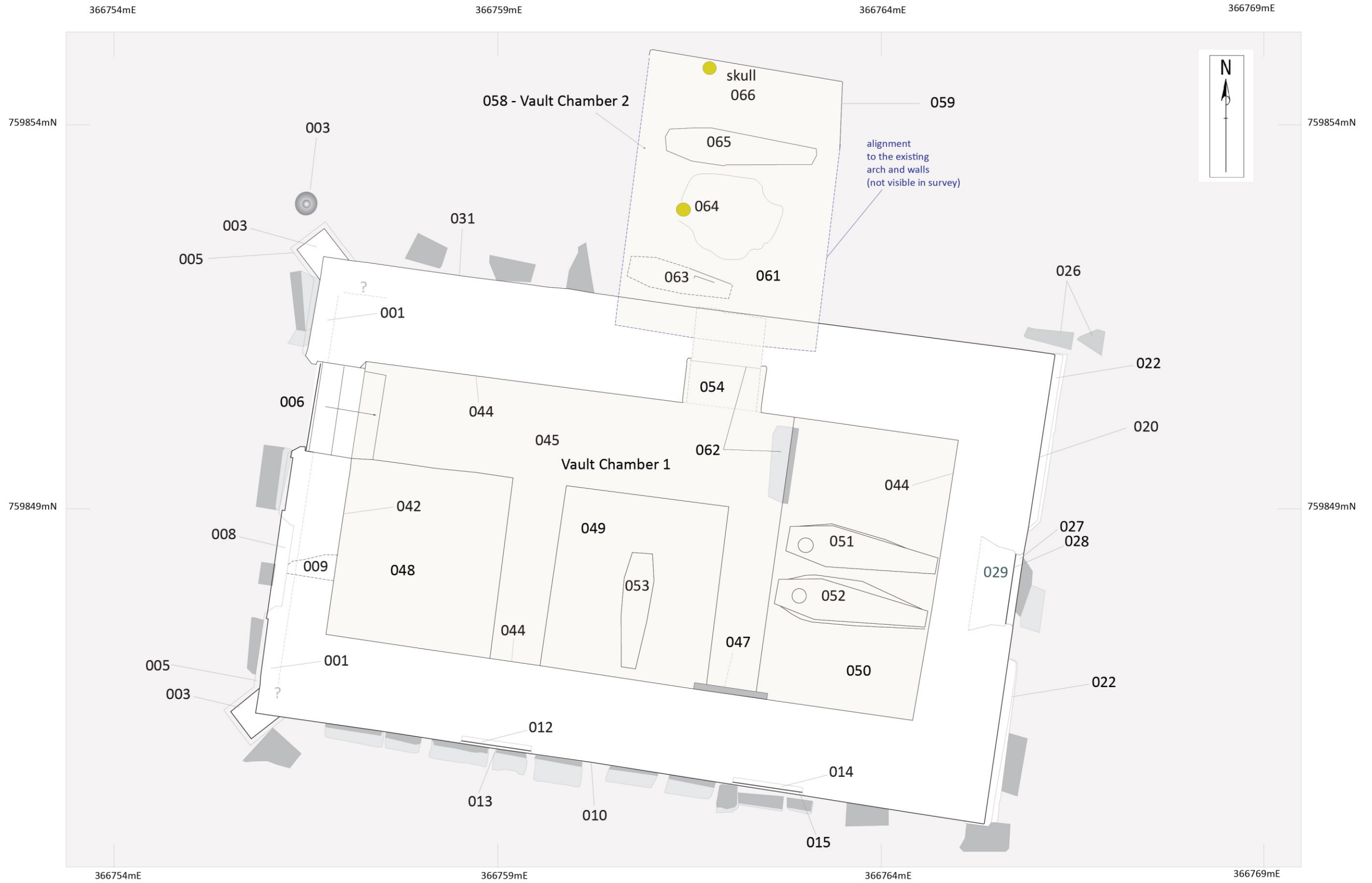
(NRS GD1/111/1). The 5th laird of Dun, John Erskine, was active in the Reformation and John Knox reputedly preached at the church of Dun in 1555 (Warden 1880, 169).

- 5.8 The parish church of Dun continued in use through the 18th and early 19th centuries, as attested by various accounts of repairs and alterations to its fabric among the archives of the Erskines of Dun, held in the National Records of Scotland.
- 5.9 The church was refurbished in 1716-17, and accounts held in the archives detail the materials involved and their costs. This work involved raising the walls of the choir; inserting (or repairing existing) four storm windows; glazing a new or pre-existing window at the church's east end; putting locks on the doors, and repairing the roof structure and covering. The work incurred costs for lime, 45 'trees for roof', 350 slates and stone, as well as fees to masons, barrowmen and wrights (NRS GD 123/426/13; NRS 123/428/4). Another account (NRS GD 123/125) notes the purchase of 44 'cupples' for the church and 'Isle' (a slight discrepancy with the 45 recorded in NRS GD 123/428/4); timber for four storm windows; glass and lead, the latter for the east end of the church; nails, spikes, pins and staples; two locks for the church doors, and hinges for the pulpit (NRS GD 123/426/14).
- 5.10 In 1730-1, further substantial repairs were carried out (NRS GD 123/423/39). This phase of refurbishment involved hiring masons to heighten the walls of the 'isle', take down the middle wall in the church, work on the aisle door and apparently rebuild window apertures and replace lintels. A line in the account records payment to a mason for the wall heightening and 'work... on the Laigh South Windows', which would suggest that the planned repairs were indeed carried out. This phase also involved replacing or substantially repairing the roof of the church and aisle, as indicated by accounts for the purchase of 111 new couples ('Trees for roof of Church an Isle') and 1500 new slates. An undated document entitled 'Remarks on the accounts for repairing Church Quire and Manse' (NRS GD 123/428/36) may refer either to this phase of refurbishment or to the previous one. It notes that the cost of '30 bolls lime for repairing of the isle falls to be a burthen on those heritors who heightened the walls in order to make lofts'. Another remark in the same document notes 'one window struck out of the Isle for a loft'.
- 5.11 Documentary references to the church throughout the mid 18th century are relatively sparse. An account dated 1748 (NRS GD 123/137/34) lists expenditure by Lord Dun to John Adam Architect in Edinburgh for the construction of a monument to his late wife Magdalen Erskine, including the costs of marble, plaster of Paris and polished free stone along with the fees paid to a mason and a marble cutter. However, it does not specify whether the monument was housed in the church. According to Jacob (1931), in 1758 David, the 13th laird, died and was buried in 'the old vault at Dun'.
- 5.12 The first detailed description of Dun church was written at the end of the 18th century by the parish minister for the *Old Statistical Account of Scotland (OSA)*. He wrote: 'It appears anciently to have been a chapel belonging to the family of Dun, the mansion-house of the family having been built very near to the church-yard.... The church is in good repair; it has two lofts, one to the east, the other to the west. The east end of the church is stiled the choir, and has a fount in the wall, intended, of old, for baptism' (Lauder 1791-99, 359-60).
- 5.13 By 1833, when the Dun parish minister wrote his chapter for the *New Statistical Account of Scotland (NSA)*, the church had fallen into a poor state of repair. He wrote, 'The roof and ceiling is so much decayed, that it is proposed at present to have the church renewed. It affords accommodation to nearly 400 persons. There are no free sittings; but there are several pews, belonging to the session, let yearly for a very small sum' (Eadie 1834-45, 126).

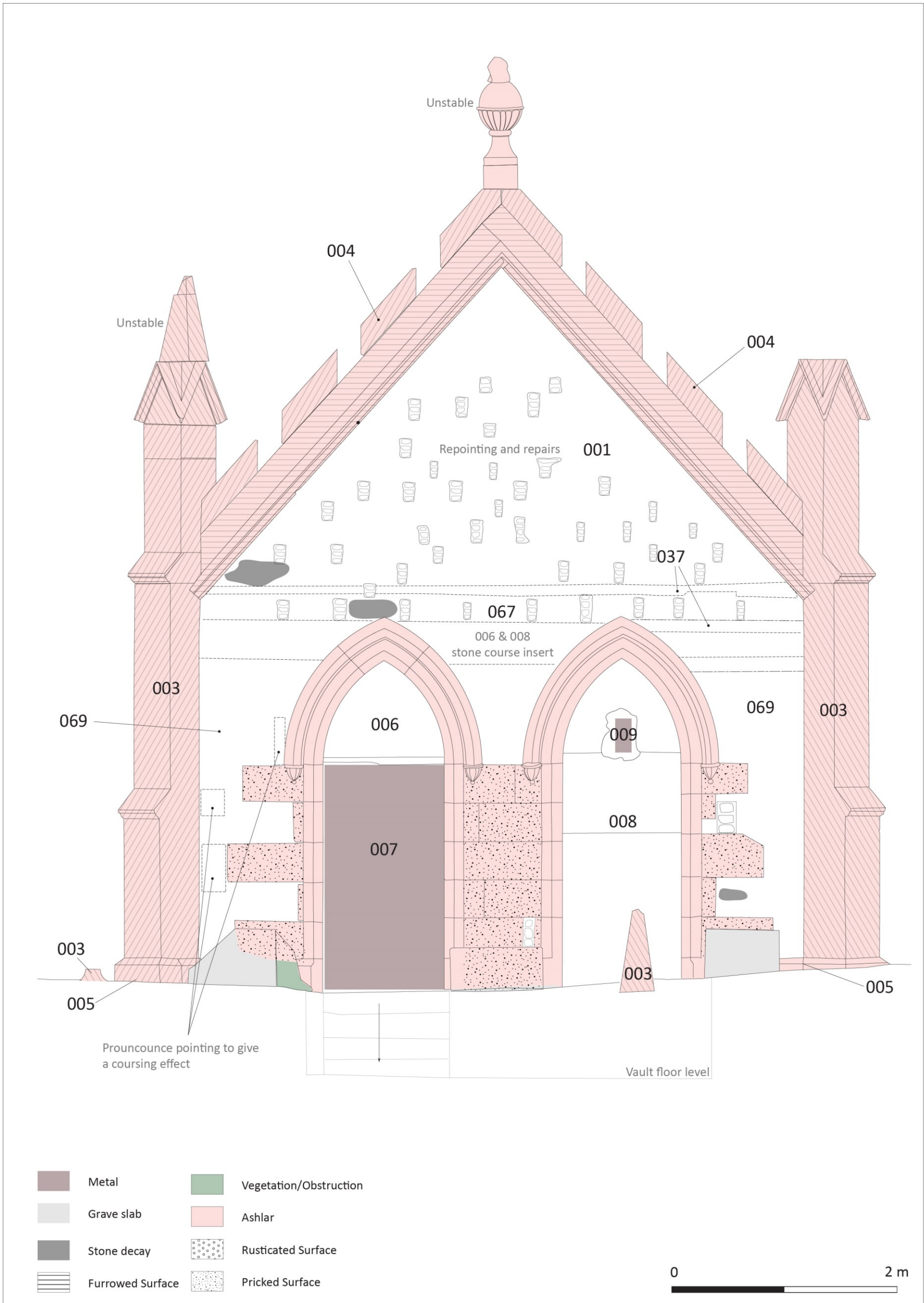
- 5.14 The Mausoleum was created at some point after the 1833 *NSA* account was written and before 1848, when the 17th laird Lady Margaret died. Jacob (1931) records that Lady Margaret, who put her considerable energies into improvements across the estate, had most of the old church taken down and left a small part to serve as a Mausoleum. The architect Robert Dalgarno designed the new parish church on a site to the west of the walled kitchen garden, and it was built by William Smith in 1834, incorporating a 1615 pulpit and an 1815 Barclay Bell which may have come from the old church (SMR NO65NE 119). Margaret's husband the Marquis of Ailsa died in 1846 and she died two years later; their coffins lie in Chamber 1 inside the Mausoleum (see 6.9 and Table 5).
- 5.15 In 1958, the Ordnance Survey visited the Mausoleum and reported that only the internal gable walls appeared to be original, adding that a blocked rectilinear doorway and window in the west gable might be of 17th- or 18th-century date (NMRS NO65NE 2).
- 5.16 In 1971, the Mausoleum and the Churchyard were included in Historic Scotland's statutory list of buildings of special architectural or historic interest under category B. The listing for the Mausoleum (Ref 4690) describes it as 'Roofless, on site of Old Church and incorporating parts of it. 2 gothic arches in pinned ashlar W gable, diagonal buttresses. Crenellated rusticated corbelled parapets down flanks: c. 1835.' It records that the Old Churchyard (Ref 4689) contains some noteworthy 18th-century tombstones.

Conclusions

- 5.17 In conclusion, on balance there is strong although not so far definitive evidence that the medieval (pre-Reformation) parish church of Dun stood in the Burial Ground on the site of the current Mausoleum, originally occupying a larger footprint. The recording of geophysical anomalies possibly representing wall lines of a structure of the same width as the Mausoleum, extending to the west on the same alignment (paragraph 5.2; Rose Geophysical Consultants 2013), lends support to Jacob's (1931) account that Lady Margaret Erskine had most of the old church dismantled and left part of it standing to serve as the Mausoleum (paragraph 5.14). This interpretation is further supported by the post-1835 dates on grave slabs in the area corresponding to these geophysical anomalies, in contrast to the earlier dates on graves immediately south and east of the Mausoleum.



Illus. 9: Plan of House of Dun Mausoleum.



Illus. 10: West gable elevation

6.0 Description of the Building

6.1 House of Dun Mausoleum is rectangular in plan (illus 2 and 9), aligned ESE/WNW, with overall dimensions of 9.6 m long by 6.2 m wide at the east end and 6.05 m wide at the west. Its gable ends are steeply pitched, castellated parapets line the wallheads on the north and south and buttresses stand at the north-west and south-west corners. At the eastern end is a rectangular entrance, now blocked, with an unglazed window above it. At the western end are two entrances with pointed arch heads; the southern is a blind entrance, while a heavy iron door covers the other. Two blocked windows are visible in the south elevation. Inside the Mausoleum and accessible through the western entrance are two barrel-vaulted chambers, the larger, western one (Chamber 1) aligned east/west and leading into a smaller one (Chamber 2) to the north, which is aligned north/south.

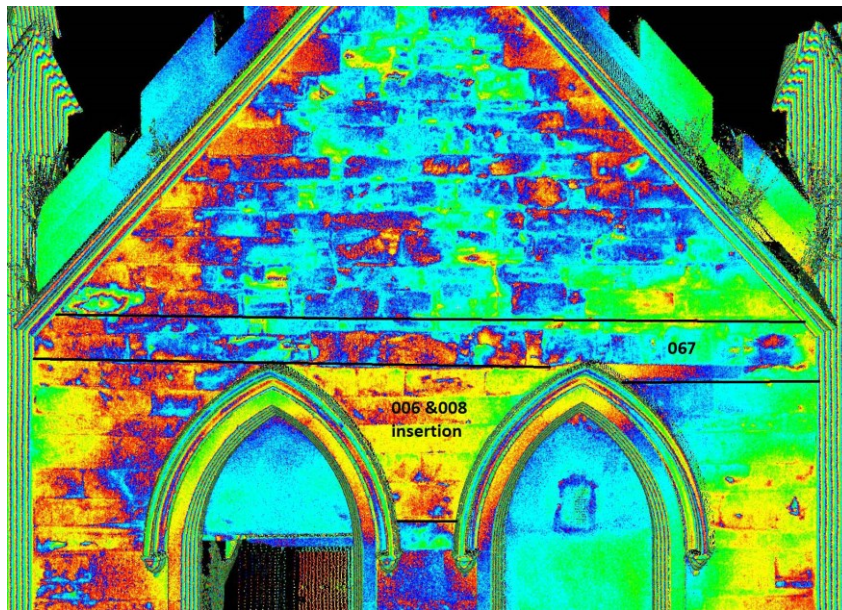
West Elevation (Illus 10 and 11)

6.2 The overall height of the west gable wall is 6.20 m to the pitched roof, 6.79 m to the top of the skews and 7.94 m to the finial. Its width is 5.33 m and its overall depth is 0.54 m. Stone decay is evident at two points in the upper north part (illus 12 and 13). The lower part of the elevation **069**, to a level coinciding the tops of the inserted door apertures **006** and **008**, is of square random sandstone rubble construction. A course of smaller stones **067** runs across the gable wall at this level. Above it the elevation is of different construction, consisting of coursed blonde sandstone ashlar masonry and pinning **001**. At each corner are red sandstone ashlar graduated buttresses with gabled heads **003**. A pyramidal apex stone caps the north-west buttress with what appears to be a fragment lying on the ground near its base, while the stone which formerly capped the south-east buttress has fallen and lies in front of aperture **008**. Red sandstone crenellated skews **004** run from the buttresses to the elevation's apex and a finial bearing a funerary urn (illus 14). A plinth course **005** of dressed, chamfered sandstone is visible at the base of both buttresses and also extending onto the southern edge of **069** (illus 15). The pointed-arch doorways **006** and **008** are both defined by red sandstone surrounds in neo-Gothic style with projecting hoodmolds/dripstones and chamfered margins (illus 16 and 17). A heavy cast-iron door **007** set in aperture **006** leads down four steps into Chamber 1. Aperture **008** is sealed with three sandstone panels pierced by a rectangular vent **009**. Mixed cement-based mortar **002** has been applied across much of the elevation.

No	Name	Description
001	W gable wall	Upper part of wall above 067 , consisting of coursed ashlar masonry with blonde sandstone and pinning. Lower limit defined by small stone course 067 , which occurs at the same height on the south elevation (as 023).
002	Finish	Mixed cement-based mortar with light pink sand inclusions, occurs across whole elevation and relates to later repairs across the building.
003	Buttresses	Red sandstone ashlar graduated corner buttresses, placed at angles at NW and SW corners, with gabled heads and pyramidal apex stone on north-west. SE apex stone is missing and lies in front of blind door 008 . The sandstone is furrowed diagonally. Both buttresses are weakened, leading to displacement of the south-east apex stone.
004	Skew and finial	Red sandstone crenellated skew with funerary urn on finial, which is tipping and in danger of falling.
005	Plinth course	Plinth course of dressed and chamfered sandstone, with same finish as 004 and 003 , bearing mixed cement mortar. In poor condition with vegetation overgrowth.
006	Door aperture	Width = 1.145 m, height to lintel = 2.04 m, height to arch = 3.09 m, depth = 0.86 m. Inserted door forming a pair with 008 . Red sandstone pointed arch with projecting hoodmold/dripstone and chamfered margins. Steps without the reveal. Neo-Gothic in style. The stonework internally is poorly knitted to the surrounding wall

		matrix 069 .
007	Door fitting	Very heavy cast-iron door in aperture 006 with hook and two band hinges, opening inward, leading down into Chamber 1.
008	Door aperture	Width = 1.06 m, height to arch = 3.08 m, depth = 0.25 m. Inserted door forming a pair with 006 . Red sandstone pointed arch with projecting hoodmold/dripstone and chamfered margins. Blind doorway sealed with three red sandstone panels.
009	Fitting	Rectangular aperture on 008 flagstone; metal vent with cement fixing.
067	Structural	Single course of small stones above 067 and below 001 .
069	Structural	Lower part of elevation (below 067). Construction appears to consist of square random rubble.

Table 1: Contexts in the West Elevation.



Illus. 11: Detail of W gable point cloud showing deformation (at 0.001 m) from the vertical plan on a scalar ramp.



Illus. 12: Stonework detail on part of the west gable, with evidence of possible harling.



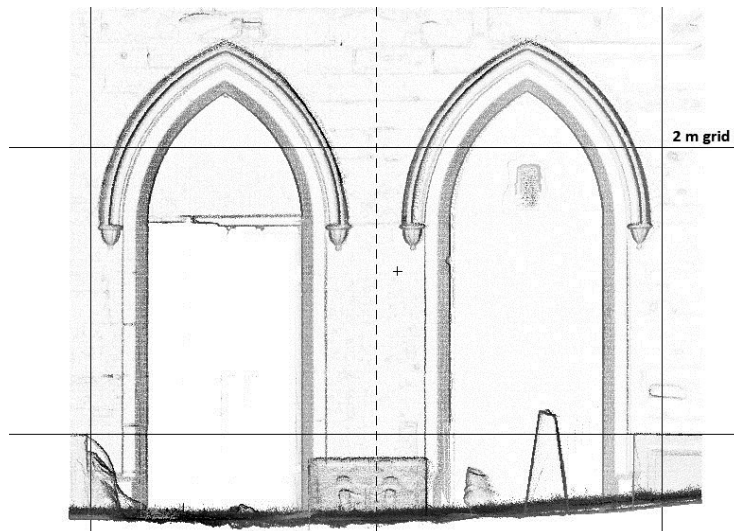
Illus. 13: West gable stone decay.



