

FIVE MILE LANE IMPROVEMENTS:
ARCHAEOLOGICAL EXCAVATION
WRITTEN SCHEME OF INVESTIGATION

Welsh Government

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Issue 1

Five Mile Lane Road Improvements, Barry

Archaeological Excavation Written Scheme of Investigation

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CONTENTS

	Page
List of Abbreviations	3
1 Introduction	5
2 Aims and objectives	7
3 Methodology	7
4 Standards and Guidance	12

LIST OF ABBREVIATIONS

GGAT	Glamorgan and Gwent Archaeological Trust
HER	Historic Environment Record
PB	Parsons Brinckerhoff
RAMS	Risk Assessment Method Statement
WSI	Written Scheme of Investigation

1 INTRODUCTION

1.1 Project Background

1.1.1 This Written Scheme of Investigation (WSI) has been prepared by Parsons Brinckerhoff (PB) in respect of a proposed Scheme to improve the A4226 Five Mile Lane, west of Cardiff and north-west of Barry, between Waycock Cross and Sycamore Cross (Figures 1 to 6).

1.1.2 The existing A4226 is a single carriageway road, in a rural location, varying in width between 6.0 and 7.3m. The route is classified and maintained as an 'A' road by the local authority.

1.1.3 The existing road has a poor accident record and has a winding nature. The new route will be designed to meet current standards which will improve safety. It will also improve highway links within the Vale of Glamorgan and to the Cardiff Airport and St Athan Enterprise zone.

1.1.4 The proposals include making use of the existing and already upgraded highway immediately off the A48 at Sycamore Cross. The proposed alignment will go offline at a point approximately 1.5km from the Sycamore Cross signalised junction and follow a southerly course running parallel with the existing road alignment. The proposed alignment re-joins the existing A4226 Five Mile Lane just north of the existing River Waycock bridge.

1.1.5 The works will be undertaken by the Welsh Government in association with Vale of Glamorgan District Council, which is committed to improving access to the Cardiff Airport and the St Athan Enterprise Zone in order to encourage economic development and inward investment. It will also encourage wider use of the airport.

1.2 Consultation and Previous Investigations

1.2.1 PB compiled a Desk-based Assessment of the proposed option (April 2014) in which an outline discussion of the impact of the Scheme on known and potential heritage assets was presented. Following this, consultation was undertaken with the acting Planning Manager at Glamorgan and Gwent Archaeological Trust (GGAT). During this process it was established that a proposed programme of geotechnical ground investigation involving test-pitting activities would require an archaeological watching brief. This was duly undertaken (Archaeology Wales, 2015) but no significant archaeological remains were observed. Subsequently, a geophysical survey was undertaken along the route (GSB Prospection, 2015). The results of the survey suggest the presence of extensive archaeological remains along the route and especially within the immediate areas to the north and south of the site of Whitton Lodge Roman Villa (Figures 4 to 6). The results of the geophysical survey are outlined in Section 1.3.6, below.

1.2.2 This document presents a written scheme of investigation for an appropriate scheme of archaeological excavation. It has been produced by Parsons Brinckerhoff, in consultation with the Acting Planning Manager at the Glamorgan and Gwent Archaeological Trust, and in accordance with Notes for Guidance on WSI and PD (GGAT, 2014).

