

Stratton School, Cornwall

Summary of results of geophysical survey



Stratton School geophysics summary report

Report No

2011R089

Report Name

Stratton School, Cornwall: Summary of results of geophysical survey

Report Author

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Event Type

Geophysical survey

Client Organisation

The Bailey Partnership on behalf of Cornwall Council

Client Contact

Ian Newcombe

Monuments (MonUID)

MCO21884

MCO38701

Fieldwork dates (From)

16 August 2011

(To)

16 August 2011

(Created By)

Adam Sharpe
BA MIfA

(Create Date)

29 August 2011

Location (postal address; or general location and parish)

Stratton School playing field, Bude-Stratton

(Town - for urban sites)

Stratton

(Postcode)

EX23 9AP

(Easting) X co-ord

SS 2245

(Northing) Y co-ord

1066

Cover illustration: Interpreted results of 2011 geophysical survey at Stratton School.



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Abbreviations used in this report

CC Cornwall Council

Ha Hectare

HE Historic Environment, Cornwall Council

HER Cornwall and Scilly Historic Environment Record

GPS Global Positioning System

MCO Record identifier in the Cornwall and Scilly HER

Project background

HE Projects was requested by Ian Newcombe of the Bailey Partnership (on behalf of Cornwall Council) to provide a project design and a cost estimate for a geophysical survey within playing fields at Stratton School, Stratton. The proposed development area covers an area of approximately 5 Ha of which 2.05 is currently used as a playing field. This area had been the subject of a baseline appraisal by HE Projects in 2011 (Lawson-Jones 2011), which had revealed that the project area lay within the Designated Stratton Battlefield site.

Phil Copleston (Historic Environment Advisor (Archaeology), Cornwall Council) requested that a geophysical survey be undertaken on the western half of the development to inform whether further stages of archaeological recording will be necessary prior to or during the development.

HE Projects commissioned GSB Prospection of Bradford to carry out a magnetometer survey of the site and produce a report on their findings. The survey was undertaken on 16 August 2011.

Aims and objectives

The principal aim of the survey was to identify and characterise the archaeological resource and to determine whether the area proposed for development included sub-surface features of archaeological sensitivity and significance.

This process was undertaken to provide the information required in developing any proposals for further stages of archaeological evaluation and mitigation (for example, evaluation trenching, controlled topsoil stripping and excavation).

The objective was to produce a report summarising the archaeological sensitivity of the development site at Stratton School.

Working methods

Preliminary

HE Projects oversaw liaison with the geophysical survey contractor and with the client's representative. HE Projects also provided the geophysics contractor with information relating to the site, including an extract from the *circa* 1840 Bude Tithe Map.

Geophysical survey

The geophysical survey was undertaken by GSB Prospection and took the form of a detailed magnetometer survey of open land at the western end of the development area, covering an area of approximately 2 HA. The area was under short grass at the time of survey, with the exception of a small area in its extreme north-west and around a small tree adjacent to the car park.

A Trimble Explorer GPS was used to locate the survey tie-in data.

Technique	Traverse Separation	Reading Interval	Instrument
Magnetometer Detailed	1.0m	0.25m	Bartington Grad 601-2

Readings were stored in the memory of the instrument and subsequently downloaded to computer for processing and interpretation. *Geoplot 3* (Geoscan Research), *GPR Slice* (for GPR surveys) and in-house GSB software were used to process and present the data.

The survey methodology, report and any recommendations produced by GSB comply with guidelines outlined by *English Heritage (Geophysical Survey in Archaeological Field Evaluation, Research and Professional Services Guidelines No 1, compiled by A David, 1995)* and by the *Institute of Field Archaeologists (The use of Geophysical Techniques in Archaeological Evaluations, IFA Paper No 6, C Gaffney, J Gater and S Ovenden, 2002)*. All figures reproduced from *Ordnance Survey* mapping are with the permission of the controller of Her Majesty's Stationery Office © Crown copyright Licence No. 100018665.

GSB Prospection produced a technical summary of their results in both hard copy and on a CD Rom on completion of their fieldwork (Tanner 2011).

Report

On completion of the fieldwork and receipt of the survey technical report, HE Projects produced a concise interpretative report on the archaeological implications of the survey (this report), which includes a summary of the results, an outline of the historical and archaeological context and recommendations for further archaeological work. Copies of this report were distributed to the Client.