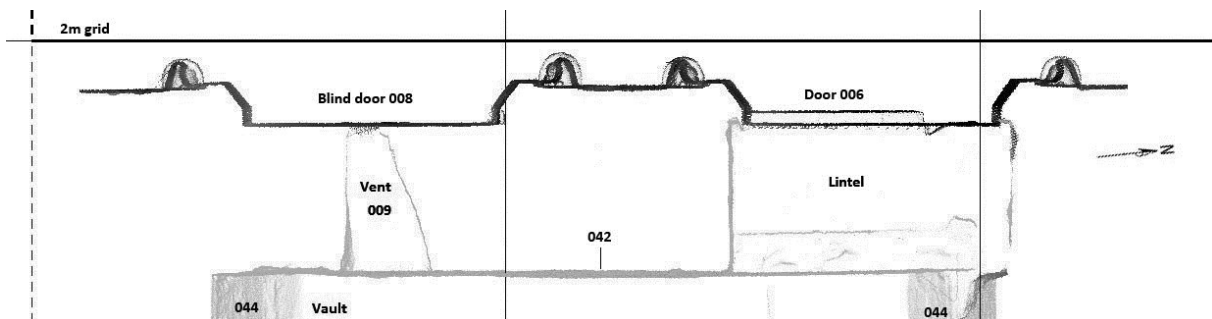
Illus. 14: Crenellation skew with a funerary urn on finial 004.



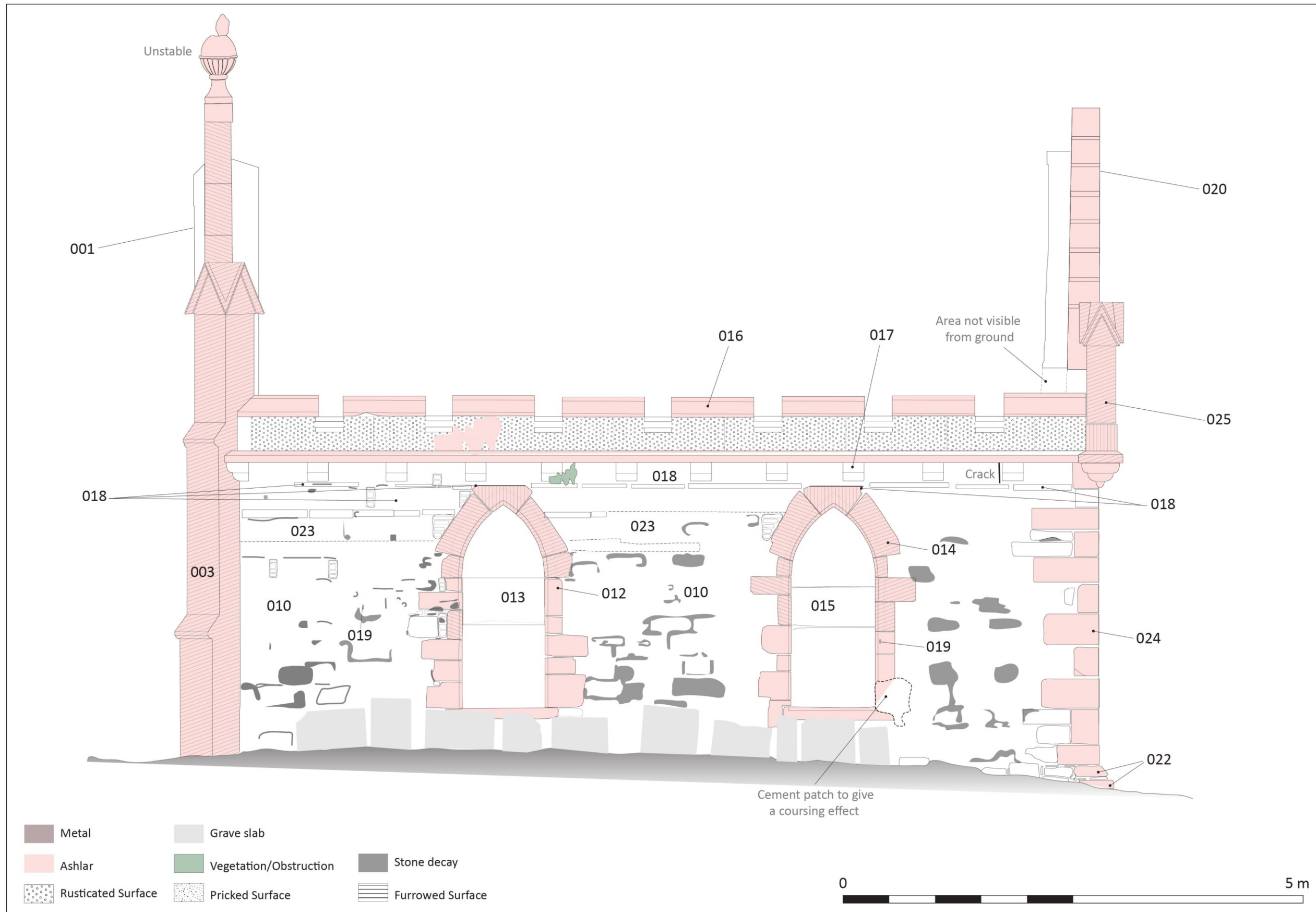
Illus. 15: Plinth course dressed and chamfered 005.



Illus. 16: Ortho-image of doors 006 and 008 (from W).



Illus. 17: Plan view of Doors 006 and 008.



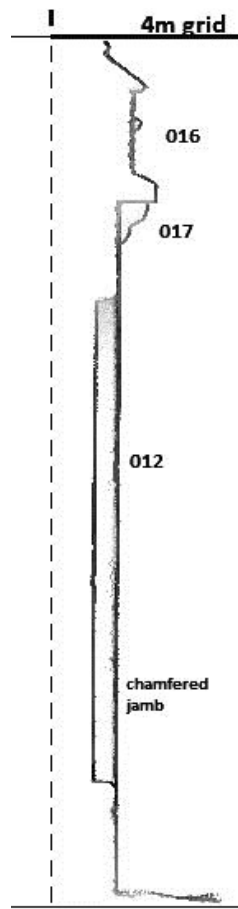
Illus. 18: South Elevation

South Elevation (illus 18)

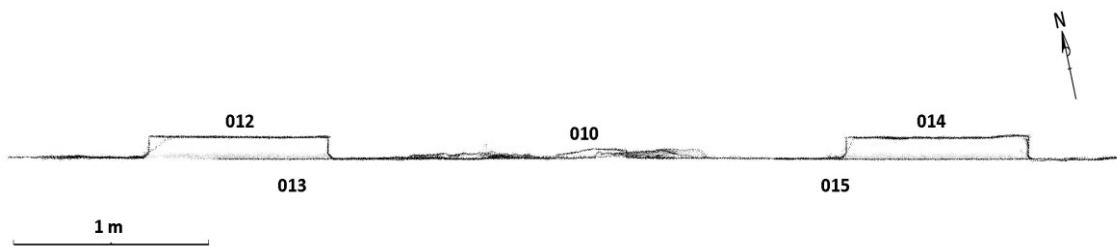
6.3 The overall height of the south elevation ranges from 3.88 to 4.216 m and its width is 9.35 m. It was not possible to record its depth given the presence of the vault behind and the inaccessibility of the roof. The wall **010** is of square random rubble sandstone construction with intermittent snecked pinning present mainly around the window jambs and corbelling. A single course of small stones **023** is visible along the middle and western parts of the elevation, occurring at the same level as similar course **067** in the west elevation. The buttress **003** described above forms its south-west corner, while substantial quoins **024** form its south-east corner (see 6.4 below for full description). The wall is pierced by two window apertures **012** and **014**, both 2.2 m high and 9.3 m wide (illus 19 and 20). Both have pointed-arch sandstone surrounds with chamfered jambs in neo-Gothic style and both are blocked with three sandstone panels **013** and **015**, similar to those blocking doorway **008**. The arch keystones are cut in both cases by **018**. A rusticated ashlar crenellated parapet **016** runs along the wallhead, above a projecting corbelled cornice of red sandstone **017**. Two metal fittings **019** occur in jamb **014** and to the west of aperture **012** (illus 21 and 22). Although mixed cement mortar **011** masks much of the elevation, stone decay is evident in several places.

<i>No</i>	<i>Name</i>	<i>Description</i>
010	S wall	Height = 3.88-4.216 m, width = 9.35 m, depth unknown due to vault construction and roof. Square random rubble construction with intermittent pinning (snecked) present mainly around window jambs and corbelling.
011	Finish	Mixed cement mortar with light grey sand inclusions to the east and light yellow pink mixed cement render to the west.
012	Window aperture	Height = 2.23 m, width = 0.932 m. Pointed arched sandstone window aperture with chamfered jamb in neo-Gothic style. Arch keystone is cut by 018 .
013	Blocking	Window 012 is blocked with three red and blond sandstone panels measuring, from top to bottom, 0.78 m, 0.46 m and 0.92 m. They contain the same blocking as window 014 and doorway 008 in the west elevation.
014	Window aperture	Height = 2.21 m, width = 0.932 m. Pointed arched sandstone window aperture with chamfered jamb in neo-Gothic style. Arch keystone is cut by 018 .
015	Blocking	Window 014 is blocked with three red and blond sandstone panels measuring, from top to bottom, 0.85 m, 0.42 m and 0.88 m. They contain the same blocking as window 012 and doorway 008 in the west elevation.
016	Parapet	Rusticated ashlar crenellated parapet with polished reticulated dressing.
017	Cornice	Red sandstone projecting corbelled cornice.
018	Structure	Truncation of arch keystones in 012 and 014 , representing the lowering and levelling of the wallhead to introduce parapet 016 , marked by a single course of small rubble.
019	Fittings	Two metal fittings east of 012 window jamb and west of 013 window jamb.
023	Structure	Single course of small stones visible along part of mid section and western part of elevation. Occurs at same level as 067 in west elevation and may relate to raising of walls in Phase 2.

Table 2: Contexts in the South Elevation.



Illus. 19 : SW facing profile of window 012.



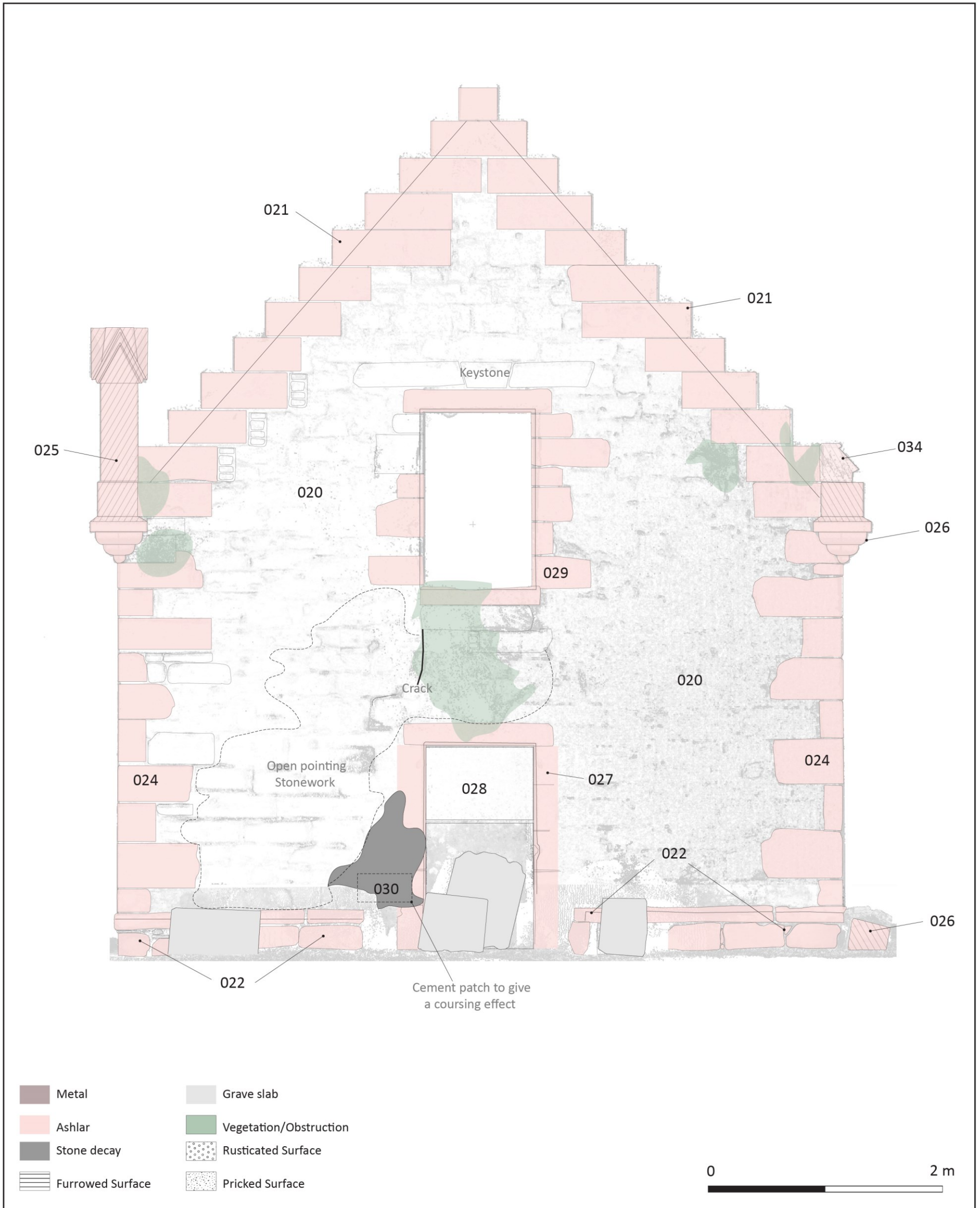
Illus. 20: Plan view of windows 012 and 014.



Illus. 21: Metal fittings near Window 012.



Illus. 22: Metal fittings near Window 012.



Illus. 23: East gable elevation.

East Elevation (illus 23)

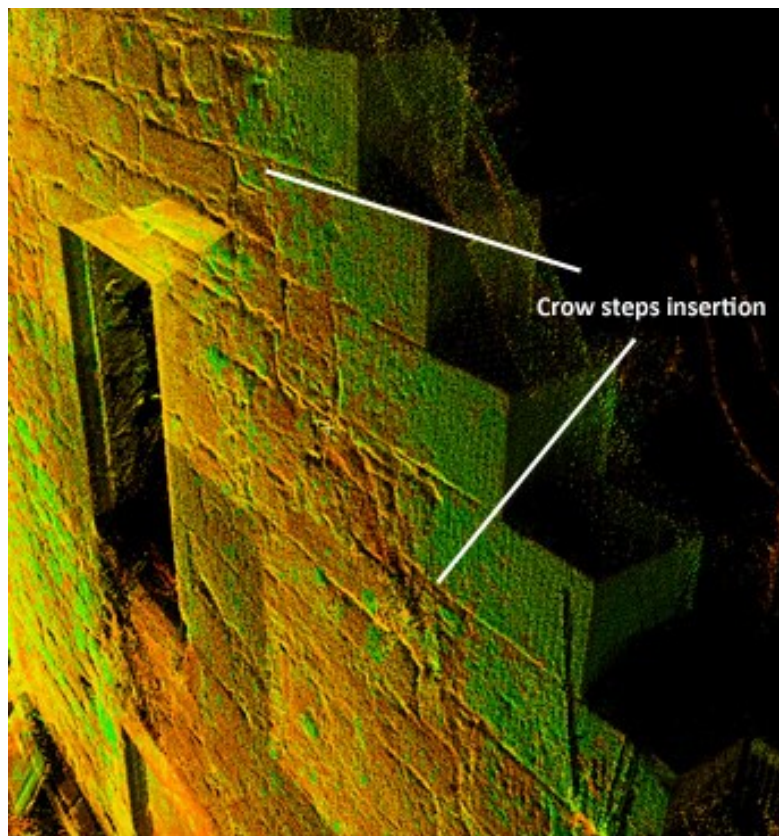
6.4 The east gable wall measures 6.90 m to the top of the pitch and 7.37 m to the top of the crowstep, its width is 6.15 m and its depth is 0.60 m. It leans slightly to the ESE. The wall **020**, which appears to be of a single phase of construction, is built of square sandstone rubble with various repairs evident (illus 24). Red sandstone quoins **024**, well-knitted to the stonework, form returns to the south and north. Dressed stone skewes **021** create a crowstepped, pitched roofline (illus 25). Corbelled pinnacles **025** and **026** sit atop the quoins at each corner; the south-east pinnacle still bears its gabled head, but the head of the north-east pinnacle has fallen and lies at its base. The elevation is pierced at its centre by a door aperture **027** with a chamfered sandstone jamb and lintel. The doorway is blocked with two large grey sandstone slabs **028**. A hammered foundation **022**, visible as a chamfered sandstone plinth (illus 26-29), runs along the base of much of the elevation and appears to return at the doorway **027** (illus 30-32). A deeply splayed loft window aperture **029** occurs in the wall directly above the doorway; dressed, chamfered stones form the jamb, lintel and projecting sill (illus 33-36). There is evidence on several parts of the elevation for damage due to water: on the lower part to the south, the pointing has been washed out; repairs are evident in the pinning to the north below the skewes; poor drainage provision through the window is causing overburden and displacement, and the hammered foundation has been subject to long-term erosion from water pouring through the window above. A brick patch **030** has been applied immediately south of doorway **025** in response to water ingress.

No	Name	Description
020	E wall	Square rubble wall with various repairs and alterations evident. Height to top of pitch = 6.90 m and to top of crowstep 7.37 m; length = 6.15 m; width (visible on window) = 0.60 m. Elevation leans to the ESE. On the lower part of the elevation on the south, below window 039 and around door 027 , the pointing has been washed out due to water ingress. Repairs evident in pinning present on north part of elevation below crowsteps 030 .
021	Skews	Dressed stone skewes creating crowstepped pitched roof.
022	Chamfered plinth	Hammered foundation, visible as a chamfered plinth along the base of much of the elevation. A similar example is visible at Auchterarder Old, Perth & Kinross (illus 29). Erosion of the foundation has been ongoing for some time due to lack of water run-off provision: the water from the roof's central alley gutter spouts through the window directly onto the foundation. As a result, the stonework has been washed out, exposed and damaged. (see brick patching 030).
024	Quoins	Red sandstone quoins, well knitted to the stonework. Appear to be contemporary with the hammered foundation 022 .
025	Pinnacle	Corbelled pinnacle with gabled head at SE corner.
026	Pinnacle	Corbelled pinnacle at NE corner. Gabled head has fallen and rests at base of elevation on N.
027	Door aperture	Doorway with chamfered jamb and lintel. Height = 1.77 m, width = 0.92 m, depth (visible) = 0.142 m. May be an original opening, as suggested by the return on the hammered foundation 022 (see illus 34-36). In very poor condition.
028	Blocking	Door 025 is blocked by two large grey sandstone slabs.
029	Window aperture	Loft window opening. Height = 1.54 m, width = 0.92 m, depth (visible) = 0.60 m. Dressed chamfered stone forming jamb, lintel and projecting sill. Poor water drainage through the opening is causing overburden and displacement.
30	Repair	Brick patch immediately south of doorway 025 due to water ingress.

Table 3: Contexts in the East Elevation.



Illus. 24: Detail of stonework pinning on east gable.



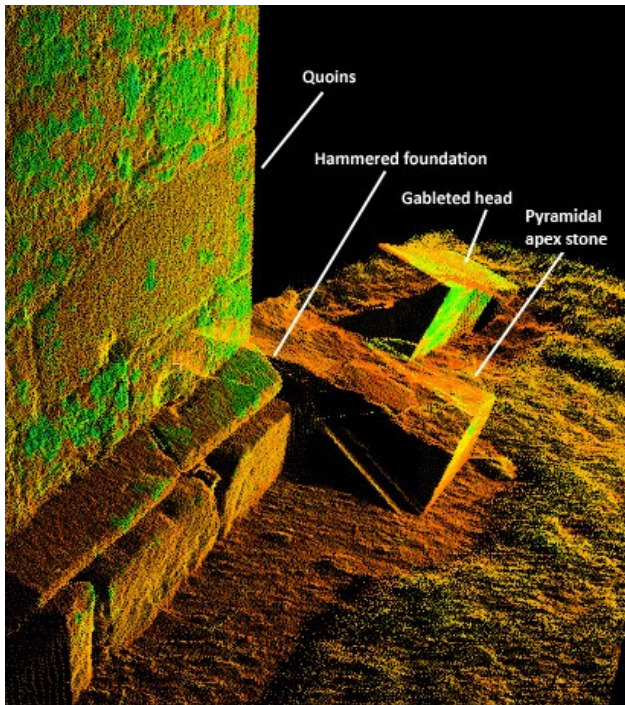
Illus. 25: Point cloud silhouette revealing details in stonework related to the insertion of the crow steps.



Illus. 26: Hammered foundation, south end of E gable.



Illus. 27: Hammered foundation, north end of E gable.



