John O'Groats Hotel:

Evaluation Data Structure Report

AOC Project 21864

OASIS ID: aocarcha1-105868

3rd October 2011

AOC Archaeology Group

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John O'Groats Hotel:

Evaluation Data Structure Report

On Behalf of:	**K2 Equity Partners LLP**
National Grid Reference (NGR):	**ND 378 731**
AOC Project No:	**21864**
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Date of Fieldwork:	**5th July 2011 – 10th July 2011**
Date of Report:	**3rd October 2011**

This document has been prepared in accordance with AOC standard operating procedures.

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Draft/Final Report Stage: Final	**Date: 3rd October 2011**

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Abstract

This report presents the results of an archaeological evaluation undertaken by AOC Archaeology Group on a green field site at John O'Groats, Caithness.

The evaluation identified the two stone features that may be the remains of stone clearance or field boundaries in the north of the site plus a small number of gullies located to the east. These gully features most probably represent field drains.

1 INTRODUCTION

1.1 Project Background

1.1.1 AOC Archaeology Group were commissioned by GLM Architects on behalf of there client K2 Equity Partners LLP to carry out a programme of archaeological works prior the development of a green field site at John O'Groats, Caithness. The development consists of the redevelopment of the former John O'Groats hotel and the construction of 23 new holiday residences, a new visitor centre, alteration to an existing café and landscaping works. The development lies within the administrative area of Highland Council, which is advised on archaeological matters by the Highland Council Archaeology Service (HCHET). The archaeological works were conducted in accordance with the principals set out in Scottish Planning Policy (Scottish Government, February 2010) and Planning Advice Note 42 (SOEnD 1994) and in accord with Highland Council requirements as advised by HCHET.

1.1.2 The objective of the archaeological works was to determine the existence of any buried archaeological remains within the development area by means of a programme of trial trenching. A Written Scheme of Investigation (AOC 2011a) outlining the entire programme of archaeological works was agreed with HCHET in advance of the evaluation being undertaken. The works comprised a level 3 historical building survey (previously reported on [AOC 2011b]); a geophysical survey and a 10% sample field evaluation. The later two components make up the basis for this report.

1.2 Location

1.2.1 The proposed development area is centred on NGR ND 378 731 (Figure 1) immediately to the south of the derelict John O'Groats Hotel and is currently laid to grass. The site is bounded to the east by the John O'Groats Craft Centre and the A99 while to the west and south the current land use is of pasture and hay production.

1.3 Archaeological and historical background (Fouracre & Roy, 2010)

Prehistoric & Early Historic (8000 BC-c.AD 1058)

1.3.1. Previous archaeological field projects have revealed evidence for prehistoric and Early Historic activity in the vicinity of the proposed development area. A two week excavation of a 7 m x 5 m area in 1989, centred on the present visitors centre, just outside of the proposed development area identified postholes and paving (either internal or external surfaces) representing prehistoric settlement (*NMRS* No. ND37SE 37). Worked flints and pottery of Late Bronze Age and Late Iron Age (Broch type and Pictish) date were recovered. These flints and pottery fragments were located within a deep deposit of anthropogenic soil which indicates a long history of settlement in John O'Groats (Driscoll 1989). During an archaeological watching brief at John O'Groats Hotel in 1995 (*NMRS* No. ND37SE 37), worked flint was recovered from topsoil providing further indication of prehistoric activity in the immediate vicinity.

1.3.2 Remains described as a possible Neolithic cairn or cairns or turf-covered building footings are recorded to the east of the proposed development area (*NMRS* No. ND37SE 10). Only a stony patch is now recorded in this area.

1.3.3 Many human skulls and a flint axe were recovered from this area in the mid 19th century, and it was locally reputed to be a battle site or Norse burial ground. In the 'Hotel Field' (*NMRS* No. ND37SE 9) flint flakes, cores, blades and scrapers of Mesolithic or Neolithic origin have been found. Flint nodules have also been recovered from the beach in the general area of John O'Groats (*NMRS* No. ND37SE 33).

1.3.4 Documentary records are consistent with the archaeological evidence for early burial activity within the proposed development area. For example, within the proposed development area a burial ground was recorded at Ha' of Duncansby (NMRS No. ND37SE 6) in the Ordnance Survey Name Book and on the 1877 First Edition 1:10,560 OS map.

Medieval, Post-Medieval and Modern (c.AD 1058-2000)

1.3.5 An emergency excavation in 1989 (*NMRS* No. ND37SE 37) identified Norse pottery vessels apparently associated with two phases of human burial overlying prehistoric settlement remains. Fragments of 2242 bones were recovered which represent the scattered and broken remains from a cemetery which had been disturbed by later burials and agricultural activity. An estimate of the minimum numbers of individuals suggested that as many as 71 adults and 13 children may be represented by the scattered bones (Driscoll 1993, 2). Very close, to the surface, apparently representing a cemetery were portions of four articulated burials oriented with their heads to the west suggesting they were of Christian origin. Radiocarbon evidence indicates 11-12th and 16-17th century date ranges for these episodes of burial. These dates conform to the broad observation that pagan burial rites had been abandoned in northern Scotland and the Islands by the 11th century. This further supports the historical argument that the re-conversion of Orkney and Caithness was initiated by the conversion of the Earl of Orkney in the late 10th century and consolidated by the foundation of the bishopric in the mid-12th century. The dates also suggest that the cemetery was used for a span of two to three centuries and may suggest the existence of a chapel in close proximity.

1.3.6 John O'Groats House Hotel was constructed by Thomas Sinclair in 1875. The hotel stands near the supposed site of John O'Groats House. A John Grot was granted a charter of a ferry and land at Duncansby in 1496, and 33 further members of the Grot family were subsequently granted such charters (Mitchell and Drummond 1875). The last known deed is dated to 1715 and mentions the ferry-house, ferry and ferry-boats, implying that the Grots controlled the ferry from 1496 to at least 1715. Writing in 1906, MacFarlane notes that in the 1720s Duncansbay was described as '*only remarkable for john a' Grott's House'.* By 1760 the house associated with this family was in ruins (Pococke 1887) but the site of the house retained the name. The legend surrounding the eight-sided house with its eight doors (one for each relative) and eight-sided table is described in the Old Statistical Account (OSA 1791-99).

1.3.7 Pre-Ordnance Survey historic maps are often schematic and lack detail – neither Blaeu's map of 1654 nor Moll's map of 1745 marks the settlement (*NMRS* No. ND37SE 46) at John O'Groats. Roy's survey of 1747-55 shows 'Johny Grotts House' at roughly its present location. It also marks 'Dungsbay', probably an early form of the placename Duncansby, associated with this area. Thomson's map of 1832 depicts 'John O'Groats House' at a quite different location along the coast, and would appear to be more inaccurate than Roy's earlier map.

1.3.8 The majority of the proposed development area, with the exception of the northern part, near the coast, is shown to be open farmland on historic Ordnance Survey maps. The 1st Edition 1:10,560 Ordnance Survey map of 1877 depicts the site of John O'Groats House, in roughly the same location as the present John O'Groats House Hotel. A well is marked to the south, within the proposed development area, and a roofed structure is shown further south, outside the development boundary. Another roofed structure appears on the coastline, within the development boundary. The 2nd Edition map of 1907 indicates that the John O'Groats House Hotel is present. Kennels are marked in approximately the same location as an earlier roofed structure. The 2nd Edition also marks a cistern in the south-east of the proposed development area.

2 OBJECTIVES

2.1 The objectives of the archaeological evaluation were:

i) to determine and assess the character, extent, condition, quality, date and significance of any buried archaeological remains within the proposed development area;

ii) to advise and implement an appropriate form of mitigation, such as, excavation, post-excavation analyses and publication given the infeasibility of preserving the archaeological material *in situ*, should significant archaeological remains be encountered.

3 METHODOLOGY

3.1 The evaluation was achieved by means of the excavation of linear trenches using a mechanical excavator (360) equipped with a 2 m wide ditching bucket. The trenching covered a 10% sample (3000 m²) of the development area (3 ha) and the trenches varied in size and orientation (Figure 2).

3.2 Excavation of the trenches was undertaken in shallow units/spits until the first significant archaeological horizon or natural subsoil was reached. All machine excavation was supervised by an experienced field archaeologist and was undertaken according to AOC Archaeology Group's standard operating procedures. The trenches were carefully backfilled on completion of the evaluation.

3.3 The full methodology for the geophysical survey will be placed in the site archive

4 RESULTS

4.1 Introduction

4.1.1 The various date gathered from the evaluation is presented as a series of appendices

i) Appendix 1 contains the trench summaries
ii) Appendix 2 contains the context register
iii) Appendix 3 contains the photographic register
iv) Appendix 4 contains the drawing register
v) Appendix 5 contains the geophysical survey report
vi) Appendix 6 reproduces the *Discovery and Excavation in Scotland entry*

4.1.2 The archaeological evaluation was undertaken between the 4th and 10th July 2011. Overall the weather conditions consisted of showers and sunny spells. Good archaeological visibility was present throughout the evaluation. Figure 2a gives an overview of the features found during the evaluation and those possible features identified by the geophysical survey.

4.2 Geophysical Survey

4.2.1 The full geophysical report Archaeological Services Durham University (Report No.2696) can be found in Appendix 5. The geophysical survey covered a much larger area than that of the proposed development and the results obtain from identified Areas 3 and 4 within the final report are the only ones pertinent to this report.

4.2.2 A series of trenches targeted areas were the geophysical survey suggested some archaeological potential. Trench 3 was positioned over the location of two curving 'stony' positive magnetic anomalies (Appendix 5, Figure 7). The unearthing of stone spread (302) may reflect the physical manifestation of one of these anomalies; however examination of analogous anomalies by Trenches 19 and 23 failed in unearthing man-made features. Ultimately, bedrock intrusions (a common finding in the evaluation trenches), may well be the cause of the anomalous readings in both instances.

4.2.3 Two large, strong positive magnetic anomalies (Appendix 5, Figure 4) were detected toward the south-western corner of the site. These appear to reflect, elongated pits, filled with high magnetic susceptibility soils rather than ferrous materials or building rubble. These features were investigated by Trenches 15 and 17 where, given the absence of any archaeological features, it is suggested the survey readings probably reflect differences in the character of the drift geology.

4.3 Evaluation

4.3.1 Introduction

The vast majority of trenches proved to be archaeologically sterile with the natural subsoil of clays and shattered bedrock lying directly below the topsoil at a depth of between 0.3 m – 0.4 m. However negative and stone features were found in four trenches.

4.3.2 Trench 3

At a distance of 19 m from the northern end of the trench and 0.3 m below the topsoil (301) was a spread of stone (302). It consisted of a layer of large rounded and angular stones laid as a single layer but with some over lapping forming a possible surface. The average size of the stones was 0.45 m x 0.5 m x 0.15 m and had been laid on a deposit of moderately compact dark grey silt similar to the overlying topsoil. Two single fragments of 19th/20th century ceramic were noted but not retained lying on this surface. It continued toward the south for a distance of 3 m where it gave way to a deposit of moderately compact dark grey silt (303) which contained inclusions of frequent small to large rounded and angular stones and boulders and continued south towards the end of the trench. The north edge of (302) was delineated by a narrow band of moderately compact orange clay measuring 0.14 m wide by 0.02 m deep. (Plate 1; Figures 3, 4 and 5).

4.3.3 Trench 6

A further stone feature consisting of two parallel stone alignments (602) and (603) separated by 0.6 m and aligned east to west was located within this trench, buried below 0.2 m of topsoil. Both of these components were similar in that they consisted of single stones laid end to end and in one course. However there were subtle differences in that the southern edges of alignment (602) appear to have been chopped in order to obtain a straight line. Both these structures extended from the eastern end of the trench for a distance of 1.6 m and have been laid on to a moderately compact dark grey silt similar to the topsoil (601), (Plate 2; Figures 3, 6 and 7). No dateable finds were found associated with these features..

