

Sk-016 / Bessies Hill, Dumfries and
Galloway

Aerial Survey and Imaging

Report

March 2020



Bessies Hill, Dumfries and Galloway, Stirling

Archaeological Aerial Survey and Imaging

On Behalf of:

Forest and Land Scotland Head Office
1 Highlander Way
Inverness Business Park
Inverness

National Grid Reference: NY 24877 95526

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Date: March 2020

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Skyscape Survey would like to thank Matt Ritchie; Forestry and Land Scotland, The project was undertaken by David Connolly (*Pilot*), with the Hana Kdolska (*Flight Safety Officer and Photographer*).

The report was written by David Connolly

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- 4) Orthographic photographic image overlay

OASIS ID: connolly1-388401

Introduction

Skyscape Survey was commissioned by Matt Ritchie of Forest Enterprise Scotland to carry out aerial works at the fort and settlement of Bessies Hill, Dumfries and Galloway (Ref: SK-016) in the Castle O'er Forest

The sites lie 3 km to the south of Eskdalemuir village, centred around NY 24877 95526.

Neither site has been surveyed or investigated, though site visits have taken place in **Canmore ID 67235** Bessie's Hill Fort, **Canmore ID 67299** Bessie's Hill Settlement.

Topography

Situated in a forestry clearing 150m SE of settlement (67299), Oval fort (67235) measures 86 by 36m internally and is defended by double ditches, partly rock-cut, with a medial rampart on all sides except the southeast, where there is a precipitous cliff. There are entrances on the east and southwest respectively, and within the interior there are at least five scooped platforms which probably indicate that sites of circular houses.

To the northwest on the sloping northeast shoulder of Bessie's Hill, the settlement measuring about 50m square within a bank (up to 3.8m thick and 0.7m high) and external ditch; there are entrances on the northeast and northwest respectively. In the interior there are at least seven hollows which may represent house bases.

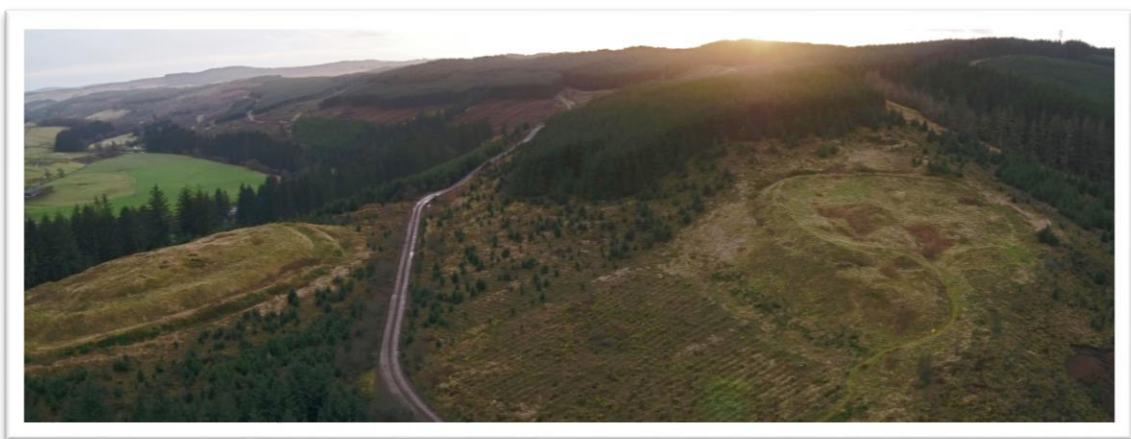
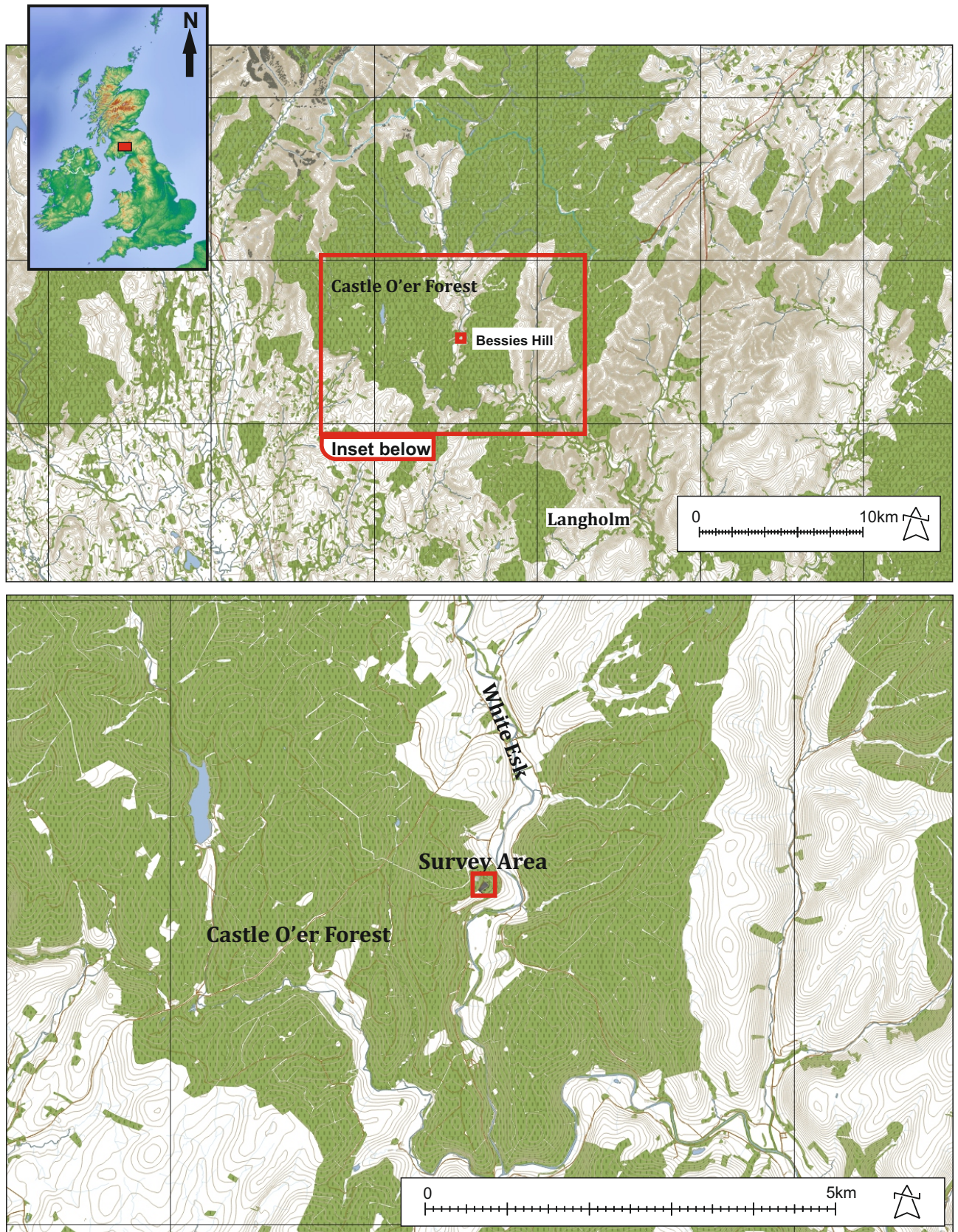