1.3 Summary of Archaeological and Historical Background

- 1.3.1 The Desk-based Assessment (PB 2014) suggests that there is evidence within the Scheme area for archaeological and built heritage assets to be present which span the Prehistoric to Post-medieval periods. However, the most significant assets date to the Romano-British Period.
- 1.3.2 Cottrell Park Standing Stone, a Grade II listed structure, is of presumed prehistoric date. No other assets are firmly dated to this period, although a fallen monolith (standing stone) at Redland Park could be prehistoric in origin. Cropmarks recorded to the south-east are also indicative of this period.
- 1.3.3 The extension of the Roman villa system of land use along the Welsh coast has long been known and includes two examples within and in the vicinity of the study area; Moulton Roman Villa and Whitton Lodge Roman Villa. The latter is located within the footprint of the Scheme Area and was fully excavated between 1956 and 1976, where investigations revealed ten phases of occupation between the later 1st century AD to c340 AD. The excavations suggest that the Romano-British building was preceded by an Early Iron Age farmstead comprising wooden houses arranged around a courtyard. The site provides clear evidence of the transition from Iron Age farming to Roman villa with round houses giving place to sub-rectangular and with the gradual replacement by relative complex and sophisticated stone structures in the second and third centuries. Geophysical survey undertaken in 2010 revealed further evidence of occupation extending to the north and south of the site, indicating the settlement is far more extensive than first supposed. In the mid nineteenth-century silver coins dating to this period were recovered alongside fragments of human bone approximately 500m north of the villa site, potentially an indication of Roman activity outside the known settlement. The A48, to the north of the study area follows the line of a Roman Road, Iter XII on the Antonine Itinerary, which connected Caerleon and Neath.
- 1.3.4 There are seven archaeological sites recorded from the Post-medieval period. Five are limekilns and one is a quarry and these are known from historical maps. A further site comprises the location of a hoard of 17th century coins. Two historic buildings are recorded in the study area (Sheepcourt Cottage and a post-medieval barn) but neither is Listed.
- 1.3.5 One historic landscape area has been identified in the study area, the east extent of the Llancarfan Character Area. This comprises the historic landscape area of Bonvilston amalgamated fieldscape, designated by Cadw and the Countryside Council for Wales. It represents an area of land that is largely a Post-medieval agricultural landscape, with some agri-industrial features (limekilns etc.), located within the historic parish of Bonvilston. Roads bound the character area to the east, where the A4226 runs north to south from the A48, and to the west, where a more minor road runs north to southwest from the A48 down to the junction at Pancross.
- 1.3.6 The results of the geophysical survey (GSB Prospection, 2015) concur with the findings of the desk-based assessment presented above, and suggest the presence of a Romano-British settlement to the immediate south of the site of Whitton Villa, with further settlement activity to the north, and possible agricultural related features along the route of the proposed improvements.

2 AIMS AND OBJECTIVES

2.1 Academic Aims

2.1.1 The main research aim of the investigation will be to compile a detailed record of all archaeological remains that survive on site to mitigate their damage or ultimate destruction during the course of the development.

2.2 Objectives

2.2.1 The objectives of the project can be summarised as follows:

- to assess the nature, date, density, extent, and function of any earthwork remains of archaeological interest within the Scheme area.;
- to assess the nature, date, density, extent, and function of any buried remains of archaeological interest within the Scheme area;
- to mitigate the damage or destruction of any archaeological remains by compiling a detailed record prior to development works;
- to compile an archival record of any archaeological remains;
- to advance understanding of Roman-British settlement and land-use with this part of South-east Wales;
- to contribute to existing archaeological knowledge relating to the material culture, form and development of Romano-British settlement in South-east Wales;
- to engage the interested local community in the archaeological investigation, and disseminate the results to a local and regional audience;
- to carry out a programme of post-excavation assessment, which provides recommendations for further analysis and publication;
- to prepare a project for long-term deposition.

3 METHODOLOGY

3.1 Approach

3.1.1 The archaeological programme of work will adopt the following approach:

- Topographical survey;
- Strip, map and record investigation;
- Open-area excavation;
- Evaluation trenching;
- Community participation;
- Post-excavation assessment report.

3.2 Rationale

3.2.1 The geophysical survey (GSB Prospection, 2015) sub-divided the scheme area into 19 sections (Figures 1 to 6). Three sections (15, 16 and 19) have high archaeological potential. Sections 1 to 14 and 17 to 18 have a lower density of archaeology, but

nevertheless merit further investigation. Within these, areas 6, 7 and 18 contain features of particular interest.

3.3 Fieldwork

Topographic survey

- 3.3.2 Any areas of extant ridge and furrow and associated historic agricultural features will be subject to a topographic survey prior to any ground disturbance taking place. This will be undertaken using GPS equipment for the digital capture of location and breaks of slope. The data will be manipulated in a CAD environment for the generation of plans at a suitable scale.

Strip and record investigation

- 3.3.3 This will apply to Areas 15, 16 and four discrete sites within 19, and through machine stripping away the topsoil, will serve to expose the buried archaeological remains. The areas will be cleaned manually and any remains observed will be drawn on a plan at a suitable scale. Following this, an excavation strategy (Section 3.3.4 below) will be devised with the Acting Planning Manager at GGAT. The topsoil stripping will take place contemporaneously for each area in order to move the programme of work along in an efficient manner.

Open-area investigation

- 3.3.4 It is anticipated that following the strip and record investigation, locations in Areas 15, 16 and 19 will be subject to an open-area excavation strategy. In addition to following the general field methodology below (Section 3.3.8, below), pits and postholes will be subject to a 50% by volume controlled stratigraphic excavation. Linear cut features, such as ditches and gullies, will be subject to 25% by volume stratigraphic excavation, with the excavation concentrating on any terminals and intersections with other features which would provide import stratigraphic information. Linear features with a uniform fill will be subject to 10% excavation. Extensive linear deposits or homogeneous spreads of material will be sample excavated by hand to a maximum of 10-20% by volume.
- 3.3.5 It should be noted that no archaeological deposits will be entirely removed from the site unless their excavation is necessary to reveal other features and/or deposits. If the excavation is to proceed below a depth of 1.2m then the sides will be stepped in. Cut features identified against the edges of the excavation will not be excavated below a safe working limit of 1.2m unless it is confirmed by GGAT that they are of exceptional importance. The strip and record locations will be confined to the working area of the Scheme and those shown on the figures are approximate and not to scale.