Plate 1: Stone spread (302) looking west

Plate 2: Wall foundation (602) and (603), Trench 6 [note broken edges of alignment (602)]

4.3.4 Trench 31

This trench contained two curvilinear ditches. The first (3101) was located at 10.5 m from the northern end of the trench and was 0.37 m wide by 0.17 m deep with near vertical sides and a concave base. It contained only one fill (3102) of loose dark grey sandy clay silt with no inclusions or finds of any significance (Plate 3; Figures 7 & 8).

The second gully (3103) was located a distance of 4.5 m from the northern end of the trench and measured 0.39 m wide by 0.17 m deep. It had steeply angled sides and a concave base. It was filled by a single fill (3104) of loose dark grey brown clay silty sand similar to (3102) and again no dateable finds were recovered (Plate 4; Figures 7 & 9).

Both these gullies were sealed by topsoil and cut the underlying natural drift geology.

4.3.5 Trench 32

Two further gullies and a possible gully terminus were found within this trench. The first gully (3201) was situated 6 m from the northern end of the trench. This gully was 0.36 m wide and 0.13 m deep with steeply angled sides and a concave base. The only fill (3202) was a moderately compact dark grey sandy clay silt (Plate 5: Figures 3, 11 and 12).

The second gully (3205) was found at a distance of 14.5 m from the northern end of the trench and measured 0.38 m wide by 0.08 m deep. It was filled by a moderately compact dark grey brown sandy clay silt (3206) from which no finds were recovered (Plate 6: Figures 3, 11 and 14).

Plate 3: West-facing section through gully (3101)

Plate 4: East-facing section through gully (3103)

Located between these two gullies at a distance of 12.0 m from the north was the possible terminus of a third gully (3203. It extended from the western side of the trench for a distance of 0.7 m and was 0.5 m wide by 0.2 m deep. Its only fill (3204) was moderately compact dark grey sandy clay silt which again proved to be sterile (Plate 7; Figures 3, 11 and 113).

All the features within this trench were sealed by the overlying topsoil and cut the underlying natural subsoil.

Plate 5: East-facing section through gully (3201)

Plate 6: Gully (3205)

Plate 7: West-facing section through gully terminus (3203)

5 CONCLUSION & DISCUSSION

5.1 The identified features fall into two categories. Firstly, stone-built features to the north and secondly negative cut features, namely gullies, located on the eastern edges of the site. Both the stone features sit within the topsoil and are believed to be of recent date. An aerial photograph in the local public house clearly shows a feature in the vicinity of the stone spread (3101) (although it is unidentifiable) and the presence of 19th/20th century ceramics from its surface also indicates a late date. This feature may be derived from stone clearance or dumping. Feature (3102/3) is probably the remains of an old field boundary wall.

5.2 The gully features found within Trenches 32 and 32 are undated. No finds, features or deposits were found that could suggest a date of any great antiquity. Given their linear form and size it seems probable that these features are related to relatively recent field drainage.

5.3 The evaluation failed to identify significant artefactual material, either within identified sub-surface features nor as unstratified residual finds within the topsoil.

6 RECOMMENDATIONS

6.1 No further archaeological works are considered necessary. This recommendation will require confirmation by HCHET on behalf of Highland Council.

7 BIBLIOGRAPHY

AOC 2011a '*John O'Groats Hotel, Caithness: written scheme of investigation'* Unpublished archive report

AOC 2011b '*John O'Groats Hotel, Caithness: Historic Building Recording Report,*' Unpublished archive report.

Driscoll, S T 1993 'Rescue excavations of a prehistoric settlement and Viking Age / Medieval cemetery at John O' Groats, 1989', *Glasgow Archaeol J*, vol.**16**, 29-37.

L. Fouracre & M. Roy, 2010, '*John O'Groats House Hotel Desk Based Assessment'* Unpublished client report

Mitchell, A and Drummond, J 1875 'Vacation notes in Cromar, Burghead, and Strathspey. Including notice of one of the supposed burial-places of St Columba', *Proc Soc Antiq Scot*, vol.**10**, 673.

OSA 1791-99 *The statistical account of Scotland*, Edinburgh, Vol.**8**.

Pococke, R 1887 (ed. Kemp, D W) *Tours in Scotland 1747, 1750, 1760*, Edinburgh, 26.

Scottish Government 2010 *Scottish Planning Policy.* (February 2010)

SOEnD 1994 *Planning advice Note 42, Archaeology and Planning*. Scottish Office Environment Department.

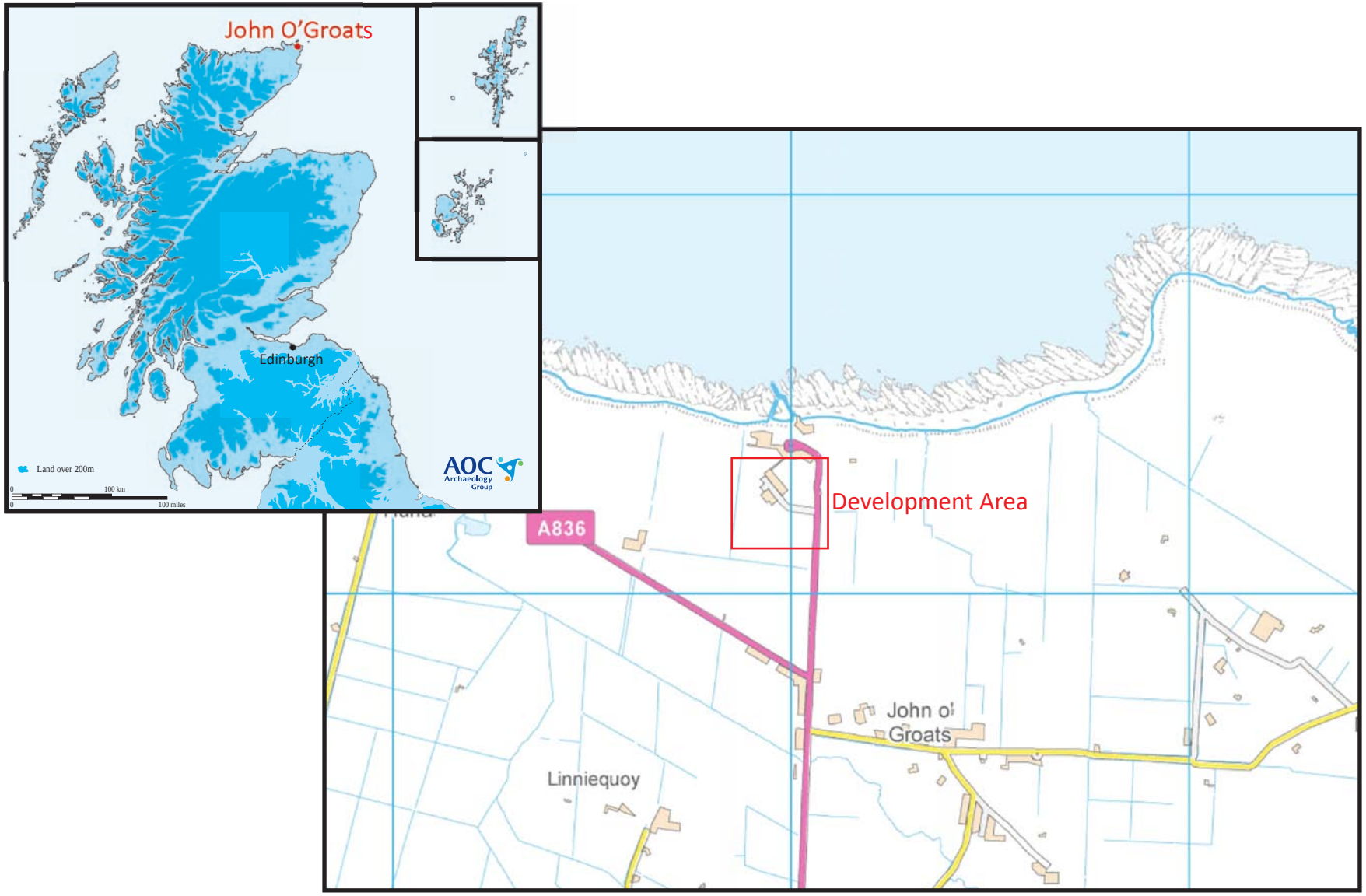

Figure 1: Site location

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Figure 2: Trench Locations

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Figure 2a: Evaluation trenches, overlain with features detected during geophysical survey

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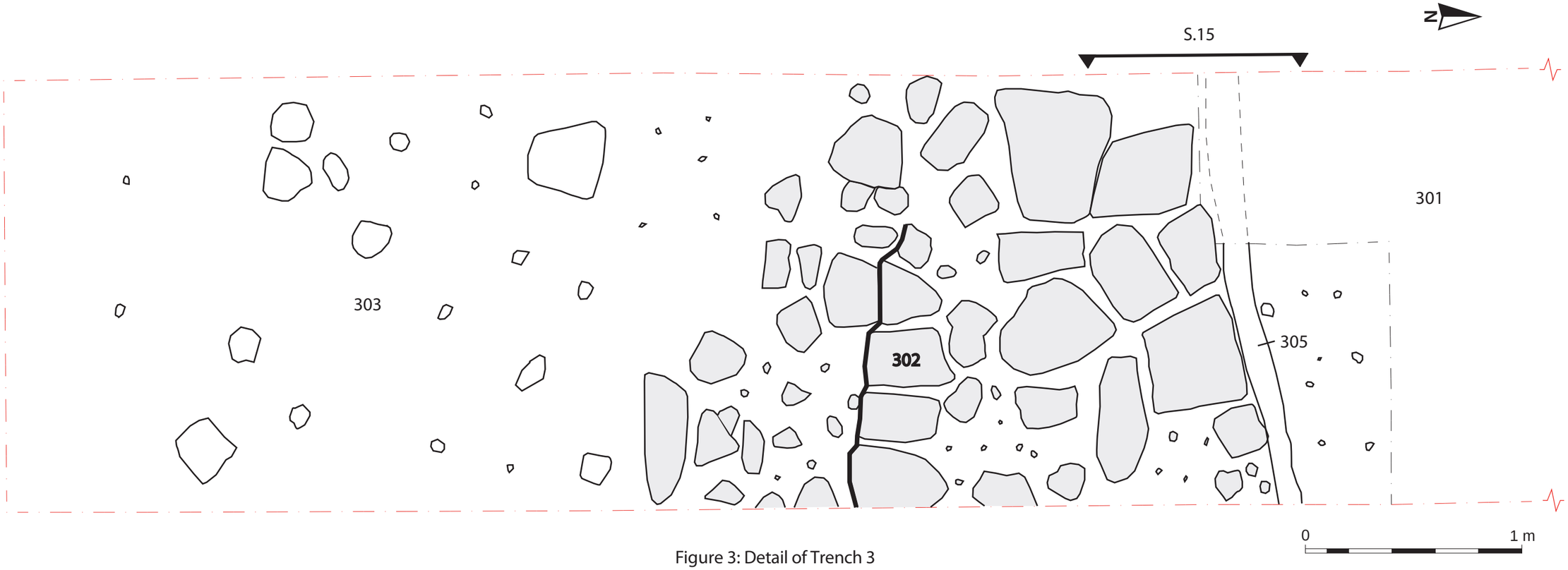