Plate 1: View to west with scooped settlement to the right and fort to left..



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Figure 1: Site Location Map

Site Survey Background

Canmore: <https://canmore.org.uk/site/67235/bessies-hill> and <https://canmore.org.uk/site/67299/bessies-hill> **Site Numbers** NY29NE 14 (Fort) and NY29NW 6 (Settlement).

The fort (Plate 2 & 3; Figures 2 & 4) was first recorded by the RCAHMS in 1920, with it's inclusion in the *Seventh report with inventory of monuments and constructions in the county of Dumfries*, and then in 1971 within the Transactions of the *Dumfriesshire & Galloway Natural History & Antiquarian Society Vol 48*, when the site was surveyed and included in his report on the Early settlements in eastern Dumfriesshire. A measured drawing by Jobey in 1971 (Plate 2) is accurate and comparable to the present survey. No other survey work has taken place.

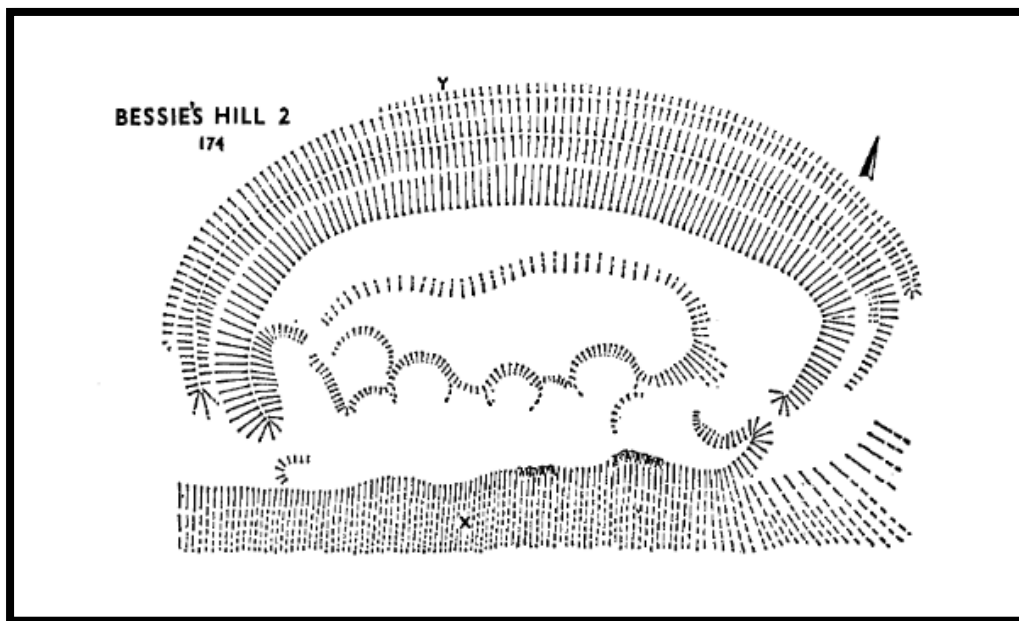


Plate 2: Bessie's Hill fort, from Jobey, Early settlement in Eastern Dumfriesshire, *Trans Dumfriesshire Galloway Natur Hist Antiq Soc* 1971



Plate 3: Oblique image showing the oval fort. To south.