Evaluation trenching

- 3.3.6 Evaluation trenching will apply to Areas 6, 7, 18 and 19 in particular and will target features as indicated on Figures 1 to 6. The fieldwork will follow the general methodology as outlined in Section 3.3.8 below. In addition to features that are considered to be archaeological in origin, a number of features of uncertain origin will be targeted along the route.
- 3.3.7 The trenches will typically measure 30m x 2m and be mechanically excavated to the depth of first significant archaeology or natural geology. A total of twenty-seven trenches will be opened and will be positioned as presented on Figures 1 to 6. Trench

locations will be confined to the working area of the Scheme and those shown on the figures are approximate and not to scale.

- 3.3.8 General Fieldwork Methodology
- 3.3.9 Machine stripping will be undertaken to an agreed standard, using a toothless ditching bucket, and directed by the archaeologist. On areas that are cleared, the exposed sub-soil or archaeological horizon will be cleaned by hand immediately after machine stripping and any archaeological deposits or negative features have been marked on a plan. Topsoil will be stored at a safe distance away from the test pits, so as to limit the potential for spoil slippage or collapse into the excavation area.
- 3.3.10 Any archaeological features present will be sample excavated (pits and postholes half-sectioned, linear features no more than 10%, and extensive layers subject to partial removal).
- 3.3.11 Recording will comprise a full description and classification of features present on *pro-forma*. Recording will be undertaken stratigraphically, with test pit and context numbers applied as appropriate. A location plan of the test pits and boreholes will be provided by the client, and this will be annotated and cross-referenced to correspond with the site archive.
- 3.3.12 Under normal circumstances archaeological features will be marked on plans at 1:20 scale and sections drawn at 1:10 scale. Levels will be taken for all significant features. The site drawings will be processed through an industry standard GIS or CAD package for the production of final drawings.
- 3.3.13 A photographic record will be compiled and a full index produced detailing, as a minimum, feature number, location, and direction of shot. A high megapixel digital camera will be utilised, and a photographic scale will appear in all images. The photographic record will include both general and feature specific photographs, a photographic scale (including north arrow) will be included in the case of detailed photographs. A selection of images will be used to illustrate the report.
- 3.3.14 **Human remains:** Any human remains uncovered will be left *in-situ*, covered and protected. The local coroner will be informed immediately, and if removal is essential the exhumation will require the provision of a Department of Constitutional Affairs license under section 25 of the Burial Act of 1857. No investigation beyond establishing the date and the character of the remains will be undertaken.
- 3.3.15 Any gold or silver artefacts recovered during the course of the investigations will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996. Suitable security will be employed to protect the finds from theft prior to removal from site. Any treasure will be reported to the Portable Antiquities Scheme Finds Liaison Officer.
- 3.3.16 **Finds:** All finds will be lifted and processed in accordance with the United Kingdom Institute for Conservation (UKIC) First Aid for Finds, 1998, and the recipient museums guidelines. All finds will be retained unless otherwise agreed with the GGAT Planning Archaeologist, although certain classes of building material will be able to be discarded. All finds, where appropriate, will be washed. The landowner will be consulted as to consent in writing for finds to be deposited with the recipient museum.
- 3.3.17 Archive storage will be agreed with the relevant receiving museum prior to fieldwork taking place.