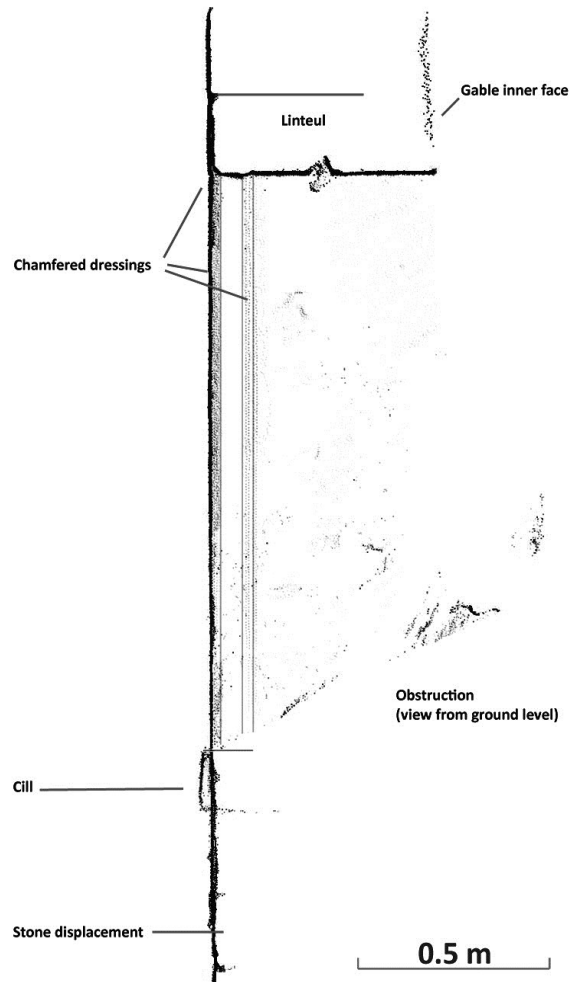
Illus. 28: Detailed view of the hammered foundation 022.



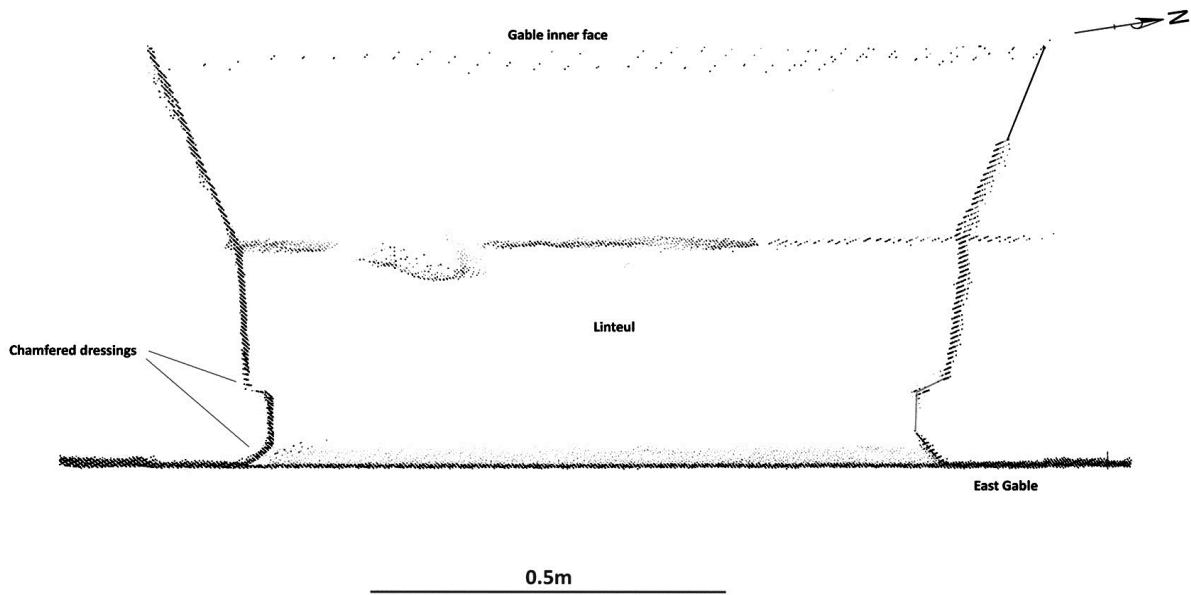
Illus. 29: Auchterarder Old (University of St Andrews © 2008).



Illus. 30, Illus. 31 and Illus. 32: Chamfered doorcase 027.



Illus. 33: NNW profile through window 029.



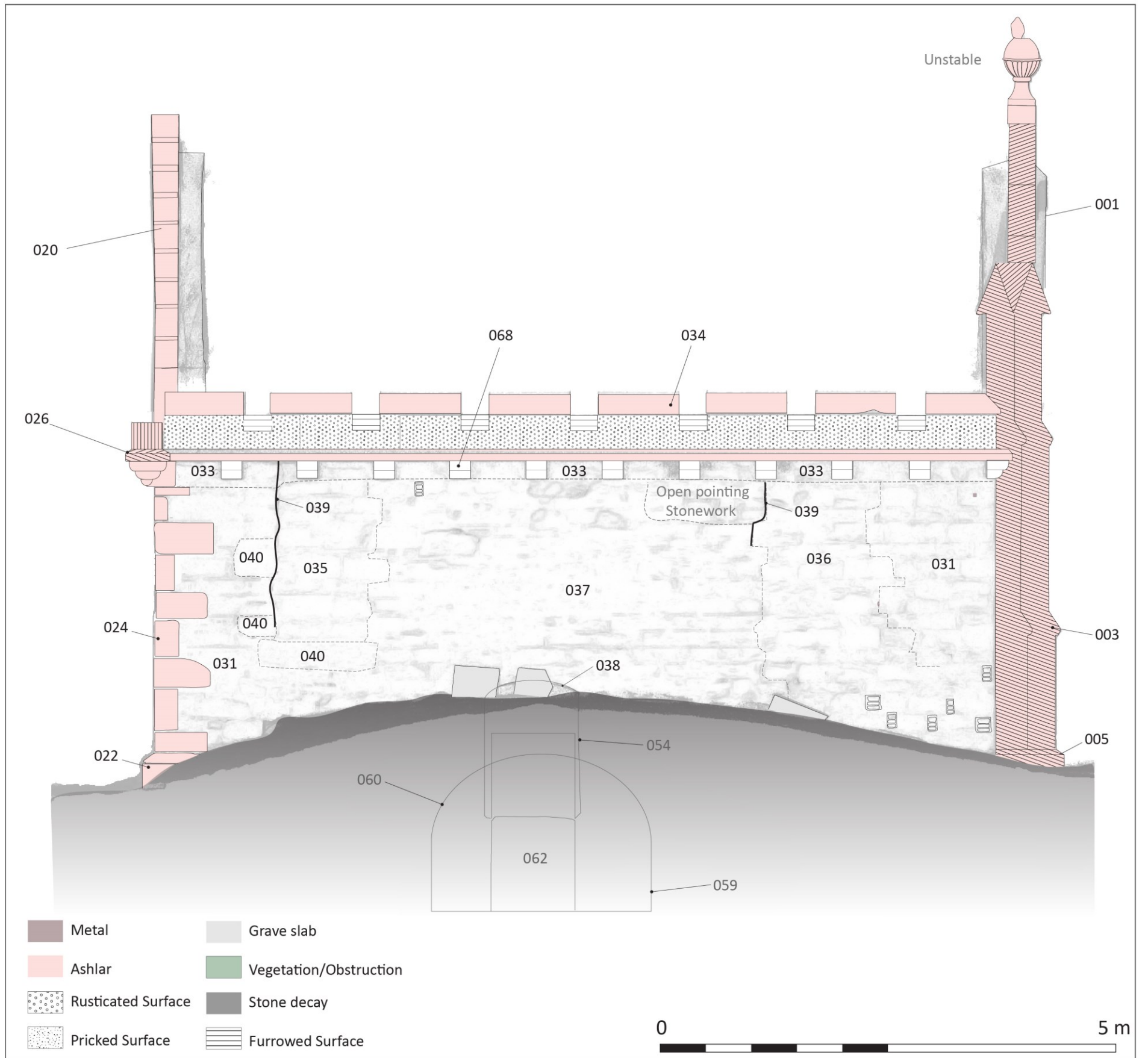
Illus. 34: Plan of window 029 from ESE.



Illus. 35: Window 029 from SSE.



Illus. 36: Window 029 from NNW.



Illus. 37: North elevation.

North Elevation (illus 37)

6.5 The north elevation measures 3.47 to 4.03 m high and 9.35 m wide. Its depth, as indicated by the point cloud in Chamber 1, is 0.43 m. The wall **031** at the north and south ends is of square sandstone rubble construction. The central portion of the wall **037** consists of random rubble masonry that is visibly different from the masonry **035** and **036** on either side. At the base of this portion of walling, the keystone **038** of the barrel vault for Chamber 2 is just visible at the top of a mound which coincides with the chamber's location. An aperture **040** towards the east measures 0.3 m high and 1.27 m wide, with a possible jamb and sill visible (illus 39). It has been blocked with square sandstone random rubble masonry **035**. A possible second aperture **070** towards the west end (not illustrated, as it is apparent only by the differing character of the masonry **036** that blocks it, consisting like **035** of square sandstone random rubble masonry). Two long, vertical cracks **039** are visible to the east and west respectively of blocking **035** and **036**. On the east in particular the stonework is poorly knit. The tops of both apertures **040** and **070** appear to have been truncated by **033**. Above it, along the wallhead, runs a projecting corbelled cornice of red sandstone **068**, and above that is a rusticated ashlar crenellated parapet **034**. The stonework across most of the elevation has been heavily repointed with light yellow-pink mixed cement mortar **032** and the pointing has been incised to provide a coursed effect (illus 38).

<i>No</i>	<i>Name</i>	<i>Description</i>
031	N wall	Square rubble wall of blonde sandstone. Height = 3.47 m to 4.03 m, width = 9.35 m; from point cloud in Chamber 1 the depth = 0.43 m.
032	Finish	Repointing with light yellow pink mixed cement render. The pointing is pronounced and stonework is dressed to give a coursing effect.
033	Wallhead	Wallhead lowered to introduce parapet as with 018 in S elevation.
034	Parapet	Rusticated ashlar crenellated parapet with polished dressing; same as 016 .
035	Blocking	Blocking of aperture 040 with square sandstone of mixed sources forming random rubble construction.
036	Blocking	Blocking of aperture 070 with square sandstone of mixed sources forming random rubble construction. Less pronounced difference in stonework than 035/040 .
037	Structure	Section of random rubble stonework rebuilt when the barrel vault 060 was inserted in Chamber 2. It differs from 035 and 036 , comprising a different type of stone with no attempt at coursing.
038	Structure	Exposed keystone for the Chamber 2 barrel vault 060 .
039	Cracks	Two long vertical cracks visible to east and west of blockings 035 and 036 . On the east in particular the stone knitting is very poor with no keystone to tighten the stonework. Cuts 031 .
040	Window aperture	Aperture represented by possible jamb and sill visible to E of crack 039 . Width = 1.27 m, height = 0.3 m. The cement mixed mortar and false coursing 032 make it difficult to see the extent of the stone.
060	Barrel vault	Barrel vault in Chamber 2.
068	Cornice	Red sandstone projecting corbelled cornice.
070	Aperture	Possible aperture for window or door, represented by rebuild 036 . No sill apparent.

Table 4: Contexts in the North Elevation.



*Illus. 38: Detail of the pronounced pointing on stonework rebuilt **032** and **037**.*



*Illus. 39: Detail showing possible sill and jamb **040**.*

Roof

6.6 The present roof is of butterfly construction, in effect two monopitch roofs which depend for support and stability on a central supporting beam or wall, with a central alley gutter. It is formed of concrete asbestos sheets with sand cement dabbing. There is no formal provision for water egress, and rainwater drains through the window **029** in the east elevation. Evidence of the slate roof mentioned in 1716-17 and 1730-31 documents (paragraphs 5.9, 5.10) exists in the form of a slate tile behind a grave slab leaning against the east elevation (illus 40). Inspection of the roof revealed that the inner faces of the east and west gables are different, although they are similar in width: the inner face of the east gable consists of square

rubble, whereas the inner face of the west gable consists of random rubble of different types of stone (illus 41 and 42).



Illus. 40: Slate tile behind grave slab on east gable wall.



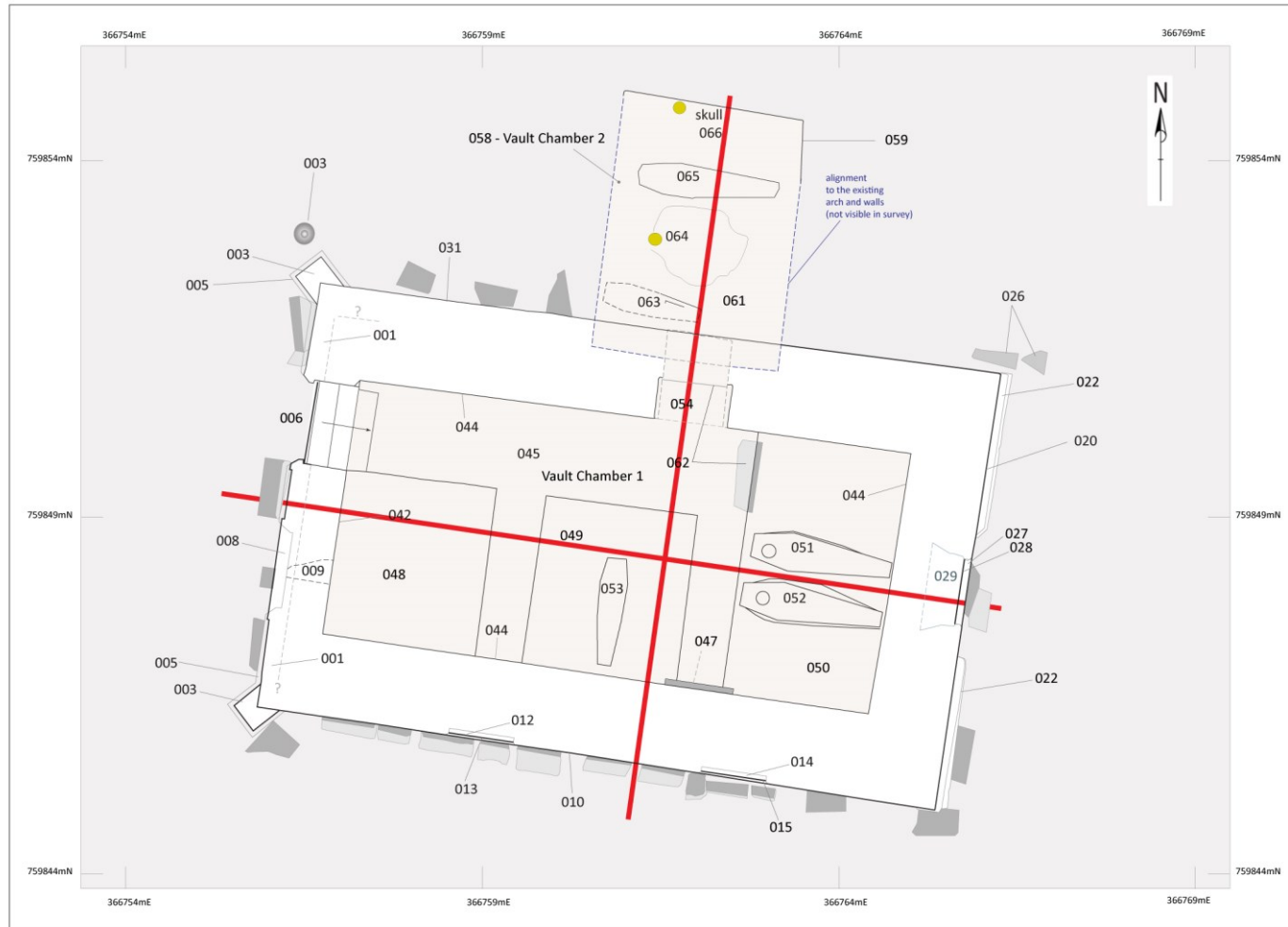
Illus. 41: East gable inner face.



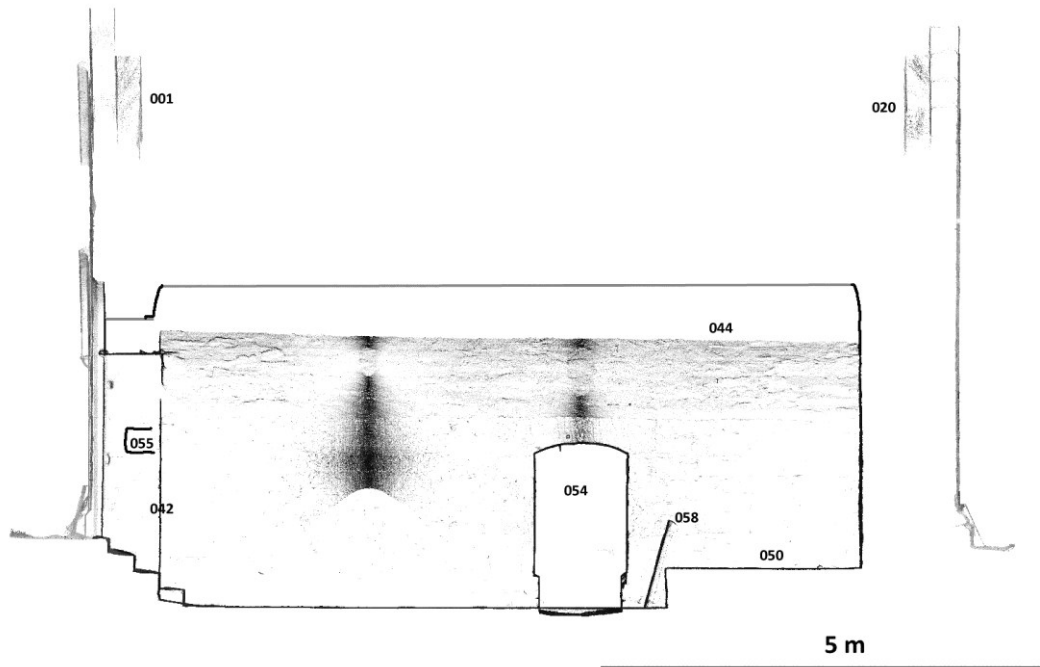
Illus. 42: West gable inner face.

Burial Vaults

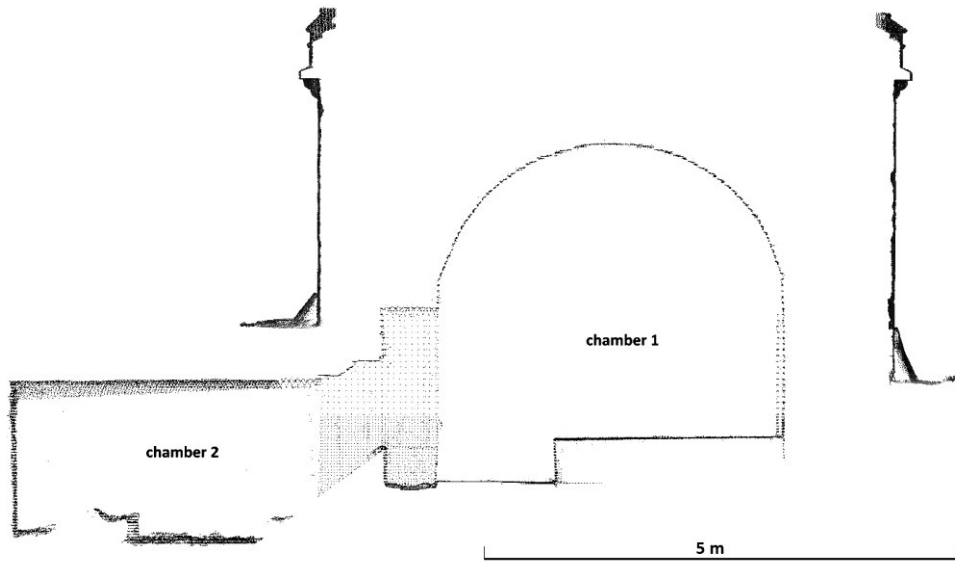
6.7 As noted above (paragraph 4.12), the terms used for the two chambers (1 for the outer chamber and 2 for the inner chamber) correspond to labels used in the NTS quinquennial surveys (e.g., Jack Fisher Partnership 1990). The burial chambers share no visible relationships with the rest of the building, apart perhaps at 054, the opening to Chamber 2. The relationships in particular with the external north wall could not be assessed, as it is impossible to access Chamber 2 without disturbing human remains. The profiles (illus 43, 44 and 45) show that Chamber 1 sits partly above ground level, while Chamber 2 extends beyond the building below ground level on the north side.



Illus. 43: Locations of the profiles shown in illus 44 and 45.