The settlement (Plates 4 & 5; Figures 2 & 3) was first recorded by the RCAHMS in 1920, with it's inclusion in the *Seventh report with inventory of monuments and constructions in the county of Dumfries*, and then in 1971 within the Transactions of the *Dumfriesshire & Galloway Natural History & Antiquarian Society Vol 48*, when the site was surveyed and included in his report on the Early settlements in eastern Dumfriesshire. A measured drawing by Jobey in 1971 (Plate 4) is accurate and comparable to the present survey. No other survey work has taken place.

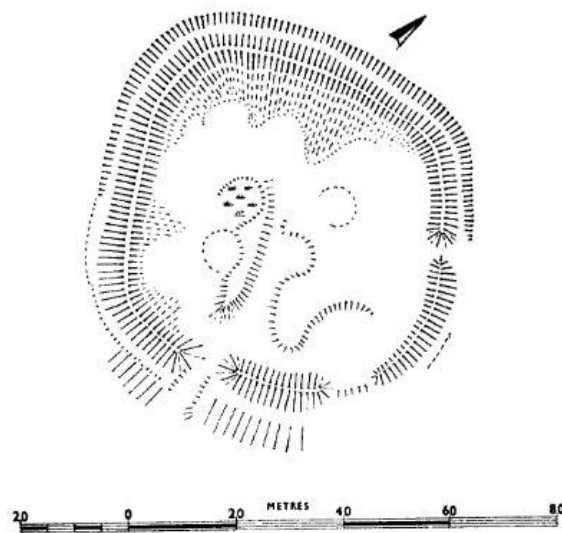


Plate 4: Bessie's Hill settlement, from Jobey, *Early settlement in Eastern Dumfriesshire*, *Trans Dumfriesshire Galloway Natur Hist Antiq Soc* 1971



Plate 5: Bessie's Hill settlement to east.