- 3.3.18 Any finds assessment reports will be completed by a specialist with suitable regional knowledge.
- 3.3.19 **Environmental Samples:** Sampling of interpretable and datable archaeological deposits will be undertaken for the purposes of technological, pedological and chronological analysis where appropriate.
- 3.3.20 Environmental samples (bulk samples of 40 litres volume, to be sub-sampled at a later stage) will be collected from stratified undisturbed deposits and will particularly target negative features (gullies, pits and ditches). An assessment of the environmental potential of the site will be undertaken through the examination of suitable deposits by a palaeoecological specialist, who will examine the potential for further analysis. The assessment will include soil pollen analysis and the retrieval of charred plant macrofossils and land molluscs from former dry-land palaeosoils and cut features. In addition, the samples would be assessed for plant macrofossils, insect, molluscs and pollen from waterlogged deposits. The costs for the palaeoecological assessment are defined as a contingency and will only be called into effect if good deposits are identified and will be subject to the agreement of the Planning Archaeologist and the client.
- 3.3.21 Advice will also be sought as to whether a soil micromorphological study or any other analytical techniques will enhance the understanding of the site formation processes, including the amount of truncation to buried deposits and the preservation of deposits within negative features.
- 3.4 Community participation**
- 3.4.1 An integral element of the archaeological excavation will be disseminating the results to the local and wider public. In the first instance, an effective means of achieving this will be to host a public open day during a weekend towards the end of the excavation. The open day will include guided tours around the exposed archaeological remains (pending health and safety considerations), displays of artefacts discovered, and information boards containing historical information. In addition weekly written and illustrated updates on the progress of work will be prepared for inclusion on relevant websites.
- 3.4.2 It is anticipated that some members of the community will have an opportunity to volunteer for participation in the excavation, either through actively digging or assisting with initial finds processing on site, under the supervision and guidance of the archaeological sub-contractor's staff. The number of volunteers, however, will be limited, and it is envisaged that participants will attend on the basis of pre-booked slots. A fixed number of local schools will also be afforded the opportunity to attend for various hands-on sessions, which will be bookable in advance.
- 3.4.3 Following completion of the fieldwork and assessment of the results, a number of public talks will be held in suitable venues such as local village halls and libraries.
- 3.5 Report and Archive**
- 3.5.1 The level of the reporting will depend upon the archaeological significance of the results. If only locally important archaeological remains are discovered then only an archive report will be produced. If remains of regional or national importance are revealed then an English Heritage MAP2 style of post-excavation assessment report will be compiled, and will define the resource implications of completing the post-

excavation programme. The decision as to which reporting strategy will be followed will be made in conjunction with the Acting Planning Manager.

- 3.5.2 **Archive report for locally important remains:** In the first instance one bound and unbound draft copy of a written synthetic report will be submitted to the client's archaeological consultant (PB). It will present the following information:
- A summary statement of the findings;
 - The background to the project including a site location plan related to the national grid;
 - An outline of the methodology;
 - A brief historical background to the Scheme Area;
 - A detailed account of the archaeological features encountered during the watching brief;
 - A discussion of the archaeology in a local and regional context;
 - Location plan of monitored areas and/or other fieldwork in relation to the proposed development. At least two corners of each area shall be given 10 figure grid refer A section/s drawing showing depth of deposits including present ground level with Ordnance Datum, vertical and horizontal scale.
 - Copies of photographs, and other illustrations as appropriate;
 - All technical reports;
 - A copy of this WSI, and indications of any agreed departure from that design;
 - The report will also include a complete bibliography of sources from which data has been derived.
- 3.5.3 Following review by the consultant bound and digital copies will be made available for the client and GGAT HER.
- 3.5.4 **Post-excavation Assessment for Regionally / Nationally Important remains:** if the archaeological results are deemed to be of regional or national significance as a result of discussions with the Acting Planning Manager, then an assessment of the archive will be undertaken, and the resource requirements for analysis and publication, will be defined. This will involve an assessment of the dataset, followed by a review of the project archive to establish the potential for further analysis. The assessment will take place in close consultation with the client and Acting Planning Manager, and the format for the final report will also be agreed at this stage of the work. The Harris Matrix, largely produced during the excavation programme, will be completed and checked as part of the assessment. The assessment will involve the compilation of a brief archive report, outlining the significance of the structural, artefactual and environmental evidence, and present recommendations for further analysis, as appropriate. The report will also include a short summary of the stratigraphic history of the site. This element of the document will be produced immediately following the completion of the fieldwork, and will be made available as an interim report.
- 3.5.5 The project assessment will include an updated project specification, which will comprise a full project design for a programme of full analysis and publication. This document will be submitted to the PB consultant within twelve weeks of completion of the fieldwork, and thence following review to the Acting Planning Manager and client.

- 3.5.6 **Analysis and Publication:** an appropriate programme of analysis should then be undertaken to prepare a research archive. The precise scope for this element will be defined within the updated project specification. Following the analysis of the excavation results, a report will be written which will present, summarise, and interpret the results of the programme and will incorporate specialist reports on artefactual assemblages and environmental reports. It will include an index of archaeological features identified in the course of the project, with an assessment of the site's development. It will incorporate appropriate illustrations, including copies of the site plans and section drawings all reduced to an appropriate scale. The archive report will be submitted within 12 months of the completion of the fieldwork.
- 3.5.7 The results of the programme of works detailed above should be placed in the public domain by a number of routes, firstly by publication (popular format and academic) and secondly by deposition of the archive in an appropriate museum
- 3.5.8 **Archive:** The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current Institute for Archaeologists guidelines (CIfA 2014). The paper archive will be deposited with GGAT.