Figure 3: Detail of Trench 3

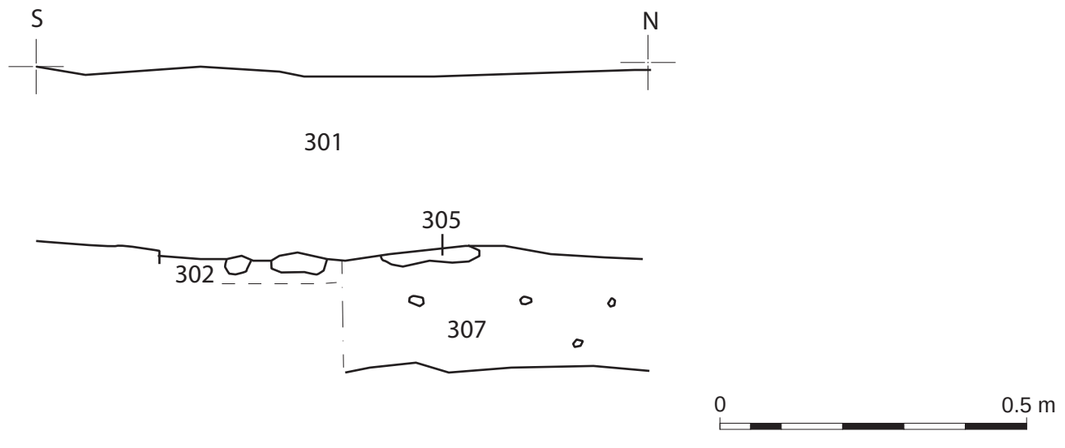

Figure 4: East Facing Section (S.15) through Stone Spread (302), Trench 3

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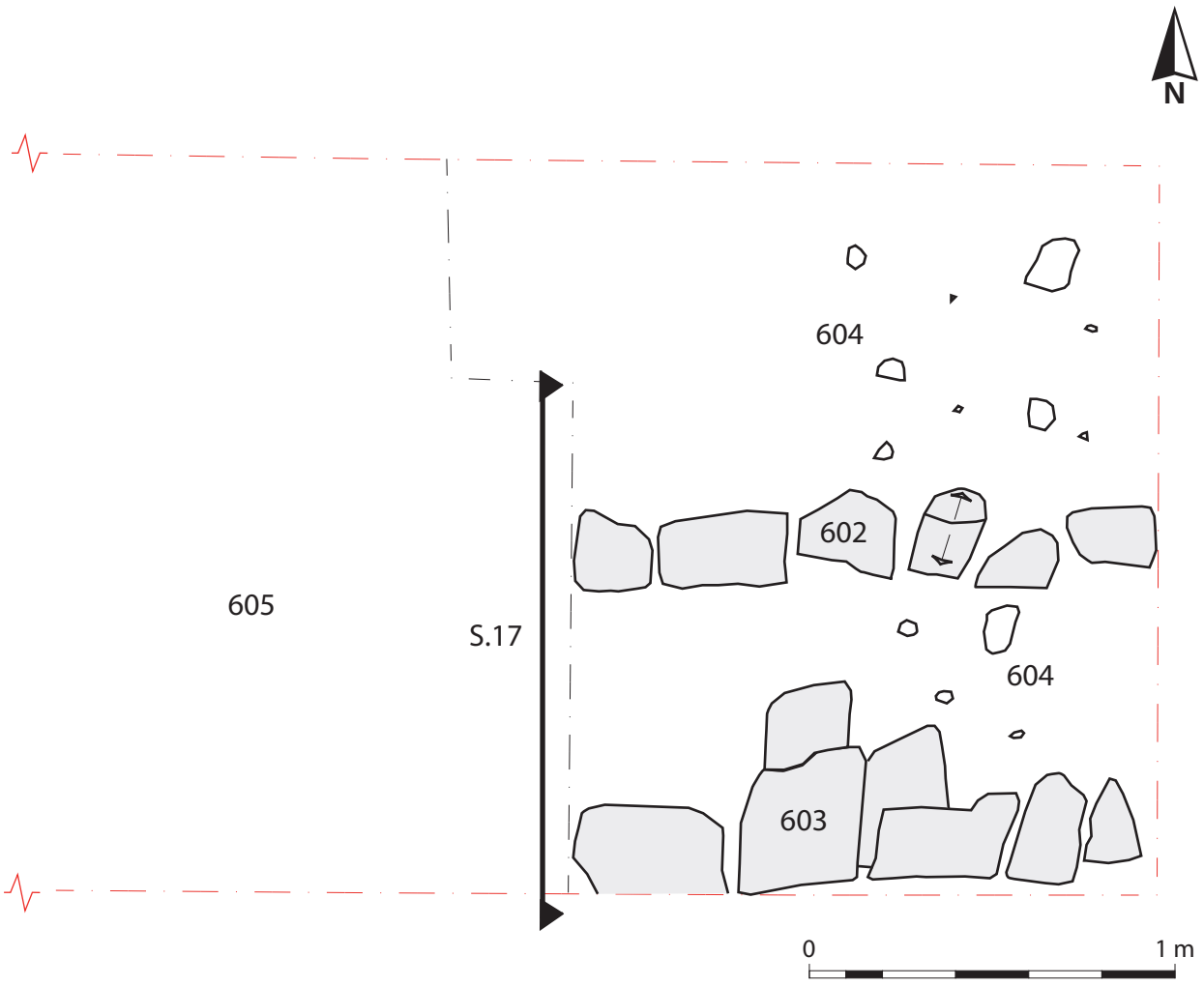

Figure 5: Detail of Trench 6

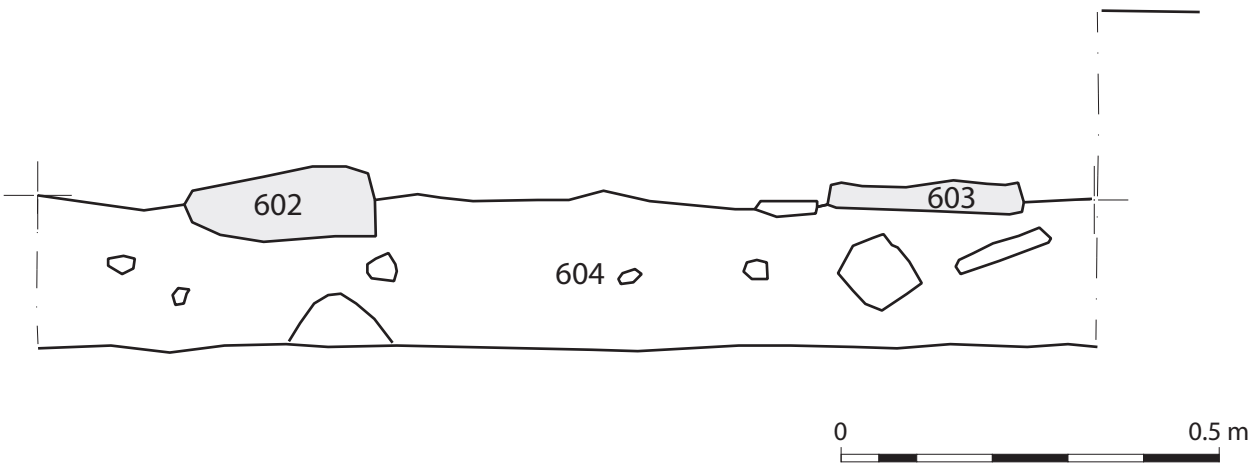

Figure 6: West Facing Section (S. 17) through Possible Wall (602) and (603)

Figure 7: Detail of Trench 31

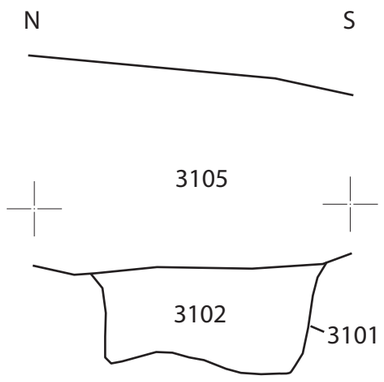

Figure 8: West Facing Section through Gully (3101)

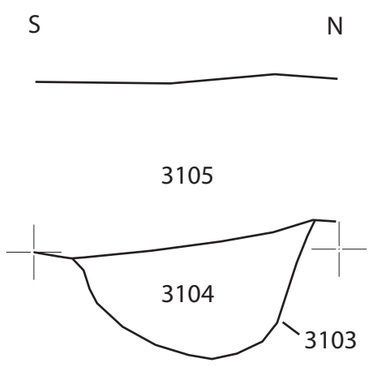

Figure 9: East Facing Section through Gully (3103)

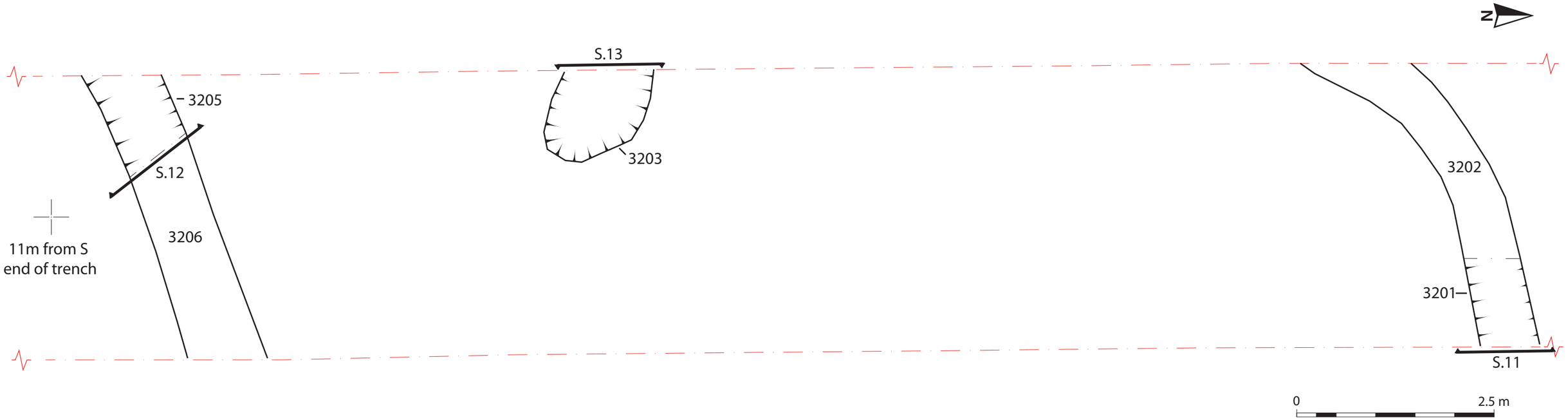

Figure 10: Detail of Trench 32

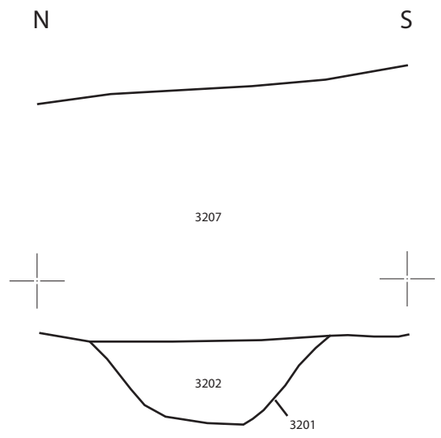

Figure 11: West Facing Section through Gully (3201)

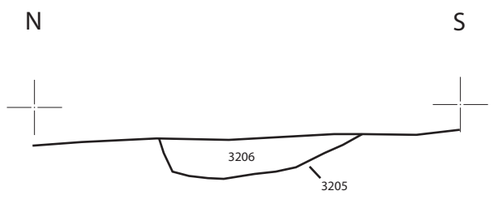

Figure 12: West Facing Section through Gully (3205)

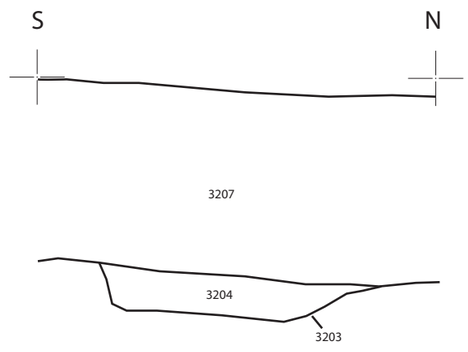

Figure 13: East Facing Section through Gully Terminus (3203)

0 1 m

John O'Groats Hotel:

Evaluation Data Structure Report

Section 2: Appendices

APPENDIX 1: Trench Descriptions

Trench 1

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	N-/SW
Depth of Topsoil	0.4
Depth of Excavation	0.45
Significant Features	None
Other Features	None
Subsoil	Orange brown clay and shattered bedrock
Finds	None

Trench 2

Dimensions	10 m by 10 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.3-0.35 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Orange brown clay and shattered bedrock
Finds	None