Illus. 44: W/E profile across Chamber 1.



Illus. 45: N/S profile across Chambers 1 and 2.

Chamber 1

6.8 Chamber 1 is accessed through the doorway **006** in the west gable wall. The remnants of a wooden lintel **056** above the present iron door **007** is cut by the chamber's barrel vault **044**. The chamber measures 7.7 m long by 3.646 m wide and 3.63 m high at the highest point, and is slightly out of alignment with the west gable wall of the Mausoleum. The wall **042** forming its west elevation is built of random and coursed rubble, predominately blond sandstone with occasional whinstone (illus 46). Lime-based mortar **043** covers much of the stonework and obscures the relationships between the vault and doorways **006** and **054**. A small, trapezoidal aperture **009** for ventilation is set high in this wall and covered with metal grate

fixed with cement. The barrel vault **044** that forms the south, north and east walls and roof is built of mixed stones, including whinstone (illus 47). A decaying sandstone plaque **046** bearing the Erskine family coat of arms in relief is set in the east side (illus 48). Another stone plaque **047** dated 1702 is set in the south side; the inscription is detailed below (illus 49).

- 6.9 A large plinth **048**, measuring 2.4 m east/west by 2.4 m north/south, runs across the east end of the chamber. It bears two lead coffins **051** and **052**, both bearing decayed wood, leather and cloth cladding (illus 50). The associated plaques, described below, indicate that these are the coffins of Margaret and Archibald Erskine, who died in 1848 and 1846 respectively. Two smaller plinths **049** and **050** extend into the chamber from the south wall. A child's lead coffin **053** with decomposed wooden cladding sits on plinth **049** (illus 51). The flagstone floor **045** extends as far as the aperture **054** leading to Chamber 2 (illus 52). The arched aperture is stone-built with a stone lintel leading down 0.64 m to the chamber and it appears not to cut the barrel vault **044**, though the relationship is not entirely clear due to similarities in the stonework and mortar (illus 53). Iron door fittings **055** in the aperture suggest it may have once been covered with an iron gate. One of two large sandstone slabs **062** blocking the aperture is still in place, held by heavy iron pins (illus 57), while the other leans against plinth **048**. In the roof, a ventilation pipe **057** has been cut through the stonework. Doorway **006** has indications of an earlier door or gate, as well as an earlier wooden lintel **056** (illus 54, 55 and 56).

<i>No</i>	<i>Name</i>	<i>Description</i>
009	Aperture	Small trapezoidal aperture set high in W wall 042, covered with metal grate fixed with cement.
042	Structure	Wall forming internal west elevation. Rubble walling including stones from different sources; predominantly blonde sandstone with occasional whinstone. It is not aligned with west wall 001/067 .
043	Finish	Lime based-mortar covers most of the stonework and obscures the relationships between the vault and external doorway 006 and internal doorway to Chamber 2 054 . May also mask early fabric.
044	Structure	Stone barrel vault (forming S, N and E walls and barrel) built of mixed stones including whinstone. Length = 7.7 m, width = 3.646 m, height = 3.63 m. Very proportional but not parallel to external walls.
045	Floor	Flagstone flooring; depth = 0.50 m. Abuts 048-049-050 but does not run through opening 054 .
046	Plaque	Stone plaque set in E side of 044 ; bears the Erskine family coat of arms. Decayed sandstone chamfered inset. In very poor condition.
047	Plaque	Stone plaque set in S side of 044 . Held in place by heavy iron pins/nails. Dated 1702 and reads (in Latin and English): 'Death where is thy sting / Grave where is thy victory / Thanks be to God who has given / Me the victory through our Lord Jesus Christ / Corinthians Ch. 15.'
048	Plinth	Large plinth forming dais across east end of chamber. Measures 2.4 m E/W by 2.4 N/S m.
049	Plinth	Eastern of two plinths extending northward into interior of chamber from south wall. Measures 2.15 m by 2.4 m N/S m.
050	Plinth	Western of two plinths extending northward into interior of chamber from south wall. Measures 2.19 m E/W by 3.4 N/S m.
051	Coffin	Lead coffin on plinth 048 . Originally clad with wood, leather and cloth and intricately decorated with shells and bronze studs; the external cladding is now

		much decayed. A gilt crown adorns the western end. Bears a plaque reading: '[?]The most worthy Margaret Erskine of Dun / Marchioness Dowager of Ailsa / 1848'.
052	Coffin	Lead coffin on plinth 048 . Originally clad with wood, leather and cloth and intricately decorated with shells and bronze studs; the external cladding is now much decayed. A gilt crown adorns the western end. Bears a plaque reading: 'The most honourable Archibald / Marquis of Ailsa / [?]KTFRS / 1846'.
053	Coffin	Lead child's coffin on plinth 049 , decomposed wooden cladding.
054	Aperture	Stone-built arched aperture with stone lintel leading down 0.64 m to Chamber 2. Cement and brick repair on rise. Span = 1.032 m, height = 1.94 m, height to crown = 2.2 m. It appears not to cut stone barrel vault 044 , although the relationship is not entirely clear due to similar stone and mortar used across the north part of the internal vault.
055	Fitting	Early doorway/door fittings in 054 . The size could indicate it was a cast iron gate, which could in turn suggest that Chamber 1 was accessed before the insertion of barrel vault 044 .
056	Lintel	Remnants of a wooden lintel above existing door 006 within wall 042 , cut by barrel vault 044 . This confirms that there was an early doorway through this elevation which might have provided earlier access to the vault.
057	Pipe	Extract pipe cuts through barrel vault and asbestos sheets.
062	Blocking	Doorway 054 was once sealed with two sandstone slabs. The top one has been removed and leans against plinth 048 . The other slab is still held in place by heavy iron pins.

Table 5: Contexts in Chamber 1.

*Illus. 46: West wall 042 in Chamber 1.*



*Illus. 47: Barrel vault stone work **044** east wall.*



*Illus. 48: Stone plaque **046**.*



*Illus. 49: Stone plaque **047**.*



*Illus. 50: Coffins **051** in foreground, **052** in background in Chamber 1.*



*Illus. 51: Child's coffin **053** in Chamber 1.*



*Illus. 52: Stone arched opening **054**.*



*Illus. 53: Detail of stone knitting on west of **054**.*



*Illus. 54: Hole in doorway **006** (north wall).*



*Illus. 55: Stone pocket in **006** (south)—remnant of early door/gate fitting.*



*Illus. 56: Wooden lintel **056** above door **006** lintel.*



Illus. 57: Heavy iron pins holding slabs 062.



Illus. 58: North wall 059.



*Illus. 59: View of barrel vault **060**, showing clearly that it is an inserted feature.*



*Illus. 60: View of barrel vault **060**, showing clearly that it is an inserted feature.*



Illus. 61: Burials in Chamber 2.

Chamber 2

6.10 The inner chamber measures 3.94 m north/south by 2.52 m east/west, and the height of barrel vault is c 1.7 m. The chamber is very damp, as evident from stalagmites and stalactites of lime; no damage is evident to the stonework, but damage has been caused to the burials and wooden coffins. The wall forming its north, east and west sides **059** is of blond sandstone rubble construction (illus 58). It is markedly different from the stonework of the barrel vault haunch **060**, which consists of dressed red sandstone and has been inserted (illus 59 and 60). The floor **061** is of packed earth. Three highly degraded wooden coffins **063**, **064** and **065** rest in the chamber, laid roughly parallel (illus 61). Only the southernmost **063** is inscribed (see below) and indicates it is that of Margaret Erskine, who died in 1881 before she reached the age of two. Human remains are visible in the northernmost coffin **065**, and a human skull **066** lies exposed to the north of it.

<i>No</i>	<i>Name</i>	<i>Description</i>
058	Chamber	Measures 3.94 m north/south by 2.52 m east/west, and the height of barrel vault is c 1.7 m. The chamber is very damp, as evident from stalagmites and stalactites of lime; no damage is evident to the stonework, but damage has been caused to the burials and wooden coffins.
059	Structure	Wall forming N, E and W of chamber, of rubble blonde sandstone; differs from barrel vault 060 . It is not possible to ascertain whether this wall is part of an early crypt because of mortar covering the stonework.
060	Barrel vault	Barrel vault haunch, introduced at later date. Stonework is dressed red sandstone and has been inserted but no knitting visible on southern part.
061	Floor	Earthen floor
063	Coffin	Southernmost of three highly degraded wooden coffins. Inscribed: '[?]Margaret Erskine / Died 12 April [?]1881 / 23 months'. Damage has been caused by water ingress.
064	Coffin	Central of three highly degraded wooden coffins. Damage has been caused by water ingress.
065	Coffin	Northernmost of three highly degraded wooden coffins. Human remains, including longbones and a skull with the jaw displaced, are visible in it. Damage has been caused by water ingress.
066	Human remains	Exposed skull visible in northern part of the chamber, behind coffin 064 .

Table 6: Contexts in Chamber 2.

7.0 Phasing & Interpretation

Provisional Phasing

7.1 The terrestrial laser scan and detailed analysis of House of Dun Mausoleum, in tandem with the desk-based research, have facilitated construction of an overall sequence for the building's development. It should be noted that the phases outlined below are provisional only; for much of the building, it is not possible to draw firm conclusions about its development because fabric and relationships are masked by later features and finishes. Invasive investigation would be required to provide definitive answers.

Phase 1: Medieval parish church -- ?late 14th century to early 18th century

Phase 2: Remodelled parish church -- 1716-1731

Phase 3: Conversion to Mausoleum -- 1835-1846

Phase 4: Mid to late 20th-century repairs

Phase 1: Medieval parish church -- late 14th century to early 18th century

7.2 Despite the fact that its current appearance is largely due to early modern interventions, there seems no reason to doubt that the church is essentially a remodelled medieval building. The church may have been established as early as the late 14th century, when Sir Robert de Erskine purchased the barony of Dun (paragraph 5.6). Its dedication to the Virgin Mary is consistent with a late medieval foundation and the Kirk Session records certainly indicate its existence prior to the Reformation (paragraph 5.7).

7.3 No particular architectural features, such as carvings or mouldings, survive which would help firmly date the building's construction. This lack of clearly diagnostic features is not unusual for medieval parish churches in Scotland and, as with many others, there may never have been many such details on the church at Dun (Fawcett et al 2008). We do know that a font was built into the eastern wall of the church (paragraph 5.12) and this may still exist behind Chamber 1.

7.4 The original church would most likely have been medieval in plan, in keeping with other parish churches in central and eastern Scotland (Fawcett et al 2008). Possible original features include the east gable with its well-knitted quoins, hammered foundation, doorway and window, which would have lit a rood loft (paragraph 6.4 and Table 3); none of these show evidence of having been inserted and none would be out of place in a medieval parish church. Two windows along the south elevation (paragraph 6.3 and Table 2) could be medieval in date but would have been much smaller originally, and two former apertures on the north elevation (paragraph 6.5 and Table 4) could also be early. The inner burial vault (Chamber 2; paragraph 6.10 and Table 6) may also be of medieval date.

7.5 The church was approximately oriented, with an axis closer to ESE/WNW than strictly east to west. The results of geophysical survey suggest the medieval building measured about 21.8 m east/west by 6.1 m externally, a ratio of 1:3.5. This is broadly consistent with the dimensions and proportions of medieval parish churches elsewhere in central and eastern Scotland, for example Tullibody Old Church (illus 62 and see section 8.0).



Illus. 62: Tullibody Old Church, exterior, from the south (Fawcett et al 2008).

Phase 2: Remodelled parish church -- 1716-1731

7.6 While alterations to the building between the late 14th century and the early 18th century may well have taken place, the first documented campaign of remodelling and repair took place over two sub-phases in 1716-17 and 1730-31 (Phases 2a and 2b). Both involved considerable work on the roof.

Phase 2a (1716-17)

7.7 In this sub-phase, the wall of the choir at the east end of the church was raised (paragraph 5.9). The choir would normally have been in the western part of the chancel, between the nave and the sanctuary, and the choir wall referred to here may have been in the part of the church that was reportedly dismantled in Phase 3 (paragraph 5.14). Alternatively, it could have been the current west gable wall of the Mausoleum, which does show evidence of having been raised in the contrast between its upper and lower parts (paragraph 6.2 and Table 1)

7.8 Substantial repairs were made to the roof in this sub-phase, involving the replacement of 350 slates and at least 44 of the couples that supported it. Four storm windows were inserted or existing ones repaired, and a window may have been inserted or re-glazed at the east end. Locks were also put or replaced on the doors (paragraph 5.9). The documentary evidence indicates that by this phase, if not before, the roof was clad with slates. The original roof may have been pitched, in keeping with contemporary architectural practice for stone buildings (Fawcett 2011).

Phase 2b (1730-1)

7.9 In this sub-phase, the 'middle wall' of the church of the church was taken down (paragraph 5.20). This might have been a chancel arch, which would have originally divided the choir from the nave. Parish churches with two compartments were fairly common in central and eastern Scotland, but many chancel arches were removed following the Reformation to create unified spaces that were better suited to preaching (Fawcett et al 2008), and also symbolising the sweeping away of spiritual barriers between individuals and deity through which the church had formerly negotiated access.

- 7.10 The walls of the 'isle' were also raised and repaired, apparently in order to create two lofts at the east and west end (see paragraph 5.10). The reference suggests that only one aisle existed. It may have been an original feature of the church or been added later in the medieval period, and it could have been either a longitudinal space along one side of the nave, as at Aberdour, or a space projecting from one side (Fawcett et al 2008). Such aisles were sometimes created in the medieval period as chapels to provide additional space for altars, and following the Reformation to make room for larger numbers of lay people attending church or specifically as chapels for the laird and his family. If the aisle at Dun was a single longitudinal one, the evidence that the present south wall was raised (paragraph 6.3) might suggest that it ran along this side. However, the geophysical survey did not record anomalies here that might correspond to an aisle (Rose Geophysical Consultants 2013).
- 7.11 Both sub-phases also involved work on the windows. The two windows in the south elevation (paragraph 6.3 and Table 2) have surrounds differing in style from those added in Phase 3 in the west elevation (paragraph 6.2 and Table 1) and both were truncated in Phase 3 (see paragraph 7.15), indicating they may have been enlarged or given new surrounds in Phase 2.
- 7.12 Assuming that no other major refurbishments or expansion took place later in the 18th century or early in the 19th century, by the end of this phase and certainly by 1833 the church could house 400 nearly people (paragraph 5.13).

Phase 3: Mausoleum -- c 1835

- 7.13 By the 1830s the church was in a poor state of repair and required a new roof (paragraph 5.13). This may have influenced the apparent decision by Lady Margaret Erskine to construct a new parish church and convert the old one into a mausoleum for family burials (paragraph 5.14; Jacobs 1931).
- 7.14 The evidence in the building, in particular the apparently original character of the east elevation with its loft window and well-knitted quoins (paragraph 6.4 and Table 3), would suggest that it was the nave, or western part of the church, which was taken down while the eastern part was left standing and remodelled to create the Mausoleum. The new design favoured Gothic forms with pointed arches, buttresses, projecting cornices, corner pinnacles and crenellated parapets. This transformation is as apparent today as it was in 1846, when Andrew Jervis drew the church during his visit to nearby Brechin. His drawing clearly depicts the church without a pitched roof (illus 63); he refers to it as 'Old Kirk' rather than 'Mausoleum'.
- 7.15 Externally, the newly created Mausoleum was given a neo-Gothic appearance. The north and south elevations were levelled off (clipping window surrounds on the south) and then raised, and projecting cornices and crenellated parapets were added. Corner buttresses were placed on the north-west and south-west, and crenellated skews were built on each gable with a finial capping the west one. Doorways in the west gable wall were created and/or given new pointed arch surrounds with projecting hoodmolds.
- 7.16 This phase also saw the remodelling of what may have been an earlier burial vault (Chamber 2) and the creation of a new one (Chamber 1). Chamber 2 may have been in use prior to the re-modelling of the church, as it lies below floor level. It contains an inserted barrel vault of similar fabric to that in Chamber 1, which may have been added at this point (paragraph 6.10 and Table 6); its insertion necessitated the rebuilding of much of the north elevation (paragraph 6.5 and Table 4). Chamber 1 extends above floor level and was therefore built between 1835 and 1846, when the first coffin was placed in the vault (paragraph 6.8-6.9 and Table 5). However, as the presence of human remains and structural features mask relationships between the chambers and the external walls, the dating of the chambers is highly

speculative.



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Illus. 63: Andrew Jervis, Lithograph of Old Kirk of Dun (SCRAN ID: 000-000-561-603-C).



Illus. 64: South elevation of the nave of Brechin cathedral (© Copyright 2013, SCHR Ltd. All rights reserved).

7.17 The remodelling and re-design of medieval parish churches were common during this period, while their old graveyards often continued in use. Where churches themselves were still in use, major campaigns of restoration were often instigated by landowners, sometimes with government contributions. Tulliallan parish church and Auchtertool parish church, both in Fife, and Kilbryde parish church in Perthshire, among others, share similarities with Dun mausoleum (see section 8.0). All involved the re-use of the fabric of

the medieval churches and their remodelling for private use with inclinations towards Gothic revival design. Brechin Cathedral tower was also substantially altered in the early 19th century and it presents similar features, including red sandstone corbelled parapets and hoodmolds above door and windows (illus 64) like those evident on the west, north and south elevations at House of Dun Mausoleum (see paragraphs 6.2, 6.3 and 6.5).

Phase 4: Early 20th century to the present

7.18 Various repairs to the building appear to have been carried out in the mid to late 20th century, evident mainly from the materials used and detailed for each elevation in section 6.0. They involved maintenance repairs such as mixed cement pointing and brick patches, and the insertion of a new butterfly roof with a central alley gutter formed of asbestos sheets.

Discussion of the Evidence for Phasing

7.19 The interpretations offered below draw on the evidence presented in sections 5.0 and 6.0. Descriptions of the contexts mentioned in the discussion are provided in the relevant paragraphs and tables in section 6.0, as noted below.

West Elevation (paragraph 6.2 and Table 1)

7.20 The sequence of construction on the west gable wall is interpreted as follows, although there are some anomalies which are difficult to explain. The lower part of the wall **069** may have existed prior to the 18th century (Phase 1). As the corner buttresses **003** mask the wall's relationship to the north and south elevations this cannot be proven; however, it appears from small stone course **067** and differing upper stonework **001** that the wall has been raised. It may therefore correspond to the choir wall, which was raised in Phase 2a (paragraph 5.10). The fact that the wall is out of alignment with Chamber 1, which was constructed in Phase 3 (see 7.35 below), would also suggest that they are of different phases.

7.21 Phase 3 saw the addition of the buttresses **003**, not only to add Gothic notes but to support the new west gable wall and consolidate the north and south elevations, which may have needed support because they had been reduced in length with the taking down of the nave. The crenellated skewers and finial **004** and plinth course **005** were also added. The doorways **006** and **008** may have both been inserted in Phase 3 although **006** has indications of earlier fittings and an earlier lintel **057**, and if wall **067** is of earlier date then **006** may be as well. The pointed arch surrounds for both doorways were added in Phase 3.

South Elevation (paragraph 6.3 and Table 2)

7.22 The stonework in the south elevation has been so restored and repaired that it is difficult to determine the sequence of construction and repair, but it appears to be as follows. The eastern part of wall **010** may well be original to the medieval church; it is well knitted to quoins **024** and there is no visible evidence for their alteration or insertion. The wall was raised (**023**) at some point, possibly to create an aisle in Phase 2b (paragraph 5.10).

7.23 The elevation may have originally held two windows **012** and **014**, and it was probably during Phase 2a or 2b that these were enlarged and given pointed arch surrounds and metal fittings **019**. Although the pointed arch surrounds are similar in appearance to those on doorways **006** and **008** west gable, they are of simpler form and most likely therefore of a different phase. Accounts in Phase 2b (1730-1) specifically record payment to a mason for 'work . . . on the Laigh South Windows' (see paragraph 5.10) and this could be a reference to windows **012** and **014**.

7.24 In Phase 3, the wallhead was levelled with **018** and a projecting corbelled cornice **017** and crenellated parapet **016** were introduced. The windows were blocked with sandstone slabs **013** and **015**. Mixed cement mortar and render **011** were most likely applied in Phase 4.

East Elevation (paragraph 6.4 and Table 3)

7.25 The east elevation appears to be the best preserved remnant of the medieval church (Phase 1). The wall **020**, the hammered foundation **022** and the quoins **024** may well be original to the structure; although they are not clearly diagnostic of medieval construction, they are not inconsistent with a medieval date and, unlike much of the rest of the building, there is little evidence for alteration and insertion on this elevation. The doorway **027** may likewise be original, as indicated by a return on the hammered foundation. There is no evidence, as on the south and west elevations, that the wall was raised.