3.6 Other Matters

Timetable

- 3.6.2 At this stage it is anticipated that the archaeological programme of work will take place in early to mid-2016 and run for approximately fourteen weeks. The post-excavation assessment report will follow within six weeks of completion of the field, and any requirement for analysis and publication with twelve months of completion of the fieldwork.

Project Team

- 3.6.3 The archaeological fieldwork will be managed by the Archaeology and Heritage Principal Consultant at Parsons Brinckerhoff, **Alison Plummer, BSc (Hons), MCIfA**. Alison has 28 years of archaeological fieldwork and archaeological project management. The field work will be sub-contracted to a CIfA RAO.

Health and Safety

- 3.6.4 A risk assessment method statement (RAMS) will be compiled prior to undertaking the fieldwork. The archaeological programme of work will also be subject to the ground investigation contractors risk assessment and safe working practice.

4 STANDARDS AND GUIDANCE

Chartered Institute for Archaeology, 2014 *Standard and Guidance for an archaeological watching brief*, Reading

Chartered Institute for Archaeology, 2014 *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials*, Reading

Chartered Institute for Archaeology, 2014 *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives*, Reading

Chartered Institute for Archaeology, 2014 *Standard and Guidance for commissioning work on, or providing consultancy advice on, archaeology and the historic environment*, Reading

GGAT 2014 Notes for guidance on WSI and PDs.

FIGURES



Figure 1: Showing the location of evaluation trenches 1 to 3. (Proposed archaeological fieldwork areas not presented to scale and will be contained to the scheme working area).