Trench 3

Dimensions	25 m by 2 m
Total Area	50 m²
Orientation	N-S
Depth of Topsoil	0.4 m
Depth of Excavation	0.4 m
Significant Features	Stone spread (302)
Other Features	None
Subsoil	Orange brown clay and shattered bed rock
Finds	19th/20th century ceramics (not retained)

Trench 4

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	NNE-SSW
Depth of Topsoil	0.3-0.45
Depth of Excavation	0.5
Significant Features	None
Other Features	None
Subsoil	Shattered bedrock
Finds	None

Trench 5

Dimensions	10 m by 10 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.3 m-0.4 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None

Subsoil	Shattered bedrock
Finds	None

Trench 6

Dimensions	25 m by 25 m
Total Area	50 m²
Orientation	E/W
Depth of Topsoil	0.4 m
Depth of Excavation	0.4 m
Significant Features	Stone structure (602) and (603)
Other Features	None
Subsoil	Orange brown clay and shattered bedrock
Finds	None

Trench 7

Dimensions	*25* m by 2 m
Total Area	50 m²
Orientation	NE-SW
Depth of Topsoil	04 m
Depth of Excavation	0.4 m – 0.5 m
Significant Features	None
Other Features	None
Subsoil	Orange brown clay and shattered bedrock
Finds	None

Trench 8

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.3 m – 0.4 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Mottled red clay and bedrock
Finds	None

Trench 9

Dimensions	25 m by 2 m
Total Area	50 m²
Orientation	N-S
Depth of Topsoil	0.3 m
Depth of Excavation	0.3 m
Significant Features	None
Other Features	None
Subsoil	Shattered bedrock
Finds	None

Trench 10

Dimensions	25 m by 2 m
Total Area	50 m²
Orientation	NNE-SSW
Depth of Topsoil	0.3 m
Depth of Excavation	0.3 m
Significant Features	None

Other Features	None
Subsoil	Orange brown clay and shattered bedrock
Finds	None

Trench 11

Dimensions	25 m by 2 m
Total Area	50 m²
Orientation	ENE-WSW
Depth of Topsoil	0.3 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Orange brown clay and shattered bedrock
Finds	None

Trench 12

Dimensions	25 m by 2 m
Total Area	50 m²
Orientation	E-W
Depth of Topsoil	0.3 m
Depth of Excavation	0.3 m
Significant Features	None
Other Features	None
Subsoil	Orange brown clay and shattered bedrock
Finds	None

Trench 13

Dimensions	25 m by 2 m
Total Area	50 m²
Orientation	E-W
Depth of Topsoil	0.3 m
Depth of Excavation	0.3 m
Significant Features	None
Other Features	None
Subsoil	Orange brown clay and shattered bed rock
Finds	None

Trench 14

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.35 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Mix of pale grey and red sand with bands of shattered bed rock
Finds	None

Trench 15

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.35 m
Depth of Excavation	0.4 m

Significant Features	None
Other Features	None
Subsoil	Mix of pale grey and red sand with bands of shattered bed rock
Finds	None

Trench 16

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	E-W
Depth of Topsoil	0.4 m
Depth of Excavation	0.5 m
Significant Features	None
Other Features	None
Subsoil	Mix of pale grey and red sand with bands of shattered bed rock
Finds	None

Trench 17

Dimensions	100 m by 2 m
Total Area	200 m²
Orientation	NE-SW
Depth of Topsoil	0.4 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Yellow brown sandy clay and shattered bedrock
Finds	None

Trench 18

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	E-W
Depth of Topsoil	0.35 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Grey sandy silt with reddish mottling and patches of shattered bedrock
Finds	None

Trench 19

Dimensions	10 m by 10 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.4 m
Depth of Excavation	0.55 m
Significant Features	None
Other Features	None
Subsoil	Red and yellow mottled silty sand with patches of shattered bedrock
Finds	None

Trench 20

Dimensions	50 m by 2 m
Total Area	100 m²

Orientation	E-W
Depth of Topsoil	0.4 m
Depth of Excavation	0.5 m
Significant Features	None
Other Features	None
Subsoil	Red brown sandy clay silt with patches of shattered bedrock
Finds	None

Trench 21

Dimensions	20 m by 2 m
Total Area	40 m²
Orientation	N-S
Depth of Topsoil	0.5 m
Depth of Excavation	0.5 m
Significant Features	None
Other Features	None
Subsoil	Red brown sandy clay silt with patches of shattered bedrock
Finds	None

Trench 22

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.5 m
Depth of Excavation	0.5 m
Significant Features	None
Other Features	None
Subsoil	Red brown sandy clay silt with patches of shattered bedrock
Finds	None

Trench 23

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	NNE-SSW
Depth of Topsoil	0.4 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Red brown sandy clay silt with patches of shattered bedrock
Finds	None

Trench 24

Dimensions	10 m by 10 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.3- 0.4 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Red brown sandy clay silt with patches of shattered bedrock
Finds	None

Trench 25

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	NNE-SSW
Depth of Topsoil	0.4 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Shattered bedrock with patches of reddish yellow silty sand
Finds	None

Trench 26

Dimensions	80 m by 2 m
Total Area	160 m²
Orientation	NNE-SSW
Depth of Topsoil	0.4 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Red brown sandy silty clay with patches of shattered bedrock
Finds	None

Trench 27

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	E-W
Depth of Topsoil	0.4 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Red brown sandy silty clay with patches of shattered bedrock
Finds	None

Trench 28

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	NE-SW
Depth of Topsoil	0.4 m
Depth of Excavation	0.4 m
Significant Features	None
Other Features	None
Subsoil	Pale grey yellow silty clay sand with patches of shattered bedrock
Finds	None

Trench 29

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	NE-SW
Depth of Topsoil	0.46 m
Depth of Excavation	0.46 m
Significant Features	None
Other Features	None
Subsoil	Pale grey yellow silty clay sand with patches of shattered bedrock
Finds	None

Trench 30

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	NW-SE
Depth of Topsoil	0.35 m
Depth of Excavation	0.35 m
Significant Features	None
Other Features	None
Subsoil	Pale grey yellow silty clay sand with patches of shattered bedrock
Finds	None

Trench 31

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.25 m – 0.5 m
Depth of Excavation	0.5 m
Significant Features	Two curvy linear gullies (3101) and (3103)
Other Features	None
Subsoil	Mottled red and yellow brown silty sand with patches of shattered bedrock
Finds	None

Trench 32

Dimensions	50 m by 2 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.3 m
Depth of Excavation	0.3 m
Significant Features	Two curvy linear gullies (3201) and (3205) and one gully terminus (3203)
Other Features	None
Subsoil	Yellow brown silty clay
Finds	None

Trench 33

Dimensions	10 m by 10 m
Total Area	100 m²
Orientation	N-S
Depth of Topsoil	0.3 m
Depth of Excavation	0.5 m
Significant Features	None
Other Features	None
Subsoil	Yellow brown sandy clay
Finds	None

APPENDIX 2: Context register

Context	Trench	Description	Interpretation	Stratagraphic relationships		Dimensions as exposed (m)		
				Above	Below	Length	Width	Depth
301	3	Moderately compact dark grey/black silt. Occasional inclusions of small angular and rounded stones. Similar to (307). Covers whole trench	Topsoil	302, 303, 305	N/A	N/A	N/A	0.3-0.4
302	3	Spread of large rounded and angular stones. Single layer with some overlapping. Row of square angular blocks may mark edge. Abuts (303) to south and (305) to north. Both 19th and 20th century ceramics found on surface (not retained). Average stone size 0.45 m x 0.5 m x 0.15 m. Situated 3.5 m from south end of trench	Possible surface	307	301	3	2	0.15
303	3	Moderately compact dark grey silt. Frequent inclusions of small to large angular and rounded stones. Extends from south end of trench for a distance of 3.5 m toward north where it abuts (302)	Rubble layer. May have once been further extent of (302)	?	301	3.5	2	?
304	3	Pale grey sand and light brown/orange sandy clay and shattered bedrock.	Natural	N/A	307	N/A	N/A	N/A
305	3	Linear band of moderately compact orange clay. Exists as a narrow band marking north edge of (302).	Function unknown	307	301	2	0.14	0.02
307	3	Moderately compact dark grey/black silt. Moderately frequent inclusions of small angular stones. Similar to and merges with (301).	Buried soil	304	302, 305	N/A	N/A	0.15
601	6	Moderately compact dark grey/black silt. Occasional inclusions of small rounded and angular stones.	Topsoil	602, 603	N/A	N/A	N/A	0.2 0.3
602	6	Linear east-west alignment of large rounded and angular stones. Unworked	North side of wall foundation when taken with	604	601	1.6	0.3	0.1

Context	Trench	Description	Interpretation	Stratagraphic relationships		Dimensions as exposed (m)		
				Above	Below	Length	Width	Depth
		except that the southern edges have been broken in order to obtain a straight line. Single course with no bonding material. Extends from eastern end of trench for a distance of 1.6 m. Separated from associated feature (603) by 0.5 m Ave stone size 0.25 m x 0.2 m x 0.1 m.	parallel stone alignment (603) to south.					
603	6	Single east-west alignment of large flat angular and rounded stones. Associated with (602) to north (separation 0.5 m). Stones unworked with no bonding material. Average stone size 0.3 m x 0.3 m x 0.1 m	South edge of wall foundation when taken into context with (602).	604	601	1.6	0.3	0.1
604	6	Moderately compact dark grey/black silt. Frequent small to large angular stones. Similar to and merges with (601).	Buried soil	605	602, 603	2.0	2.0	0.2
605	6	Compact orange/brown sandy clay and shattered bedrock.	Natural	N/A	604			
3101	31	Curvilinear cut with near vertical sides and concave base. Aligned approximately east-west. Filled by (3102) and cuts natural geology.	Cut of gully	3106	3102	2.0	0.37	0.17
3102	31	Loose dark grey/brown sandy silty clay.	Only fill of gully (3101)	3105	3101	2.0	0.37	0.17
3103	31	Linear cut with steeply angled sides and concave base. Aligned approximately east-west. Cuts (3106) and filled by (3104)	Cut of gully	3106	3104	2.0	0.39	0.17
3104	31	Loose dark grey/brown clay silty sand.	Only fill of gully (3103)	3103	3105	2.0	0.39	0.17
3105	31	Moderately compact dark grey/black sandy silty clay. Covers whole trench	Topsoil	3102, 3104	N/A			0.25-0.5
3106	31	Compact mottled pale reddish/brown silty sand and shattered bedrock.	Natural geology	N/A	3101, 3103			
3201	32	Curvilinear cut with moderately angled sides and concave base. Aligned	Cut of gully	3208	3202	2.0	0.36	0.13

Context	Trench	Description	Interpretation	Stratagraphic relationships		Dimensions as exposed (m)		
				Above	Below	Length	Width	Depth
		approximately east-west. Cuts natural geology and filled by (3202)						
3202	32	Moderately compact dark grey/brown sandy silty clay.	Only fill of gully (3201)	3201	3207	2.0	0.36	0.13
3203	32	Linear cut with concave sides and base and rounded terminus to east. Aligned east-west. Extends from western baulk. Cuts natural geology and filled by (3204)	Terminus of gully	3208	3204	0.7	0.5	0.2
3204	32	Moderately compact dark grey/brown sandy silty clay.	Only fill of gully (3203)	3207	3203	0.7	0.5	0.2
3205	32	Linear cut with concave sides and base. Aligned NE-SW. Cuts natural geology and filled by (3206).	Cut of gully	3208	3206	2.0	0.38	0.08
3206	32	Moderately compact dark grey/brown sandy clay silt.	Only fill of gully (3205)	3207	3205	2.0	0.38	0.08
3207	32	Moderately compact dark/grey brown sandy clay silt. Covers whole trench	Topsoil	3202, 3204, 3206	N/A			0.27
3208	32	Compact yellow/red /brown silty clay	Natural geology	N/A	3201, 3203, 3205			