7.26 The loft window **029** with its deeply splayed aperture may also be an original feature that would have lit the rood loft; a parallel for this exists (albeit on the south elevation) at Tullibody parish church (see section 8.0). The records for Phase 2b (1730-1) note that 'one window [was] struck out of the Isle for a loft' (see paragraph 5.10), but the walls of the aisle were also raised in this phase in order to make lofts. The lack of evidence for raising of the walls in this elevation would suggest therefore that that work took place elsewhere in the church's fabric.

7.27 The skews **021**, pinnacles **025** and **026** and sandstone blocking **028** in the doorway all were added in Phase 3, when the Mausoleum was created. The brick repair **030** is of modern date (Phase 4).

North Elevation (paragraph 6.5 and Table 4)

7.28 Much of the north elevation appears to consist of repairs and rebuilding. Remnants of the original wall **031** appear to survive on the east where the masonry is well knitted to quoins **024**, while the west displays later pinning repairs. The blocked apertures **040** and **070** may represent original windows, or an original window and doorway respectively; however, the medieval church may only have had apertures on the south side (as at Tullibody -- see section 8.0), and these could equally have been inserted at some later date.

7.29 The Phase 3 conversion to Mausoleum brought about the most drastic changes to the elevation. The insertion of a barrel vault in Chamber 2 necessitated the rebuilding of the central portion of the wall (**037**); the keystone **038** is just visible at the base of the rebuilt section (see illus 37). Both apertures were blocked (**035** and **036**) at some point.

7.30 As on the south elevation, the wallhead was lowered (**033**) and a corbelled cornice (**068**) and crenellated parapet **034** were introduced in Phase 3. The fact that these seal the rebuilt section of the wall **037** suggests that the barrel vault **060** was built at the same time as the building's overall conversion in Phase 3, with the decorative touches added after the structural work took place. The cement render **032** and cracks **039** are more recent developments (Phase 4).

Roof (paragraph 6.6)

7.31 Although it has not been possible to examine the roof due to safety considerations and the asbestos tiles which currently mask underlying features, the original roof may have been pitched in keeping with contemporary architectural practice for stone buildings (Fawcett 2011). By Phase 2a the roof was covered with slates (paragraph 5.9).

7.32 Water currently runs off the east gable through window **029**. As the wallheads have been lowered on the north and south to introduce the crenellated parapets, there is no evidence of a former water drainage system at roof height. The removal of the asbestos sheets might reveal traces of an earlier water drainage system (and provide other structural answers). Any former outlet might have been a lead parapet gutter with a central spout on the gable, which could explain the severity of erosion of stonework on the east elevation, but this is speculative.

Vaults (paragraphs 6.8 and 6.10, Tables 5 and 6)

7.33 Because of limited access to Chamber 2 and the masking of key relationships by existing features, the sequence of construction and modification for the vaults is unclear. Based on the available evidence, the following provisional sequence is proposed.

7.34 Chamber 2 (the inner, northern chamber) may be original to the medieval church. The wall **059** on its north, east and west sides appears to be integral to the structure, and the doorway **054** leading into it may likewise be original. In that case, it may have originally been accessed from inside the church but any evidence for this would probably have been destroyed during the construction of Chamber 1.

7.35 Chamber 1 protrudes above floor level and was therefore constructed in Phase 3, inside the east end of the former church, as part of the newly created Mausoleum. At doorway **006**, it is evident that the chamber wall **042** is not aligned with the west gable and the two therefore appear to be of different phases. The date on plaque **047** indicates it pre-dates Phase 3 and therefore must have been re-set in the barrel vault **044** from another context. The plinths **048**, **049** and **050** were constructed as part of the Mausoleum and by 1846 family members were being buried in the chamber, represented by coffins **051**, **052** and **053**.

7.36 In Chamber 2, a barrel vault **060** was inserted; the similarity of its character to that in Chamber 1 suggests that this took place in Phase 3. An iron door represented by fitting **055** may have earlier hung in doorway **054** and been replaced at this stage or a later one by sandstone slab blocking **062**. Coffins **063**, **064** and **065** and human remains **066** (the coffin for which has presumably completely decayed away) were placed inside perhaps over several generations of use, but the associated names and dates are not currently known.

Table 7 below lists the recorded contexts by area and provisional phase.

<i>Context No</i>	<i>Location</i>	<i>Description</i>	<i>Provisional phase</i>
054	Chamber 1	Door aperture	?1
058	Chamber 2	Chamber	?1
059	Chamber 2	N/E/W wall of chamber	?1
020	E elevation	E wall	1
022	E elevation	Chamfered plinth	1
024	E elevation	Quoins	1
027	E elevation	Door aperture	1
029	E elevation	Window aperture	?1
031	N elevation	N wall, E and W portions	1

040	N elevation	Window aperture	?1
070	N elevation	Aperture	?1
010	S elevation	S wall	1
069	W elevation	Lower part of elevation	1
047	Chamber 1	Plaque	2
055	Chamber 1	Fitting	?2
056	Chamber 1/ W elevation	Wooden lintel	?2
012	S elevation	Window aperture	2
014	S elevation	Window aperture	2
019	S elevation	Fittings	2
023	S elevation	Small stone course indicating raising of elevation	2
067	W elevation	Small stone course indicating raising of elevation	?2
009	Chamber 1	Ventilation aperture	3
042	Chamber 1	W wall	3
043	Chamber 1	Lime mortar finish	3
044	Chamber 1	Barrel vault	3
045	Chamber 1	Flagstone floor	3
046	Chamber 1	Plaque	3
048	Chamber 1	Large plinth	3
049	Chamber 1	Small E plinth	3
050	Chamber 1	Small W plinth	3
051	Chamber 1	Coffin	3
052	Chamber 1	Coffin	3
053	Chamber 1	Coffin	3
062	Chamber 1	Sandstone blocking of 054	3
061	Chamber 2	Packed earth floor	?3
063	Chamber 2	Coffin	3
064	Chamber 2	Coffin	3
065	Chamber 2	Coffin	3
066	Chamber 2	Human remains	3
021	E elevation	Skews	3
025	E elevation	Pinnacle	3
026	E elevation	Pinnacle	3
028	E elevation	Blocking	3
033	N elevation	Evidence of truncation to introduce parapet 034	3

034	N elevation	Parapet	3
035	N elevation	Stonework blocking aperture 040	3
036	N elevation	Stonework blocking possible aperture 070	3
037	N elevation	Rebuilt central portion of wall	3
038	N elevation	Chamber 2 keystone	3
068	N elevation	Cornice	3
060	N elevation/ Chamber 2	Barrel vault	3
013	S elevation	Sandstone blocking in window aperture 012	3
015	S elevation	Sandstone blocking in window aperture 014	3
016	S elevation	Parapet	3
017	S elevation	Cornice	3
018	S elevation	Evidence of truncation to introduce parapet 016	3
001	W elevation	Upper part of elevation	3
003	W elevation	Buttresses	3
004	W elevation	Skew and finial	3
005	W elevation	Plinth course	3
006	W elevation	Door aperture	3
007	W elevation	Door fitting	3
008	W elevation	Door aperture	3
057	Chamber 1	Pipe	4
030	E elevation	Repair	4
032	N elevation	Finish	4
039	N elevation	Cracks	4
041	Roof	Butterfly roof	4
011	S elevation	Finish	4
002	W elevation	Finish	4
009	W elevation	Fitting	4

Table 7: Provisional phasing for the contexts identified.

8.0 Discussion & Recommendations

Assessment of Potential for Survival & Significance of Heritage Assets

8.1 Despite the extensive modifications from its original form and character, House of Dun Mausoleum appears to share similarities with other converted medieval churches in eastern Scotland. Its orientation, its location within an earlier burial ground and the size and proportions of the original church (as identified through geophysical survey) support its medieval credentials.

8.2 Fawcett et al (2008) have conducted a pilot study of parish churches in the dioceses of Dunblane and Dunkeld to identify the extent to which they preserve elements of medieval fabric, resulting in the web-

based publication *A Corpus of Scottish Medieval Parish Churches*. They identified the significance of proportions in medieval church planning, as 'the liturgical requirement in a medieval church for a spatially -- if not structurally -- distinct chancel to the east of a nave almost inevitably resulted in a relatively slender elongated plan for rectangular churches' (Fawcett et al 2008). The study recorded a range of dimensions, from 31.75 m east/west by 8.2 m north/south to 9.2 m by 6.32 m, with average dimensions of 19.34 m east/west by 7.19 m north/south and average proportions of 1:2.69 (Fawcett et al 2008). At 21.8 m east/west by 6.1 m, the parish church at Dun would have been very similar to churches at Culross (23.2 m by 6.5 m) and possibly Monzie (?c 22 m by 6.13 m) in the diocese of Dunblane, and Weem (20.52 m by 7.2 m) and Meigle (20.9 m by 7.74 m) in the diocese of Dunkeld.

- 8.3 A high proportion of medieval parish churches in Scotland were extensively remodelled in the late 18th and the 19th centuries. Some of those recorded by Fawcett et al (2008) illustrate the kinds of changes that may have been executed at Dun. At Dalgety church in Fife, for example, several laird's aisles were added to the medieval rectangular footprint following the Reformation: two contiguous rectangular aisles against the north flank, two more against the south flank and a large, L-shaped aisle at the west end (Fawcett et al 2008). Two timber lofts were built at each end of the church, with the eastern one accessed from a forestair against the gable wall (see <https://imagedatabase.st-andrews.ac.uk/images/viewimage.php?id=ahkkGXUwecQ=> for floor plans). At Ballumbie near Dundee, in the diocese of St Andrews, a laird's aisle measuring about 4 m square was attached to the south-east side of the church (Hall 2007).
- 8.4 Other examples recorded in the study illustrate the wholesale replacement of medieval churches with mausolea. At Tulliallan parish church in Fife is the abandoned mausoleum of the Keith family of Overton (illus 65). The mausoleum is a buttressed and crowstepped rectangular structure dated to 1830. No medieval features have been identified in its fabric, but it is likely to have originally been a medieval structure, as indicated by an 11th-century hogback stone and several 17th-century memorials in the churchyard (Fawcett et al 2008). Auchtertool Parish Church in Fife presents many architectural parallels with Dun, including buttressing and crenellation (illus 66). It was built in 1833 with a crypt under the north aisle for the Skene family (ibid).
- 8.5 Kilbryde Parish Church, Perthshire is a mausoleum designed around the same time as Dun (illus 67). It is a symmetrical structure in Gothic idiom, dated to 1864; it replaces a building said to have been reconstructed in 1750. Its oriented alignment and dimensions (apart from the buttresses) of 10.73 m east/west and 6.26 m north/south may indicate that it stands on part of the footprint of its 12th-century predecessor (ibid).



Illus. 65: Tulliallan Parish Church, Fife . University of St Andrews © 2008.



Illus. 66: Auchtertool Parish Church, Fife. University of St Andrews © 2008.



Illus. 67: Kilbryde Parish Church, Perthshire. University of St Andrews © 2008.

8.6 The significance of the heritage assets of House of Dun Mausoleum can be assessed on several levels, as defined by English Heritage (2008, 7):

- Evidential values: The potential of a place to yield evidence about past human activity.
- Historical values: The ways in which the present can be connected through a place to past people, events and aspects of life. It tends to be illustrative or associative.
- Aesthetic/architectural values: The ways in which people draw sensory and intellectual stimulation from a place.
- Communal/social values: The meanings of a place for the people who relate to it and whose collective experience or memory it holds. It may embrace symbolic, social and spiritual values.

8.7 House of Dun Mausoleum, despite its small size, has considerable evidential and historical value. It presents a palimpsest of evidence in its fabric for its original form and for phases of alteration. Its rectangular form, its proportions and its dedication to the Virgin Mary were all in keeping with the prevailing choices of Scottish aristocracy in the later 14th century when the Erskines acquired the barony of Dun. It draws historical values not only from its long association with the Erskine family but also from its association with major societal changes, particularly the Reformation: John Knox is said to have preached in the church and the family's castle was destroyed because of the Erskine's political, religious and military affiliations (Warden 1880, 169). In the early 18th century it was altered to preserve what may have been a failing structure and to adapt it to the family's Reformed position.

8.8 In the 19th century, it was again adapted to create a fitting memorial and final resting place for family members. This formed part of a wave of improvements across the estate (Thompson in Lelong et al 2001), and as such it illustrates the developing fortunes and preoccupations of the Erskines. The remodelling of the building to create a neo-Gothic style reflected contemporary trends. Its aesthetic/architectural values derive both from this deliberate attempt to create a monument evocative of the past and also from the natural or artless beauty of the building in the setting of its burial ground and surrounding plantings. Its communal/social values are drawn from its meaning for the Erskine family, transferred now to a wider community through the medium of the NTS, who interpret and present the heritage of House of Dun estate for visitors.

- 8.9 Historic Scotland has listed House of Dun as Category B, defined as 'Buildings of regional or more than local importance, or major examples of some particular period, style or building type which may have been altered.'

Assessment of Impact of Proposed Conservation

- 8.10 In light of the above assessment, any conservation works should be designed to conserve the various indications within the fabric of the House of Dun for its original form and for the Phase 2 and 3 alterations. The building has been the object of benign neglect in recent decades, with the lack of adequate drainage provision in particular having a detrimental effect on the stonework of the east elevation, including the hammered foundation. Other deliberate interventions, particularly the application of cement mortar and rendering, have also caused problems and may have accelerated stone decay.
- 8.11 The proposed conservation will include replacement of the current butterfly roof with the aim of preventing water leaking into the structure (D Rhodes, pers comm). It was not possible to access the roof and the survey did not identify whether any evidence for earlier roof forms is present. It is likely that the mausoleum was designed with a butterfly roof, which would have preserved the impression of a roofless, romantic ruin; certainly it is depicted by Jervis in 1846 without a pitched roof (illus 63).
- 8.12 However, the butterfly roof has created drainage problems and has left the gables unsupported and vulnerable to collapse. If the replacement roof is of butterfly form, then adequate drainage with a lead-formed parapet gutter must be put in place to ensure water drains away from the stonework in order to halt erosion and washing out of mortar on the east elevation. A raised outlet should also be designed to avoid affecting graves close to the building.

Strategies for Further Evaluation

- 8.13 Research in the National Archives of Scotland focused on those bundles for which enough information was available to suggest they might be relevant to the church of Dun. However, the Erskine archives are not fully catalogued and there are no descriptions of many bundle contents and only partial descriptions of others. A systematic, detailed search through the Erskines archives, perhaps carried out for a master's or doctoral thesis, might reveal additional information of relevance to the early form and fabric of the church and to its later development.
- 8.14 The removal of the asbestos roof would present an opportunity to inspect the inner elevations and identify further evidence for the building's development including, for example, features such as a possible rood loft and the font described in the east wall. Similarly, removal of cement mortar in advance of repointing would allow the observation and recording of features that are currently masked. Any invasive works should therefore be accompanied by a watching brief. Terrestrial laser scanning of what is revealed in the process would complete the detailed digital record of the structure and could reveal evidence for original or earlier roof forms.
- 8.15 The survey raised several questions to which some targeted research could provide answers. Keyhole excavation at the base of the west gable towards its north end could clarify the relative sequence of construction and the character of the adjacent buried wall lines recorded in geophysical survey. Keyhole excavation along the north gable could identify further evidence of the hammered foundation and clarify the relationship between the medieval structure and Chamber 2.

Strategies for Conserving Significance

8.16 Adequate provision must be made for drainage off the roof to prevent further erosion of the stonework on the east elevation.

8.17 The vaulted roof of Chamber 2 appears to be letting water through and during the winter of 2012 the chamber was flooded (House of Dun Property Manager, pers comm). The chamber should be made watertight to prevent degradation of the structure and further damage to the human remains.

8.18 Archaeological excavation of the interior of the burial vaults should be carried out to recover the human remains, identify the minimum number of individuals present and, if possible, establish their identities before re-interment. This would satisfy a duty of care and reinstate right of sepulchre (Historic Scotland 2006), as well as support the future management of the burials and their interpretation as part of the Mausoleum. Recovery and recording must take place before the vaults are accessed for any maintenance or repair work.

9.0 List of Sources

9.1 Cartographic Sources

Date	Mapmaker	Title
1747-55	Roy W	<i>The Military Survey of Scotland</i>
1794	Ainslie, J	<i>Map of the County of Forfar or Shire of Angus</i>
1850	Knox, J	<i>Map of the Basin of the Tay, including the greater part of Perth Shire, Strathmore and the Braes of Angus or Forfar</i>
1865	Ordnance Survey	<i>Forfar, Sheet XXVII.16 (Dun), 25-inch to the mile</i>
1903	Ordnance Survey	<i>Forfarshire, Sheet 027.16, 25-inch to the mile</i>
1924	Ordnance Survey	<i>Forfar, Sheet XXVII.16 (Dun), 25-inch to the mile</i>

9.2 Bibliographic Sources

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Bryan, P, Blake, B, Bedford, J, Barber, D, Mills, J & Andrews, D 2009 *Metric Survey Specifications for Cultural Heritage*. London: English Heritage.

Eadie, J 1845 'Parish of Dun', in *The Second Statistical Account of Scotland*, vol 11. Edinburgh & London: W Blackwood & Sons, 123-8.

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English Heritage 2007 *3D laser scanning for Heritage: Advice and Guidance to users on laser scanning in archaeology and architecture*.

English Heritage 2008 *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment*.

Fawcett, R, Luxford, J & Oram, R 2008 *A Corpus of Scottish Medieval Parish Churches*. <http://arts.st-andrews.ac.uk/~cmas/index.php>

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British Art.

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http://www.legislation.gov.uk/ukpga/1974/37/pdfs/ukpga_19740037_en.pdf

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<http://www.hse.gov.uk/coshh/index.htm>

Health & Safety Executive 2012 *Control of Asbestos Regulations*
http://www.legislation.gov.uk/uksi/2012/632/pdfs/uksi_20120632_en.pdf

Historic Scotland 2006 *The Treatment of Human Remains in Archaeology*. Historic Scotland Operational Policy Paper 5.

Institute for Archaeologists 2008 Standard and Guidance for the archaeological investigation and recording of standing buildings or structures.

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Lelong, O, Thompson, P, Brough, R, Taggart, J, Maule, A, Hamer, J & McLellan, K 2001 House of Dun, Angus: An historic landscape survey, GUARD Report 795. Glasgow: University of Glasgow.

Mackinlay, J M 1910 *Ancient Church Dedications in Scotland*. Edinburgh: Douglas.

Simpson, B. and Connolly, D 2006, *Historic Building Recording: Guidance for curators and commercial archaeological contractors*, East Lothian Council.

Thompson, P 2001 'The Development of the Designed Landscape at the House of Dun', in Lelong et al (2001).

Warden, A J 1880 *Angus or Forfarshire: the land and people, descriptive and historical*. Dundee: C Alexander & Co.

9.3 Documentary Sources

<i>Bundle ref</i>	<i>Description of contents</i>
GD 123/125	Accounts for repairs to kirk and manse of Dun, 1716-17.
GD 123/137	Erskine of Dun accounts, including account due by John Erskine of Dun to John Adam, architect, for Mrs Erskine's tomb, 1748.
GD 123/142	Signature signed by James VI for privy seal letters appointing Mr James Lichtoun to kirk of Dun, 1621/2.
GD 123/423	Repair of the Church of Dun: The midwall in the Church was taken down, the wall of the aisle heightened and storm windows put in, 1731.
GD 123/425	Repair of the Church and Manse. Account of money paid by Lord Dun to Robert Milne

and his father.

- GD 123/426 Rebuilding of the Quire of the Kirk and repairing of the Manse. Receipts from Robert and James Miles for £100 (Scots) as part of Lord Dun's proportion of the cost, 1715-16.
- GD 123/426 Account for the repair of the Burial Place and for heightening the walls of the Quire of the Church. Amounts to £96.3.4 (Scots), 1716.
- GD 123/426 Smith work on Church, Quire and Manse of Dun. Discharged accounts from John Paterson, smith, 1717.
- GD 123/426 Expense of repair of the Quire of the Church and the Manse of Dun. Account of disbursements by Aleander Farquhar, Factor to Lord Dun. They amount to £1015.17.10 (Scots), 1716-17.
- GD 123/426 Note of Lord Dun's share of account for repairing church and manse of Dun, April 1719.
- GD 123/428 Remarks on accounts for repairing Church and Manse of Dun, 1718.
- GD 123/428 Account of disbursements for building the Quire [of the Church of Dun]. It amounts to £241.15.8. Unsigned.
- GD 123/428 Account of wright and glass work for the Quire [of the Church of Dun] from Alexander Hackett, wright.
- CH 12/12/48* Notes as to family of Erskine of Dun by John Alexander
- RHP Photocopy of plan of the Gardens of Dun, the seat of Rt Hon David Erskine of Dun, etc
- 82062**
- GD 1/559 Drawings of tombstones and copies of memorial inscriptions in Old Dun churchyard, Angus. Sheets 2-4, 6, 9-16, 18-20, 22-26, 36, 38, 40, 45, 46, 48

10.0 Appendices

APPENDIX 1: Concordances

Table 8: Photographic Record.