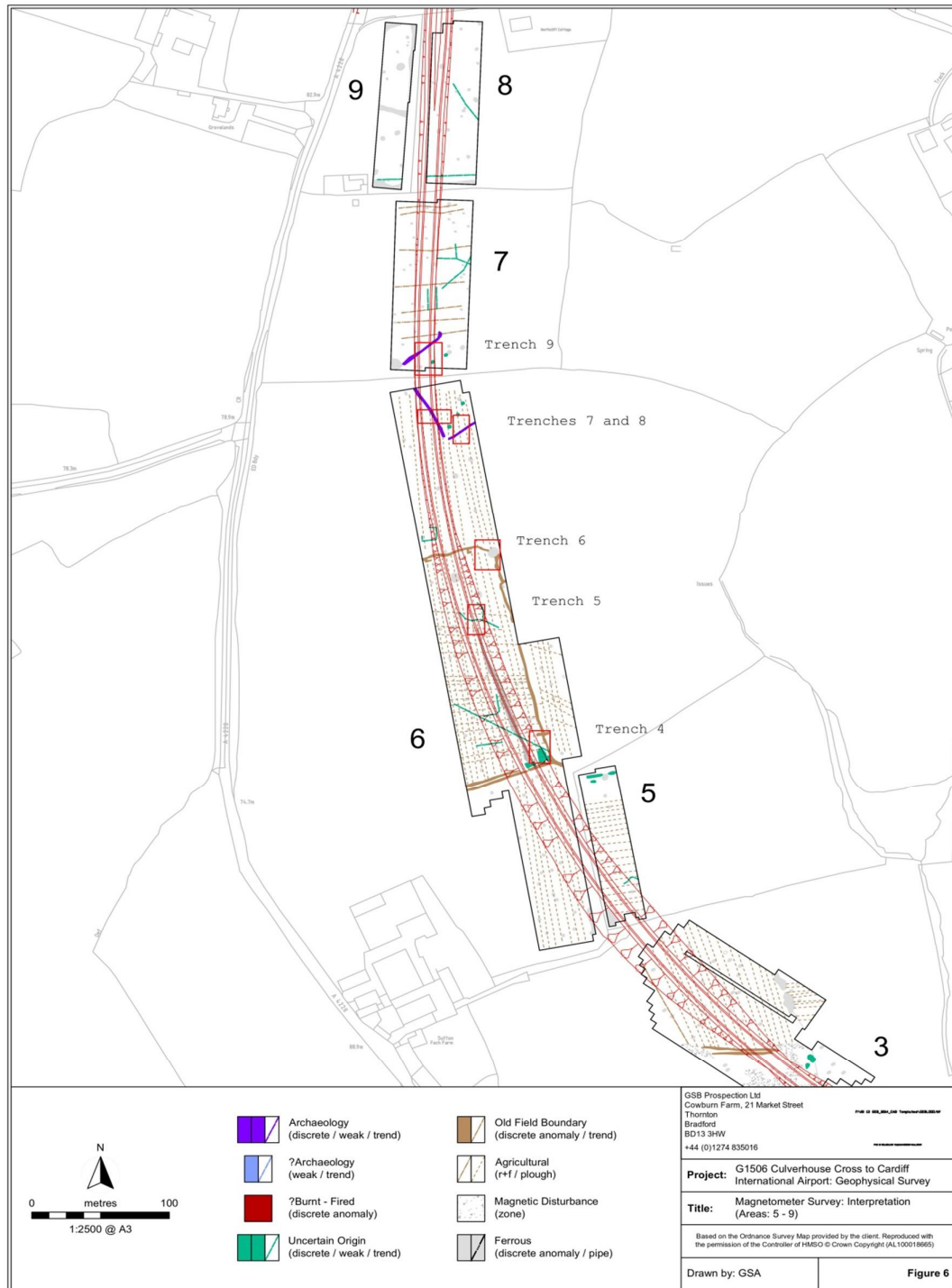


Figure 2: Showing the location of evaluation trenches 4 to 9. (Proposed archaeological fieldwork areas not presented to scale and will be contained to the scheme working area).

