WYAS Archaeological Services

Land off Cross Street
Monk Bretton
South Yorkshire

Archaeological Trial Trenching

Report no. 2892
September 2016

Client: BWB Consulting Ltd

Registered Organisation CIfA

West Yorkshire Joint Services

Land off Cross Street
Monk Bretton
South Yorkshire

Archaeological Trial Trenching

Summary

In August 2016, Archaeological Services WYAS conducted a program of archaeological trial trenching in advance of housing development at land off Cross Street, Monk Bretton, South Yorkshire. Four trenches were excavated across the development area, and a single linear drainage ditch of probable modern date was recorded. No features of archaeological significance were present.

Report Information

Client:	BWB Consulting Ltd
Address:	Whitehall Waterfront, 2 Riverside Way, Leeds. LS1 4EH
Report Type:	Archaeological Trail Trenching
Location:	Monk Bretton
County:	South Yorkshire
Grid Reference:	SE 361076
Period(s) of activity represented:	Modern, undated
Report Number:	2892
Project Number:	6478
Site Code:	MBB 16
Planning Application No.:	
Museum Accession No.:	TBC
Date of fieldwork:	10th, 11th and 17th August 2016
Date of report:	September 2016
Project Management:	David Williams BA MCIfA
Fieldwork supervisor:	Rebecca Jarosz-Blackburn BA
Report:	Rebecca Jarosz-Blackburn
Illustrations:	David Williams and Rebecca Jarosz-Blackburn
Photography:	Rebecca Jarosz-Blackburn

Authorisation for distribution: ----------

© Archaeological Services WYAS 2016
Nepshaw Lane South, Morley, Leeds LS27 7JQ
Telephone: 0113 383 7500.
Email: admin@aswyas.com

Contents

Report information ii
Contents iii
List of Figures iv
List of Plates iv
Acknowledgements iv

1 Introduction 1
Site location, topography and land use 1
Soils and geology 1
2 Archaeological and Historical Background 1
3 Aims and Objectives 2
4 Methodology 2
5 Results 3
Trench 1 3
Trench 2 3
Trench 3 3
Trench 4 3
6 Artefact and Environmental Record 5
7 Discussion and Conclusions 5
Figures
Plates

Appendices
Appendix 1: Written Scheme of Investigation
Appendix 2: Inventory of primary archive
Appendix 3: Concordance of contexts

Bibliography

List of Figures

1 Site location
2 Site plan showing excavated areas with geophysical survey interpretation
3 Trench 2 plan and section
4 Trench 4 plan and sections

List of Plates

1 Trench 1, view from southeast
2 Trench 2, view from northwest
3 Southeast facing section of Ditch 004, Trench 2
4 Northwest facing section of Ditch 004, Trench 2
5 Trench 3, view from northwest
6 Trench 4, view from southeast
7 West facing section of Ditch 007, Trench 4

Acknowledgements

Archaeological Services would like to thank Jim Macqueen from BWB who commissioned the project and also Bellway Homes who provided the plant and onsite support.

1 Introduction

Archaeological Services WYAS (ASWYAS) was commissioned by BWB Consulting Ltd on behalf of their client Bellway Homes Ltd to undertake an archaeological evaluation on land off Cross Street in Monk Bretton, near Barnsley (Fig. 1). The work was undertaken after construction had begun within the development area.

The work was undertaken in accordance with a Written Scheme of Investigation (WSI) produced by BWB Consulting (Appendix 1) and carried out on the 10th, 11th and 17th of August 2016.

Site location and topography and land-use

The site covered an area of approximately 3.25ha which consisted of two fields and a residential plot, partially affected by recent groundworks. It was located on land west of Cross Street (centred at NGR SE 361 076), southwest of the historic core of Monk Bretton. The ground sloped gradually from 114m OD at the north of the site to 110m OD towards the southern extent. Beyond the site boundary there was a sharp drop of *c.* 20m in height from the western extent down to neighbouring residential plots.

The desk-based assessment (Prospect Archaeology 2015) stated that there was evidence for recent cultivation of the fields, and a plot of land at no. 30 Cross Street was residential in use prior to the Bellway development.

Soils and geology

The site was located on an area of Oaks Sandstone bedrock, part of the Pennine Coal Measures group with no superficial geology present (BGS 2016). The overlying soils are in an un-surveyed urban area (SSEW 1983).

2 Archaeological and Historical Background

The archaeological and historical background has largely been taken from the WSI. This details that an archaeological desk-based assessment was carried out by Prospect Archaeology in 2015, which concluded that there was no evidence for prehistoric or Roman activity within the development site or the immediate area, though it indicated that no previous archaeological work had been carried out. Archaeological potential was assessed as 'very low', possibly due to the topography of the site, in particular the steep incline at the site's western boundary. Cartographic sources indicated that medieval settlement lay to the east and north of the site.

A geophysical survey was carried out by Phase Site Investigations in June 2015 (Fig. 2). A number of geophysical anomalies were identified but none was considered to be of likely archaeological significance. The anomalies were interpreted as deposits of modern material, or were attributed to geological variations.

3 Aims and Objectives

Bellway Homes had commenced the groundworks and construction works on site (focused on the eastern field immediately adjacent to Cross Street) but a number of areas were investigated with trenching prior to any further groundworks being carried out on site. The evaluation areas were focused on the features labelled A, B and C on the geophysical survey interpretation plan. Apparent blank areas were also tested.

The evaluation objectives were:

- to determine the nature, depth, extent, significance and date of the anomalies labelled A, B and C on the geophysical survey interpretation plan;
- to determine the presence/absence of archaeological features in apparent blank areas;
- to establish the function, date and form of any observed features;
- to determine the likely range, quality and quantity of artefactual and environmental evidence present;
- to investigate, sample and record archaeological features, structures and deposits according to the methodology detailed in the WSI;
- to confirm and enhance the results of the desk-based assessment and geophysical survey; and
- to recover all artefacts and, where appropriate, palaeo-environmental samples from deposits of potential significance.

The geophysical anomalies (Fig. 2) where targeted by a mixture of trenches and small open areas.

- Anomaly A was targeted by a square trench near the centre of Field 2.
- Anomalies B was targeted by two trenches, one toward the centre of Field 2 and one close to the western boundary of the site.
- Anomaly C (a possible linear boundary) 3was due to be targeted by a large trench in the south of Field 2, but this proved impossible due to the position of the site compound (see below).

4 Methodology

All work was carried out in accordance with accepted professional standards and guidelines, including Standards and Guidance for Archaeological Field Evaluation (CIfA 2014). ASWYAS's own methodologies (ASWYAS 2011) were also adhered to.

A WSI was devised based on the available data from the geophysical survey. Four locations within the undeveloped area of site were targeted with trial trenches in order to investigate varying types of geophysical as detailed above.

The trenches were excavated by a mechanical excavator equipped with a ditching bucket under constant archaeological supervision.

A full written, drawn and photographic (35mm monochrome and digital) record of all material revealed was made. All trenches were surveyed using GPS survey equipment with datum in metres, correct to two decimal places. Hand drawn plans and sections were produced at a suitable scale and tied to the Ordnance Survey National Grid. A copy of the WSI is presented in Appendix 1 with an inventory of the primary archive provided in Appendix 2 and a concordance of contexts held in Appendix 3.

5 Results

Anomaly C could not be targeted with trial trenching due to the construction of the site compound and car park over the area in question. Three of the planned trenches (Trenches 1-3; Fig. 2) were located at or close to their expected positions, and a fourth contingency trench (Trench 4) was excavated to evaluate an available space at the northern extent of Field 2. The results are presented in trench order below.

Trench 1 (Fig. 2, Plate 1)

Trench 1 was positioned towards the centre of Field 2 in order to target one of the areas of weak geophysical anomalies (Anomalies B). The planned location was largely obscured by a spoil heap from the current construction work. The trench was extended as far as possible to the east and north of the proposed area. Turf and topsoil had been previously stripped, leaving a thin band of subsoil, overlaid in places by a thin redeposited layer of topsoil and made ground.

The subsoil thickness was between 0.15m and 0.20m, Underlying this, the sandstone and sandy natural was clear and not visibly disturbed by wheel ruts from site machinery. No archaeology was present. A single patch of dark material was investigated which proved to be a deposit of topsoil-like material within an amorphous, shallow depression.