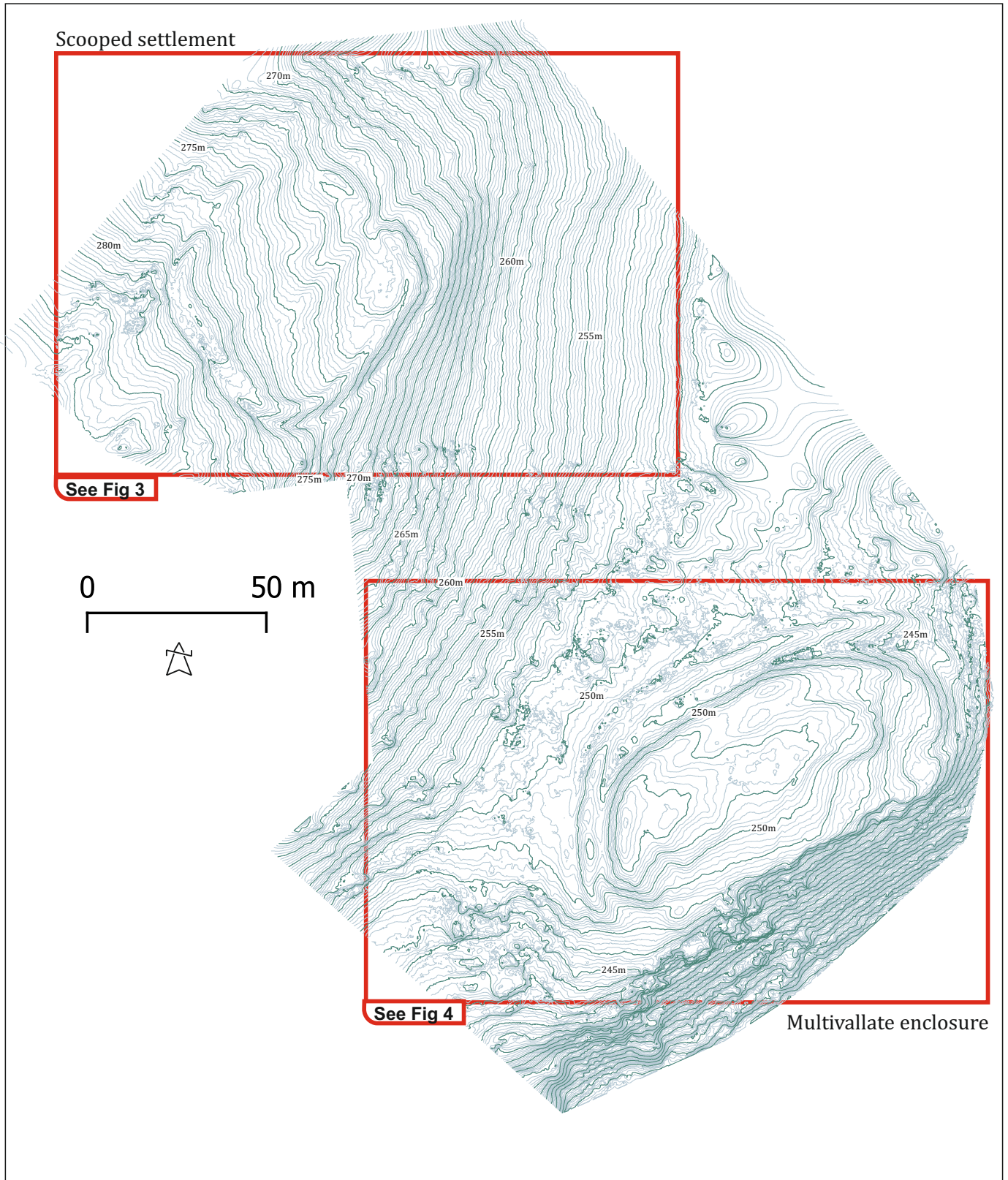


Figure 2: Site Topographic plan

Results

Forest Enterprise Scotland Archaeologist Matt Ritchie requested oblique photographs of site for publication and promotional material. A vertical shot of the site – potentially created from stitched images and a SUA based aerial survey for creation of a detailed topographic image, to allow onsite interpretation.

Using over 376 oblique images across the site, a high resolution 3D model of the site was created using Agisoft Photoscan – the resulting Data Surface Model (DSM) was processed to remove vegetation, to leave a Data Terrain Model (DTM).

The resulting high resolution model was transformed into a referenced GeoTIFF Digital Elevation Model (DEM) used as the base for a 20cm interval contour model in CAD and as GIS shp files. In addition, a georeferenced ortho-image of both sites was produced and 3d model viewable on html browsers.

The area covered by the survey included the site and up to 60m from the outer ramparts to all directions.

The final project archive comprises:

- ❖ A summary statement of results
- ❖ A location plan of the site and works
- ❖ A folder of Publication images
- ❖ A folder of Terrain Modelling images
- ❖ A georeferenced CAD format flat file of the contours
- ❖ A georeferenced contour file and DEM and orthographic image
- ❖ A pointcloud ply file
- ❖ 3D html file of sites (plate 9 and Figure 5)

A digital copy of this report with plans in PDF format has been supplied to the **Forest Enterprise Scotland** on a usb. Photographs, plans and illustrations fall within the current guidelines for archival standards set by the Archaeology Data Service. A full copy of all digital photographs and digital data is included on the usb in archive stable format. A DES Entry has been created and presented at the end of this report as well as submitted for inclusion within the relevant year for publication.

In addition to the above requirements, the project details are recorded via the online OASIS (Online AccesS to the Index of Archaeological InvestigationS).



Plate 6: Bessie' Hill fort to the foreground and above to the northwest on the slope of Bessie's Hill is the square enclosed settlement.



Plate 7 Photograph to west, showing relationship between the two sites on Bessie's Hill.