APPENDIX 3: Photographic register

Digital Film 1

Frame	Trench	Description	From
1	26	General view	S
2	30	General view	N
3		General site view	SE
4		General site view	SW
5	19	General view	S
6	22	General view	S
7	24	General view	W
8		Registration shot	
9	27	General view	W
10	32	General view	S
11	32	SE-facing section of gully 3205	SE
12	32	W-facing section of gully 3203	W
13	32	E-facing section of gully 3201	E
14	31	General view	E
15	31	W-facing section of gully 3101	W
16	31	E-facing section of gully 3103	E
17	8	General view	S
18	3	General view	S
19	5	General view	E
20	6	General view	W
21	11	General view	W
22	18	Drain	S

Digital Film 2

Frame	Trench	Description	From
1	3	Stone spread 302	E
2	3	Stone spread 302	N
3		Registration	
4	6	Wall foundation 602 and 603	W
5	6	Wall foundation 602 and 603	S

Black and White Film 1

Frame	Trench	Description	From
1	-	Registration	-
2	26	General view	S
3	30	General view	N
4		General site view	SE
5		General site view	SW
6	19	General view	S
7	22	General view	S
8	24	General view	W
9	27	General view	W

10	32	General view	S
11	32	SE-facing section of gully 3205	SE
12	32	W-facing section of gully 3203	W
13	32	E-facing section of gully 3201	E
14	31	General view	E
15	31	W-facing section of gully 3101	W
16	31	E-facing section of gully 3103	E
17	8	General view	S
18	3	General view	S
19	5	General view	E
20	6	General view	W
21	2	General view	W
22	18	Drain	S

Black and white Film 2

Frame	Trench	Description	From
1	3	Stone spread 302	E
2	3	Stone spread 302	N
3		Registration	
4	6	Wall foundation 602 and 603	W
5	6	Wall foundation 602 and 603	S

APPENDIX 4: Drawing register

No	Trench	Description	Scale
1	31	Plan of trench	1:20
2	31	Section through gully (3101)	1:10
3	31	Section through gully (3103)	1:10
4	32	Plan of trench	1:20
5	32	Section through gully (3201)	1:10
6	32	Section through gully (3203)	1:10
7	32	Section through gully (3205)	1:10
8	3	Plan of stone spread (302)	1:20
9	3	East-facing section showing (305)	1:10
10	6	Plan of wall foundations (602) and (603)	1:20
11	6	West-facing section across wall foundations (602) and (603)	1:10

APPENDIX 5: Geophysical Survey Report

ARCHAEOLOGICAL SERVICES
DURHAM UNIVERSITY

on behalf of
AOC Archaeology Group

John o'Groats House Hotel
Caithness
Highland

geophysical surveys

report 2696
July 2011

Durham University

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1. Summary

The project

1.1 This report presents the results of geophysical surveys conducted in advance of proposed development at John o'Groats House Hotel, Caithness, Highland. The works comprised both geomagnetic survey and targeted earth electrical resistance survey.

1.2 The works were commissioned by AOC Archaeology Group and conducted by Archaeological Services Durham University.

Results

1.3 The complementary nature of these two geophysical techniques has been demonstrated here.

1.4 All the survey areas were relatively noisy magnetically. This maybe due to their use for vehicle rallies. Area 4 was particularly noisy, possibly due to material derived from landscaping works for the adjacent craft village, or due to the reported wreck of a brig at this location.

1.5 Resistance survey has detected the possible remains of stone footings for small roundhouses or similar structures in Areas 3 and 4, close to known early settlement evidence.

1.6 Burials are notoriously difficult to identify in geophysical surveys, and none has been identified here. However, such features have been excavated on adjacent land, and could be present here.

1.7 Four probable large pits, whose origin and function are unknown, have been detected in the west of the site.

1.8 A system of drains, probably associated with lazy bed cultivation, has been detected across the majority of the site, recorded most clearly in the earth resistance surveys.

1.9 Service pipes have been detected, associated with a cistern in Area 3.

2. Project background

Location (Figure 1)

2.1 The geophysical survey area was located to the south of John o'Groats House Hotel, John o'Groats, Canisbay parish, Caithness, Highland (NGR centre: ND 3793 7340). The site was bounded by the A99 road and craft village to the east, the A836 road to the south and open agricultural land to the west.

2.2 The geophysical works comprised geomagnetic survey of all available areas, approximately 8ha within seven land parcels, and 1.6ha of targeted earth electrical resistance survey within five of those land parcels.

Development proposal

2.3 The development proposal is for the alteration and extension of the former hotel to form holiday apartments; 23 new detached holiday residences; a new visitor centre; alteration to an existing café and landscaping works.

Objective

2.4 The principal aim of the surveys was to assess the nature and extent of any sub-surface features of potential archaeological significance within available areas, so that an informed decision may be made regarding the nature and scope of any further scheme of archaeological works that may be required in relation to the development.

Methods statement

2.5 The surveys were undertaken in accordance with a Written Scheme of Investigation (Appendix), and with national standards and guidance (see para 5.1).

2.6 Resistance survey was used as a complementary technique, to shed further light on selected areas identified by either the geomagnetic survey or the desk-based assessment, and to sample 'blank' areas, avoiding detected services.

Dates

2.7 The surveys were undertaken between 21st and 23rd June 2011. This report was prepared for 8th July 2011.

Personnel

2.8 Fieldwork was conducted by Duncan Hale and Richie Villis (Supervisor). Geophysical data processing and report preparation was by Duncan Hale, the Project Manager, with illustrations by David Graham.

Archive/OASIS

2.9 The site code is **JOG11**, for **J**ohn **O**'**G**roats 20**11**. The survey archive will be supplied on CD to the client for deposition with the project archive in due course. Archaeological Services Durham University is registered with the **O**nline **A**cces**S** to the **I**ndex of archaeological investigation**S** project (**OASIS**). The OASIS ID number for this project is **archaeol3-104614**.

3. Historical and archaeological background

3.1 An archaeological desk-based assessment was conducted by AOC Archaeology in 2010. The text below is from that assessment report (Fouracre & Roy 2010).

Prehistoric & Early Historic (8000 BC-c.AD 1058)

3.2 Previous archaeological field projects have revealed evidence for prehistoric and Early Historic activity in the vicinity of the proposed development area. A two week excavation of a 7m x 5m area in 1989, centred on the present visitors centre, just outside of the proposed development area, identified postholes and paving (either internal or external surfaces) representing prehistoric settlement (*NMRS* No. ND37SE 37). Worked flints and pottery of Late Bronze Age and Late Iron Age (Broch type and Pictish) date were recovered. These flints and pottery fragments were located within a deep deposit of anthropogenic soil which indicates a long history of settlement in John o'Groats (Driscoll 1993). During an archaeological watching brief at John o'Groats Hotel in 1995 (*NMRS* No. ND37SE 37), worked flint was recovered from topsoil providing further indication of prehistoric activity in the immediate vicinity.

3.3 Remains described as a possible Neolithic cairn or cairns or turf-covered building footings are recorded to the east of the proposed development area (*NMRS* No. ND37SE 10). Only a stony patch is now recorded in this area.

3.4 Many human skulls and a flint axe were recovered from this area in the mid-19th century, and it was locally reputed to be a battle site or Norse burial ground. In the 'Hotel Field' (*NMRS* No. ND37SE 9), flint flakes, cores, blades and scrapers of Mesolithic or Neolithic origin have been found. Flint nodules have also been recovered from the beach in the general area of John o'Groats (*NMRS* No. ND37SE 33).

3.5 Documentary records are consistent with the archaeological evidence for early burial activity within the proposed development area. For example, within the proposed development area a burial ground was recorded at Ha' of Duncansby (*NMRS* No. ND37SE 6) in the Ordnance Survey Name Book and on the 1877 First Edition 1:10,560 OS map.

Medieval, Post-Medieval and Modern (c.AD 1058-2000)

3.6 An emergency excavation in 1989 (*NMRS* No. ND37SE 37) identified Norse pottery vessels apparently associated with two phases of human burial overlying prehistoric settlement remains. Fragments of 2242 bones were recovered which represent the scattered and broken remains from a cemetery which had been disturbed by later burials and agricultural activity. An estimate of the minimum numbers of individuals suggested that as many as 71 adults and 13 children may be represented by the scattered bones (Driscoll 1993, 2). Very close to the surface, apparently representing a cemetery, were portions of four articulated burials oriented with their heads to the west suggesting they were of Christian origin. Radiocarbon evidence indicates 11-12th and 16-17th century date ranges for these episodes of burial. These dates conform to the broad observation that pagan burial rites had been abandoned in northern Scotland and the Islands by the 11th century. This further supports the historical argument that the re-conversion of Orkney and Caithness was initiated by the conversion of the Earl of Orkney in the late 10th century and consolidated by the foundation of the bishopric in the mid-12th century. The dates also suggest that the

cemetery was used for a span of two to three centuries and may suggest the existence of a chapel in close proximity.

3.7 John o'Groats House Hotel was constructed by Thomas Sinclair in 1875. The hotel stands near the supposed site of John o'Groats House. A John Grot was granted a charter of a ferry and land at Duncansby in 1496, and 33 further members of the Grot family were subsequently granted such charters (Mitchell & Drummond 1875). The last known deed is dated to 1715 and mentions the ferry-house, ferry and ferry-boats, implying that the Grots controlled the ferry from 1496 to at least 1715. Writing in 1906, MacFarlane notes that in the 1720s Duncansbay was described as '*only remarkable for john a' Grott's House'.* By 1760 the house associated with this family was in ruins (Pococke 1887) but the site of the house retained the name. The legend surrounding the eight-sided house with its eight doors (one for each relative) and eight-sided table is described in the Old Statistical Account (OSA 1791-99).

3.8 Pre-Ordnance Survey historic maps are often schematic and lack detail – neither Blaeu's map of 1654 nor Moll's map of 1745 marks the settlement (*NMRS* No. ND37SE 46) at John o'Groats. Roy's survey of 1747-55 shows 'Johny Grotts House' at roughly its present location. It also marks 'Dungsbay', probably an early form of the placename Duncansby, associated with this area. Thomson's map of 1832 depicts 'John o'Groats House' at a quite different location along the coast, and would appear to be more inaccurate than Roy's earlier map.

3.9 The majority of the proposed development area, with the exception of the northern part near the coast, is shown to be open farmland on historic Ordnance Survey maps. The 1st Edition 1:10,560 Ordnance Survey map of 1877 depicts the site of John o'Groats House, in roughly the same location as the present John o'Groats House Hotel. A well is marked to the south, within the proposed development area, and a roofed structure is shown further south, outside the development boundary. Another roofed structure appears on the coastline, within the development boundary. The 2nd Edition map of 1907 indicates that the John o'Groats House Hotel is present. Kennels are marked in approximately the same location as an earlier roofed structure. The 2nd Edition also marks a cistern in the south-east of the proposed development area.

4. Landuse, topography and geology

4.1 At the time of survey the northern part of the proposed development area was occupied by the former John o'Groats House Hotel buildings and associated walled garden, cafe and visitor centre. Immediately south of the hotel was a small field with vegetation up to 1.5m in height, within which it was not possible to conduct geomagnetic or resistance survey.

4.2 The majority of the remainder of the proposed development area was open agricultural land, typically hay/silage which had been recently cut, and was used at weekends for motorcycle and car rallies. The fields were boggy in places and bounded by open drains. Evidence for probable former lazy bed cultivation was noted in some of the open fields, Areas 1-3 in this report.

4.3 A small field to the immediate south of the craft village (Area 5), containing a long earth bund, was also overgrown with vegetation up to 1.5m in height, however, magnetometer survey was attempted here.

4.4 The survey areas were all predominantly level with elevations of approximately 10m OD in the north rising very gently to 20m OD in the south.

4.5 The underlying solid geology of the area comprises Devonian Middle Old Red Sandstone of the John o'Groats Sandstone Formation, which is overlain by Devensian till.

5. Geophysical survey

Standards

5.1 The surveys and reporting were conducted in accordance with English Heritage guidelines, *Geophysical survey in archaeological field evaluation* (David, Linford & Linford 2008); the Institute for Archaeologists (IfA) *Draft Standard and Guidance for archaeological geophysical survey* (2010); the IfA Technical Paper No.6, *The use of geophysical techniques in archaeological evaluations* (Gaffney, Gater & Ovenden 2002); and the Archaeology Data Service *Guide to Good Practice: Geophysical Data in Archaeology* (draft 2nd edition, Schmidt & Ernenwein 2010).