Trench 2 (Fig.3, Plate 2)

Trench 2 (8.4m x 10.8m) was partly targeted on Anomaly A, a strong discrete geophysical anomaly of probable modern origin, but it was not possible to excavate the intended area due to the construction cut for the site road. Instead the trench was shifted to the north, and targeted on a relatively strong linear anomaly. Turf and much of the topsoil had again been stripped by machine from this area and a layer of compacted natural stone and crushed modern debris had been deposited as a construction site surface.

The made ground thickness varied from 0.20-0.55m, which overlay a thin residual layer of topsoil (0.06m thick) and a consistent layer of undisturbed subsoil (0.15m thick). The natural

was reached at an average depth of 0.5m below the current ground level and consisted of compacted, fine creamy yellow sand with patches of weathered sandstone and yellow-orange sand. A single linear feature orientated NW-SE corresponded to the strong linear anomaly in the geophysics. This ditch (Ditch 004) continued beyond the limits of the trench to both the northwest and the southeast; (Fig. 3, Plates 3 and 4) and was 0.32m deep and on average 0.80m wide. At the north-western extent of the ditch edge had been disturbed by ploughing action. The upper fill (006) was extremely stony, suggesting a likely drainage function for this ditch. It follows the same orientation as present field boundaries and as such is likely to be of relatively recent date. The upper fill (006) was also very similar to subsoil (002) which overlay it.

Trench 3 (Fig. 2, Plate 5)

Trench 3 was (1.8m x 50m) was targeted on the second area of weak anomalies (Anomalies B) at the western edge of Field 2. The trench was positioned between a road and large topsoil bund, orientated NW-SE and curving slightly following the line of the road. Topsoil and turf was undisturbed by the construction in this area of site.

Topsoil thickness was fairly consistent along the full length of the trench, between 0.20m and 0.25m. Subsoil thickness varied from 0.20m in the northwest half of the trench to 0.46m at the southeast extent. The subsoil contained frequent brick and concrete fragments, and was of a more obviously modern composition than elsewhere on site. The natural sandstone geology was reached at a depth of 0.40-0.70m and no archaeological features were present.

Trench 4 (Fig. 4, Plate 6 and 7)

Trench 4 was an L-shaped trench at the northern boundary of Field 2. It was positioned to evaluate an area of diffuse geophysical anomalies not thought to be of archaeological origin. Turf and some topsoil had been stripped, natural was reached at a depth of 0.18-0.35m and consisted of weathered sandstone with bands of pale orange-yellow sand. Subsoil was not present at the southwest extent of the trench and was an average thickness of 0.15m towards the east half of the trench.

Ditch 007 (Fig. 4; S02), at the southwest end of the trench, may have been the northwest continuation of drainage Ditch 004 in Trench 2. The ditch was 0.82m wide and 0.28m deep and was sealed by topsoil only. The single fill (008) was extremely stony, and contained no finds. The trench was otherwise devoid of archaeology. A band of reddish orange sand was tested at the southeast end of the trench but the edges (feature 009, Fig.4; S.03) and was irregular with the deposit made up of a compact, fine sand. The linear band is likely to represents a change in the geology and not a cut feature. This band follows the same line as a faint linear trend to the southeast which was seen in the geophysics and was not thought to be of archaeological origin.

6 Artefact and Environmental Record

No artefacts were recovered from the single drainage ditch excavated on site. Modern concrete and brick fragments were present in the subsoil layer within Trench 3. Their presence was noted but the materials were not retained due to their modern date.

Bulk environmental samples from the ditch (fills 005) and 006) were processed by ASWYAS using a Siraf style water flotation system (French 1971). The flots were dried before examination and consisted of modern root material. The retents were scanned but contained no archaeological finds including hammer scale

7 Discussion and Conclusions

The results from the archaeological trenching support the conclusions from the interpretation of the geophysical data that the anomalies have been caused by relatively modern disturbance. Apparently blank areas of site were found to be devoid of archaeology, again suggesting the geophysical data were reliable. The features encountered are likely to have a drainage function of relatively modern date.

The range, quality and quantity of artefactual and environmental evidence present was poor across the site. This was not due to truncation or disturbance by the present groundworks, as each excavated area was seen to be well-preserved below undisturbed subsoil. It can be reasonably stated that the evaluation enhanced the results of the desk based assessment and geophysical survey, confirming that they accurately predicted a low archaeological potential for this site.

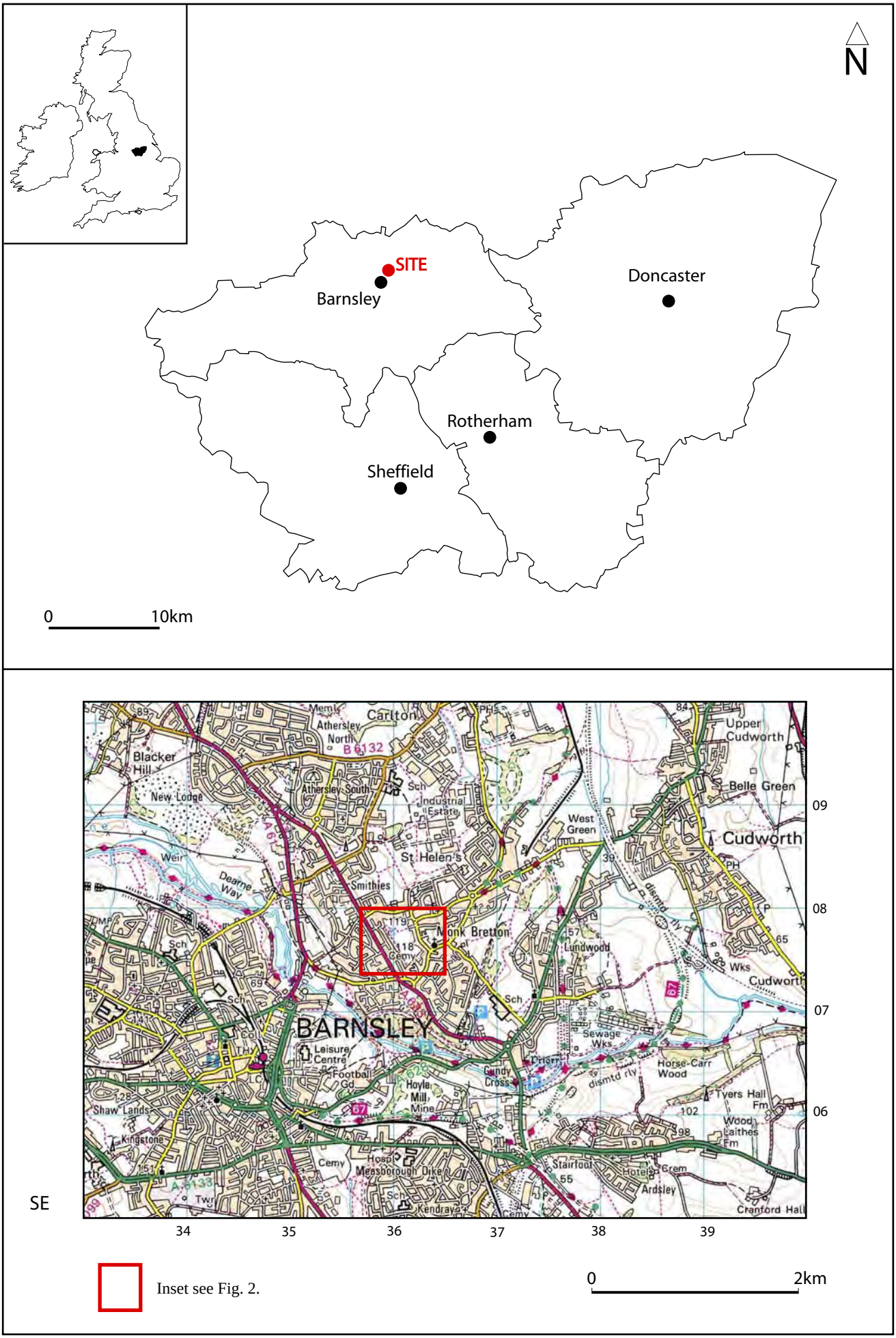
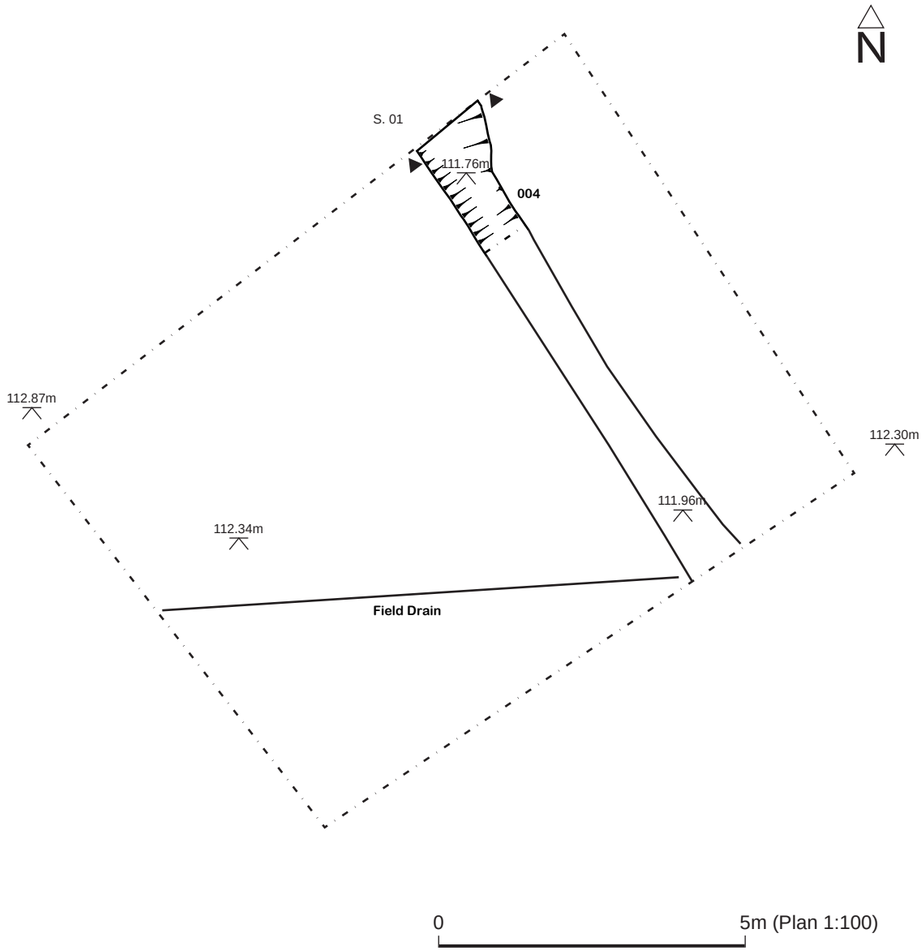