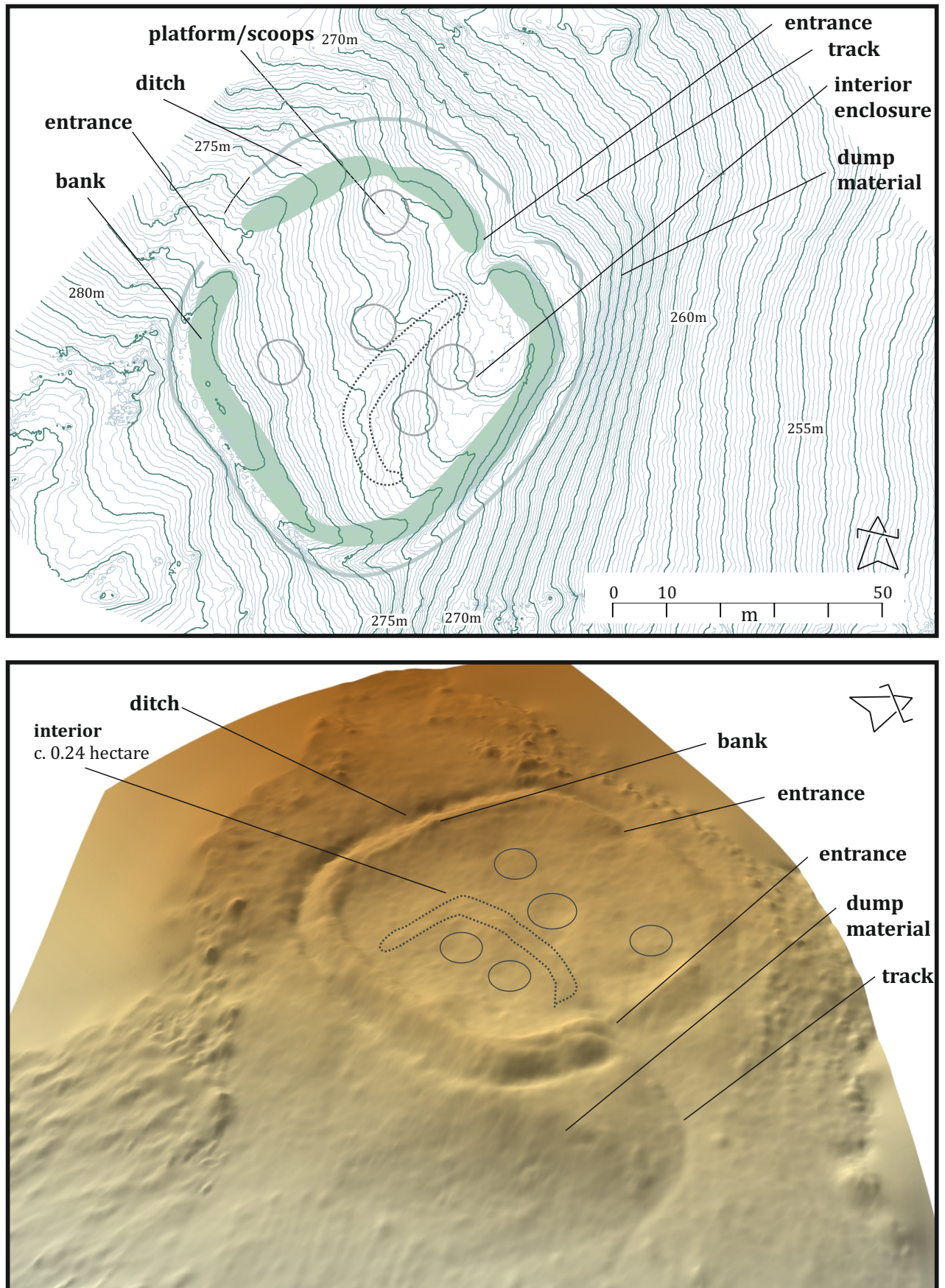


Figure 3: Site Topographic plan and interpretation of scooped settlement

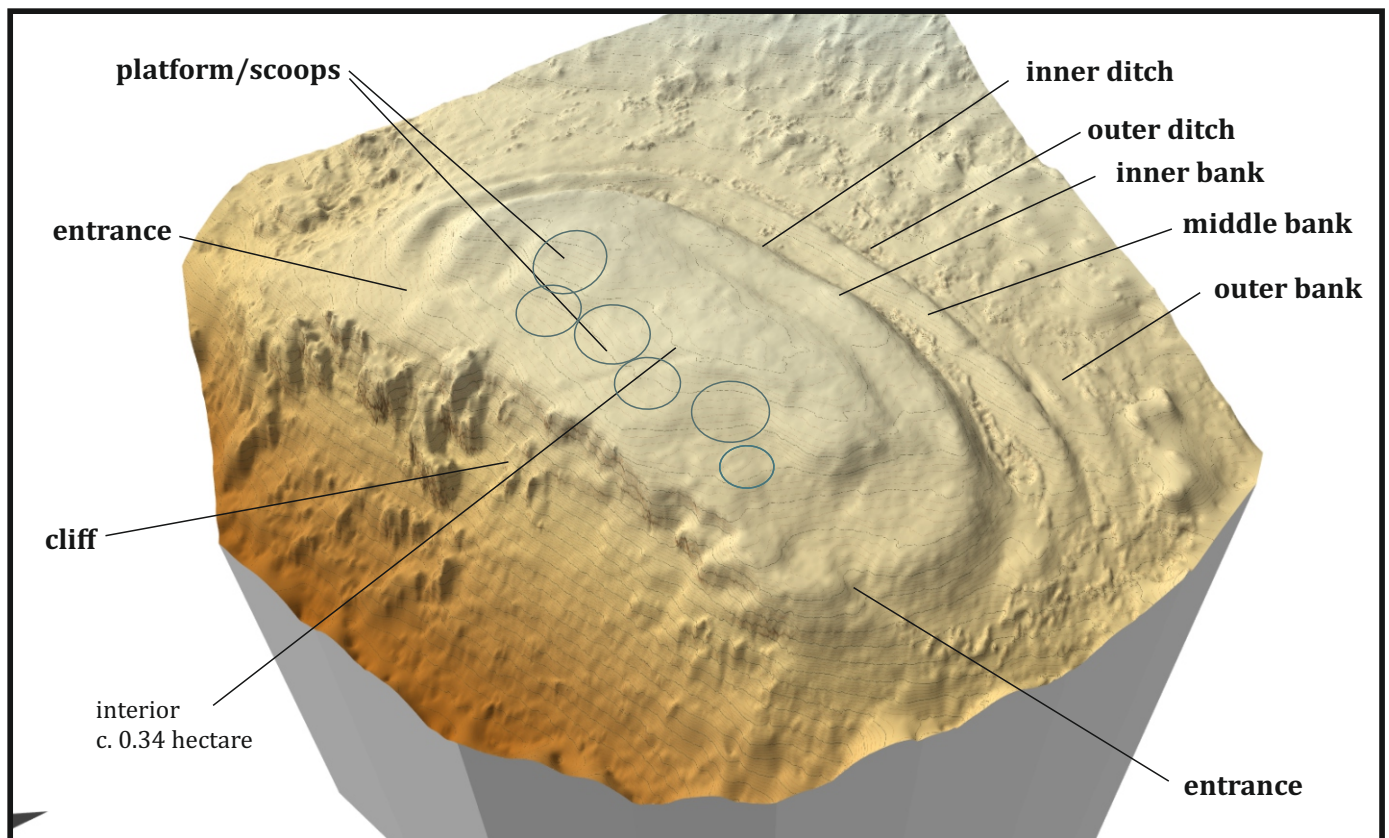
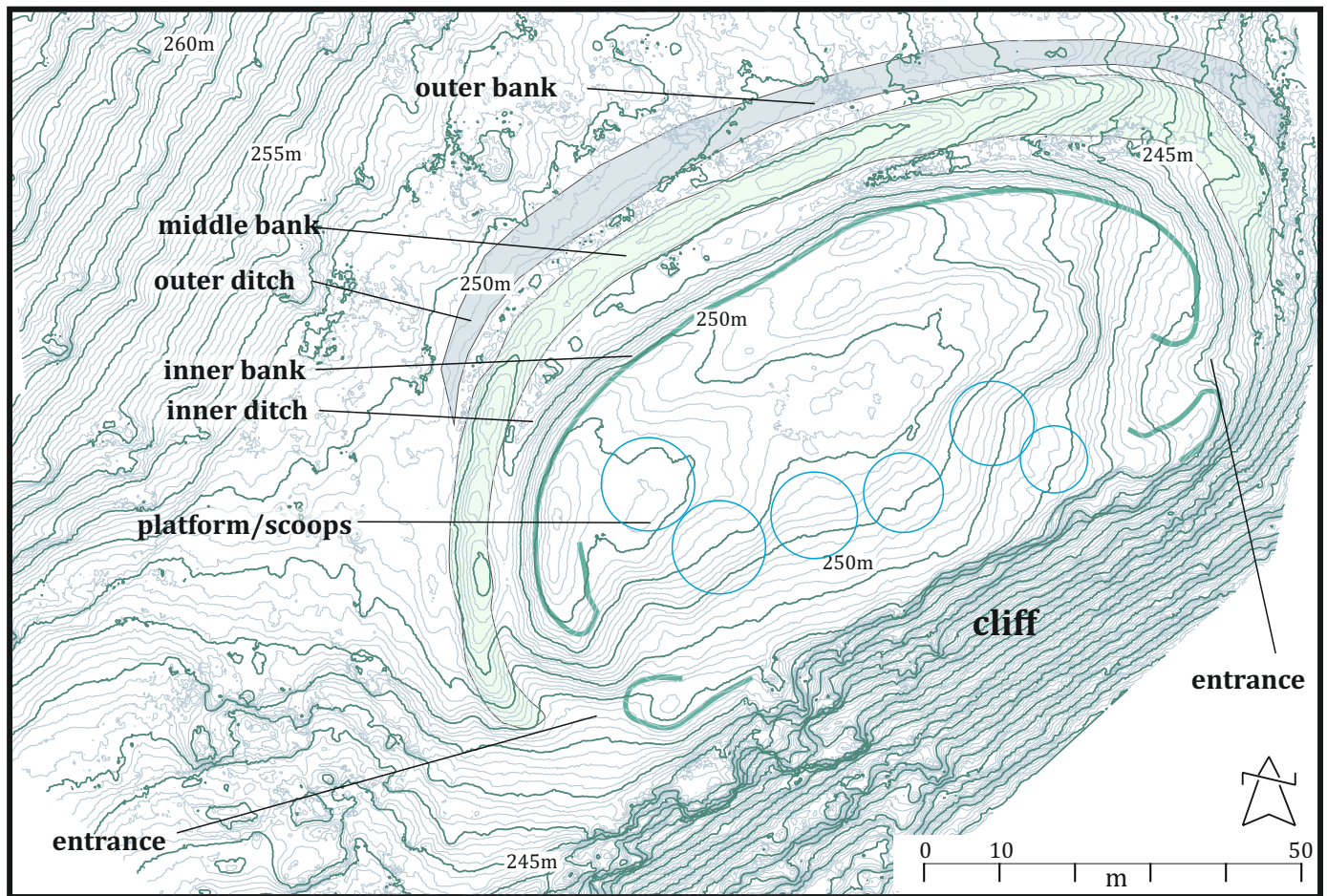


Figure 4: Site Topographic plan and interpretation of hillfort

Interpretation notes

Although the intention was not to interpret or indeed re-interpret the site in any great detail, the following points are worth noting after the site was revisited and examined.



Plate 8: Orthographic image of both sites (settlement to left and fort to right).

See Figures 3-4 for visual clarification for each point

Settlement

- There are potentially five (5) hut circles/scoops within the settlement site.
- There is an internal 'enclosed space to the southeast of the main enclosure.
- There are two entrances as already described by RCAHMS one to the northeast and one upslope in the northwest. The northeast entrance seems to have a curving track leading to it.
- The soil cast from construction of the settlement seems to have been to the southeast.

Fort

- There are potentially six (6) hut platform/scoops within the enclosed area.
- All but one of these scoops is along the south/southeast edge of the enclosure, bounded by the cliff.
- A central raised natural ridge runs down the line of the site longitudinally.
- There are two entrances as already described by RCAHMS one to the east and one opposite to the west. Both entrances are between the main enclosure banks and two small spurs of bank that extend from the cliff edge.
- It is clear that a palisade would have run along the cliff edge.
- What was reported as a small (outer) that lies beyond the outer ditch may potentially be an earlier much larger bank.

