Plan Overview

A Data Management Plan created using DMPonline

Title: Geophysical Survey at Fenny Castle, Wookey, Somerset.

Creator:ALEX BIRKETT

Principal Investigator: Stuart Prior, Alex Birkett

Data Manager: Stuart Prior, Alex Birkett

Contributor: Alex Birkett

Affiliation: University of Bristol

Funder: University of Bristol

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ORCID iD: 0000-0002-1150-5464

Project abstract:

A geophysical survey undertaken at Fenny Castle, Wookey, Somerset (ST 50750 43594) on January 11th 2024 by the University of Bristol at the request of Simon Selby and Dr. Stuart Prior. The request by Simon Selby (the landowner) was to undertake the small (< 800 m2) geophysical survey to identify potential archaeology in an area of his land prior to plans for floating temporary structures to be installed in the area were put forward. This area is the north of the Scheduled Monument [List Entry: 1015496], outside the scheduling boundary.

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Geophysical Survey at Fenny Castle, Wookey, Somerset.

Project Summary

Provide a brief description of the project and the research being carried out. State if the research is part of a larger project, if there are any funders involved, and how data fits in.

A geophysical survey undertaken at Fenny Castle, Wookey, Somerset (ST 50750 43594) on January 11th 2024 by the University of Bristol at the request of Simon Selby and Dr. Stuart Prior. The request by Simon Selby (the landowner) was to undertake the small (< 800 m2) geophysical survey to identify potential archaeology in an area of his land prior to plans for floating temporary structures to be installed in the area were put forward. This area is the north of the Scheduled Monument [List Entry: 1015496], outside the scheduling boundary.

Data Types

What types of data will be involved?

Geophysics data	working files
	preservation files
	image files
Project material	project notes
	project report
Project documentation	geophysics metadata
	geophysics georeferencing
	project metadata
	file description

What file formats will be used?

Geophysics data	working files	.shp; .xyz; .tiff
	preservation files	.shp; .xyz; .tiff
	image files	.tiff
Project material	project notes	.PDF/A
	project report	.PDF/A
Project documentation	geophysics metadata	.csv
	geophysics georeferencing	.shp
	project metadata	.csv,
	file description	.txt

What will be the approximate size of the files?

- 0 - 50 GB

Data Capture

How will the data be generated and/or gathered?

Geophysical Survey and Landscape Survey as defined by the Forum on Information Standards in Heritage (FISH) Archaeological Event Type Thesaurus (2021, v.26).

The survey was conducted using a Bartington Grad 601-2 dual sensor fluxgate gradiometer.

The sample interval was set to 0.25m intervals (four readings per metre).

The traverse interval was set to 1.00 metres, within 20.00 x 20.00 metre grids.

Grids 01 to 22 were conducted in a zig-zag pattern, starting westerly in the lowest left corner of the grid.

Grid 23 used linear traverses to account for the pillbox and ditch behind it. This was started facing east from its respective lowest left corner.

The instrument was balanced against the local magnetism on each day of the survey in an area of low noise measuring roughly 100m2.

The instrument was se to detect magnetic variation in the order of 0.01 nT.

This gradiometer consists of two magnetically sensitive sensors positioned vertically, with a 1-meter gap between them. Each sensor measures the strength of the Earth's magnetic field in nano Teslas (nT), and the instrument records the discrepancy between the readings obtained from each sensor. By comparing these readings are relative to the background magnetism as calibrated during the ‘balancing’ stage. As a result, the instrument is capable of detecting subtle variations or irregularities in the magnetic field caused by materials near the Earth's surface, particularly within the top meter.

Data was offloaded onto a laptop and opened in TerraSurveyor 3.0.37.

The grids were assembled into their relative position and orientation.

The GPS coordinates of the grids were offloaded into ArcGIS Pro 3.0.3.

So not to remove any anomalies of archaeological potential, or to create any spurious responses that could be considered anomalies with archaeological potential, the raw data from the magnetometry survey was minimally processed to both enhance the data’s visuals and remove any defects (Gaffney and Gater 2010, pp.102-104). The following processing options (filters) were applied to the raw data:

1. Destripe
2. Destagger
3. Interpolate

The assembled and processed grids were exported as TIFF image files.

The assembled and processed grids TIFF were imported into ArcGIS Pro 3.0.3 and georeferenced using the grid coordinates.