Fig. 1. Site location

© Crown Copyright. Archaeological Services WYAS: licence LA076406, 2016.



Fig. 2. Site plan showing excavated areas with geophysical survey interpretation (1:1000 @ A3)



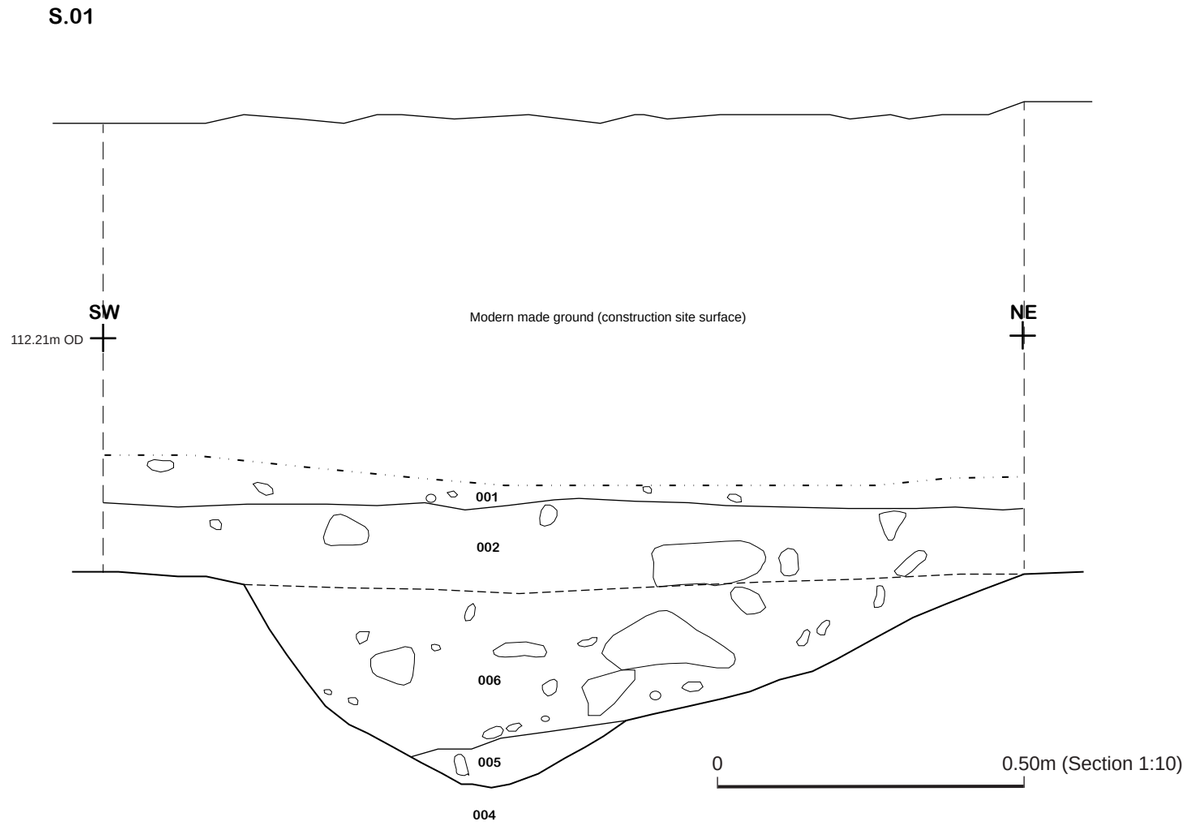


Fig. 3. Trench 2 plan and section

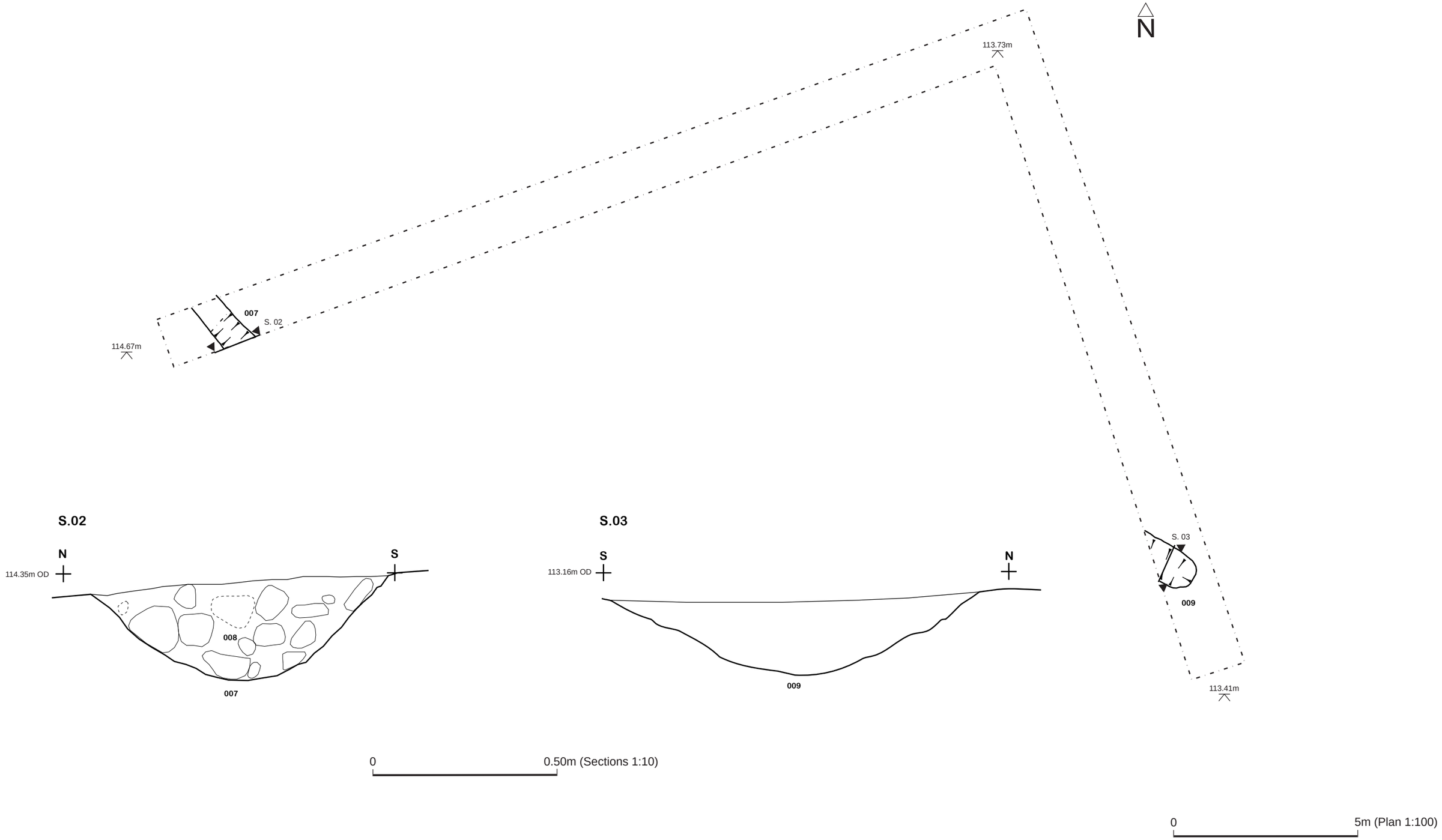


Fig. 4. Trench 4 plan and sections



Plate 1. Trench 1, view from southeast

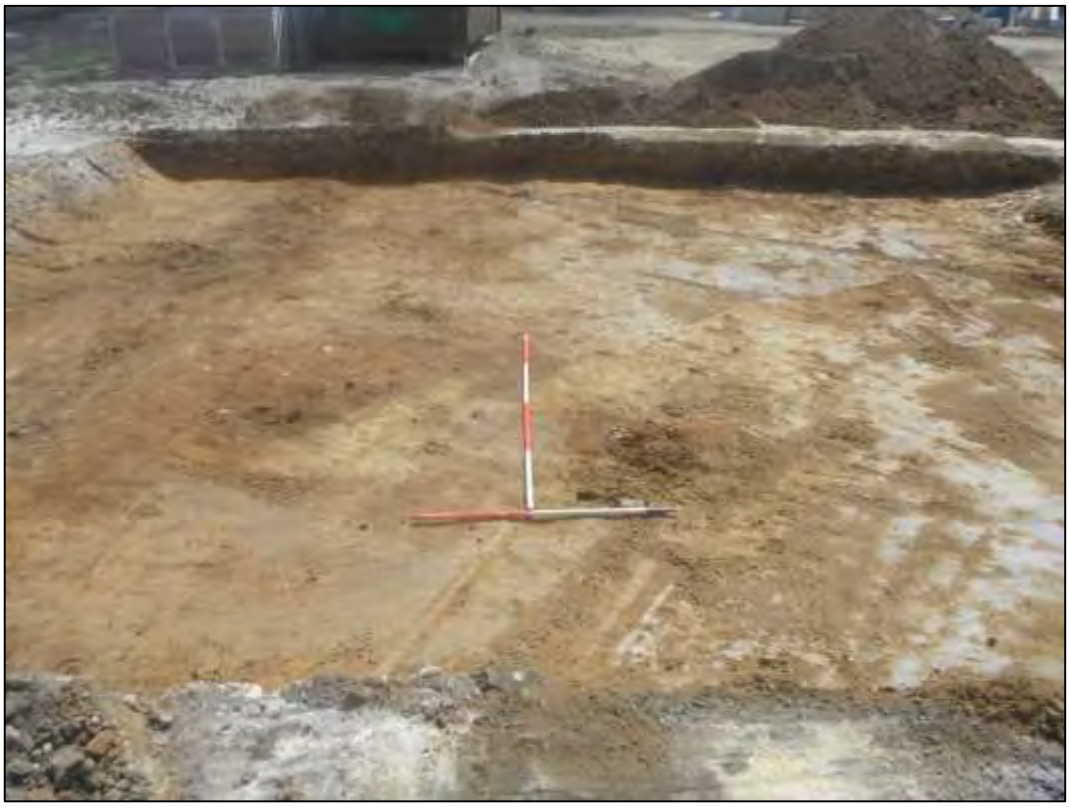


Plate 2. Trench 2, view from northwest



Plate 3. Southeast-facing section of Ditch 004, Trench 2

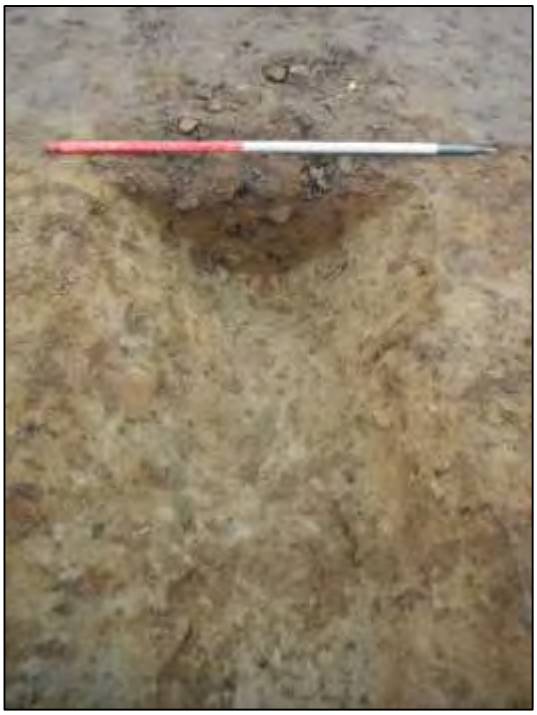


Plate 4. Northwest-facing section of Ditch 004, Trench 2



Plate 5. Trench 3, view from southeast



Plate 6. Trench 4, view from southeast



Plate 7. West-facing section of Ditch 007, Trench 4

Appendix 1: Written Scheme of Investigation



BWB

CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS

Environmental Planning

Bellway Homes

Land off Cross Street, Monk Bretton

Written Scheme of Investigation for Archaeological Mitigation

DOCUMENT ISSUE RECORD

Revision	Date of Issue	Status	Author:	Checked:	Approved:
2	August 2016	Final	Jim MacQueen	Louise Robinson/ Jim MacQueen	Jim MacQueen

Limitations

The assessments and interpretation have been made in line with legislation and guidelines in force at the time of writing, representing best practice at that time.

All of the comments and opinions contained in this report, including any conclusions, are based on the information obtained by BWB during our investigations.

There may be other conditions prevailing on the site which have not been disclosed by this investigation and which have not been taken into account by this report. Responsibility cannot be accepted for conditions not revealed by the investigation.

Any diagram or opinion of the possible configuration of the findings is conjectural and given for guidance only and confirmation of intermediate ground conditions should be considered if deemed necessary.

Except as otherwise requested by the Client, BWB is not obliged and disclaims any obligation to update the report for events taking place after:

a) the date on which this assessment was undertaken; and
b) the date on which the final report is delivered.

BWB makes no representation whatsoever concerning the legal significance of its findings or to other legal matters referred to in the following report.

This report has been prepared for the sole use of Bellway Homes. No other third parties may rely upon or reproduce the contents of this report without the written permission of BWB. If any unauthorised third party comes into possession of this report they rely on it at their own risk and the authors do not owe them any Duty of Care or Skill.