<i>Photo No.</i>	<i>Area</i>	<i>Description</i>	<i>Taken From</i>	<i>Format</i>
IMG_1720	General	View of the mausoleum from entrance gate -sunrise	NW	JPEG
IMG_1721	General	View of the mausoleum from entrance gate -sunrise	NW	JPEG
IMG_1722	NW	Oblique view of west (W) gable	NW	JPEG
IMG_1723	E	Oblique view of east gable (upper part)	SE	JPEG
IMG_1724	S	Oblique view of the south (S) elevation (upper part)	SE	JPEG
IMG_1725	W	Detail of stonework on W gable	W	JPEG
IMG_1726	W	Detail of stonework on W gable between mouldhoods (004, 006)	W	JPEG
IMG_1727	W	Straight-on view of east gable	W	JPEG
IMG_1728	N	Detail of stonework on North (035) gable	NNW	JPEG
IMG_1729	N	Oblique view of the south (S) elevation	N	JPEG
IMG_1730	N	Detail of cement on North (035) gable	N	JPEG
IMG_1731	General	View of entrance gate to the mausoleum	SE	JPEG
IMG_1732	General	Detail of grave slab insert on enclosure wall	S	JPEG
IMG_1733	Station b	Panoramic view from scanner position b	W	JPEG
IMG_1734	Station b	Panoramic view from scanner position b	NW	JPEG
IMG_1735	Station b	Panoramic view from scanner position b	N	JPEG
IMG_1736	Station b	Panoramic view from scanner position b	N	JPEG
IMG_1737	Station b	Panoramic view from scanner position b	N	JPEG
IMG_1738	Station b	Panoramic view from scanner position b	N	JPEG
IMG_1739	Station b	Panoramic view from scanner position b	NW	JPEG
IMG_1740	Station b	Panoramic view from scanner position b	NW	JPEG
IMG_1741	Station b	Panoramic view from scanner position b	N	JPEG
IMG_1742	General	Detail of grave slab near west gable	E	JPEG
IMG_1743	General	Detail of grave slab near west gable	E	JPEG
IMG_1744	General	Detail of grave slab near west gable	E	JPEG
IMG_1745	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1746	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1747	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1748	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1749	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1750	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1751	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1752	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1753	Station c	Panoramic view from scanner position c	W	JPEG

IMG_1754	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1755	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1756	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1757	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1758	Station c	Panoramic view from scanner position c	W	JPEG
IMG_1759	General	Detail of grave slab near west gable	E	JPEG
IMG_1760	General	Detail of grave slab near west gable	E	JPEG
IMG_1761	General	Detail of features leaning on west gable	E	JPEG
IMG_1762	General	Detail of features leaning on west gable	E	JPEG
IMG_1763	General	Detail of features leaning on west gable	E	JPEG
IMG_1764	Station a	Panoramic view from scanner position a	W	JPEG
IMG_1765	Station a	Panoramic view from scanner position a	NW	JPEG
IMG_1766	Station a	Panoramic view from scanner position a	N	JPEG
IMG_1767	Station a	Panoramic view from scanner position a	N	JPEG
IMG_1768	Station a	Panoramic view from scanner position a	NE	JPEG
IMG_1769	Station a	Panoramic view from scanner position a	E	JPEG
IMG_1770	Station a	Panoramic view from scanner position a	SE	JPEG
IMG_1771	Station a	Panoramic view from scanner position a	S	JPEG
IMG_1772	Station a	Panoramic view from scanner position a	SSW	JPEG
IMG_1773	Station a	Panoramic view from scanner position a	SSW	JPEG
IMG_1774	Station a	Panoramic view from scanner position a	SSW	JPEG
IMG_1775	General	Detail of grave slab near west gable	E	JPEG
IMG_1776	Station d	Panoramic view from scanner position d	S	JPEG
IMG_1777	Station d	Panoramic view from scanner position d	SSW	JPEG
IMG_1778	Station d	Panoramic view from scanner position d	SW	JPEG
IMG_1779	Station d	Panoramic view from scanner position d	W	JPEG
IMG_1780	Station d	Panoramic view from scanner position d	W	JPEG
IMG_1781	Station d	Panoramic view from scanner position d	W	JPEG
IMG_1782	Station d	Panoramic view from scanner position d	W	JPEG
IMG_1783	Station d	Panoramic view from scanner position d	SW	JPEG
IMG_1784	Station d	Panoramic view from scanner position d	SW	JPEG
IMG_1785	Station d	Panoramic view from scanner position d	SW	JPEG
IMG_1786	Station d	Panoramic view from scanner position d	S	JPEG
IMG_1787	Station d	Panoramic view from scanner position d	S	JPEG
IMG_1788	Station d	Panoramic view from scanner position d	S	JPEG
IMG_1789	Station d	Panoramic view from scanner position d	SW	JPEG
IMG_1790	Station d	Panoramic view from scanner position d	SW	JPEG
IMG_1791	Station d	Panoramic view from scanner position d	S	JPEG
IMG_1792	Station d	Panoramic view from scanner position d	SW	JPEG

IMG_1793	Station e	Panoramic view from scanner position e (poor light-sun shadows)	S	JPEG
IMG_1794	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1795	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1796	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1797	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1798	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1799	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1800	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1801	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1802	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1803	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1804	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1805	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1806	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1807	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1808	Station e	Panoramic view from scanner position e	S	JPEG
IMG_1809	S	Detail of metal fittings around Windows 012	E	JPEG
IMG_1810	S	Detail of metal fittings around Windows 012	E	JPEG
IMG_1811	S	Detail of metal fittings around Windows 014	E	JPEG
IMG_1812	S	Detail of metal fittings around Windows 014	E	JPEG
IMG_1813	E	Window 029	SE	JPEG
IMG_1814	E	Window 030	NE	JPEG
IMG_1815	N	Exposed stone 038 from barrel vault 060	NW	JPEG
IMG_1816	N	pointing pronounced and stonework dressed to give a coursing effect	NW	JPEG
IMG_1817	NW	poor attempt of stone coursing	NW	JPEG
IMG_1818	N	pointing pronounced and stonework dressed to give a coursing effect	N	JPEG
IMG_1819	N	Exposed stone 038 from barrel vault 060 without slabstones	N	JPEG
IMG_1820	N	Exposed stone 038 from barrel vault 060 without slab stones	N	JPEG
IMG_1821	N	East end of North elevation showing changes in the stone built	N	JPEG
IMG_1822	N	Crack 39 at parapet 034		JPEG
IMG_1823	S and E	View of S and E gable	ESE	JPEG
IMG_1824	General	S and E gable with laser scanner	SE	JPEG
IMG_1825	General	S and E gable with laser scanner	SE	JPEG
IMG_1826	N and E	Oblique view of N elevation with large stone at base of mound - Quoins 023 in foreground	ENE	JPEG
IMG_1827	S	Low angle- centred on south elevation	S	JPEG
IMG_1828	S	Low angle- centred on south elevation	S	JPEG
IMG_1829	S	Low angle- centred on south elevation	S	JPEG
IMG_1830	S	Low angle- centred on south elevation	S	JPEG

IMG_1831	W and S	View of W and S gable	WSW	JPEG
IMG_1832	W and S	View of W and S gable	WSW	JPEG
IMG_1833	W and S	View of W and S gable	WNW	JPEG
IMG_1834	W and S	View of W and S gable	WNW	JPEG
IMG_1835	W and S	View of W and S gable	WNW	JPEG
IMG_1836	N	View centred on N elevation	N	JPEG
IMG_1837	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1838	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1839	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1840	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1841	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1842	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1843	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1844	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1845	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1846	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1847	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1848	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1849	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1850	Station f	Panoramic view from scanner position f	SE	JPEG
IMG_1851	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1852	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1853	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1854	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1855	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1856	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1857	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1858	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1859	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1860	Station g	Panoramic view from scanner position g	NE	JPEG
IMG_1861	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG
IMG_1862	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG
IMG_1863	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG
IMG_1864	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG
IMG_1865	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG
IMG_1866	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG
IMG_1867	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG
IMG_1868	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG
IMG_1869	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG

IMG_1870	Station h	Panoramic view from scanner position h (light down)	NNE	JPEG
IMG_1871	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1872	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1873	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1874	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1875	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1876	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1877	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1878	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1879	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1880	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1881	Station j	Panoramic view from scanner position j (light down)	N	JPEG
IMG_1882	E	Oblique view East elevation	ENE	JPEG
IMG_1883	E	East elevation centred (light down)	E	JPEG
IMG_1884	E and S	detail of chamfered plinth 022	SE	JPEG
IMG_1885	E and S	detail of chamfered plinth 022	SE	JPEG
IMG_1886	E and S	detail of chamfered plinth 022	SE	JPEG
IMG_1887	E	detail of chamfered plinth 022	SE	JPEG
IMG_1888	S	detail of pinnacles 025	SE	JPEG
IMG_1889	E	detail of pinnacles 025	E	JPEG
IMG_1890	E	detail of pinnacles 026	E	JPEG
IMG_1891	E	detail of stonework damage below Window 29		JPEG
IMG_1892	E	detail of chamfered plinth 022	E	JPEG
IMG_1893	E	detail of how plinth 022 and door 027 meets	SE	JPEG
IMG_1894	E	Door 027 chamfer and brick repair 030	SE	JPEG
IMG_1895	E	Door 027 chamfer and brick repair 031	SE	JPEG
IMG_1896	S	Buttress 003 and stonework 010	SE	JPEG
IMG_1897	S	Buttress 003 and stonework 011	SE	JPEG
IMG_1898	S	wallhead insert 033 and parapet 034	S	JPEG
IMG_1899	W	Buttress 003 (south) and stonework 001	W	JPEG
IMG_1900	W	Buttress 003 (south) and stonework 001	W	JPEG
IMG_1901	W	Buttress 003 (south) and stonework 001	W	JPEG
IMG_1902	W	Buttress 003 (south) and stonework 001	W	JPEG
IMG_1903	W	Oblique of upper part of W gable	SW	JPEG
IMG_1904	W	Oblique of upper part of W gable	SW	JPEG
IMG_1905	W	Detail of crenellation skew 004	W	JPEG
IMG_1906	W	Detail of plinth 005	W	JPEG
IMG_1907	W	Buttress 003 (north) and stonework 001	W	JPEG
IMG_1908	W	Detail on crenellation skew 004 and stonework 001	W	JPEG

IMG_1909	W	Buttress 003 (north) and stonework 001	NW	JPEG
IMG_1910	N	Buttress 003 (north) and stonework 031	N	JPEG
IMG_1911	N	Buttress 003 (north) and stonework 032	N	JPEG
IMG_1912	N	Relation between buttress 003 (north), stonework 033 & crenellation 034	NNE	JPEG
IMG_1913	N	Relation between buttress 003 (north), stonework 033 & crenellation 034	NNE	JPEG
IMG_1914	N	Relation between buttress 003 (north), stonework 033 & crenellation 034	NNE	JPEG
IMG_1915	N	Relation between buttress 003 (north), stonework 033 & crenellation 034	NNE	JPEG
IMG_1916	N	Relation between buttress 003 (north), stonework 033 & crenellation 034	NNE	JPEG
IMG_1917	N	Relation between buttress 003 (north), stonework 033 & crenellation 034	NNE	JPEG
IMG_1918	N and E	Crenellation 034 (foreground) and inner face of E gable	NNW	JPEG
IMG_1919	Station ki	Panoramic view from scanner position ki	W	JPEG
IMG_1920	Station ki	Panoramic view from scanner position ki	W	JPEG
IMG_1921	Station ki	Panoramic view from scanner position ki	W	JPEG
IMG_1922	Station ki	Panoramic view from scanner position ki	W	JPEG
IMG_1923	Station ki	Panoramic view from scanner position ki	W	JPEG
IMG_1924	Station ki	Panoramic view from scanner position ki	NW	JPEG
IMG_1925	Station ki	Panoramic view from scanner position ki	W	JPEG
IMG_1926	Station ki	Panoramic view from scanner position ki	ENE	JPEG
IMG_1927	Station ki	Panoramic view from scanner position ki	NE	JPEG
IMG_1928	Vault - Chamber 1	Straight on wall 042	E	JPEG
IMG_1929	Vault - Chamber 1	Straight on wall 041	E	JPEG
IMG_1930	Vault - Chamber 1	Barrel vault 044	E	JPEG
IMG_1931	General	scanner in action in front of Chamber 2	S	JPEG
IMG_1932	General	scanner in action in front of Chamber 3	S	JPEG
IMG_1933	General	scanner in action in front of Chamber 4	S	JPEG
IMG_1934	Station li	Panoramic view from scanner position li	SW	JPEG
IMG_1935	Station li	Panoramic view from scanner position li	WSW	JPEG
IMG_1936	Station li	Panoramic view from scanner position li	W	JPEG
IMG_1937	Station li	Panoramic view from scanner position li	W	JPEG
IMG_1938	Station li	Panoramic view from scanner position li	SW	JPEG
IMG_1939	Station li	Panoramic view from scanner position li	SSW	JPEG
IMG_1940	Station li	Panoramic view from scanner position li	S	JPEG
IMG_1941	Station li	Panoramic view from scanner position li	SE	JPEG
IMG_1942	Station li	Panoramic view from scanner position li	SE	JPEG
IMG_1943	Station li	Panoramic view from scanner position li	S	JPEG
IMG_1944	Station li	Panoramic view from scanner position li	E	JPEG
IMG_1945	Station li	Panoramic view from scanner position li	E	JPEG

IMG_1946	Station li	Panoramic view from scanner position li	ENE	JPEG
IMG_1947	Station li	Panoramic view from scanner position li	ENE	JPEG
IMG_1948	Station li	Panoramic view from scanner position li	ENE	JPEG
IMG_1949	Station li	Panoramic view from scanner position li	NNW	JPEG
IMG_1950	Station li	Panoramic view from scanner position li	NNW	JPEG
IMG_1951	Station li	Panoramic view from scanner position li	NNW	JPEG
IMG_1952	Station li	Panoramic view from scanner position li	NNW	JPEG
IMG_1953	Station li	Panoramic view from scanner position li	WNW	JPEG
IMG_1954	Station li	Panoramic view from scanner position li	WNW	JPEG
IMG_1955	Station li	Panoramic view from scanner position li	W	JPEG
IMG_1956	Station li	Panoramic view from scanner position li	WSW	JPEG
IMG_1957	Station li	Panoramic view from scanner position li	WSW	JPEG
IMG_1958	Station li	Panoramic view from scanner position li	WSW	JPEG
IMG_1959	Station li	Panoramic view from scanner position li	ENE	JPEG
IMG_1960	Station li	Panoramic view from scanner position li	E	JPEG
IMG_1961	Station li	Panoramic view from scanner position li	E	JPEG
IMG_1962	General	Beam from the scanner on vault		JPEG
IMG_1963	Station mi	Panoramic view from scanner position mi	S	JPEG
IMG_1964	Station mi	Panoramic view from scanner position mi	S	JPEG
IMG_1965	Station mi	Panoramic view from scanner position mi	S	JPEG
IMG_1966	Vault - Chamber 1	Detail of stone plaque 046	NW	JPEG
IMG_1967	Vault - Chamber 1	Detail of stone plaque 047	N	JPEG
IMG_1968	Vault - Chamber 1	Detail of coffin 052	S	JPEG
IMG_1969	Vault - Chamber 1	Detail of coffin 052	S	JPEG
IMG_1970	Vault - Chamber 1	Detail of coffin 052	S	JPEG
IMG_1971	Vault - Chamber 1	Detail of coffin 052	S	JPEG
IMG_1972	Vault - Chamber 1	Detail of coffin 052	S	JPEG
IMG_1973	Vault - Chamber 1	Detail of coffin 052	S	JPEG
IMG_1974	Vault - Chamber 1	Detail of coffin 052	S	JPEG
IMG_1975	Vault - Chamber 1	Detail of coffin 052	S	JPEG
IMG_1976	Vault - Chamber 1	Detail of coffin 054 - handle loose		JPEG
IMG_1977	Vault - Chamber 1	Detail of coffin 053	S	JPEG

IMG_1978	Vault - Chamber 1	Detail of coffin 053	S	JPEG
IMG_1979	Vault - Chamber 2	Straight on wall 059 (north)	S	JPEG
IMG_1980	Vault - Chamber 2	Straight on wall 059 (north)	S	JPEG
IMG_1981	Vault - Chamber 2	Straight on wall 059 (north)	S	JPEG
IMG_1982	Vault - Chamber 2	Detail shot of stonework on barrel vault 060	S	JPEG
IMG_1983	Vault - Chamber 2	View of 2 lead coffins (063 & 065) wooden coffin (064) and 2 skeletons (066)	S	JPEG
IMG_1984	Vault - Chamber 2	View of lead coffin (063)	SE	JPEG
IMG_1985	Vault - Chamber 2	Heavy iron pins holding slabs on slabs blocking opening 054	top	JPEG
IMG_1986	Vault - Chamber 2	Heavy iron pins holding slabs on slabs blocking opening 054	NE	JPEG
IMG_1987	Vault - Chamber 2	Heavy iron pins holding slabs on slabs blocking opening 054	NE	JPEG
IMG_1988	Vault - Chamber 2	wall 059 -west	SSE	JPEG
IMG_1989	Vault - Chamber 2	wall 059 -west	SSE	JPEG
IMG_1990	Vault - Chamber 2	wall 059 -west	SSE	JPEG
IMG_1991	Vault - Chamber 2	wall 059 -west	SSE	JPEG
IMG_1992	Chamber 1 & 2	Stone arched opening 054- west jamb	E	JPEG
IMG_1993	Chamber 1 & 2	Stone arched opening 054- base of the arch	S	JPEG
IMG_1994	Chamber 1 & 2	Stone arched opening 054- east jamb	W	JPEG
IMG_1995	Chamber 1 & 2	Stone arched opening 054- east jamb	W	JPEG
IMG_1996	Chamber 1 & 2	Opening 054 -straight on	S	JPEG
IMG_1997	Vault - Chamber 1	straight-on view on North wall - 044	S	JPEG
IMG_1998	Vault - Chamber 1	straight-on view on North wall - 044	S	JPEG
IMG_1999	Vault - Chamber 1	straight-on view on North wall - 044	S	JPEG
IMG_2000	Vault - Chamber 1	straight-on view on North wall - 044	S	JPEG
IMG_2001	Vault - Chamber 1	straight-on view on North wall - 044	S	JPEG

IMG_2002	Vault - Chamber 1	straight-on view on North wall - 044	S	JPEG
IMG_2003	Vault - Chamber 1	straight-on view on North wall - 044	S	JPEG
IMG_2004	Vault - Chamber 1	Relationship between Doorway 001 (north jamb) & Wall 042 & Wall 044	SE	JPEG
IMG_2005	Vault - Chamber 1	Relationship between Doorjamb 001 (north side) & Wall 042 & Wall 044	SE	JPEG
IMG_2006	Vault - Chamber 1	Relationship between Doorjamb 001 (north side) & Wall 042 & Wall 044	E	JPEG
IMG_2007	Vault - Chamber 1	Relationship between Doorway 001 (north jamb)& Wall 044	NW	JPEG
IMG_2008	Vault - Chamber 1	Doorway 001 (north jamb) showing changes in stone coursing	SE	JPEG
IMG_2009	Vault - Chamber 1	Doorway 001 (north jamb) showing changes in stone coursing	SE	JPEG
IMG_2010	Vault - Chamber 1	Coffin 051 (background) and 052 (foreground)	N	JPEG
IMG_2011	Vault - Chamber 1	Coffin 051 (background) and 052 (foreground)	N	JPEG
IMG_2012	Vault - Chamber 1	Wall 044- West and stone plaque (046)	N	JPEG
IMG_2013	Vault - Chamber 1	straight-on view on south wall - 044	N	JPEG
IMG_2014	Vault - Chamber 1	pipe 057 cutting thru south wall - 044	N	JPEG
IMG_2015	Vault - Chamber 1	Wall 044- West and stone plaque (046)	N	JPEG
IMG_2016	Vault - Chamber 1	straight-on view on south wall - 044	N	JPEG
IMG_2017	Vault - Chamber 1	straight-on view on south wall - 044	N	JPEG
IMG_2018	Vault - Chamber 1	straight-on view on south wall - 044	N	JPEG
IMG_2019	Vault - Chamber 1	straight-on view on south wall - 044	N	JPEG
IMG_2020	Vault - Chamber 1	straight-on view on south wall - 044	N	JPEG
IMG_2021	Vault - Chamber 1	straight-on view on south wall - 044	N	JPEG
IMG_2022	Vault - Chamber 1	straight-on view on west wall - 042	E	JPEG
IMG_2023	Vault - Chamber 1	straight-on view on east wall - 044	W	JPEG
IMG_2024	Vault - Chamber 1	Wall 044- West and stone plaque (046)	SSW	JPEG
IMG_2025	Vault - Chamber 1	Relationship between Doorway 001 (south jamb) & Wall 042	NNE	JPEG