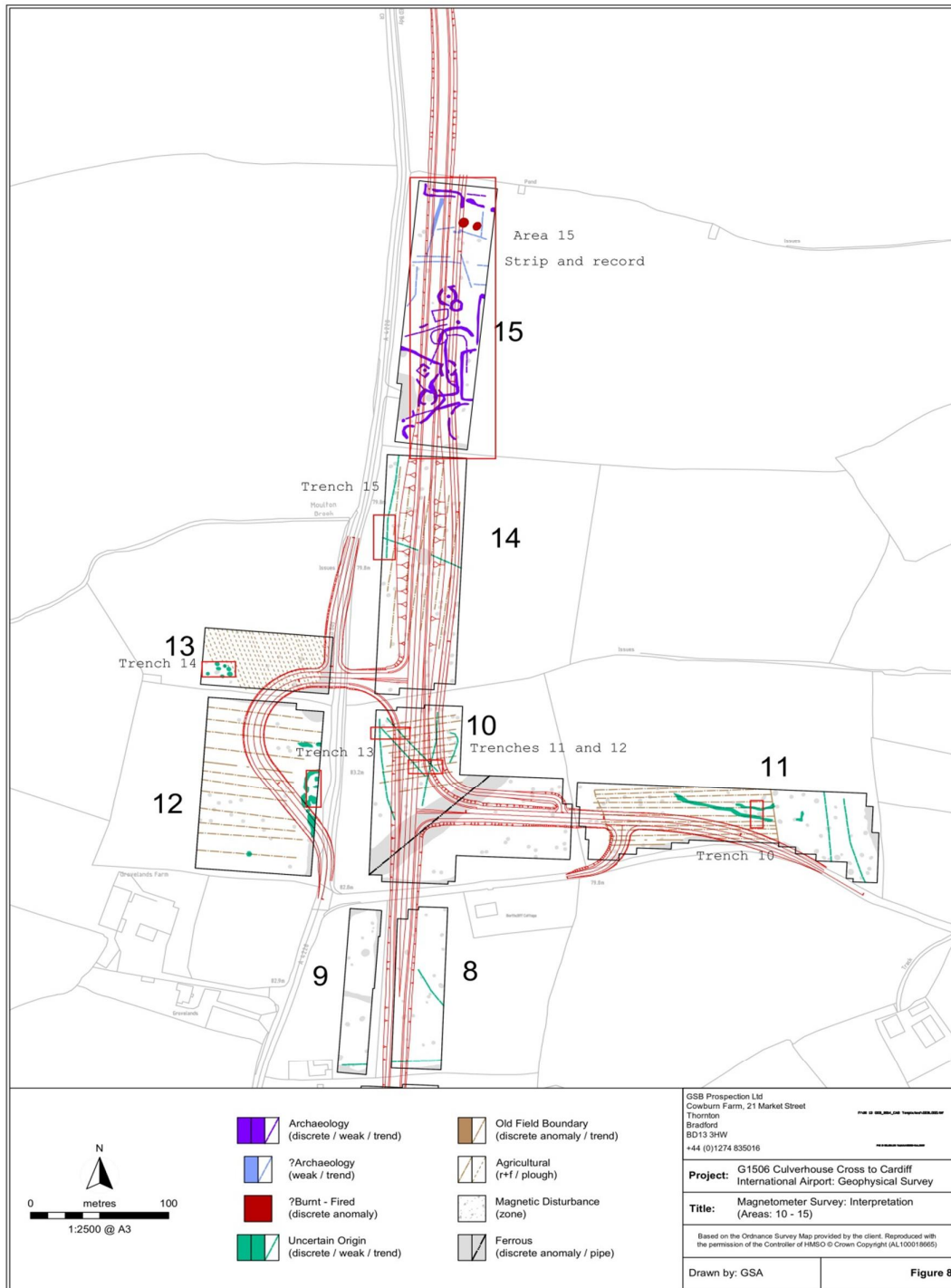


Figure 3: Showing the location of evaluation trenches 10 to 15 and strip and record Area 15. (Proposed archaeological fieldwork areas not presented to scale and will be contained to the scheme working area).

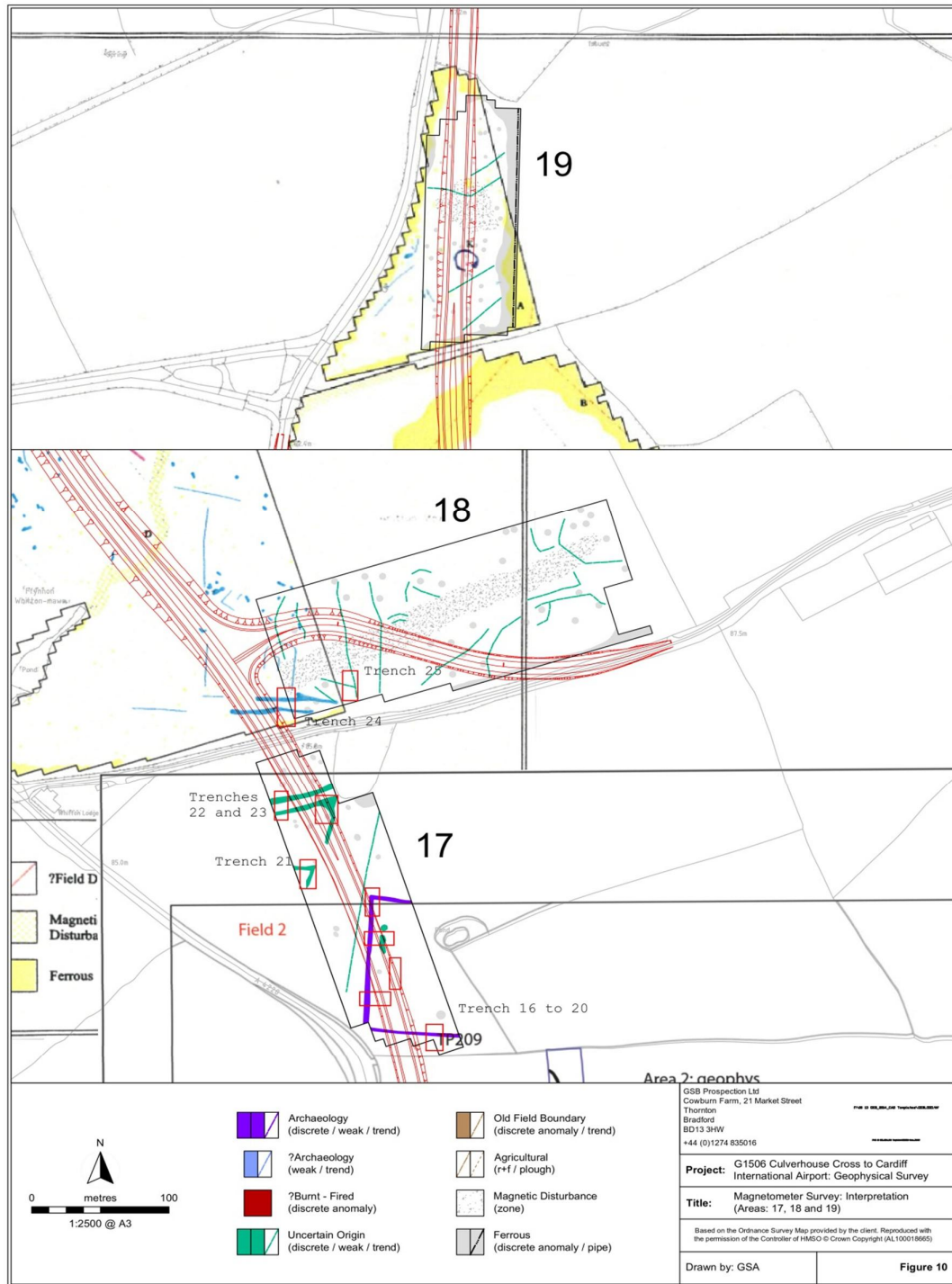


Figure 4: Showing the location of evaluation trenches 16 to 25. (Proposed archaeological fieldwork areas not presented to scale and will be contained to the scheme working area).