CONTENTS

DOCUMENT ISSUE RECORD 1
1. INTRODUCTION 1
1.1 Site Location & Geology 1
1.2 Archaeological & Historical Background 2
2. SCOPE 2
3. OBJECTIVES 2
4. GENERAL PROTOCOLS 3
5. STRIP MAP AND RECORD METHODOLOGY 3
5.1 Monitoring of Soil Strip 3
5.2 Detailed Excavation 5
5.3 Recording 6
5.4 Artefact Recovery 8
5.5 Environmental Sampling 9
5.6 Conservation Strategy 10
5.7 Human Remains 10
5.8 Metal Detecting and Treasure Trove 10
6. MONITORING PROGRESS REPORTS AND MEETINGS 11
7. COMPLETION OF ARCHAEOLOGICAL WORK 11
8. POST-EXCAVATION ASSESSMENT AND UPDATED PROJECT DESIGN 12
9. OASIS 15
10. POST-EXCAVATION ANALYSIS AND PUBLICATION 15
11. ARCHIVE PREPARATION AND DEPOSITION 17
12. CONFIDENTIALITY AND PUBLICITY 18
13. COPYRIGHT 18
14. RESOURCES AND TIMETABLE 18
15. ADHERENCE TO WSI 19
16. ACCESS ARRANGEMENTS AND WELFARE 19
17. INSURANCES & HEALTH AND SAFETY 19
18. GENERAL PROVISIONS 21
19. REFERENCES 22

FIGURES

Figure 1 Strip Map and Record Locations

BWB
CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS

APPENDICES

Appendix 1 Standards and Guidance

Appendix 2 Archaeological Assessment

Appendix 3 Geophysical Survey Report

1. INTRODUCTION

BWB has been appointed by Bellway Homes to prepare an Archaeological Written Scheme of Investigation (WSI). It describes the objectives and methodology for a programme of archaeological works.

The WSI will facilitate the mitigation of the project and will involve the investigation of some of the archaeological features recorded by the geophysical survey undertaken in 2015 (Phase Site Investigations).

The primary purpose of the works is to investigate the features identified by the geophysical survey and to test apparent blank areas in those areas that have not been impacted by recent groundworks and construction works.

The WSI details the requirements for:

- Removal/ scrape of the subsoil to determine the presence/ absence of archaeological features;
- sample excavation of all archaeological features revealed; and
- post-excavation assessment, analysis, publication and archiving.

The WSI has been prepared in line with the written Code of Conduct of the Chartered Institute for Archaeologists (CIfA 2014) and other best practice guidelines (Appendix 1).

The archaeological works specified in this document will be undertaken by West Yorkshire Archaeology Services ('the Contractor'), under the supervision of the Consultant. The archaeological works will be managed by David Williams.

All works, operations and visits are to be undertaken subject to the requirements of Bellway's health and safety procedures.

1.1 Site Location & Geology

The site is situated at Monk Bretton, *c.* 2 km to the northeast of Barnsley (centred at NGR SE 361 076). It measures *c.* 3.38 ha and comprises two fields and a residential property.

The site is situated on the Upper Coal Measures.

1.2 Archaeological & Historical Background

The following section provides a summary of the desk-based assessment that was produced by Prospect Archaeology in 2015 (Appendix 2). It also provides a summary of the results of the geophysical survey that was undertaken by Phase Site Investigations in June 2015.

The Archaeological Assessment determined that there is no evidence for prehistoric or Roman activity in the area. It also ascertained that cartographic evidence demonstrates that medieval settlement lay to the east and north of the site. It stated that whilst it is possible that remains of these periods might be present the available evidence suggests a low archaeological potential.

Geophysical Survey

Following the Archaeological Assessment, Phase Site Investigations Ltd were commissioned by BWB Consulting to carry out a geophysical survey (Appendix 3).

The survey was undertaken using the Phase Site Investigations Ltd multi-sensor array cart system (MACS) which consists of 8 Foerster 4.032 Ferex CON 650 gradiometers with a control unit and data logger. The MACS data was collected on profiles spaced 0.5 m apart with readings taken at between 0.1 and 0.15 m intervals.

The features identified were interpreted as being related to agricultural features, modern material / objects or geological / pedological variations. No evidence for archaeological features or activity was recorded.

2. SCOPE

Bellway Homes have commenced the groundworks and construction works on site, subsequently a number of areas will be investigated prior to any further works in these localities from being undertaken. The areas to be investigated will be focused on the features labelled A, B and C on the geophysical survey interpretation plan. Apparent blank areas will also be tested (see Figure 1).

3. OBJECTIVES

The strip, map and record objectives are:

- to determine the nature, depth, extent, significance and date of the features labelled A, B and C on the geophysical survey interpretation plan;
- to determine the presence/ absence of archaeological features in apparent blank areas;
- to establish the function, date and form of any observed features;
- to determine the likely range, quality and quantity of artefactual and environmental evidence present;
- to investigate, sample and record archaeological features, structures and deposits according to the methodology detailed in this WSI;

- to confirm and enhance the results of the Archaeological Assessment and geophysical survey; and
- to recover all artefacts and, where appropriate, palaeo-environmental samples from deposits of potential significance.

4. GENERAL PROTOCOLS

Prior to the start of the archaeological works the Contractor will familiarise themselves with the results of previous phases of work the reports for which will be provided by the Consultant.

All archaeological works will be carried out in accordance with this WSI and the Standard and Guidance for excavation (2014) prepared by the Chartered Institute for Archaeologists (CIfA). The archaeological works will also adhere to the CIfA Code of Conduct (2014), and will follow all current and relevant best practice and standards and guidelines (Appendix 1).

5. STRIP MAP AND RECORD METHODOLOGY

5.1 Monitoring of Soil Strip

The general areas to be investigated will be stripped under constant archaeological supervision (Figure 1). Such areas are to include the geophysical survey features previously identified including those labelled as A, B and C. The investigations will also include areas beyond this to test apparent blank areas.

The stripping will be monitored under the direct supervision of an experienced archaeologist(s). It is imperative that the archaeologist liaises directly with the machine driver(s) at the start of stripping to brief the operator on the parameters under which the stripping is to be undertaken including the use of a toothless bucket. The personnel supervising the work will ensure that machines do no rut, compact or otherwise damage buried or exposed archaeological features and deposits prior to mapping. If the stripping is unsatisfactory the machine drivers must be informed and re-briefed.

Soil stripping of both any remnant subsoil will be carried out using a 360 degree mechanical tracked excavator(s). The size of the machine will be appropriate to the area to be stripped.

The machine excavation will proceed under direct archaeological supervision, in level spits, until either the top of the first archaeological horizon or undisturbed natural deposits are encountered. Under no circumstances will the machine be used to cut arbitrary trenches down to natural deposits. The mechanical excavator will not traverse any stripped areas.

Any subsoil removed will be stockpiled at an agreed location and is to be removed from the stripped areas with a dumper if needed. No plant is permitted to track over the stripped area until it has been excavated and signed off by the Consultant and Andrew Lines. It is the responsibility of the 'Contractor' to enforce this.

Any areas of discrete soil discolouration or variation revealed during stripping operations will be rapidly cleaned, defined and marked as appropriate to ensure that they are recorded at future stages of the works.

The extent of the excavation areas will be clearly demarcated with netlon fencing (or similar) to ensure that persons or vehicles cannot inadvertently traverse the area of investigation whilst archaeological works are in progress. The fencing will be regularly inspected and maintained until investigations in the area have been completed.

Under no circumstances will any archaeological deposits/ features be investigated or removed prior to recording and sampling.

Initial Pre-excavation Site Plan

The resulting surface, meaning the archaeological horizon or the surface of the natural (whichever is encountered first), will be cleaned sufficiently to define any archaeological features and deposits present. This will facilitate the production of the initial pre-excavation plan which will be produced at an appropriate scale. This will facilitate any discussions regarding the sampling strategy. More detailed plans of the archaeology encountered will follow during the excavation phase of the project.

Recording will be facilitated through the use of EDM/ total station and industry standard CAD/ Mapping software. Data gathered will be downloaded daily and backed up.

5.2 Detailed Excavation

Hand Excavation

Archaeological remains encountered during the investigation areas will be hand excavated in an archaeologically controlled and stratigraphic manner, in order to meet the aims and objectives of the investigation.

A sufficient sample of deposits/ features will be investigated in order to: a) understand and record the complete stratigraphic sequence, down to naturally occurring deposits and b), to understand and record all inter-relationships between features.

The following excavation sampling strategy will be employed:

Linear features not directly associated with settlement: The excavation of linear features not directly associated with settlement must be sufficiently sampled (not less than 20%) to allow an informed interpretation of their date and function. Excavation slots must be at least 1m in width. All intersections will be investigated to establish the relationship(s) between the component features. If no dateable material is located in a feature then up to 100% should be excavated in order to maximise the chances of recovering material. This should be discussed with Consultant and Andrew Lines. The upper parts of the feature may be excavated by mechanical excavator and the primary fills rapidly excavated by hand to maximise the recovery of dateable artefacts.

Linear features associated with settlement: The excavation of linear features associated with settlement must be a minimum of 20%; this may increase depending on the nature of the physical evidence. The excavated slots will be 1m in width. All intersections will be investigated to establish the relationship(s) between the component features.