The documentary archive relating to this project will, in due course, be deposited with the Cornwall Record Office. All digital records will be filed on the Cornwall Council network.

Background information

The proposed development area is situated within land that has been classified as 'Anciently Enclosed Land' (Countryside Commission 1996). 'Anciently Enclosed Land' is land which has been settled since at least the medieval period and which often contains buried archaeological remains dating to prehistoric and medieval times.

The extant boundaries within and defining the project area are all shown on the 1840 Tithe Map. These are likely to be at least medieval in origin, with the potential for earlier elements to exist below ground or protected within the basal core of the boundary itself. In addition the site is known to have contained at least a further two boundaries of medieval date which have been removed, but which are likely to retain subsurface remains within the western part of the study area. These were identified from aerial photographs during the National Mapping Programme and were shown as extant on the 1840 Tithe Map.

The study area lies within the south-western part of the Stamford Hill Battlefield site. Stamford Hill was the site of a battle in 1643 during the Civil War, when the Earl of Stamford's Parliamentarian force was beaten by Royalists under the command of Sir Ralph Hopton (Thomas 1993). At the time of the battle, the round (MCO 8523), close to the summit of the hill was re-used as a gun battery (MCO21886) by the Parliamentarians. The road and parish boundary defining the northern edge of the site is likely to have played a key part in battle tactics, including troop movements and shelter behind boundaries from attack from upslope to the north and east.

Sites, in the vicinity, which have been identified on the Historic Buildings, Sites and Monuments Record (HBSMR), include:

- A Neolithic and/or Bronze Age arrowhead/s find spot (MCO1230) was located to the northwest of the proposed development.
- Two Iron Age or Romano-British settlement enclosures are found to the west and north of the proposed development area (MCO38698 and MCO8523/21885).
- The early medieval settlement of Stratton (MCO11320) lies to the immediate east of the project area.
- The site also lies within the area of a known medieval field system and includes extant field boundaries of likely medieval origin, which form an integral part of the Anciently Enclosed Landscape (Medieval Farmland) classification. The boundaries and the road defining much of the southern side of the site are all shown on the 1840 Tithe map and as such would be considered 'important' under criterion 5 of the 1997 Hedgerow Regulations. The northern edge of the site runs along the parish boundary separating Stratton ecclesiastical parish from Poughill and would be considered important under criterion 1. The parish boundary between Stratton and Poughill is likely to be complex and may contain evidence for re-modelling over a considerable period of time.
- The medieval settlements of Broomshill (MCO10750) and Burn (MCO13643) lie to the west of the development area and associated medieval field systems –

(MCO38699 and MCO38700) extend across the project area. A removed medieval field boundary (MCO38701) traverses the project area.

- Post-medieval sites, enclosure (MCO45863), pound (MCO21900), cottage hospital (MCO54354) and milestone (MCO 54191) are found in the surrounding area.
- The Stamford Hill battlefield MCO21884 (designated site BF39) covers much of the proposed development area and an associated battery lies to the north (MCO21886). The significance of the Stamford Hill battlefield site lies partly with expected below ground remains, including musket balls and other complete or broken weaponry, parts of armour, buckles and other regalia, and horse trappings including horse shoes etc.

In summary, the proposed development is situated in an area with significant archaeological potential, which contains evidence of prehistoric and medieval settlement-related activity. The nature of the sites recorded within the HBSMR suggest that there is potential for buried archaeological remains of prehistoric to medieval (and later) date to survive within the project area.

The bedrock geology within the area consists of Carboniferous sandstone of the Bude Formation, part of the Holsworthy Group, whilst the soils are recorded as the Neath type, these being well drained loams over sandstones and shales.

Results

In summary, the magnetometer survey revealed ploughed out field boundaries which were shown on the *circa* 1840 Bude Tithe Map, but which had been removed by 1885. Additional linear anomalies reflect ploughing activity, as well as further probable field divisions and possible field drains. Strong ferrous responses were also detected, which may indicate Civil War battle artefacts, though could also possibly derive from more modern activities. A cluster of poorly-defined circular features in the eastern part of the site proved difficult to interpret, though have the appearance of ploughed-down round houses of prehistoric date. A relatively high level of magnetic background variation may have masked some detail within the survey area.

The following features are shown on Fig 4 of the GSB report (reproduced as the cover illustration of this report).