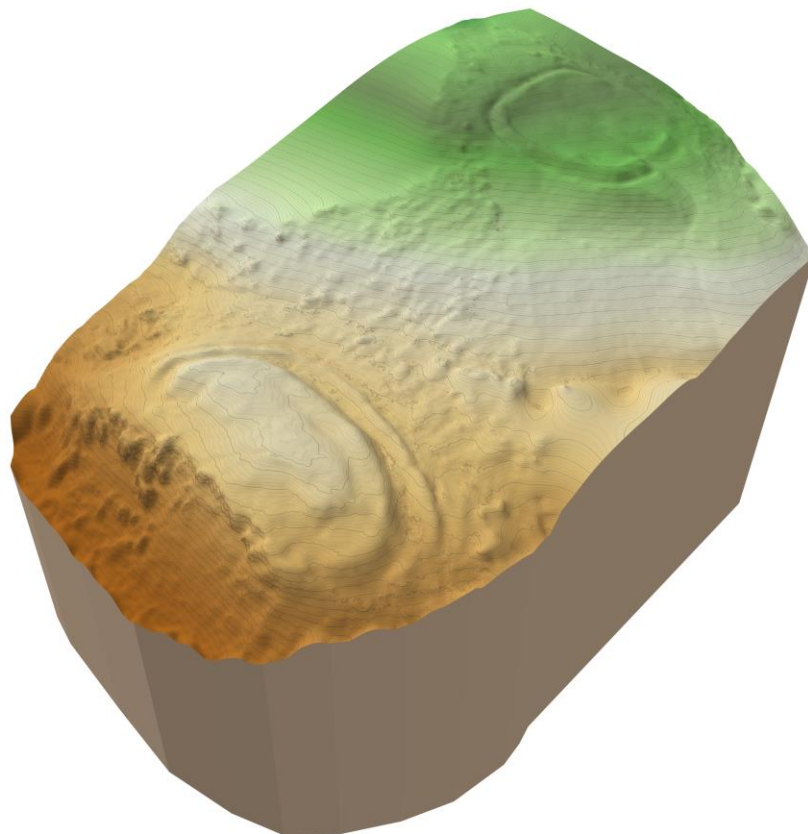


Plate 9: isometric view of site from html file - allowing rotation and views from all angles.

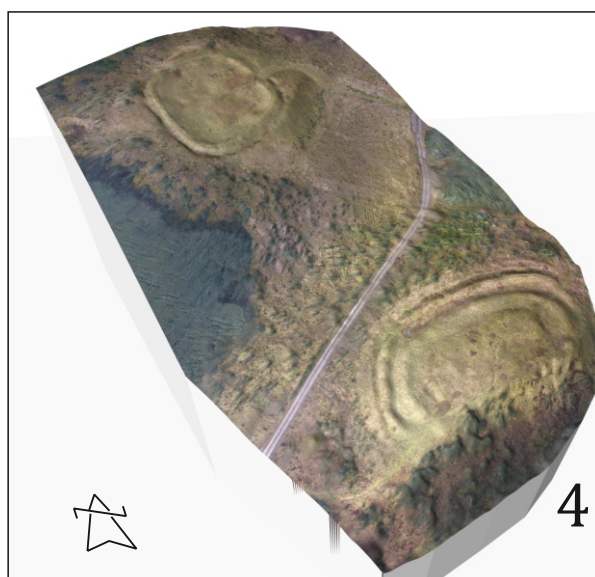
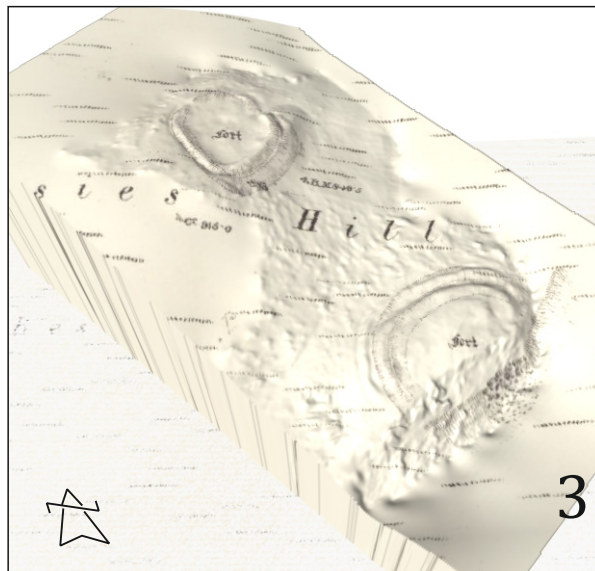
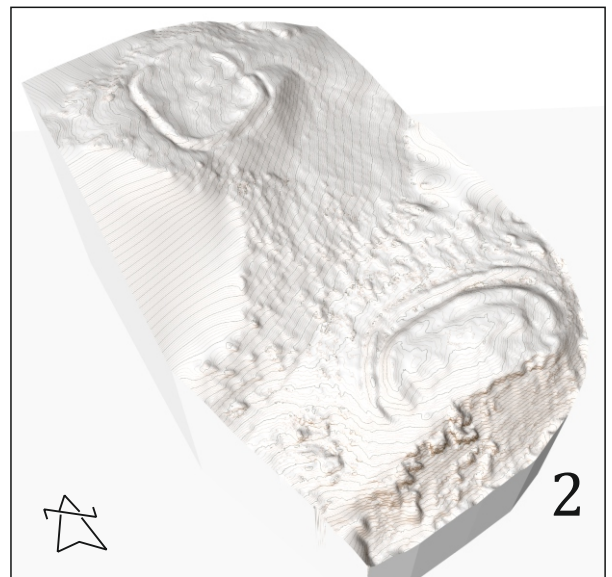
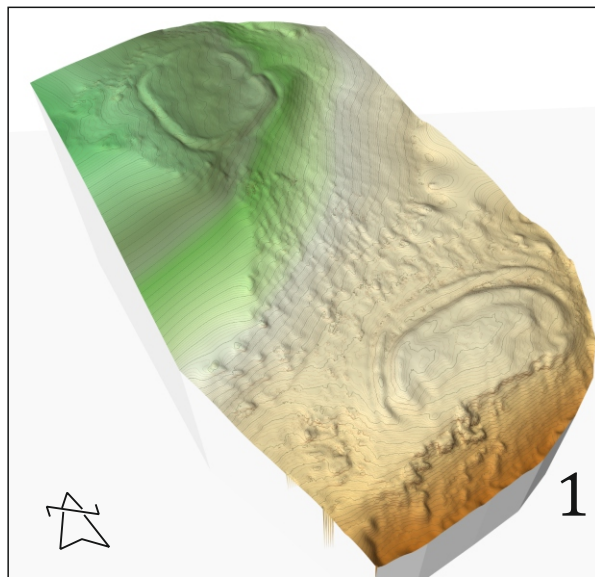