A flexible approach to the positioning of sections will be adopted such that ditch corners and terminals are excavated and those sections with a higher artefact or ecofact content are targeted. However, the supervisor needs to plan this carefully to ensure that there is no bias introduced into the results of the works.

Discrete features: Where safe to do so, all discrete features should be fully excavated but should in any case not be less than 50% of the whole. Full excavation of those discrete features which are rich in environmental and/ or artefactual evidence will be fully excavated if this contributes to the research aims. All intersections will be investigated to establish the relationship(s) between the component features. Under no circumstances is the percentage of sampling of archaeological features to be determined solely by resource limitations. Tree throw holes will not normally be excavated if clearly identified as such.

Structures: Structural remains such as eaves drip gullies, beam slots and post-holes demonstrated to be part of a building's construction require total excavation i.e. 100%. This will take place after 50% sampling. All industrial features including "domestic" ovens and hearths should be 100% excavated and sampled for analysis.

Burials: All burial encountered will be 100% excavated.

Features that can be excavated in one stage (a maximum depth of 1.2m) will be excavated as such. Features that have a greater depth than 1.2m, or of lesser depth that contain unstable fill, will be stepped to enable the excavation and recording of their full depth. Generally the maximum safe depth is c.1.2m, but this will be dependent upon local ground conditions. All steps will be a minimum of 1m wide.

It is not envisaged that single context planning will be required; however, should complex sequences and features present themselves then this method will be employed using the latest standard and guidelines. The Consultant shall be informed of this.

It is recognised that there may be features and/or deposits that do not warrant the sampling levels stipulated above, particularly if they do not contribute to the understanding of the archaeology or the research aims. Any variation to that agreed will be discussed with the Contractor and Andrew Lines during on-site discussions. The Contractor is required to keep detailed minutes during such meetings to record that which has been agreed. These will be sent to the parties involved in discussions who will be asked to confirm the accuracy of the minutes.

5.3 Recording

All features and/or deposits investigated will be recorded through written, drawn and photographic means in accordance with the parameters detailed below. Recording will follow the relevant methodologies and guidance detailed in Appendix 1.

A plan detailing the extent of mitigation and all stratigraphic units will be produced on an appropriate scale tied into the Ordnance Survey national grid. Maps of individual mitigation areas will be produced at a scale of 1:100. The larger scale plans will facilitate accurate planning and will allow for significant surface scatters of finds (including metal) to be correctly assigned to their relevant context and feature number. Recording will be facilitated by EDM/ Total Station as appropriate.

Complex areas including areas of intercutting features, surviving stratigraphy and complex structures will be planned at a scale of 1:20.

Areas where features and deposits are rare or absent will be planned at a scale of

1:500.

All excavation plans will be tied into the Ordnance Survey grid and will be plotted in CAD. All site plans will show Ordnance Survey grid points and spot levels and will be fully indexed and related to adjacent plans.

The on site written record of the features/ deposits excavated will be recorded in detail on pro-forma context record sheets which will detail the following:

- character;
- contextual relationships;
- a detailed description;
- description of finds recovered;
- interpretation;
- cross referencing to other sections;
- cross referencing to the drawn, photographic and finds record; and
- where appropriate, matrices for complex sequences, deposits and structures will be compiled during the excavation such that the results of the written stratigraphical records may be fully analysed and phased.

The features investigated will be allocated unique context numbers.

Hand drawn sections of excavated features will be produced at an appropriate scale (normally 1:10). All plans and sections will include spot heights relative to Ordnance Datum in metres, correct to two decimal places.

Black and white photography using orthodox monochrome chemical development should be used. Film should be no faster than ISO400. Slower films should be used where possible as their smaller grain size yields higher definition images. Technical Pan (ISO 25), Pan-F (ISO50), FP4 (ISO125) and HP5 (ISO400) are recommended. The use of dye-based films such as Ilford XP2 and Kodak T40CN is unacceptable due to poor archiving qualities. Black and white photography should be supplemented by colour photography; this should be in transparency format or by digital means.

Digital photography: as an alternative for colour slide photography, good quality digital photography may be supplied, using cameras with a minimum resolution of 10 megapixels. Digital photography should follow the guidance given by Historic England in Digital Image Capture and File Storage: Guidelines for Best Practice, July 2015. Note that conventional black and white print photography is still required and constitutes the permanent record. Digital images will only be acceptable as an alternative to colour slide photography if each image is supplied as both a JPEG and a TIFF versions. The latter as an uncompressed 8-bits per channel TIFF version 6 file of not less than 25Mbs (See section 2.3 of the Historic England guidance). The contractor must include metadata embedded in the TIFF file. The metadata must include the following: the commonly used name for the site being photographed, the relevant centred OS grid coordinates for the site to at least six figures, the relevant township name, the date of photograph, the subject of the photograph, the direction of shot and the name of the organisation taking the photograph. Any digital images are to be supplied to SYAS on gold CDs by the archaeological contractor accompanying the hard copy of the report.

5.4 Artefact Recovery

All artefacts will be collected, stored and processed in accordance with standard methodologies and national guidelines (see Appendix 1). All artefacts will be collected and retained. Small finds will be given a unique number and their location recorded three dimensionally. Bulk finds will be collected and recorded by a unique context number.

Finds from each archaeological context will be allocated individual finds trays and waterproof labels will be used for each tray to identify unique individual contexts. Each label will be marked with the appropriate context number in waterproof ink and will be securely attached to each tray.

Where necessary the artefacts will be stabilised, conserved and stored in accordance with national guidelines by a qualified conservator. Artefacts will be stored in appropriate materials and conditions, and monitored to minimise further deterioration. Artefacts will be properly conserved after excavation and will be stabilised for storage. If necessary, a conservator will visit the site to undertake 'first aid' conservation treatment.

All non-modern finds, artefacts and ecofacts recovered during the excavations should be collected and processed in accordance with relevant CIfA and English Heritage guidelines (EH 1995c) (Appendix 1). Unstratified 19th and 20th century material may be discarded after catologuing.

A discard policy will be agreed with Andrew Lines for unstratified material pre-dating the 19th century which has no bearing on the 19th and 20th century activity within the site (e.g. gardens and wartime uses).

The archive of finds and records generated during the fieldwork will be kept secure and in appropriate conditions and materials at all stages of the project.

5.5 Environmental Sampling

Specialist advice for sampling for scientific dating, biological analysis, artefact and ecofact analysis and conservation, and analysis of technological residues and ceramics must be sought during the works if necessary.

Any industrial residues or deposits and structures encountered will be recorded and samples taken in accordance with the Society of Museum Archaeologists (SMA 1993) guidelines. The sample selection will follow the methodologies outlined in the English Heritage guidance 'Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (2011, Second Edition). All residues found will be quantified fully and will be collected by hand. Separate samples (c. 10ml) will be collected where appropriate for hammer scale and spherical droplets. The advice provided in Archaeometallurgy (Centre for Archaeology Guidelines (English Heritage 2001) will be referred to and English Heritage's Regional Archaeological Science Advisor should be consulted during fieldwork to allow for an opportunity to comment on, and observe in the field, the proposed strategy for scientific sampling, if necessary.

The following sampling procedures will be followed unless subject to variation from the Regional Archaeological Science Advisor:

- the sample size for bulk samples (CPR and small bones/ artefacts) will be 40 litres or 100% of smaller features;
- monoliths and kubiena samples for pollen analysis will be taken as appropriate to answer specific research questions. These will be taken through dated and relevant stratified deposits if these are present;
- 40 litre bulk samples will be taken (if possible) from a selected sample of closely dated pits. These deposits will be sampled regardless of whether or not there are visible macrofossils or molluscs;
- whole fill samples from a selection of post-holes of definable structures will be taken for analysis;
- cremations and other 'special despots' will be 100% sampled and sieved for the retrieval of remains;
- 100% recovery of animal bones will be taken from the soil samples;
- samples taken must come from appropriately cleaned surfaces, be collected with clean tools and be placed in clean containers;
- they will be adequately recorded and labelled and a register of samples will be kept; and
- once the samples have been obtained, they will be stored and kept in a secure and appropriate manner prior to dispatch to the specialist.