- Linear anomaly A comprises positive responses flanking and paralleling a negative anomaly, typical of a ploughed out Cornish Hedge with flanking ditches probably fossilising a medieval boundary aligned roughly north-south.
- Linear anomaly B is strong, well-defined and represents a ditched feature, again probably fossilising a medieval boundary alignment.
- Negative trends C and D are parallel to A and B. Whilst it is most probable that they represent ploughed-out medieval strip field boundaries, it is also possible that they could represent drains, shallow ditches or plough marks enhanced by localised soil conditions. Other, more fragmentary linear features parallel these features.
- Anomaly E runs at right angles to anomalies A to D and may represent the northern limit of a medieval field bounded to the east by anomaly C.
- An un-lettered anomaly trends south-east from the northern end of C. This appears to represent one of a series of parallel north-west to south-east trending linear features whose phase relationship to the broadly north-south probably medieval strip field layout is unclear, though they are likely to be earlier in date. Anomaly D appears to extend a short way to the north of this alignment, whilst anomaly A probably overlies it.
- If this field system is pre-medieval in date, it may relate to a possible prehistoric settlement indicated by Features F and G to the east of the survey area.
- Un-labelled short anomalies running roughly parallel to anomaly E and broadly at right angles to linear anomalies A to D in the southern part of the survey area probably represent sub-divisions within individual medieval strip fields.

- Weak semi-circular anomaly F at the northern end of the eastern part of the survey area is truncated by the boundary between the existing school grounds and the playing field within which the survey took place. Its detail is to a certain extent masked by 'noise' from the adjacent metal fence. At approximately 16m in diameter, its form is suggestive of a small prehistoric enclosure, though the GSB report includes the caveat that the anomaly is weak, and could be the result of a chance juxtaposition of ploughing trends or relatively modern or natural causes. Its interpretation was therefore classified as 'uncertain'. If the feature is prehistoric in origin it would be regarded as of regional importance.
- A group of weak circular and semi-circular trends to the south of anomaly F in the south-eastern part of the site were barely visible above the background, and were also classified as 'uncertain', though could be interpreted as very ploughed down prehistoric round houses and associated features. If this is the case, these features would be regarded as of regional importance.
- Evidence of past ploughing on a number of alignments can be seen throughout the dataset as weak linear responses, some of these being parallel to anomalies C and D, others being parallel to anomaly E and other apparently associated linear anomalies.
- Strong ferrous responses, both large and small scale, were found throughout the survey area. Those around the periphery of the site were the result of the proximity of metal fences and gates, but those within the site could represent evidence for the 1643 Battle of Stamford Hill; they could equally result from agricultural activities or modern debris.

Implications

The survey revealed evidence for ploughed out field systems on two distinct alignments, one (including anomalies A to D) very likely representing elements of medieval fields which were fossilised using Cornish hedges, these subsequently having been ploughed out. The apparently underlying field system on a north-west to south-east alignment may be pre-medieval and possibly prehistoric in date.

Whilst some of the many ferrous anomalies scattered across the site may be of modern origin, it is equally likely that they represent evidence for the Battle of Stamford Hill in the form of musket or cannon balls, buckles, fragments of armour or weaponry or horse trappings.

At the eastern edge of the survey area a series of rather faint circular and semi-circular anomalies (F and G) may represent evidence for a ploughed down prehistoric round house settlement.

Recommendations

In response to the results from the geophysical survey, it is recommended that as part of the planning process a written scheme for archaeological mitigation be developed, to be approved by the relevant Planning Authority in advance of the works proceeding. The scope of the written scheme should be developed under the guidance of, or a brief set by the Cornwall County Council Historic Environment Planning Advice Officer East Cornwall (Phil Copleston). This programme of recording is likely to include:

- Archaeological evaluation trenching of sample significant anomalies (semi-circular and circular features within the eastern part of the survey area) should be undertaken in advance of development to assess their character and potential. The purpose of this evaluation would be to get a better idea of the survival and complexity of archaeological remains, to help to inform any requirements for full recording of this aspect of the site. Soils within fills should be sampled for subsequent analysis. In addition, sample strong ferrous responses should be evaluated by trenching under archaeological supervision to determine their nature.
- Dependant on the results of the evaluation trenching, controlled soil stripping under archaeological supervision may need to be undertaken across the eastern part of the proposed development, followed by detailed excavation of any significant archaeological features uncovered.