IMG_2026	Vault - Chamber 1	Relationship between Doorway 001 (south jamb) & Wall 042	NNE	JPEG
IMG_2027	Vault - Chamber 1	Hole pocket 055 in south jamb of doorway 001	NNE	JPEG
IMG_2028	Vault - Chamber 1	Hole pocket 055 in south jamb of doorway 001	NNE	JPEG
IMG_2029	Vault - Chamber 1	Hole pocket 055 in south jamb of doorway 001	N	JPEG
IMG_2030	Vault - Chamber 1	Platform 048 and Flagstone floors 045	W	JPEG
IMG_2031	Vault - Chamber 1	Platform 048 and Flagstone floors 045	W	JPEG
IMG_2032	Vault - Chamber 1	metal fitting on south wall 044	N	JPEG
IMG_2033	General	view of the Dun church	NW	JPEG
IMG_2034	General	view of the Dun church	NW	JPEG
IMG_2035	E	Chamfered plinth 022 on East gable (behind slabs)	N	JPEG
IMG_2036	E	Chamfered plinth 022 on East gable (behind slabs)	N	JPEG
IMG_2037	General	cast-iron Iron tomb E of E gable	E	JPEG
IMG_2038	E	Chamfered plinth 022 on East gable and door 027	ESE	JPEG
IMG_2043	General	view of the Dun church and roof 041	NW	JPEG
IMG_2044	General	view of the Dun church and roof 041	NW	JPEG
IMG_2045	General	view of the Dun church and roof 041	NW	JPEG
IMG_2046	General	detail on gravestone (north part of graveyard)	E	JPEG
IMG_2047	General	general view of the graveyard	WSW	JPEG
IMG_2048	Roof	general view of the roof construction and E gable inner face	WNW	JPEG
IMG_2049	Roof	general view of the roof construction - asbestos sheets and inner face parapet 016	WNW	JPEG
IMG_2050	Roof	general view of the roof construction and W gable inner face & inner face parapet 016	NE	JPEG
IMG_2051	Roof	general view of the roof construction and W gable inner face	ENE	JPEG
IMG_2052	Roof	general view of the roof construction and E gable inner face	WNW	JPEG
IMG_2053	Roof	general view of the roof construction and E gable inner face	WNW	JPEG
IMG_2054	Roof	general view of the roof construction and E gable inner face	WNW	JPEG
IMG_2055	Roof	general view of the roof construction - asbestos sheets and inner face parapet 016	WNW	JPEG
IMG_2056	General	general view of the graveyard from top -NE part	WNW	JPEG
IMG_2057	E	E gable detail on crow steps	WSW	JPEG
IMG_2058	General	general view of the graveyard -NE part	SW	JPEG
IMG_2059	General	general view of the graveyard -SE part	S	JPEG
IMG_2060	General	general view of the graveyard -S part	ESE	JPEG
IMG_2061	General	detail of gravestone - SSE of S gable	E	JPEG
IMG_2063	General	detail of gravestone - S of S gable	W	JPEG

IMG_2064	General	view of the Dun church -sunset	NW	JPEG
IMG_2065	General	view of the Dun church -sunset	NW	JPEG

APPENDIX 2: Discovery & Excavation Scotland Entry

LOCAL AUTHORITY:	Angus
PROJECT TITLE/SITE NAME:	House of Dun Mausoleum
PROJECT CODE:	4360161
PARISH:	Dun
NAME OF CONTRIBUTOR:	Charlotte Francoz & Olivia Lelong
NAME OF ORGANISATION:	Northlight Heritage
TYPE(S) OF PROJECT:	Standing Building Survey
NMRS NO(S):	NO65NE 2
SITE/MONUMENT TYPE(S):	Mausoleum
SIGNIFICANT FINDS:	Medieval church, neo-Gothic mausoleum, human remains
NGR (2 letters, 8 or 10 figures)	NO 66762 59850
START DATE (this season)	October 2013
END DATE (this season)	December 2013
PREVIOUS WORK (incl. <i>DES</i> ref.)	Archaeological and historic designed landscape survey carried out by Glasgow University Archaeological Research Division (2001)
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	<p>A standing building survey was carried out of the B-listed House of Dun Mausoleum, Angus on behalf of the National Trust for Scotland. The survey included desk-based research into archives and primary and secondary sources. A fieldwork phase involved analysis, photography and terrestrial laser scanning of the structure. The survey has identified evidence for four main phases of the building's development:</p> <p>Phase 1: Medieval (late 14th-century origins)</p> <p>Phase 2: Remodelling and repair in the early 18th century</p> <p>Phase 3: Conversion to a mausoleum</p> <p>Phase 4: Modern maintenance and repairs</p> <p>The building preserves evidence of its medieval fabric in the east elevation and parts of the north and south, with other features in the burial vaults and west gable possibly original. The documented remodelling and repairs in the early 18th century are evident in raised walls and enlarged window apertures. The conversion to a mausoleum involved dismantling the western part of the structure, levelling and raising walls, creating an additional burial chamber and inserting barrel vaults. The vaults contain several burials of Erskine family members.</p> <p>The building has several pressing conservation issues, including a cracked asbestos butterfly roof, inadequate drainage provision, inappropriate finishes and the degraded state of the burials. This report offers an assessment of the significance of the heritage assets, based on evidential, historical, architectural/aesthetic and communal social values. It also proposes strategies for conserving significance and for further evaluation, including redressing the drainage issues, recording and restoring the burials to a fully interred state to respect right of sepulchre, maintaining a watching brief on structural works and repairs and carrying out targeted research to answer questions raised as a result of the survey.</p>

PROPOSED FUTURE WORK:	N/A
CAPTION(S) FOR ILLUSTRS:	N/A
SPONSOR OR FUNDING BODY:	National Trust for Scotland
ADDRESS OF MAIN CONTRIBUTOR:	Northlight Heritage Studio 406 South Block 64 Osborne Street Glasgow G1 5QH
EMAIL ADDRESS:	northlight@yorkat.co.uk
ARCHIVE LOCATION (intended/deposited)	National Monuments Record for Scotland (intended)

APPENDIX 3: Written Scheme of Investigation

1

House of Dun (HOD) Mausoleum (Angus) Project Outline for Historic Building Survey and Desk Based Assessment June 2013

1 Introduction

This document constitutes the Project Outline for the historic building recording and desk based analysis of the Mausoleum at the House of Dun, Angus.

The National Trust for Scotland (the Trust) was bequeathed House of Dun and 385 hectares (ha) of the estate in 1980 by Mrs Elizabeth Lovett, 21st Laird of Dun. The estate, including Montrose Basin (the 750 ha tidal basin of the River South Esk), had been in the ownership of the Erskine family since 1375 and at its peak in the 1850s, extended to 1200 ha.

House of Dun and courtyard buildings (A-listed) were designed and built in the 18th century by William Adam to replace an earlier tower house to the west. The 6th Earl of Mar, a kinsman of Lord Dun, is believed to have inspired the innovative triumphal arch in the entrance front. The concept of this exterior has some international significance in country house design. The house is a fine example of William Adam's country house planning, with an intricate interior combining public rooms for formal entertaining alongside family apartments. Alterations made in the 19th century have in some places masked Adam's work. Dun is also significant for its superb plasterwork by Joseph Enzer, a great attraction for visitors.

The historic designed landscape is centred on the house. Principally an 18th century creation with 19th century overlays, it was designed to provide the house with a modest yet attractive setting. Comprising walled gardens, parkland, woodland and formal gardens, the designed landscape is also important to the house's setting viewed from outside the property, framing the house and drawing the viewer's eye from across Montrose Basin. Over the years, the garden and policies have had two significant influences – Lady Augusta, who laid out much of the present designed landscape, and the Trust, which recreated a garden in the spirit of Lady Augusta's plans. Many of the parkland trees are very mature and link the landscape with the various phases of development. The garden's plant collection has increased considerably since Trust acquisition and gives the property increased horticultural value.

Archaeological excavations have demonstrated that the traces of human activity on the House of Dun estate stretch back some 9,000 years. A particular strength of the suite of archaeological/historic sites on the property is that it illustrates a coherent theme, in which power, identity and community are expressed in the landscape over succeeding millennia.

A number of these sites are formally recognized as being nationally significant, with four Scheduled Ancient Monuments lying within the property boundary. These comprise the Fordhouse Barrow, a mortuary site with a complex history of use from c7000BC-1000AD; Gallows Knowe, a probable burial mound of the mid third to mid-second millennium BC, which may also have an extended history of use; and two crop-mark settlement sites of the first millennium BC. There are two further similar crop-mark sites elsewhere on the estate, alongside two specimens of rock art, which are likely to date to the third millennium BC.

Medieval and later remains include the site of Dun Castle – geophysical survey suggests that structural remains may survive below ground, in addition to standing ruins, some possibly incorporated in the walls of the West Walled Garden and adjacent cemetery. The early 19th century mausoleum may incorporate the crypt of the medieval parish church that preceded it, and there is an important collection of historic gravestones built into the cemetery walls and elsewhere on the Estate.

There is a significant group of 18th-19th century features relating to the infrastructure of the Dun Estate, including the remains of Dun Mill, a lime kiln, gas house, ice and well-houses and ice pond, while the late 19th/early 20th century curling pond with clubhouse and viewing hut is an interesting record of genteel recreation.

2 Tendering process

Tenders will be by means of invitation and include **one electronic version** of a Tender Document, based on the information contained herein; together these will constitute a Project Design. The closing date for the submission of the Tender Document will be stated in the invitation E-mail. The selection of the successful contractor will be on the basis of the quality of the services offered in the Tender Document, combined with the value for money achieved. The process will not be decided on the basis of cost alone.

3 Historical background and site description

The Mausoleum is located within a burial ground which dates from the early nineteenth century, when Lady Margret Erskine demolished most of the existing church, leaving a portion upstanding as a mausoleum. The church had reputedly been capable of seating 400 people, so it must have been reasonably large. The dates on grave slabs around it indicate it formerly extended up to 15m west and north of the present structure and recent geophysical survey clearly show extant foundations. It is possible that part of the southern wall of the West Walled garden was rebuilt to take in an area formerly occupied by the churchyard, and also possible that burials pre-dating the nineteenth century extend into it.

The Mausoleum, which is listed Grade B, occupies the centre of the Burial ground. The exterior architecture dates to c.1835, comprising cladding around a remnant of medieval church. Externally it is a rectangular building of pink and blond ashlar construction, aligned east/west with castellation along the wallheads and steeply pitched gable ends; a ball finial sits atop the western gable. The corners are surmounted by square pillars, which on the south-west and north-east continue to the ground buttresses. A flat or shallow pitched roof of corrugated iron covers the interior. At the western end are two entrances with pointed arch heads; the southern of the two is a blind entrance, while a heavy iron door covers the other. At the eastern end is a rectangular entrance with an unglazed window above it.

Internally, the Mausoleum consists of two barrel-vaulted chambers. The roof of the main chamber is aligned east/west, while the smaller chamber, which is at a lower level and is entered through a small doorway, is aligned north-south. The main chamber measures c.7m east/west by c.3.5m internally; the stonework of its roof appears different from that of its walls and it may have been raised, but heavy mortar obscures the relationships. A small sub-rectangular window is set high in the western wall, blocked now by the external masonry; the National Monuments Record of Scotland entry for the building suggests that this, along with the blocked or blind doorway in the west gable, may be of seventeenth- or eighteenth-century date (NMRS NO65NE 2).

Four steps lead down on to the chamber's flagged floor, on which sit three large plinths. Two stone plaques are set into the walls of the chamber. That in the east wall bears the Erskine family coat of arms, while that on the south wall is dated 1702 and reads (in Latin and English): 'Death where is thy sting/Grave where is thy victor/Thanks be to God who had given/Me the victory through our Lord Jesus Christ/Corinthians Ch 15.'

The largest plinth (a kind of dais) lies across the eastern end and bears two coffins, those of the Lady Margret Erskine, the 17th Laird, and her husband the Marquis of Ailsa. Both are lead coffins, originally clad with wood, leather and cloth and intricately decorated with shells and bronze studs; the external cladding is now much decayed. A guilt crown adorns the western end of each. On coffin bears a plaque reading: 'The most honourable Archibald/Marquis of Ailsa/[?]KTFRS/1846', while the others plague reads: '[?]The most worthy Margaret Erskine of Dun/ Marchioness Dowager of Ailsa/1848'. Of the other two plinths, which extended northward from the southern wall, the eastern one bears a child's coffin.

The low doorway leading down into the smaller chamber was formerly blocked by a large slab held in place by heavy iron pins; it now leans against the eastern plinth. Three coffins are visible in the smaller chamber. The southernmost is a child's coffin, inscribed: '[?]Margaret Erskine/Died 12 April [?]1881/23months'. The central coffin has been much disturbed, and longbones and a skull with its jaw displaced are visible in it. David Erskine, the 13th Laird of Dun, who was responsible for building the House and who died in 1758, was buried in the 'old vault at Dun', according to Violet Jacob. This lower portion of the Mausoleum may constitute the 'old vault', and the remains of the 13th laird may well lie here.

4 Previous Archaeological Investigations

No Previous archaeological investigation has centred on the Mausoleum *per say*. However, an *Archaeological and Historic Landscape Survey* was carried out by the Glasgow University Archaeological Research Division (GUARD) in 2001, from which the above Historical Background and Site Description was taken (see bibliography).

5 Objectives of the standing building recording and analysis

The overall objective of the programme of standing building recording and analysis is to take the opportunity to develop further understanding of the Mausoleum and the human remains within it. This will augment and develop current understanding of the Trusts property and offer wider interpretation of the development and cultural significance of the area as a whole.

The central project aim is to achieve a more refined understanding of the structural development and chronology of the Mausoleum and to produce a detailed archaeological record of its contents. Specifically;

What is the extent of the medieval fabric, and what were the Regency amendments and additions?

What are the extent, condition and age of the vaults and their contents?

What historic changes have been made to the roof construction?

6 Methodology

The project methodology should conform to the appropriate Standards and Guidelines of the *Institute for Archaeologists*.

Desk-based and other background research

The contractor will be responsible for undertaking a desk-based assessment prior to survey. The purpose of the DBA is to gain an understanding of the historic environment resource in order to formulate:

1. An assessment of the potential for heritage assets to survive in relation to the Mausoleum and earlier church;
2. An assessment of the significance of the known or predicted heritage assets considering the archaeological, historical and architectural interest;
3. Strategies for further evaluation where the nature, extent or significance of the Mausoleum and earlier church are not sufficiently defined;
4. An assessment of the impact of proposed development/conservation on the significance of the Mausoleum and earlier church;
5. Strategies to conserve the significance of the Mausoleum and earlier church.

Sources and Data Collection

The DBA will include an initial archive appraisal and further research to put the findings of the survey work in context. It will include a detailed examination of (but not limited to) the relevant records held by:

Royal Commission on the Ancient and Historic Buildings of Scotland;

National Trust for Scotland;

Statutory List of Buildings of Special Architectural or Historic Interest;

Historic Environment Record/Sites and Monuments Record;

The National Library of Scotland (for maps, charters, registers, manuscript collections, books etc.);

National Archives of Scotland (for genealogical records, public records, census information etc.);

The General Register Office for Scotland (for family history records, census information etc.);

Statistical Accounts (1791-1799, 1834 and 1845, 1951-1952, 2004-2005);

Estate Records (for prints and paintings, estate maps and other documents).

Where additional and relevant sources of information, both primary and secondary, are identified but fall out with the remit of the current DBA a summary of the resources (and as accurate an index of the context thereof) should be listed, thereby allowing recommendations for further research work.

Field recording (standing remains)

All principal vertical surfaces of the structure will be measured and drawn at a suitable scale. The survey will record salient features, content and analytical detail but need not extend to a full stone-by-stone survey. All features of note will require a written pro forma description, and will be identifiable by a system of unique context numbers. Descriptions will, as appropriate, include details of dimensions, location, fabric, form, matrix, geology, mouldings, markings, presumed dating, stratigraphic information and all the human remains, coffins and inscriptions within the mausoleum. The position of all described features will be recorded on at least one plan or elevation.

7 Products

The contractor will produce, as a minimum, the following:

- a) A digital photographic record of all elevations.
- b) Phased elevation drawings of all faces of the structure, showing details of former openings, scars, surface treatments and other features.
- c) Detailed scale drawings and/or photographs of architectural details of significance as well as the content of the mausoleum.
- d) Scaled plan of the building's footprint, to which all other photographs and illustrations will be related.
- e) Analytical report. This report will be prepared in line with the appropriate *Institute for Archaeologists* Standards. Following the introductory sections (including a narrative summary in layman's terms of the main findings, an indication of the constraints and limitations of the report, and an indication of how the report has been set out), the report will provide an analysis of the development of the Mill complex, focusing on information gleaned during the project. This will be followed by narrative descriptions (ordered by phase) of the elements of the structure and other features of archaeological and architectural interest germane to the objectives of the project outlined above.

Copies of this Project Outline (excluding enclosures), the successful Tender Document (excluding financial details) and any written variations will be reproduced within an appendix.

The report will be illustrated by plans, elevations, details, sketches and photographs as appropriate.

- f) Summary report for submission to Discovery and Excavation in Scotland and enter the project data into OASIS: Online AccesS to the Index of archaeological investigationS (<http://www.oasis.ac.uk/scotland/>).

8 Logistics

The standing building recording and analysis project will be managed by the NTS Archaeologist, Daniel Rhodes, to whom all queries of a technical nature should be addressed. The contractor will inform the Local Authority Archaeological Service of her/his activities **before** site work commences.

Access

Access to the Mausoleum is available to the contractor upon request. The dates of which will be arranged with Daniel Rhodes. **All contractors must exercise the upmost sensitivity while on site, with the disturbance of any human remains constituting a breach of contract.**

Personnel and standards

Contractors will provide the name of a single person who will be the archaeological Project Manager. The building recording work will be undertaken under the close supervision of either a suitably qualified and experienced buildings archaeologist, or an experienced buildings historian with a proven track record in the systematic recording and analysis of historic buildings, and in the production of analytical reports. It is expected that the successful contractor will be a member of the *Institute for Archaeologists* and work in compliance with their Standard for buildings recording and other appropriate guidelines.

Short CVs should be included in the Tender Document for the principal participants in the project.

Volunteers or trainee students may be used on the project, provided that they receive adequate supervision and training, and that volunteers gain no financial remuneration other than the repayment of bona fide expenses. The use of volunteers and students must be approved in advance by the NTS.

Health and safety

The contractor will be responsible for implementing all appropriate health and safety requirements and any other current legislation which is applicable, and for ensuring that all sub-contractors appointed by her/him also implement all appropriate health and safety requirements and any other current legislation which is applicable

The contractor will be expected to carry suitable insurance (the minimum requirement is professional indemnity insurance cover of £1 million) **and will carry out and supply the NTS Project Manager with a Risk Assessment and Health and Safety Method Statement prior to the commencement of works.** A Health and Safety Policy Document must also be submitted and approved by the NTS. The Tender Document should include details of proposed health and safety provision.

Publicity

The project and its results may be publicised through the local or national media. Any publicity (including online) must be handled by or through the NTS.

Finances

The Tender Document will contain an estimate of the cost of the project as described in this Project Outline, and should set out the following details:

Wages (stating number and level of staff, daily rate per member of staff per day, and which staff will be used for each element of the work);

Specialist costs;

Travel and accommodation expenses;

Hire costs;

Equipment and consumables;

Post-fieldwork costs;

Analysis costs;

Report and archive production costs;

Overheads and other costs;

Any costs in-kind, not to be charged for.

A contingency sum may be included as a percentage of the overall costs. The contingency sum will only be applicable where unforeseen circumstances prevail, and its use will have to be justified. Written notification should be given as soon as practicable of any proposed variation over and above the basic estimate. Variations in expenditure, including the use of the contingency, will require prior written approval from the NTS. The detailed costings should be shown excluding VAT, but the overall costings should also be shown including VAT.

The NTS operates a system of staged payments, with the final instalment tendered on receipt of the approved final report. Contractors should note that if significant delays occur at one or more stages of the project, excepting those reasonably outwith the contractor's control, the percentage of the total fee held back until payment as the final instalment is likely to increase.

9 Reporting Procedures

Reporting timetable

One **electronic copy** of a draft report (which should include all illustrative material) should be provided within **four weeks** of completion of the field element. The NTS will attempt to provide comments on this first draft within four weeks; at that stage, a timetable for the submission of a revised draft (four copies) will be agreed, dependent upon the level of revision required. The final report will be submitted within four weeks of comments upon and approval of the revised draft by the NTS.

Copyright of the reports and all other information (including electronic information) will rest with the NTS, but the contractor will have the right to use the reports and the survey results free of charge in relation to non-commercial activities or to promote the work of the contractor. However, approval must be sought from the NST prior to doing so.