Technique selection

5.2 Geophysical survey enables the relatively rapid and non-invasive identification of sub-surface features of potential archaeological significance and can involve a suite of complementary techniques such as magnetometry, earth electrical resistance, ground-penetrating radar, electromagnetic survey and topsoil magnetic susceptibility survey. Some techniques are more suitable than others in particular situations, depending on site-specific factors including the nature of likely targets; depth of likely targets; ground conditions; proximity of buildings, fences or services and the local geology and drift.

5.3 In this instance, both geomagnetic and electrical resistance surveys were considered appropriate. Geomagnetic survey was used to provide a general overview of sub-surface features. Resistance survey was used as a complementary technique, to shed further light on selected areas identified by either the geomagnetic survey or the desk-based assessment (such as the apparent concentration of archaeological evidence in the area of the craft village), and to sample 'blank' areas, avoiding detected services.

5.4 The geomagnetic technique, fluxgate gradiometry, involves the use of hand-held magnetometers to detect and record anomalies in the vertical component of the Earth's magnetic field caused by variations in soil magnetic susceptibility or permanent magnetisation; such anomalies can reflect archaeological features.

5.5 Earth electrical resistance survey can be particularly useful for mapping stone and brick features, and for investigating areas with little magnetic variation. When a small electrical current is injected through the earth it encounters resistance which can be measured. Since resistance is linked to moisture content and porosity, stone and brick features will give relatively high resistance values while soil-filled features, which retain more moisture, will provide relatively low resistance values.

Field methods

5.6 A 20m grid was established across each survey area and tied-in to known, mapped Ordnance Survey points using a Trimble Pathfinder Pro XRS global positioning system with real-time correction.

5.7 Measurements of vertical geomagnetic field gradient were determined using Bartington Grad601-2 dual fluxgate gradiometers. A zig-zag traverse scheme was employed and data were logged in 20m grid units. The instrument sensitivity was nominally 0.03nT, the sample interval was 0.25m and the traverse interval was 1m, thus providing 1,600 sample measurements per 20m grid unit.

5.8 Measurements of electrical resistance were determined using Geoscan RM15D Advanced resistance meters and MPX15 multiplexers with a mobile twin probe separation of 0.5m. A zig-zag traverse scheme was employed and data were logged in 20m grid units. The instrument sensitivity was set to 0.1ohm, the sample interval to 1m and the traverse interval to 1m, thus providing 400 sample measurements per 20m grid unit.

5.9 Data were downloaded on site into a laptop computer for initial processing and storage and subsequently transferred to a desktop computer for processing, interpretation and archiving.

Data processing

5.10 Geoplot v.3 software was used to process the geophysical data and to produce both continuous tone greyscale images and trace plots of the raw (minimally processed) data. The greyscale images and interpretations are presented in Figures 2-7; the trace plots are provided in Figure 8. In the greyscale images, positive magnetic and high resistance anomalies are displayed as dark grey, while negative magnetic and low resistance anomalies are displayed as light grey. Palette bars relate the greyscale intensities to anomaly values in nanoTesla for the geomagnetic data and ohm for the resistance data.

5.11 The following basic processing functions have been applied to the geomagnetic data:

clip	clips data to specified maximum or minimum values; to eliminate large noise spikes; also generally makes statistical calculations more realistic
zero mean traverse	sets the background mean of each traverse within a grid to zero; for removing striping effects in the traverse direction and removing grid edge discontinuities
destagger	corrects for displacement of geomagnetic anomalies caused by alternate zig-zag traverses
interpolate	increases the number of data points in a survey to match sample and traverse intervals; in this instance the data have been interpolated to 0.25m x 0.25m intervals

5.12 The following basic processing functions have been applied to the resistance data:

add	adds or subtracts a positive or negative constant value to defined blocks of data; used to reduce discontinuity at grid edges
despike	locates and suppresses spikes in data due to poor contact resistance
interpolate	increases the number of data points in a survey to match sample and traverse intervals; in this instance the data have been interpolated to 0.25m x 0.25m intervals

Interpretation: anomaly types

5.13 Colour-coded geophysical interpretation plans are provided. Three types of geomagnetic anomaly have been distinguished in the data:

positive magnetic	regions of anomalously high or positive magnetic field gradient, which may be associated with high magnetic susceptibility soil-filled structures such as pits and ditches
negative magnetic	regions of anomalously low or negative magnetic field gradient, which may correspond to features of low magnetic susceptibility such as wall footings and other concentrations of sedimentary rock or voids
dipolar magnetic	paired positive-negative magnetic anomalies, which typically reflect ferrous or fired materials (including fences and service pipes) and/or fired structures such as kilns or hearths

5.14 Two types of resistance anomaly have been distinguished in the data:

high resistance	regions of anomalously high resistance, which may reflect foundations, tracks, paths and other concentrations of stone or brick rubble
low resistance	regions of anomalously low resistance, which may be associated with soil-filled features such as pits and ditches

Interpretation: features

General comments

5.15 A colour-coded archaeological interpretation plan is provided.

5.16 Positive magnetic anomalies are taken to reflect relatively high magnetic susceptibility materials, often sediments in cut archaeological features (such as ditches or pits) whose magnetic susceptibility has been enhanced by decomposed organic matter or by burning. However, in this instance, the majority of linear positive magnetic anomalies probably reflect drains, possibly between lazy bed cultivation strips. These have been detected aligned broadly north-south in the southern part of Area 1. Similar parallel anomalies have been detected elsewhere across the site, aligned north-west/south-east; these are particularly clear in the

resistance data. The patterns of parallel, narrow, low resistance anomalies almost certainly reflect drains, possibly associated with an earlier alignment of cultivation strips, as shown on Roy's map, dated 1747-55.

5.17 Small, discrete dipolar magnetic anomalies have been detected in each survey area. These almost certainly reflect items of near-surface ferrous and/or fired debris, which typically have little or no archaeological significance. There is a relatively high concentration of such anomalies across most of the survey areas, possibly associated with the site's use for vehicle rallies. There is also a particularly high concentration of small ferrous items in Area 4, to the immediate east of the craft village. This location is given for the wreck of a 19th-century brig, 'Thomas Dryden' (RCAHMS Canmore website; Fouracre & Roy 2010). Whether the anomalous material is associated with the wreck or with landscaping for the adjacent craft village is unknown. In either case, the material has not hindered the resistance survey here, which recorded drainage, as above.

5.18 In addition to the above, the following anomalies have been recorded:

Area 1

5.19 An east-west chain of intense dipolar magnetic anomalies almost certainly reflects a service or drain; its location also corresponds to a recent former field boundary, shown on OS maps in the 1960s and 1970s.

5.20 A chain of small, strong, positive magnetic anomalies almost certainly reflects a service pipe, probably comprising short lengths of fired clay. At its north-eastern end the pipe almost certainly connects to a cistern in the corner of Area 3 (shown on OS editions from 1907-1968). This pipe has been detected continuing across Area 2 to the remains of a shed in the south-western corner of the site.

5.21 A sample resistance survey in this area confirmed the apparent absence of features and the general north-west/south-east alignment of former cultivation and drainage.

Area 2

5.22 A probable fired clay service pipe was detected between a former outbuilding and cistern, as above.

5.23 Several relatively large, intense dipolar magnetic anomalies were detected in the northern part of this survey; these may reflect larger ferrous items in this area of boggy ground.

5.24 Two large, strong positive magnetic anomalies were detected in the north-western part of this area, which are probably associated with two similar anomalies just to the north in Area 3. These appear to reflect large, elongated pits, filled with high magnetic susceptibility soils rather than ferrous materials or building rubble. Their date and function remain unknown.

5.25 A sample resistance survey in this area confirmed the apparent absence of features and the general north-west/south-east alignment of former cultivation and drainage.

Area 3

5.26 Two further possible pits were detected, as above.

5.27 Two pipes, one ferrous and one fired clay, head north-west to the craft village or former hotel, from the cistern in the south-east corner of Area 3.

5.28 The resistance survey in this area was located to try to detect features which might have been associated with previous archaeological finds around the craft village, and to provide further information on possible weak geomagnetic anomalies, whilst avoiding the pipes detected by magnetometry.

5.29 The resistance survey did detect some small, arcuate, high resistance anomalies which could possibly reflect remains of stone wall-footings. This interpretation is informed and supported by the early settlement evidence found just to the north by Archaeology Projects Glasgow/GUARD in 1989 (see Fouracre & Roy 2010).

5.30 The survey detected more anomalies that the magnetometry, also revealing what is almost certainly a former system of cultivation and drainage.

Area 4

5.31 As described above (para 5.17) the concentration of probable ferrous material could be associated with the wreck of the 'Thomas Dryden' or with landscaping for the construction of the adjacent craft village.

5.32 As well as the cultivation/drainage system, the resistance survey here also detected two small, arcuate, high resistance anomalies which could possibly reflect the remains of stone wall-footings, as in Area 3 above.

Area 5

5.33 Whilst the vegetation was too high and thick to collect good quality geomagnetic data in this area, and attempt at survey was made due to the area's proximity to known excavated features. It was hoped that at least substantial features might be identified, if present.

5.34 The survey detected a continuation of the probable ferrous and clay pipes detected in Area 3. The survey also detected further probable drains.

5.35 The vegetation precluded any electrical resistance survey here.

Area 6

5.36 The geomagnetic survey here detected weak linear anomalies, which were further characterised by resistance survey, and interpreted as drainage, probably associated with former lazy bed cultivation.

6. Conclusions

6.1 Geomagnetic survey was undertaken over 8ha of land to the south of John o'Groats House Hotel, Caithness, prior to proposed development. Earth electrical resistance survey was also undertaken over selected areas, based on the geomagnetic survey results and to target areas close to previously known, excavated features. Areas devoid of geomagnetic anomalies were also sampled by resistance survey.

6.2 The complementary nature of these two techniques has been demonstrated here.

6.3 All the survey areas were relatively noisy magnetically. This maybe due to their use for vehicle rallies. Area 4 was particularly noisy, possibly due to material derived from landscaping works for the adjacent craft village, or due to the reported wreck of a brig at this location.

6.4 Resistance survey has detected the possible remains of stone footings for small roundhouses or similar structures in Areas 3 and 4, close to known early settlement evidence.

6.5 Burials are notoriously difficult to identify in geophysical surveys, and none has been identified here. However, such features have been excavated on adjacent land, and could be present here.

6.6 Four probable large pits, whose origin and function are unknown, have been detected in the west of the site.

6.7 A system of drains, probably associated with lazy bed cultivation, has been detected across the majority of the site, recorded most clearly in the earth resistance surveys.

6.8 Service pipes have been detected, associated with a cistern in Area 3.

7. Sources

David, A, Linford, N, & Linford, P, 2008 *Geophysical Survey in Archaeological Field Evaluation*. English Heritage

Driscoll, ST, 1993 'Rescue excavations of a prehistoric settlement and Viking Age / Medieval cemetery at John O' Groats, 1989', *Glasgow Archaeol J*, vol.**16**, 29-37

Fouracre, L, & Roy, M, 2010 *John o'Groats House Hotel Desk Based Assessment.* Unpublished client report, AOC Archaeology

Gaffney, C, Gater, J, & Ovenden, S, 2002 *The use of geophysical techniques in archaeological evaluations*. Technical Paper **6**, Institute of Field Archaeologists

IfA 2010 *Draft Standard and Guidance for archaeological geophysical survey*. Institute for Archaeologists

Mitchell, A, & Drummond, J, 1875 'Vacation notes in Cromar, Burghead, and Strathspey. Including notice of one of the supposed burial-places of St Columba', *Proc Soc Antiq Scot*, vol.**10**, 673.

Pococke, R, 1887 (ed. Kemp, DW) *Tours in Scotland 1747, 1750, 1760*, Edinburgh, 26.

OSA 1791-99 *The statistical account of Scotland*, Edinburgh, Vol.**8**.