Figure 5: Showing location of strip and record Area 16. (Proposed archaeological fieldwork areas not presented to scale and will be contained to the scheme working area).

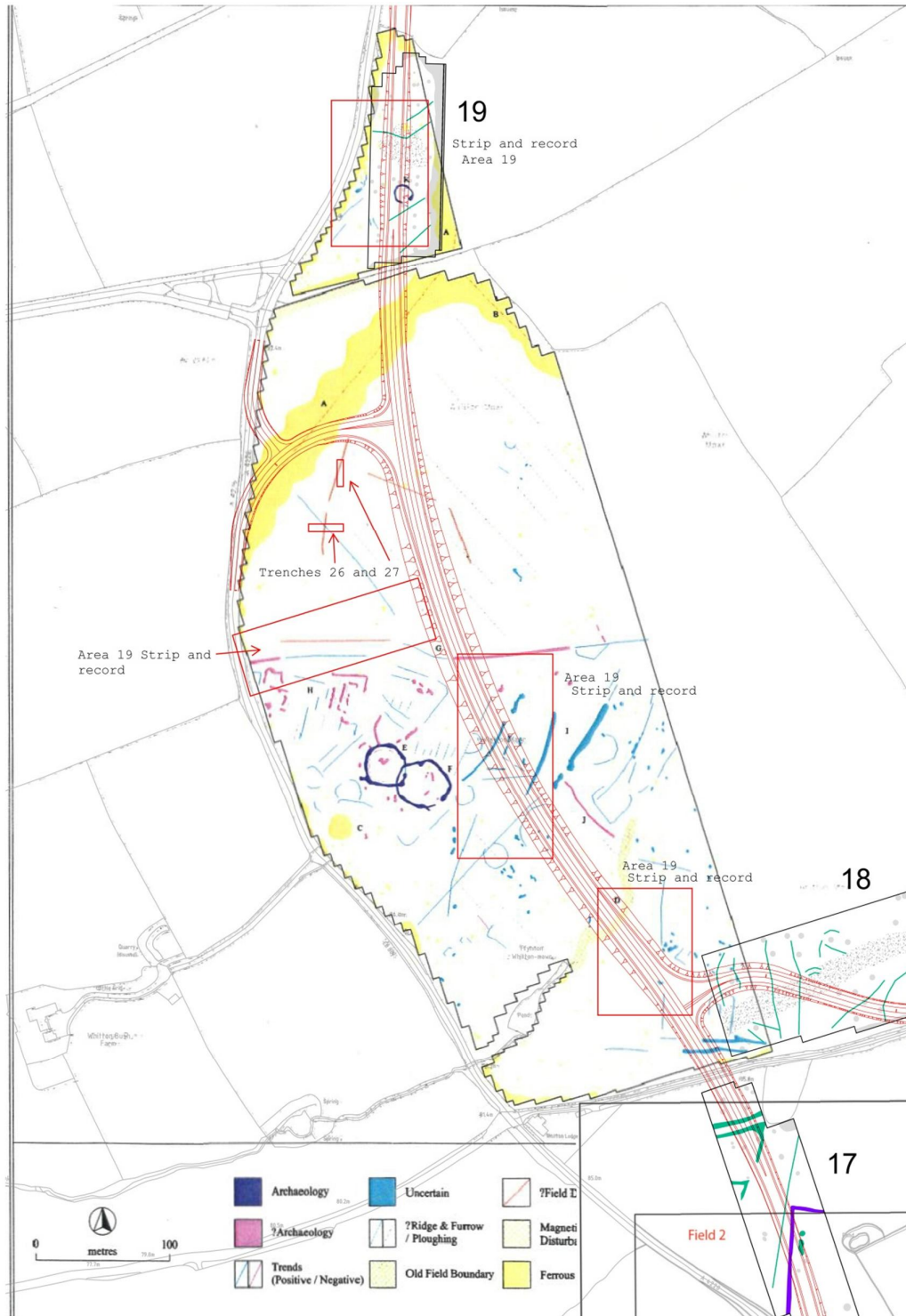


Figure 6: Showing the location of four strip and record sections in Area 19 and trial trenches 26 and 27. (Proposed archaeological fieldwork areas not presented to scale and will be contained to the scheme working area).