GSB Survey No. 2009/24

Baliscate, Isle of Mull

Time Team Series XVII Programme IV

NGR	NM 497 541
Location	The site is located within woodland approximately 1km southwest of
	Tobermory on the Isle of Mull.
County	Argyllshire.
District	Argyll and Bute.
Parish	Tobermory.
Topography	Earthworks and extant stone structures.
Current land-use	Woodland.
Soils	Peaty Gleys (www.macaulay.ac.uk).
Geology	Basalt lava.
Archaeology#	Baliscate is also known as Coille Creag A'Chat (listing number: NM45SE
	25). No invasive work has been carried out prior to this investigation; a site
	survey was undertaken by the RCAHMS identifying two adjacent stone
	structures, one thought to represent a small chapel.
Survey Methods	Resistance and Ground Penetrating Radar.

Aims

To locate and characterise any anomalies of possible archaeological interest as mentioned in Section 2 of the project design (Knappett & Scott 2009). The work forms part of a wider archaeological assessment being carried out by Channel 4's **Time Team**.

Summary of Results*

Results from the resistance survey correspond with the extant earthworks and structural remains with areas of high resistance showing the stonework. Ground Penetrating Radar survey mainly detected natural features but there is the potential of a prehistoric ground surface within the results.

Project Information

Project Co-ordinator:	Dr J Gater
Project Assistants:	J Adcock & E Wood
Date of Fieldwork:	19 th – 21 st May 2009
Date of Report:	8 th September 2009

*It is essential that this summary is read in conjunction with the detailed results of the survey. # Taken from Knappett and Scott 2009 1

Survey Specifications

Method

The survey grid was set out and tied in to the Ordnance Survey (OS) grid by **Dr Henry Chapman** using a combination of a Trimble differential GPS and an S Series (S6) Robotic EDM. A copy of the geo-referenced results in AutoCAD format is included on the Archive CD.

Technique	Traverse Separation	Reading Interval	Instrument	Survey Size
Magnetometer -				
Scanning	-	-	-	-
(Appendix 1)				
Magnetometer –				
Detailed	-	-	-	-
(Appendix 1)				
Resistance – Twin Probe	0.5m	0.5m	Coossen PM15	$500m^2$
(Appendix 1)	0.5111	0.5111	Geoscall Rivi15	50011
Ground Penetrating			Sangara and Saftwara	
Radar (GPR)	0.25m	0.05m	Sensors and Software	70m ²
(Appendix 1)			Noggin	

Data Processing

	Magnetic	Resistance	GPR
Zero Mean Traverse	-	N	-
Step Correction	-	N	-
Interpolate	-	Y	-
Filter	-	High Pass	?

Presentation of Results

Report Figures (Printed & Archive CD):Location, data plots and interpretation diagram (Figures
1-3).Plot Formats:See Appendix 1: Technical Information, at end of report.

General Considerations

Conditions for survey were not ideal as the extant structures made data collection tricky with both techniques.

Gradiometer data were not collected due to the very restricted survey area & the local igneous geology.

Depths referred to in the interpretation of GPR data *are only ever an approximation*. The conversion from delay time to depth depends upon the propagation velocity of radar waves through the ground; this can vary significantly both laterally and vertically on sites such as this. Velocities of 0.08m/ns have been used. Where there is a strong electromagnetic contrast, the GPR signal can be inter-reflected or reverberated, producing a delay in the reflection of the signal. This is termed ringing and happens to some extent with all reflections, resulting in a greater apparent depth than actually exists. As a result, it is often not possible to detect the base of features; only the tops of buried deposits are detected with any kind of certainty (*Ground Penetrating Radar: Workshop Notes*. A.P.Annan, 1996. Sensors & Software Inc., Canada).

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Results of Survey

1. Resistance Survey (*Figure 2*)

- 1.1 Resistance data were collected at 0.5m intervals along traverses spaced 0.5m apart in order to gain a higher resolution of the surveyed area. The data have also been subjected to a high pass filter in order to suppress the background geology.
- 1.2 Areas of high resistance (A) correspond to the northern, western and parts of the enclosure surrounding the chapel. The southern section of the enclosure is not shown within the data, possibly indicating that this site comprised an outer bank with no stone revetting.
- 1.3 The chapel can be seen within the data as areas of high resistance (B). There is a slight difference in the data along the northern section which corresponds to the break in the earthworks.
- 1.4 High resistance responses (C) correspond to the extant wall remains of the smaller square enclosure. A mound of stones has caused the response in the very south eastern limits of the data.

2. GPR Survey (*Figure 3*)

- 2.1 A very small area immediately north of the chapel was surveyed with radar in order to identify any abutting structures or possible burials. Given the age of interments in this area, the detection of the latter would, in reality, only be possible if they were stone-lined or buried in solid caskets. (as opposed to wood or a simple shroud).
- 2.2 The pattern of response across the survey area is characterised by sporadic zones of increased amplitude, such as (D), and areas of diminished response. These are assumed to be a facet of varying soil composition within the material used to level the site and natural features below. The low amplitude linear trends, for example (E), may be shallow drainage cuts running away from the main structure toward the boundary wall.
- 2.3 An exploratory trench was put in to investigate the seemingly more coherent reflector (F) which, given the depth of approximately 1.40m+, could have indicated a collapsed, stone-lined grave or other solid feature. The excavated material contained a number of large stones, suggesting an origin for the random high amplitude responses recorded across the site. The trench bottomed-out on a former ground surface at around 0.8m with dating evidence recovered suggesting this was a prehistoric level. Anomalies beyond this are therefore natural reflectors.

3. Conclusions

3.1 High resistance responses relate to the earthworks of the chapel and that of the smaller square enclosure; they indicate stone revetments on three sides of the chapel. GPR data have potentially discovered a prehistoric buried surface but due to the difficult ground conditions and natural features no definite features associated with the chapel were discovered.

References

Knappet B & Scott T, 2009

Proposed Archaeological Evaluation at Baliscate, Mull

For the use of Time Team

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