Schmidt, A, & Ernenwein, E, 2010 (draft) *Guide to Good Practice: Geophysical Data in Archaeology*. Archaeology Data Service

RCAHMS Canmore website: http://canmore.rcahms.gov.uk/en/site/275458/details/thomas+dryden+huna+pentland+firth/

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AOC Archaeology Group

John o'Groats House Hotel
Caithness
Highland

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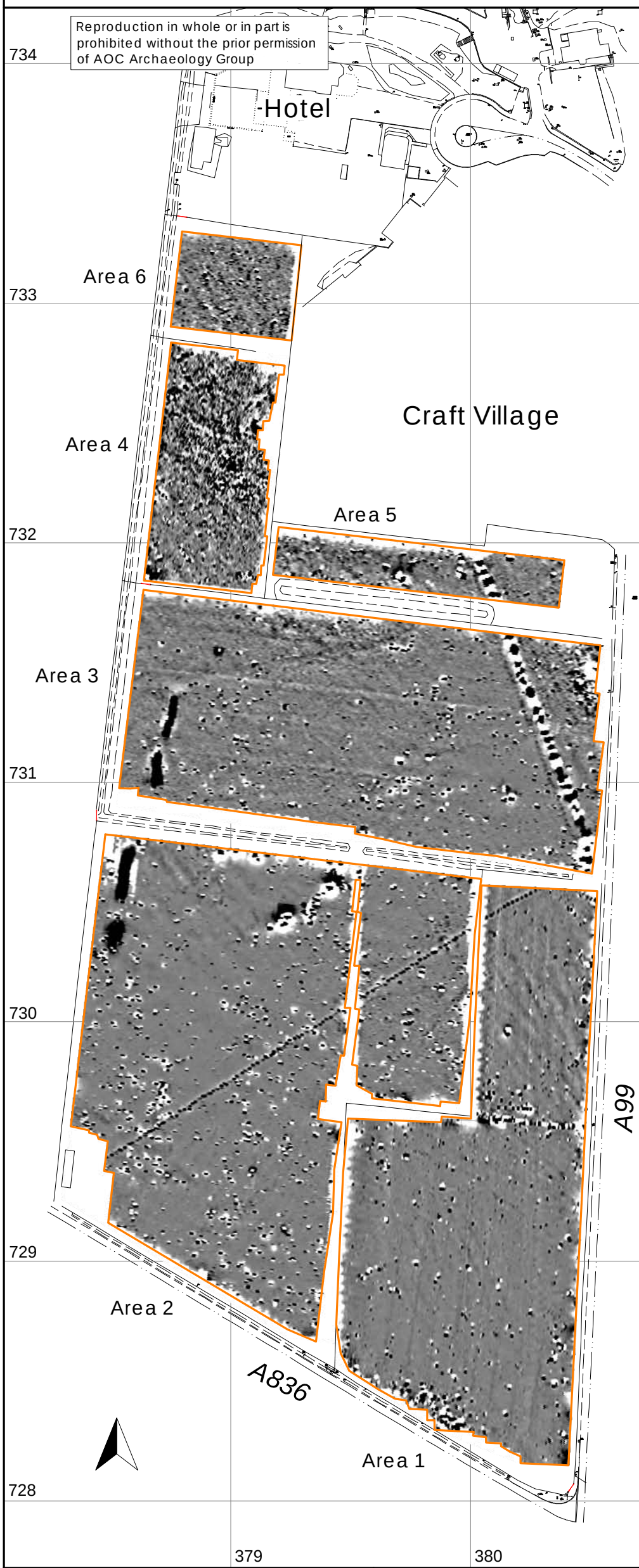
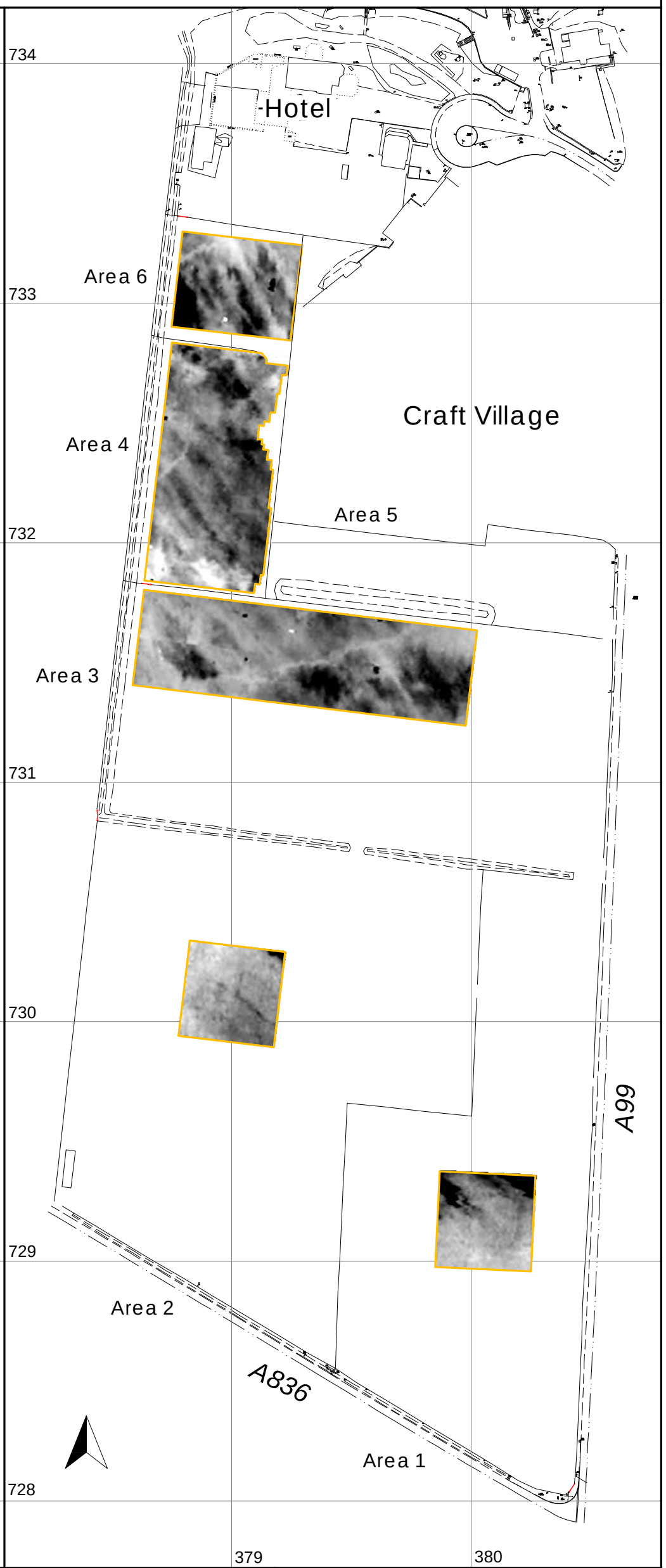
report 2696

Figure 1: Site location

magnetic survey

resistance survey





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0 100m

scale 1:2000 for A3 plot

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Figure 2: Geophysical surveys overview

Area 6

Area 4

Craft Village

Area 5

Area 3

Area 2

Area 1

A99

A836

733

732

731

730

729

728

378

379

380

381

magnetic survey

-4 nT 6

0 50m

scale 1:1000 for A2 plot

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Figure 3: Geomagnetic surveys

Area 6

Craft Village

Area 4

Area 5

Area 3

Area 2

Area 1

A99

A836

733

732

731

730

729

728

378

379

380

381

magnetic survey

dipolar magnetic anomaly

positive magnetic anomaly

negative magnetic anomaly

0 50m

scale 1:1000 for A2 plot

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Figure 4: Geophysical interpretation of geomagnetic surveys

Area 6

Area 4

Craft Village

Area 5

Area 3

Area 2

Area 1

A99

A836

733

732

731

730

729

728

378

379

380

381

resistance survey

Area 1
30 ohm 60

Area 2
20 ohm 40

Area 3
30 ohm 100

Area 4
50 ohm 95

Area 6
50 ohm 95

0 50m
scale 1:1000 for A2 plot

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Figure 5: Resistance surveys

Craft Village

Area 1

Area 2

Area 3

Area 4

Area 5

A836

A99

resistance survey

high resistance anomaly

low resistance anomaly

0 50m

scale 1:1000 for A2 plot

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Figure 6: Geophysical interpretation of resistance surveys

Area 6

Craft Village

Area 4

Area 5

Area 3

Area 2

Area 1

cistern

A99

A836

survey outline

soil-filled feature

stone

disturbed area

service pipe

land drain

0 50m

scale 1:1000 for A2 plot

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Figure 7: Archaeological interpretation

733
732
731
730
729
728
378
379
380
381

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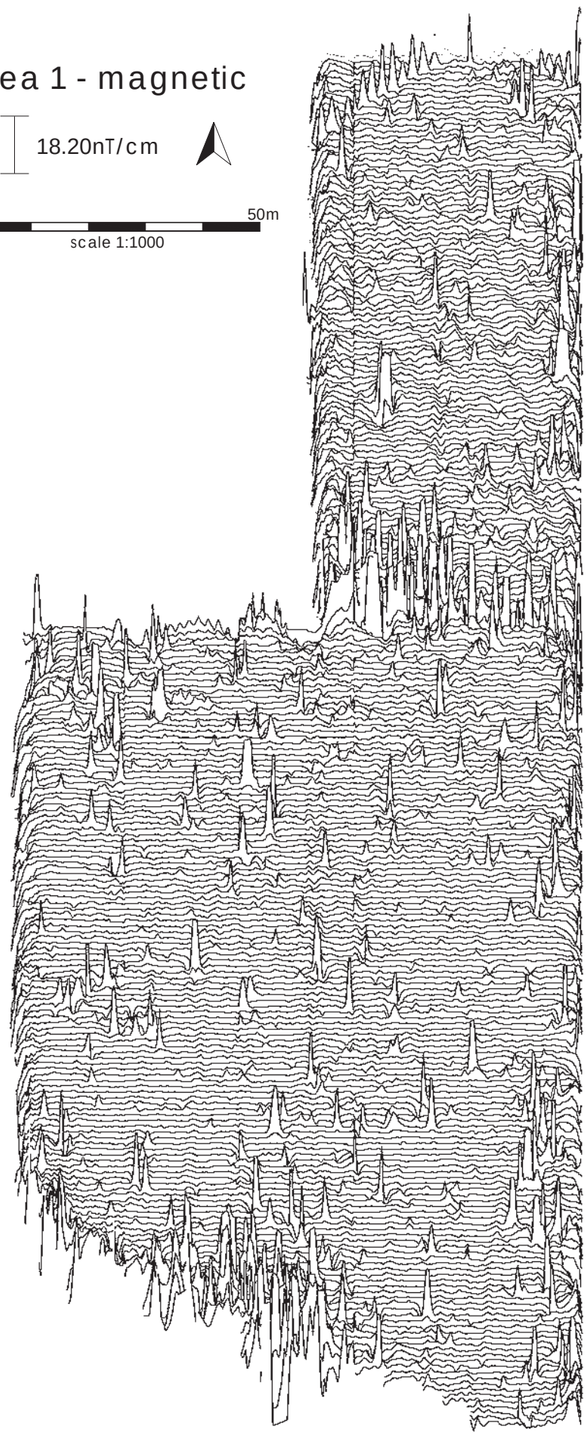
Figure 8:
Trace plots of geophysical data