5.6 Conservation Strategy

A conservation strategy must be developed in collaboration with a recognised laboratory. All finds must be assessed in order to recover information that will contribute to an understanding of their deterioration and hence preservation potential, as well as identifying potential for further investigation. Furthermore, all finds must be stabilised and packaged in accordance with the requirements of the receiving museum. As a guiding principle, only artefacts of a "displayable" quality would warrant full conservation, but metalwork and coinage from stratified contexts would be expected to be x-rayed if necessary, and conservation costs should also be included as a contingency.

5.7 Human Remains

If human remains are encountered during the works a licence to excavate and remove them will be obtained from the Ministry of Justice.

Care must be taken with the hand excavation, recovery and storage of human remains. Current best practice standards and guidance will be adhered to (see Appendix 1) as well as the Environmental Health Regulations. Where human remains are encountered, it is important that the post-excavation assessment contains an analysis and statement for the future retention of the assemblage, including options for reburial.

Cremations: If possible, urned cremations will be lifted intact and excavated in 20mm spits by an experienced archaeologist. Unurned cremations excavated on site will be excavated in 20mm spits for processing and assessment and each spit will be photographed and planned at an appropriate scale (1:2 or 1:5). All bags must be clearly labelled with the unique spit number.

5.8 Metal Detecting and Treasure Trove

Following machine stripping, a metal detector survey will be undertaken on each area and the resulting spoil heaps by an experienced operator. The use of a metal detector shall also be employed during the excavation of significant archaeological features and deposits.

If a non-professional archaeologist is to be used for metal detecting, a formal agreement of their position as a sub-consultant working under direction must be agreed in advance of their use and work on site. This formal agreement will apply whether they are paid or not. To avoid financial claims under the Treasure Act, a suggested wording for this formal agreement with the metal detectorist is: "In the process of working on the archaeological investigation at (location of site) between the dates of (insert dates), (name of person contributing to the project) is working under direct permission of (name of archaeological organisation) and hereby waives all rights to rewards for objects discovered that would otherwise be payable under the Treasure Act 1996; 2002." Further information or advice on hiring suitable metal detector operatives can be found by contacting the Local Portable Antiquities Officer.

Any artefacts that fall within the scope of the 1996/ 2002 Treasure Act will be reported by the Contractor to the Consultant, Andrew Lines and H. M. Coroner. Any finds must be removed to a safe place (preferably moved off site) and reported as required in the procedures laid down in the CIfA 'Code of Practice'. Where removal cannot be effected on the same working day as the discovery, suitable security measures must be taken to protect the finds from theft.

6. MONITORING PROGRESS REPORTS AND MEETINGS

The archaeological works will be subject to regular monitoring visits by the Consultant and Andrew Lines, who will have unrestricted access to the site, site records or any other information. The Consultant will liaise with Andrew Lines to agree a suitable monitoring schedule prior to the commencement of each phase of works.

The works will be inspected to ensure that they are being carried out to the required standard and that they will achieve the desired aims and objectives. The Consultant and Andrew Lines will be provided with a site tour and an overview of the site by the supervisor and will be afforded the opportunity to view all archaeological remains on site. Any observed deficiencies identified during the site visit are to be made good to the satisfaction of the Consultant and Andrew Lines by the next agreed site meeting.

Verbal progress reports will be provided to the Consultant and Andrew Lines if requested. Written updates (email) will be provided to the Consultant and Andrew Lines on a weekly basis. The Consultant will liaise with the Andrew Lines to inform her of the commencement of the archaeological works.

Regular progress reports and monitoring meetings will also be held during the post-excavation phase of the project. These will be determined when a post-excavation programme is finalised.

7. COMPLETION OF ARCHAEOLOGICAL WORK

The Consultant will inform Andrew Lines upon completion of the works.

8. POST-EXCAVATION ASSESSMENT AND UPDATED PROJECT DESIGN

A post-excavation assessment is to be completed within 6 weeks of completion of the works. At the start of the post-excavation process the original project objectives will be reviewed in consultation with the Consultant and Andrew Lines. For the post-excavation assessment report, each category of data and material recovered by the fieldwork (site records/ stratigraphic data, each category of artefact or other find, each category of palaeo-environmental/ economic evidence and any other data) shall be examined and assessed by a suitably qualified and experienced archaeologist or specialist in line with the principles set out by English Heritage in MoRPHE (Appendix 1). If necessary to achieve the aims and objectives of the post-excavation work, dating evidence shall be obtained by scientific dating techniques.

The finds and samples will be processed (cleaned and marked) as appropriate. A suitably qualified archaeologist or specialist will assess each category of find or environmental/ industrial material and their results incorporated into the report.

A draft copy of all reports will be submitted to Andrew Lines by the Consultant for comment and subsequent inclusion on the South Yorkshire Historic Environments Record.

Following the return of the specialist reports to the archaeological contractor, but prior to the commencement of preparation of the detailed site report, BWB will arrange a meeting with the contractor, Andrew Lines and (at his discretion) Historic England's Science Adviser. The purpose of this meeting is to discuss the results of the initial stratigraphic synthesis and initial scientific analyses, and to determine any requirement for further scientific analyses prior to the formulation of the full report on the site. The meeting may take the form of a telephone discussion, at the discretion of Andrew Lines.

Prior to the meeting, documentation sufficient to enable the Advisory Service and English Heritage's Regional Science Adviser to evaluate any proposals for further analysis should be made available to SYAS and HE. This documentation should consist of the following as a minimum, but should not include a detailed site narrative or constitute a draft of the final report:

- A brief narrative outline of the results of the excavation (N.B. this is not intended to be a detailed description of the stratigraphic sequence, but should provide sufficient detail to permit the form and development of the site to be understood by a third party who has not visited the excavation);
- Detailed description of any features/feature groups, the interpretation of which may be affected by the results of further scientific analysis;
- A re-evaluation of the aims and objectives of the project in the light of the initial specialist analysis;
- A descriptive context catalogue;
- Unedited copies of specialist reports;
- Detailed and specific recommendations for further artefact and environmental analysis;

- Detailed and specific recommendations for any additional scientific dating;
- Detailed and specific recommendations for further documentary research;
- Costings for any recommended further research, scientific analysis or dating; and
- Recommendations for general publication in monograph form or in an appropriate journal, if warranted by the results of the excavation.

Illustrations should be sufficient to permit the summary discussion to be understood by a third party, and should include:

- Location plan;
- Trench locations (as excavated), overlaid on an up-to-date 1:1250 O.S. map base;
- Draft phase plans (these should be at a scale sufficient to illustrate major context and feature groups important to an understanding of the site narrative); and
- Plans, sections and photographs sufficient to permit the narrative outline to be understood, and to support recommendations for further specialist analysis. Draft drawings and marked-up digital photographs are acceptable as long as these are legible.

Specialists

Each category of find or environmental/ industrial material will be examined by a suitably qualified archaeologist or specialist, to be sub-contracted by the finds manager as appropriate.

All ferrous objects and a selection of non-ferrous objects (including all coins) will be x-rayed.

Specialists will be provided with details of all relevant results from the evaluation phases of the project as well as stratigraphic and contextual information from the excavations.

Reporting

The Post-excavation Assessment Report and Updated Archaeological Design will be produced as a combined document and will be prepared in accordance with English Heritage Guidelines (MoRPHE 2006). The precise format of the report is dependent upon the findings of the investigations, but it will contain the following:

- a non-technical summary;
- site location at a scale of 1:1,000 or larger;
- a brief description of the background and circumstances of the work;
- archaeological and historical background;
- methodology;
- aims and objectives (as detailed in this Written Scheme of Investigation);
- results (to include brief description, assessment of condition, quality and significance of the remains);

- statements of potential (stratigraphic, artefactual, environmental) with recommendations;
- a statement of the significance of the results in their local, regional and national context according to relevant Regional Research Framework;
- statements regarding immediate and long-term archive storage and curation;
- review of original aims and objectives;
- post-excavation analysis research design;
- post-excavation analysis method statement;
- recommendations for reporting and publication (including a synopsis of the proposed contents);
- proposed resources and programming;
- general and detailed plans showing the location of the investigation areas accurately positioned on an Ordnance Survey base with grid co-ordinates and a plan of the identified archaeological remains (to a known scale);
- detailed plans and sections (to a known scale);
- detailed stratigraphic matrix for each area excavated and how the areas interlink;
- photographs as appropriate;
- a cross-referenced index to the project archive; and
- index and summary of contexts.