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- An archaeological watching brief should be undertaken during the groundworks (soil stripping) phase of the development. Sample ditched features belonging to both field system alignments should be cross-sectioned and recorded. In addition, sample areas where there is the potential to examine the phase relationships of the two alignments should be examined through hand excavation and recording. Soils should be sampled from the excavated material.
- Metal detector survey and artefact recovery during the soil stripping phase should be undertaken within areas where strong ferrous responses were recorded by the geophysical survey.
- Archiving, assessment, and analysis of the materials and soil samples from the excavated sites.
- Publication of results from evaluation and open area excavation, together with analysis of soil samples and significant artefacts recovered through metal detection in an appropriate academic journal.

References

Primary sources

1st Edition Ordnance Survey 1" to a mile mapping (digital copy within the HER)

Circa 1840 Tithe Award mapping for the parish of Bude (microfiche copy within the HER)

Circa 1885 1st Edition Ordnance Survey 25" to a mile mapping (digital copy within the HER)

Circa 1908 2nd Edition Ordnance Survey 25" to a mile mapping (digital copy within the HER)

GIS layers and shapefiles within the Cornwall and Scilly HER and the Cornwall Council database

Secondary sources

Cornwall County Council, 1996. *Cornwall landscape assessment 1994*. Report prepared by CAU and Landscape Design Associates, Cornwall County Council, Truro

Lawson-Jones, A. 2011, *Stratton Primary School – historic environment appraisal and recommendations*, HE Report 2011R028 for Cornwall Council

Tanner, J. 2011, *Stratton School, Cornwall, Report No 2011/48*

Thomas, N., 1993. *An archaeological assessment of Stratton and its environs*. CAU, Cornwall Council

Websites

<http://www.battlefieldstrust.com/resource-centre/civil-war/battleview.asp?BattleFieldId=44>

<http://www.battlefieldstrust.com/resource-centre/civil-war/periodpageview.asp?pageid=562>

<http://www.english-heritage.org.uk/caring/listing/what-can-we-protect/battlefields-offline/battle-of-stratton>

<http://www.english-heritage.org.uk/content/imported-docs/p-t/stratton.pdf>

Project archive

The HE project number is **2011069**

The project's documentary, photographic and drawn archive is housed at the offices of Historic Environment, Cornwall Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration.
2. English Heritage/ADS OASIS online reference: cornwall2-108980

This report text is held in digital form as: G:\Historic Environment (Documents)\HE Projects\Sites\Sites S\Stratton School geophysics 2011069\Report\Stratton School geophysics summary report.doc

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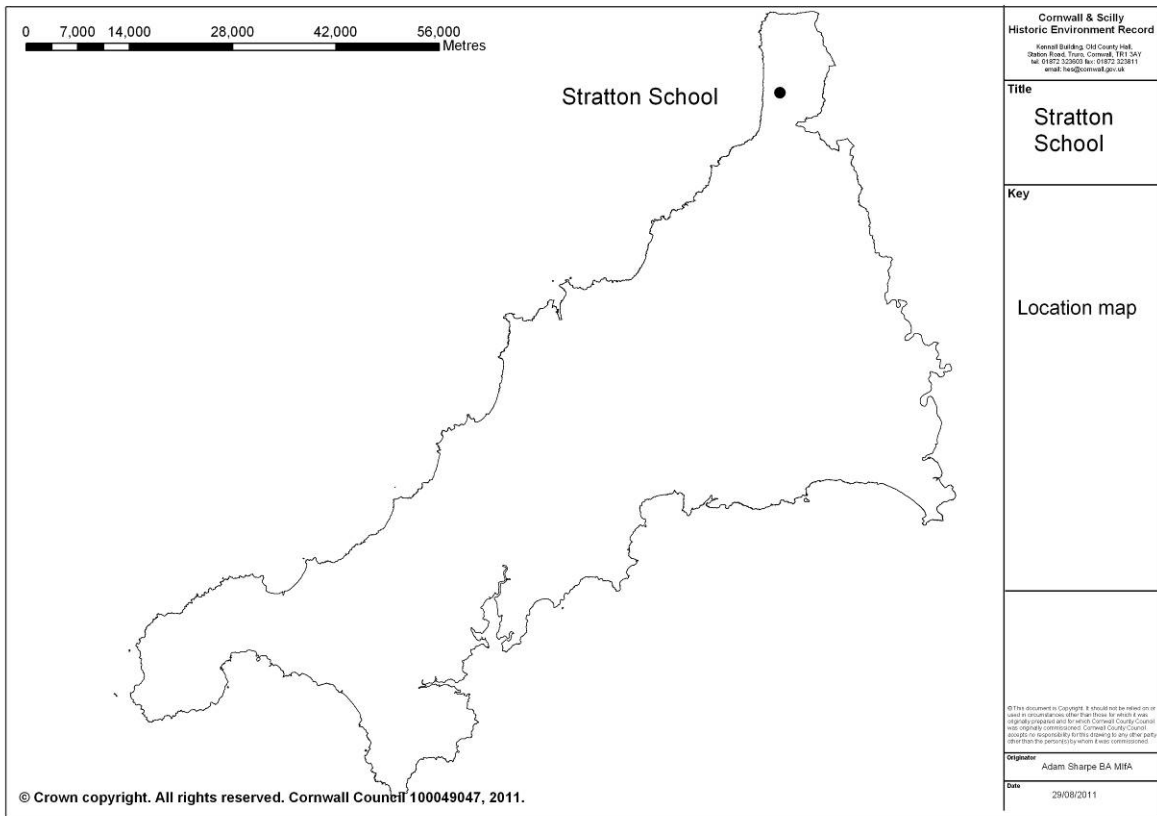