Report production and distribution

Four paper and electronic copies of the report and context database information will be supplied. Copies of digital survey information will be supplied on CD or other agreed medium as AutoCAD LT 2004 and DXF/DWG files suitable for use on a PC running Windows XP.

10 The Archive

The primary archive will be deposited with the NMRS, and will include all original field records and notebooks, alongside a full set of catalogued photographs. The archive will be prepared to standards agreed with the NMRS and will be deposited with them within **six months** of submission of the final report.

Bibliography

GUARD. 2001. *House of Dun, Angus. An Archaeological and Historical Designed Landscape Survey*. Unpublished.

Rose Geophysical Consultants. 2013. *Geophysical Survey Report House of Dun*. Unpublished.

APPENDIX 4: Tender Document

Specification for Historic Building Survey and Desk Based Assessment of

House of Dun Mausoleum, Angus -- Northlight Heritage

Introduction

Northlight Heritage have been invited to tender by The National Trust for Scotland (NTS) to undertake and produce a historic building survey and desk based assessment of the House of Dun Mausoleum. NTS have detailed their requirements in a 'Project Outline' in which the client requires that:

'The overall objective of the programme of standing building recording and analysis is to take the opportunity to develop further understanding of the Mausoleum and the human remains within it. This will augment and develop current understanding of the Trusts property and offer wider interpretation of the development and cultural significance of the area as a whole.

The central project aim is to achieve a more refined understanding of the structural development and chronology of the Mausoleum and to produce a detailed archaeological record of its contents. Specifically;

- What is the extent of the medieval fabric, and what were the Regency amendments and additions?
- What are the extent, condition and age of the vaults and their contents?
- What historic changes have been made to the roof construction?'

More specifically the NTS require a standing building survey and desk-based research to inform this analysis. This document specifies the survey methodology and outputs from the project to address the clients brief. Northlight Heritage staff have previous experience at the House of Dun, having carried out the archaeological and historic landscape survey of the estate in 2001. This included detailed written and photographic recording of the fabric and content of the Mausoleum. It also involved analysis of the phases of development of the designed landscape and its built features, assessment of its cultural significance and production of a detailed, illustrated report on the survey. Northlight Heritage staff also have experience in the recording and analysis of another estate mausoleum, the Dalzell Mausoleum in Motherwell. This again involved detailed recording and analysis of the built fabric and contents within its garden setting.

Methodology

There are two main methods for the project desk based assessment and field recording, upon completion of which will be integrated in a synthetic analysis of the results. The project will be undertaken in accordance with *Institute for Archaeologists Codes, Standards and Guidelines*. In particular in relation to *Standard and Guidance for Historic Environment Desk Based Assessment* (16-Nov-2012) and *Standard and Guidance for the archaeological investigation and recording of standing buildings or structures* (27-Oct-2008).

Desk-based and other background research

We will undertake a desk-based assessment prior to survey to gain an understanding of the historic environment resource in order to formulate:

1. An assessment of the potential for heritage assets to survive in relation to the Mausoleum and earlier church;
2. An assessment of the significance of the known or predicted heritage assets considering the archaeological, historical and architectural interest;
3. Strategies for further evaluation where the nature, extent or significance of the Mausoleum and earlier church are not sufficiently defined;
4. An assessment of the impact of proposed development/conservation on the significance of the Mausoleum and earlier church;
5. Strategies to conserve the significance of the Mausoleum and earlier church.

The DBA will include an initial archive appraisal and further research to put the findings of the survey work in

context. It will include a detailed examination of (but not limited to) the relevant records held by:

- Royal Commission on the Ancient and Historic Buildings of Scotland;
- National Trust for Scotland;
- Statutory List of Buildings of Special Architectural or Historic Interest;
- Historic Environment Record/Sites and Monuments Record;
- The National Library of Scotland (for maps, charters, registers, manuscript collections, books etc.);
- National Archives of Scotland (for genealogical records, public records, census information etc.);
- The General Register Office for Scotland (for family history records, census information etc.);
- Statistical Accounts (1791-1799, 1834 and 1845, 1951-1952, 2004-2005);
- Estate Records (for prints and paintings, estate maps and other documents).

Where additional and relevant sources of information, both primary and secondary, are identified but fall out with the remit of the current DBA a summary of the resources (and as accurate an index of the context thereof) will be listed, thereby allowing recommendations for further research work.

Field recording (standing remains)

Following the RCAHMS Survey and recording policy (2004) in accordance with the [Metric Survey Specifications for Cultural Heritage with contributions](#), Northlight Heritage proposes that the Archaeological Building Survey will be carried to the level of details shown below:

Description	The record
Comprehensive of buildings of special importance – House of Dun Mausoleum A listing	<p>Written Account – location, status of building, date of record, recorder, detailed account including detailed documentary evidence, plus significance of the building.</p> <p>Drawing – scale plans of floors, structural details, elevations, and architectural decoration, site plan, 3D projections, reconstruction drawings.</p> <p>Photography – General views and overall appearance, details of exterior, internal detail and the building’s relationship to its setting.</p>

We believe the most effective method for undertaking the Historic Building Survey, and generating elevations, is recording carried out using a terrestrial laser scanner (TLS) equipped with a digital camera. This method will also minimise potential of disturbing human remains being less intrusive and quicker than traditional methods. The survey capture will include the mausoleum structure and its immediate topographic context.

Appropriate point densities (sampling resolutions) for various sizes of cultural heritage feature.

feature size	example feature	point density required to give 66% probability that the feature will be visible	point density required to give a 95% probability that the feature will be visible
10000mm	large earth work	3500mm	500mm
1000mm	small earth work/ditch	350mm	50mm
100mm	large stone masonry	35mm	5mm
10mm	flint galleting/large tool marks	3.5mm	0.5mm
1mm	Weathered masonry	0.35mm	0.05mm

Figure 1: English Heritage (2007) offers a table to determine the appropriate point resolution depending on type

of archaeological and architectural features.

According to English heritage appended table (Figure 1), the requirements of the House of Dun Mausoleum might be categorised as large stone masonry. Therefore, the choice of resolution for the scanning survey will be set at 5 mm.

The TLS survey will be carried out using a Leica C10 Pulse -or Time of flight- scanner (up to 50000 points per seconds at distance up to 300 m with 90% reflectivity). The dataset will be geo-referenced to British National Grid (OS 1936) using DGPS techniques.

The TLS survey will provide an invaluable source of information in the form of a coloured and textured point cloud for the interior and exterior parts of the fort. This undertaking method will be complemented by a full digital photographic survey of the site.

Architectural survey of the buildings will comprise a wireframe of each building elevations including all photograph targets. This will create a simple 3D model where the photographs can be rectified (methods used in Fig.1 and 2).

Field recording will comprise study of the principal vertical surfaces of the mausoleum structure. The survey will not be a stone by stone survey but will record salient features, content and analytical detail. All features of note will have a written pro forma description, and will be identifiable by a system of unique context numbers. Descriptions will, as appropriate, include details of dimensions, location, fabric, form, matrix, geology, mouldings, markings, presumed dating, stratigraphic information and all the human remains (but only to the extent which avoids all disturbance), coffins and inscriptions within the mausoleum. The position of all described features will be recorded on at least one plan or elevation.

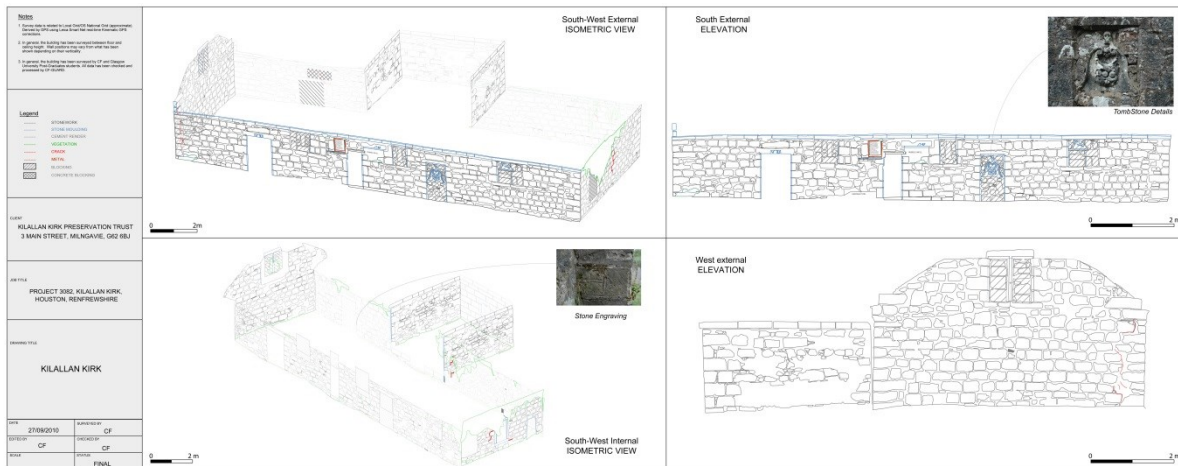


Figure 2: Detailed Scaled drawings from traditional standing building survey at Kilallan Kirk, Renfrewshire in 2010

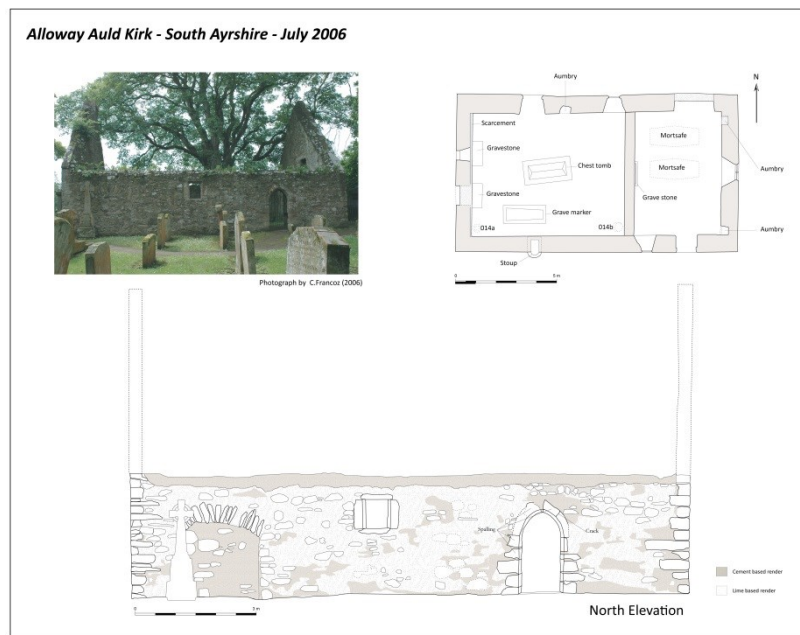


Figure 3: Detailed Scaled drawings from traditional standing building survey produced by Charlotte Francoz at Alloway Kirk in 2006

Health and safety considerations

Health and Safety is of paramount importance in all projects, and we actively promote and support a safe working culture in all our practices. Northlight Heritage has a health and safety system supported with a Health and Safety Policy, process of risk assessment and a RIDDOR system in place.

A full risk assessment will be undertaken prior to field work commencing and the Health and Safety Method Statement provided to the NTS Project Manager prior to the works commencing.

We, however, recognise that there are a number of issues which emerge via working with a Terrestrial Laser Scanner. These are expressed in 'Metric Survey Specifications for Cultural Heritage- Section 7: Standard Specification for the Collection and Archiving of Terrestrial Laser Scan Data':

"The European Standard IEC EN 60825-1: 2001 provides a number of safety precautions that should be observed during use of laser scanning surveys. For lasers up to Class 3R (those normally used in survey applications) and where applicable to laser scanning for metric survey these precautions are briefly outlined below. For a full description the user is referred directly to the European Standard, however, generally:

Care should be taken to prevent the unintentional specular reflection of radiation.

Open laser beam paths should be located above or below eye level where practical.

Only persons who have received training to an appropriate level should be placed in control of laser systems. The training, which may be given by the manufacturer or supplier of the system, the laser safety officer or an approved external organisation should include, but is not limited to: familiarization of operating procedures; the proper use of hazard control procedures, warning signs etc; the need for personal protection; accident reporting procedures and bio-effects of the laser upon the eye and skin.

Particular care should be taken through the use of magnifiers or telescopes around laser devices that may pose a risk when intrabeam viewing is used.

The instrument should only be used in accordance with the manufacturer's instructions.

When not in use the laser should be stored in a location where unauthorized personnel cannot gain access"

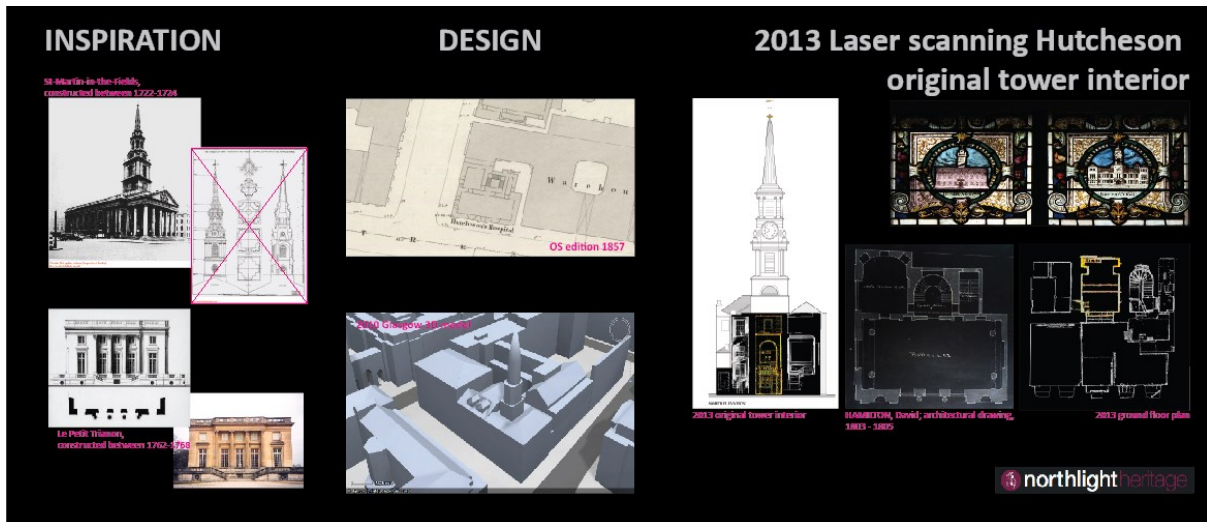


Figure 4: Northlight Heritage at Hutcheson's hall, Glasgow – elevations generated from laser scanning

Insurance

Northlight Heritage, as part of York Archaeological Trust, holds very comprehensive insurance cover, including £10 million Employer’s Liability, £25 million Public Liability and £5 million Professional Indemnity. Certificates can be provided on request.

Outputs

Northlight Heritage will produce:

- a) A digital photographic record of all elevations.
- b) Phased elevation drawings of all faces of the structure, showing details of former openings, scars, surface treatments and other features.
- c) Detailed scale drawings and/or photographs of architectural details of significance as well as the content of the mausoleum.
- d) Scaled plan of the building’s footprint, to which all other photographs and illustrations will be related.
- e) Analytical report. This report will be prepared in line with the appropriate *Institute for Archaeologists Standards*. Following the introductory sections (including a narrative summary in layman’s terms of the main findings, an indication of the constraints and limitations of the report, and an indication of how the report has been set out), the report will provide an analysis of the development of the mausoleum, focusing on information gleaned during the project. This will be followed by narrative descriptions (ordered by phase) of the elements of the structure and other features of archaeological and architectural interest germane to the objectives of the project outlined above.

Copies of this Project Outline (excluding enclosures), the successful Tender Document (excluding financial details) and any written variations will be reproduced within an appendix.

The report will be illustrated by plans, elevations, details, sketches and photographs as appropriate.

- f) Summary report for submission to Discovery and Excavation in Scotland and enter the project data into OASIS: Online Access to the Index of archaeological investigations (<http://www.oasis.ac.uk/scotland/>)

Any publicity will be handled through or by the NTS.

Ultimately, the Outputs will be:

- Four paper copies of the illustrated report

- Four DVDs with digital copies of the report, individual plans and context data base, and DES entry.
- OASIS and DES Submissions
- Primary Archive deposited with NMRS including all original field records and notebooks, and full set of catalogued photographs.

Retention of survey documentation

On request Northlight Heritage will make available to NTS all materials used for the compilation of the Terrestrial Laser survey. This information must be retained on file by Northlight Heritage for a minimum of six years.

This material will include: field notes and/or diagrams generated while on site; the raw and processed data used for the final computation of co-ordinate and level values; and a working digital copy of the metric survey data that forms each survey (including formatted 2-D and 'raw' 3-D data files). The precise digital format and file type of this archive will be specified below (archiving). If during this period the contractor wishes to change the format of this data archive, they are to seek the client's permission.

Archiving

Northlight Heritage in accordance with the [Metric Survey Specifications for Cultural Heritage with contributions](#), will also provide 4 copies of archival material in digital form on DVD:

Project metadata;

Raw scan data exported as a ASTM E57 format among other traditional export formats (LAS and ASCII). E57 File Format is non-proprietary for 3D Imaging Data Exchange (E57 format hereafter) is capable of storing point cloud data from laser scanners and other 3D imaging systems, as well as associated 2D imagery and core meta-data (see RCAHMS-proceedings of 3D Laser Scanning: Seeking a New Standard in Documentation);

Scan metadata;

Control information;

Registration information for all raw scans to the site co-ordinate system; and
the registered scan data.

Copyright

The copyright of all materials generated as part of the contract is to be transferred to the client unless stated otherwise. We would however anticipate reasonable usage of images generated from the project, with prior approval and full acknowledgement of NTS, for non-commercial purposes.

Staffing

The project will be directed by Charlotte Francoz:

Charlotte Francoz, MA (Hons), MSc, AIFA. Charlotte is a specialist in the application of survey techniques in the study of heritage and the built environment. She holds an MSc from the University of Glasgow in Geospatial and Mapping Sciences and is an experienced surveyor. She is a Graduate member of the [Royal Institution of Chartered Surveyors](#), [Remote Sensing and Photogrammetry Society](#) and the Chartered Institution of Civil Engineering Surveyors (ICES). She has particular skills and experience in the analysis and recording of standing buildings, in carrying out terrestrial laser scans of historic buildings and landscapes, and in processing topographic and 3D survey data, modelling and spatial data analysis to produce high quality illustrations. She is also proficient in the use of differential GPS and hand-held measuring equipment. Her portfolio of previous projects includes recording and analysis of the Dalzell Estate Mausoleum in Motherwell, and terrestrial laser scanning of standing buildings such as Tarbet Castle to produce a highly detailed digital record as a basis for interpretation and analysis. She will be responsible for carrying out the desk-based research, producing the detailed archaeological record of the contents of House of Dun Mausoleum, carrying out survey of the standing building and contributing to the analysis of its structural development and chronology.

The project will be managed by Dr Olivia Lelong, Director, Northlight Heritage:

Dr Olivia Lelong, BA, PhD, MIFA. Olivia is a highly experienced archaeologist with more than twenty years' experience in directing, managing and publishing archaeological investigation in both commercial and research contexts, providing consultancy and delivering contracts for a wide range of clients. She has particular experience in the recording and interpretation of historic landscapes, post-medieval archaeology and built heritage. She directed extensive historic landscape surveys at the House of Dun and Geilston House & Gardens on behalf of the National Trust for Scotland in 1997 and 2001, and managed the standing building survey carried out at Dalzell Estate Mausoleum in Motherwell. She will manage the project to ensure its smooth delivery, on time and to budget, oversee the quality of the fieldwork and reporting, and contribute to the analysis of the structural development and chronology of House of Dun Mausoleum.

Timetable

We would propose the following provisional timetable (but pending on access arrangements etc) set out below:

Stage	Proposed timetable
Project Set Up – including risk assessment and arranging access with NTS	First week July 2013
Fieldwork – survey	Second week July 2013
Post-processing and reporting	Third and Fourth weeks July 2013
Submit Draft outputs (report, plans and context data base) to NTS	Mid August 2013
Comments received from NTS	Mid September 2013
Submit Final Outputs to NTS	Mid October 2013
Submit Archive to NMRS	By April 2014

Tender Declaration

Northlight Heritage confirms that this is a genuine tender and that the prices offered are fixed for 30 days.

Dr Gavin MacGregor 14-06-2013

Bibliography

Bryan,P., Blake, B. & Bedford, J. (2009) [Metric Survey Specifications for Cultural Heritage with contributions](#) from: Barber, D. & Mills , J *English Heritage* Editor: David Andrews

English heritage (2007) 3D laser scanning for Heritage: [Advice and Guidance to users on laser scanning in archaeology and architecture](#) *English Heritage*