The interpretation of the results was conducted within ArcGIS Pro, with the responses highlighted and outlined using georeferenced polygons and linear trends noted with georeferenced polylines.

These responses and linear trends were classified according to the following classifications:

Classification	**Definition**
Natural	Features likely of natural origin
Modern	Definite or known modern features
?Modern	Features likely of modern origin
Archaeological	Definite or known archaeological features
?Archaeological	Features likely of archaeological interest
Magnetic response	Features or areas of noticeably positive or negative magnetism, suggesting interest but of unclear origin
Ferrous	Dipole responses from ferrous objects
Trend	Linear features of noticeably positive or negative magnetism

Data Storage and Preservation

How will the data be backed up?

Data prior to processing will be stored on University of Bristol SharePoint servers with one off-site backup of all data.

All processed data will be stored in The University of Bristol Research Data Storage Facility (RDSF), which provides secure, long-term storage for research data. This major investment provides nightly backup of all data, with further resilience provided by three geographically distinct storage locations. A tape library is used for backup purposes and also for long-term, offline data storage. Only authorised users can access data stored within the RDSF. The RDSF is managed by Bristol’s Advanced Computing Research Centre (ACRC) which has a dedicated steering group and a rigorous data storage policy (https://www.acrc.bris.ac.uk/acrc/RDSF_policy.pdf). The RDSF upholds and reinforces Bristol’s wider Information Security Policy(www.bris.ac.uk/infosec/policies/docs/isp-01.pdf).

Do you have security procedures in place for sensitive data?

No personal data is captured.

What are your plans for long-term storage of the data?

Data will be stored with the University of Bristol's Research Data Repository (data.bris) will preserve research data for a minimum of 20 years. The report will be submitted to the local HER via email and OASIS V record. Any additional report data will be made available upon request.

Data Organisation

How will data be organised?

Data will be stored, recorded, and organised according to the best practices outlined by the Archaeology Data Service (ADS) for the storage and archiving of Geophysical Survey data.

Geophysics data	working files
	preservation files
	image files
Project material	project notes
	project report
Project documentation	geophysics metadata
	geophysics georeferencing
	project metadata
	file description

Data Documentation and Description

What documentation will you keep?

Data will be stored, recorded, and organised according to the best practices outlined by the Archaeology Data Service (ADS) for the storage and archiving of Geophysical Survey data.

Will you be using any metadata standards?

Data will be stored, recorded, and organised according to the best practices outlined by the Archaeology Data Service (ADS) for the storage and archiving of Geophysical Survey data.

Data Sharing and Publication

What data do you plan to share?

All processed and raw survey data will be made publicly available.

Are there any ethical, commercial, legal or IPR issues which might apply when publishing your data?

There are no ethical, commercial, legal or IPR issues with publishing this data.

How will your data be shared?

Data will be published through the University of Bristol Research Data Repository (data.bris). The data.bris Repository offers a means for Bristol's researchers to openly share non-confidential research data, without the need for external data users to undergo any form of authentication. Each deposit is accompanied by appropriate metadata and is assigned a unique Digital Object Identifier (DOI) via the DataCite scheme. All data published by the Repository is available under a permissive re-use license.

Will there need to be controlled access procedures in place for your data?

There is no need for controlled access procedures to be in place for this data.

Planned Research Outputs

Interactive resource - "Geophysical Survey Report: Gradiometer Survey at Fenny Castle, Wookey, Somerset."

A Geophysical survey report covering the work undertaken at Fenny Castle, Wookey, Somerset on January 11th 2024 by Alexander Birkett the Specialist Teaching Technician at the Department of Anthropology and Archaeology, University of Bristol.

Collection - "Digital Archive of Geophysical Survey at Fenny Castle, Wookey, Somerset"

Planned research output details

Title	DOI	Type	Release date	Access level	Repository(ies)	File size	License	Metadata standard(s)	May contain sensitive data?	May contain PII?
Geophysical Survey Report: Gradiometer Survey at F ...		Interactive resource	2024-02-29	Open	data.bris Research Data Repository	6 MB	Creative Commons Attribution 4.0 International	None specified	No	No
Digital Archive of Geophysical Survey at Fenny Cas ...		Collection	2024-02-29	Open	data.bris Research Data Repository	30 MB	Creative Commons Attribution 4.0 International	None specified	No	No