Fig 1. The location of Stratton School, Cornwall.

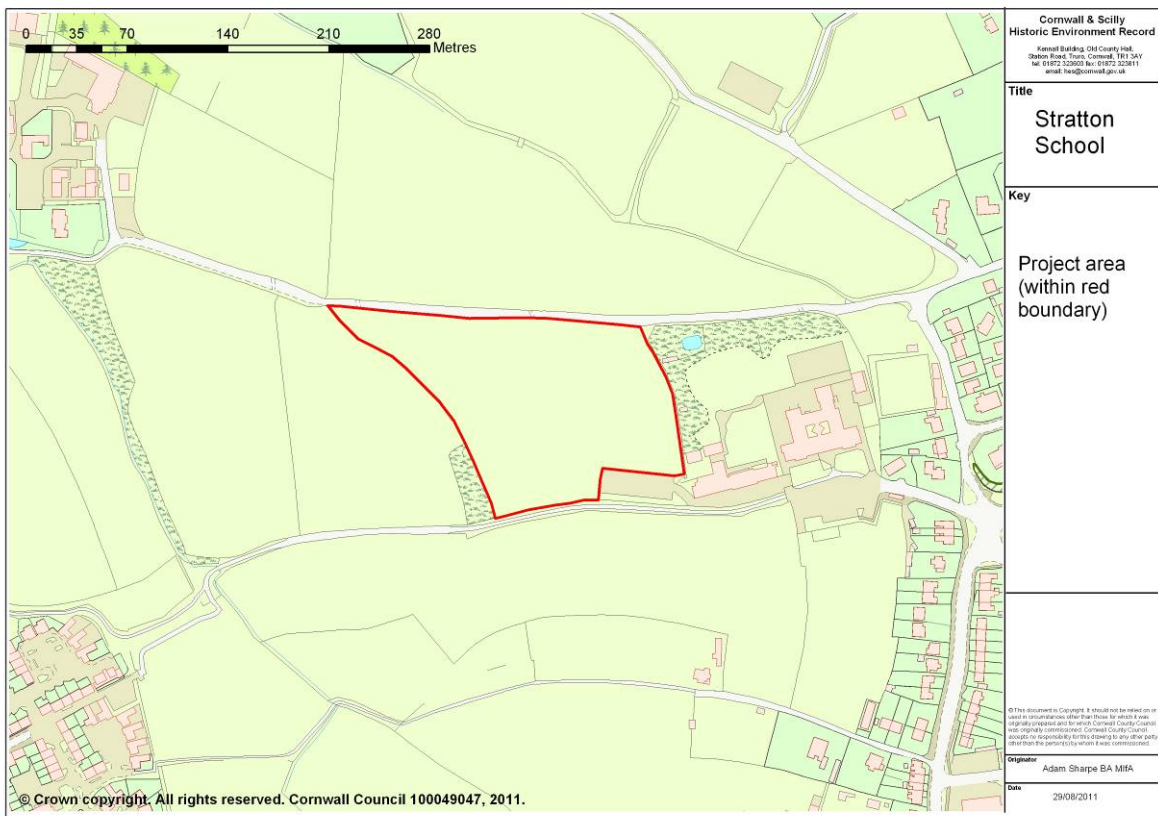


Fig 2. The extent of the survey area within the playing field at Stratton School.