Figure 5: Interpretation site models

- 1) Shaded DEM model
- 2) Shaded DEM with 1m contours
- 3) 1857 Ordnance Survey map overlay
- 4) Orthographic photographic image overlay

General Statements

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Plate 10: View to southeast, with the sweep of the Eskdale valley overlooked by both prehistoric enclosures.

DES Entry

LOCAL AUTHORITY:	Dumfries and Galloway
PROJECT TITLE/SITE NAME:	Bessies Hill, Dumfries and Galloway
PROJECT CODE:	Sk-016
PARISH:	Eskdalemuir
NAME OF CONTRIBUTOR:	David Connolly
NAME OF ORGANISATION:	Skyscape Survey
TYPE(S) OF PROJECT:	Aerial Survey
NMRS NO(S):	NY29NW 6 and NY29NE 14
SITE/MONUMENT TYPE(S):	Settlement and Fort
SIGNIFICANT FINDS:	N/A
NGR	NY 25040 95400 centred
START DATE (THIS SEASON)	5 th February 2020
END DATE (THIS SEASON)	18 th February 2020
PREVIOUS WORK	Visual land surveys and measured survey
MAIN (NARRATIVE) DESCRIPTION:	Aerial survey of the site was carried out using a camera mounted on a SUA (drone) in order to capture images for processing into a detailed contour plan of the site at 20cm interval, allowing for 3D modelling and manipulation of data for use in new interpretation . In addition, images were taken of the site from a variety of angles, placing it into the landscape for the benefit of client publications and interpretations The number of hut platforms were confirmed and the lines of banks and ditches mapped.
FUTURE WORK?:	-
FUNDING BODY:	Forestry Commission Scotland
ADDRESS OF MAIN CONTRIBUTOR:	Skyscape Survey Thornton Mill Cottage near Innerwick Dunbar EH42 1QT
EMAIL ADDRESS:	info@bajr.org

References

Jobey, G. (1971a) *'Early settlements in eastern Dumfriesshire'*, *Trans Dumfriesshire Galloway Natur Hist Antiq Soc*, 3rd, vol. 48, 1971. Page(s): 85-6

RCAHMS. (1920) *The Royal Commission on the Ancient and Historical Monuments and Constructions of Scotland. Seventh report with inventory of monuments and constructions in the county of Dumfries.* Edinburgh. Page(s): 70, no. 174 RCAHMS Shelf Number: A.1.1.INV(7)

RCAHMS. (1980d) *The Royal Commission on the Ancient and Historical Monuments of Scotland. The archaeological sites and monuments of Upper Eskdale, Annandale and Eskdale District, Dumfries and Galloway Region, The archaeological sites and monuments of Scotland series no 12.* Edinburgh. Page(s): 8, no. 15 RCAHMS Shelf Number: A.1.2.ARC/12

Cartographic references:

[Dumfriesshire, XXVI.10 \(Eskdalemuir\)](#) Series: Ordnance Survey, 25 inch to the mile
Surveyed: 1857 Published: 1858

[Dumfriesshire, XXVI.10](#) Series: Ordnance Survey, 25 inch to the mile
Surveyed: 1898 Published: 1899

Supplied digital files (usb)