Area 1 - magnetic

18.20nT/cm

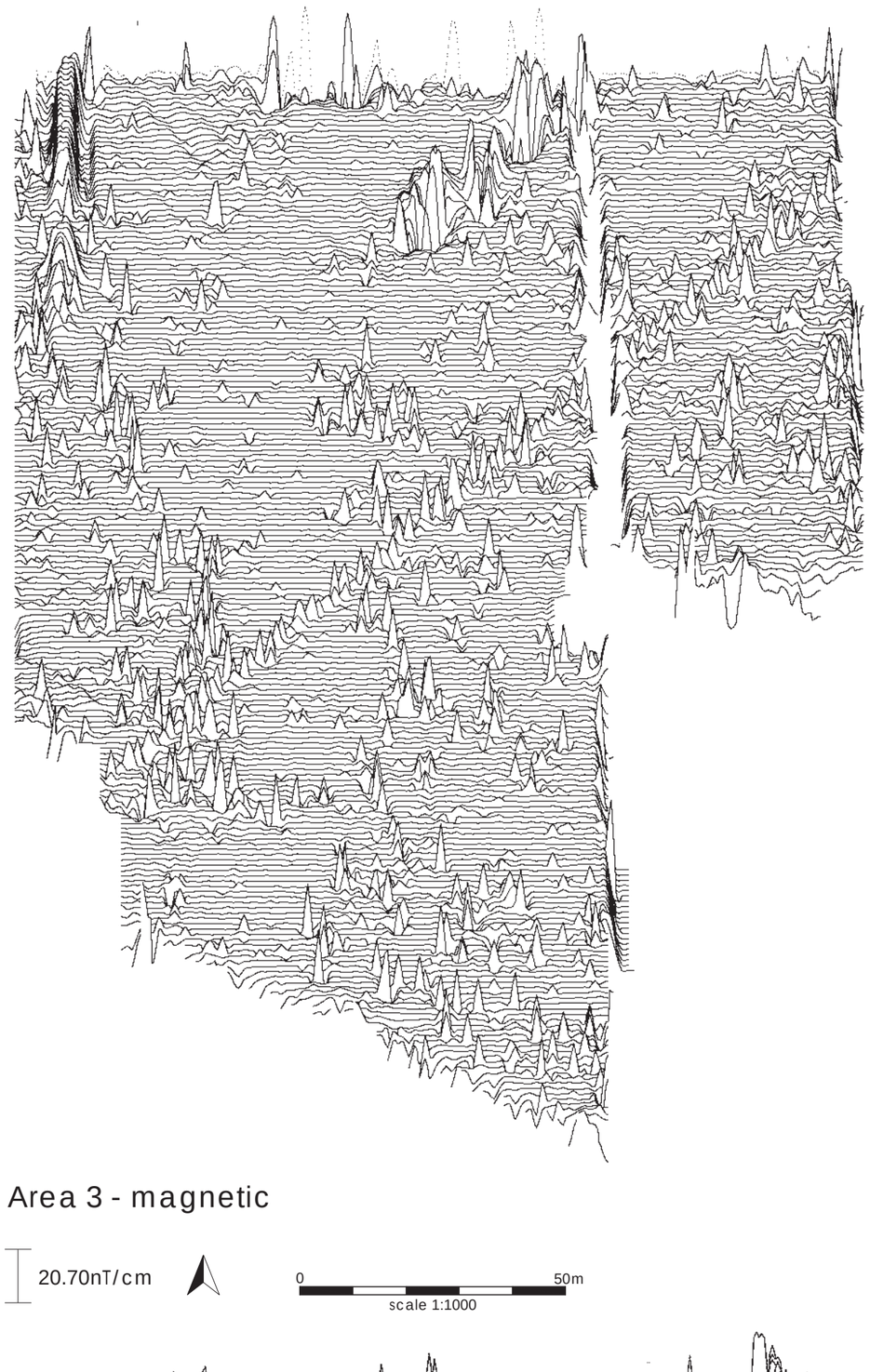
0 50m
scale 1:1000



Area 2 - magnetic

20.50nT/cm

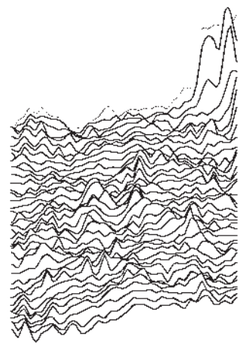
0 50m
scale 1:1000



Area 2 - resistance

13.90ohm/cm

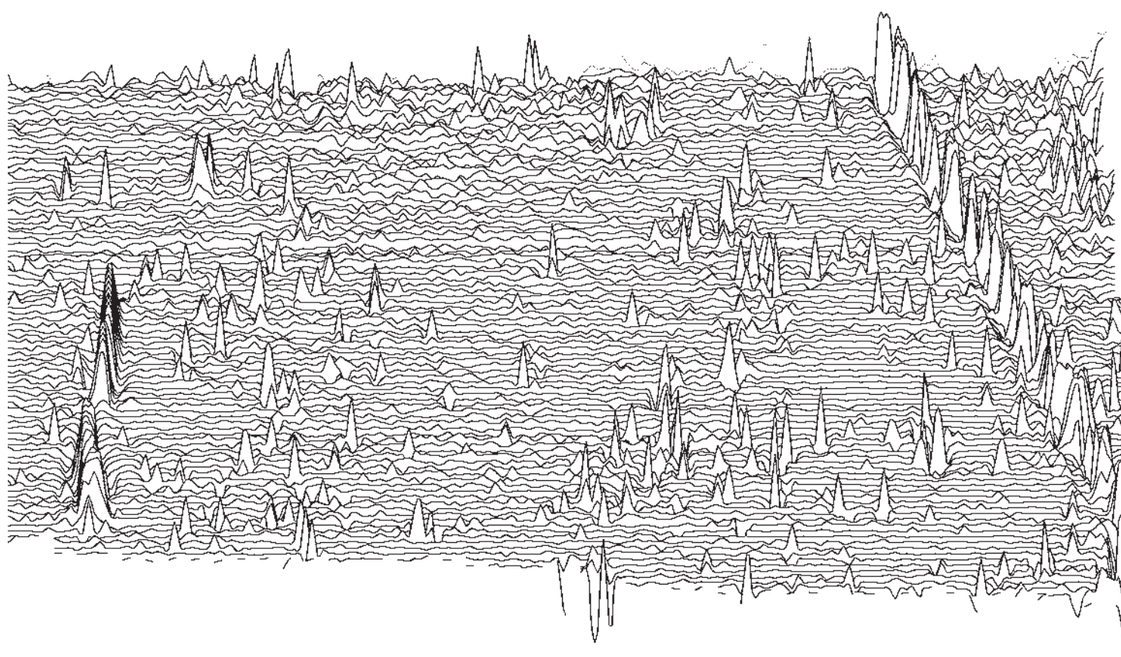
0 50m
scale 1:1000



Area 3 - magnetic

20.70nT/cm

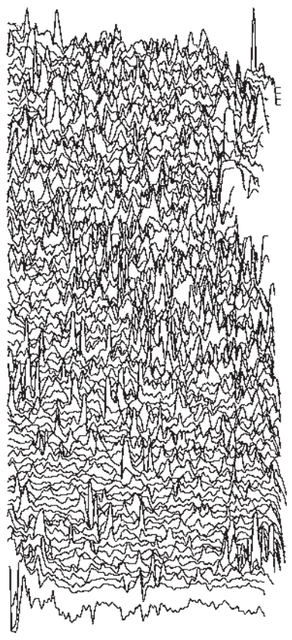
0 50m
scale 1:1000



Area 4 - magnetic

28.40nT/cm

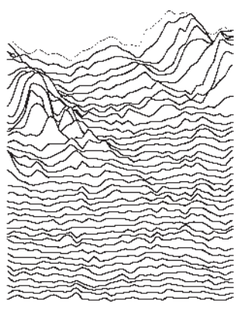
0 50m
scale 1:1000



Area 1 - resistance

41.80ohm/cm

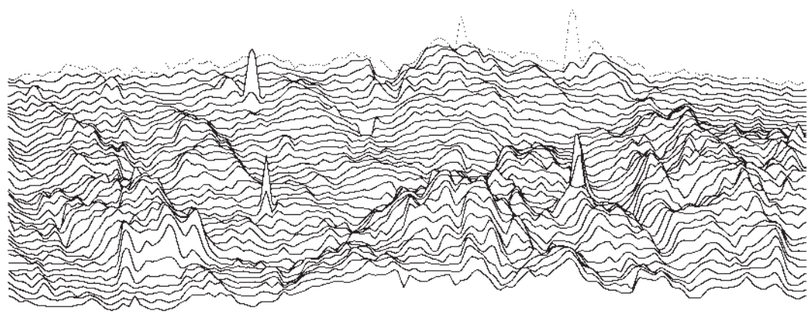
0 50m
scale 1:1000



Area 3 - resistance

57.10ohm/cm

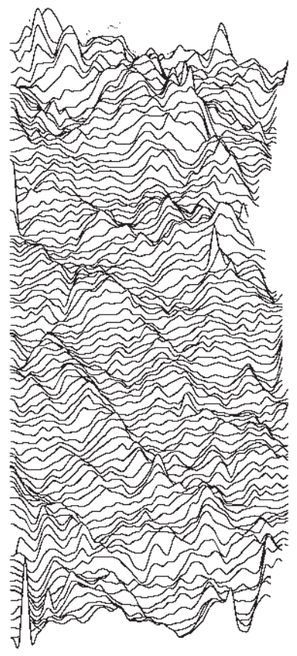
0 50m
scale 1:1000



Area 4 - resistance

40.10ohm/cm

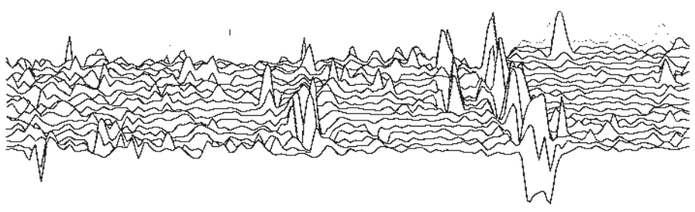
0 50m
scale 1:1000



Area 5 - magnetic

27.20nT/cm

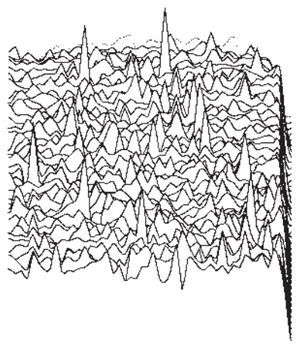
0 50m
scale 1:1000



Area 6 - magnetic

15.20nT/cm

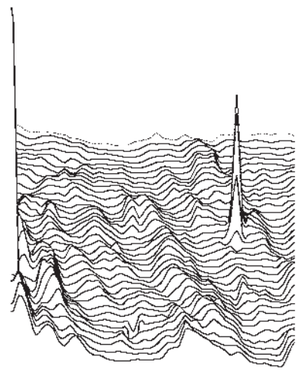
0 50m
scale 1:1000



Area 6 - resistance

83.20ohm/cm

0 50m
scale 1:1000



APPENDIX 6: '*Discovery and Excavation in Scotland*' Report

LOCAL AUTHORITY:	Highland Council
PROJECT TITLE/SITE NAME	John O'Groats Hotel: Evaluation
PROJECT CODE:	21864
PARISH:	Canisbay
NAME OF CONTRIBUTOR:	Erlend Hindmarch
NAME OF ORGANISATION:	AOC Archaeology Group
TYPE(S) OF PROJECT:	Evaluation Trenching and Geophysical survey
NMRS NO(S)	None
SITE/MONUMENT TYPE(S):	Boundary wall foundations, and gullies
SIGNIFICANT FINDS:	None
NGR (2 letters, 6 figures)	ND 378 731
START DATE (this season)	5th July 2011
END DATE (this season)	10th July 2011
PREVIOUS WORK (incl. DES ref.)	Historic building Recording (see 2011 DES contribution by Diana Sproat)
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	A geophysical survey (Archaeological Services Durham University - Report 2696) and a 10% sample evaluation were undertaken prior to a development located on a green field site adjacent to the John O'Groats Hotel. The evaluation identified two stone features that may be the remains of stone clearance or field boundaries in the north of the site plus a small number of gullies (most likely field drains) located to the east.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	
SPONSOR OR FUNDING BODY:	K2 Equity Partners LLP
ADDRESS OF MAIN CONTRIBUTOR:	Edgefield Road Industrial Estate, Loanhead, Midlothian, EH20 9SY
EMAIL ADDRESS:	admin@aocarchaeology.com
ARCHIVE LOCATION (intended/deposited)	Archive to be deposited in NMRS

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