The report shall be accompanied by an Updated Project Design in accordance with MoRPHE and other relevant national guidelines (see Appendix 1). The Updated Project Design shall set out the further analytical and reporting works, if any, that are required to achieve the research objectives identified in the post-excavation assessment report. An outline of the publication and place of publication should be included in the updated project design, to be agreed with Consultant and Andrew Lines.

The Post-excavation Assessment Report and Updated Project Design shall be accompanied by a covering letter setting out the itemised costing for the recommended further works and should include a timetable for the deposition of the archive.

A copy of the completed Post-excavation Assessment Report and Updated Project Design will be submitted to the Consultant as a draft for comment. This will be forwarded to Andrew Lines for comment and approval. In finalising the Post- excavation Assessment Report and Updated Project Design, the comments of the Consultant and Andrew Lines will be taken into account.

Four bound copies, one unbound master-copy and a digital version of the final Post-excavation Assessment and Updated Project Design and illustrations will be produced and sent to the Consultant for distribution within three weeks of the receipt of comments on the draft report. Digital text will be in Microsoft Word format and illustrations in AutoCAD and PDF format.

9. OASIS

Within 3 months of the completion of each phase the 'Contractor' will prepare and submit the online OASIS form (http://ads.ahds.ac.uk/project/oasis). When completing the form the Contractor must make reference to the Regional Research Framework. After the completion of each successive phase the Contractor will update the previously submitted Oasis form.

At the start of work (immediately before fieldwork commences) an OASIS online record must be initiated and key fields completed on Details, Location and Creator forms.

All parts of the OASIS online form must be completed for submission to the South Yorkshire Historic Environment Records. This should include an uploaded .pdf version of the entire report (a paper copy should also be included with the archive).

10. POST-EXCAVATION ANALYSIS AND PUBLICATION

If further specialist analysis is judged by Andrew Lines to be necessary and appropriate, this work should be commissioned and the results incorporated into a full report. If no further specialist analysis is required, then a full report will be produced.

Details of the style and format of the full report are to be determined by the archaeological contractor. However, it should be produced with sufficient care and attention to detail to be of academic use to future researchers. The report should be fully illustrated and include:

- background information;
- a description of the methodology;
- a full description of the results;
- an interpretation of the results in a local/regional/national context as appropriate;
- a full bibliography;
- Appendices to the report should include:
- Unedited copies of final specialist reports;
- a quantified index to the site archive;
- written confirmation from the relevant museum or other repository that the archive has been accepted for long-term storage, with full location details of the archive; and
- a copy of this WSI.

Location plans should be produced at a scale which enables easy site identification and which depict the full extent of the site. A scale of 1:50,000 is not regarded as appropriate unless accompanied by more detailed plan(s). The location of the trenches (as excavated) should be overlaid on an up-to-date 1:1250 O.S. map base.

All illustrations should be executed to publication standard. Site plans should be at an appropriate, measurable scale showing the trenches as excavated and all identified (and, if possible, predicted) archaeological features/deposits. Trench and feature plans must include O.D. spot heights for all principal strata and any features. Section drawings must include O.D heights and be cross-referenced to an appropriate plan.

Finds that are critical for dating and interpretation should be illustrated.

Discrete features crucial to the interpretation of the site should be illustrated photographically.

In addition to the full report to be deposited with the South Yorkshire Historic Environment Record, the results of this excavation may merit publication in monograph form or in a suitable archaeological journal (subject to the judgement of the Andrew Lines). If further publication is considered to be necessary, the archaeological contractor will be expected to approach the editor of the appropriate publication (after discussions with Andrew Lines) to confirm the journal's requirements and views with regard to the suitability of the proffered material.

In accordance with the Updated Project Design, the final analysis report will include full stratigraphic and phased accounts of the excavation results, and the results of analysis by specialists outlined in the post-excavation assessment report.

The costs will be reviewed when the Updated Project Design has been agreed. Appropriate resources will be made available to enable the agreed programme of post-excavation analysis as defined in the Updated Project Design to be undertaken.

The post-excavation analysis and preparation of final reports will be undertaken in accordance with English Heritage's MORPHE guidelines, the Post-excavation Assessment Report and Updated Archaeological Design and the relevant archaeological standards and national guidelines (Appendix 1).

The scope of the required analysis and the content of the final reports are both dependent upon the findings of the excavations. This will be reviewed and finalised in the Post-excavation Assessment Report and Updated Project Design.

The analysis stage will be undertaken in accordance with the approved Updated Project Design. It will lead to the compilation of a research archive and the production of integrated report texts and illustrations for publication.

Paragraph 141 of the National Planning Policy Framework states that there is a requirement to:

'…record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible'.

This will be achieved through publication, the scope of which will be proposed by the Contractor within the Updated Project Design (see section 9). As detailed in the NPPF this will be commensurate with the significance of the results of the post-excavation assessment. These proposals will be subject to approval from the Consultant and ultimately Andrew Lines.

Once the scope of the publication has been agreed the appropriate editor should be consulted and an estimate of print publication costs be obtained and included in the updated costs for the production of the post-excavation analysis report and publication. The HER shall be able to use the reports for reference purposes, on the understanding that such licence does not cover commercial use of the material by the HER or any third party. In all cases the contractor and the commissioning body will retain the right to be identified as the originator of the work.

The report for publication (and illustrations) will be submitted to the Consultant and the Andrew Lines for review, comment and approval.

A brief note for 'Post-medieval Fieldwork in England and Northern Ireland' should be prepared and submitted to the Journal of the Society for Post Medieval Archaeology where relevant.

A note on the fieldwork should also be prepared for inclusion in the Council for British Archaeology's Yorkshire Forum publication (please contact the editor or CBA's website for more information forum-editor@cba-yorkshire.org.uk).

11. ARCHIVE PREPARATION AND DEPOSITION

Archive Deposition

Before commencing the project, the archaeological contractor must contact the archaeological curator of the museum to determine the museum's requirements for the deposition of an excavation archive. In this case the contact Katherine Baxter, Leeds Museum Discovery Centre Carlisle Road, Hunslet, Leeds, LS10 1LB (Tel.: 0113 2305492; email: katherine.baxter@leeds.gov.uk).

The archive of finds and records generated during the fieldwork will be kept secure at all stages of the project. All records and materials produced will be quantified, ordered, indexed and internally consistent. The archive will be produced to the standards outlined by English Heritage MoRPHE Guidelines (English Heritage 2006; Brown 2007).

The Contractor will, prior to the start of fieldwork, inform the Landowner of the procedures for the deposition of the material evidence found during the course of the works.

The Contractor will liaise with liaise with the appropriate museum to obtain agreement in principle to accept the documentary, digital and photographic archive for long-term storage. The Contractor will be responsible for identifying any specific requirements or policies of the recipient repository in respect of the archive, and for adhering to those requirements.

Archaeological material recovered from fieldwork is irreplaceable and data recorded in the course of fieldwork can and should be copied and additionally held securely in a separate location in line with current best practice until it can be deposited in the recipient repository (English Heritage 2011).

The artefacts discovered are the property of the Landowner. The Landowner will be contacted on completion of the fieldwork to agree for the artefacts to be deposited with a museum as part of the site archive.

The deposition of the archive forms the final stage for each phase of development at the application site. The 'Contractor' shall provide the Consultant with copies of communication with the accredited repository and written confirmation of the deposition of the archive. The Consultant will deal with the transfer of ownership and copyright issues.

12. CONFIDENTIALITY AND PUBLICITY

Detailed information regarding the proposed development is in the public domain and the archaeological works may attract interest.

All communication regarding this project is to be directed through BWB. The 'Contractor' will refer all inquiries to BWB without making any unauthorised statements or comments.

The 'Contractor' will not disseminate information or images associated with the project for publicity or information purposes without the prior written consent of BWB.

13. COPYRIGHT

The 'Contractor' shall assign copyright in all reports and documentation/ images produced as part of this project to BWB. The 'Contractor' shall retain the right to be identified as the author/ originator of the material. This applies to all aspects of the project. It is the responsibility of the 'Contractor' to obtain such rights from sub-contracted specialists.

The 'Contractor' may apply in writing to use/disseminate any of the project archive or documentation (including images). Such permission will not be unreasonably withheld.

The results of the archaeological works shall be submitted to the client, North Yorkshire Historic Environments Record by BWB and will ultimately be made available for public access.

14. RESOURCES AND TIMETABLE

The appointed Contractor will be an CIfA Registered Organisation. Site supervisors should be MCIfA level.

All archaeological personnel involved in the project should be suitably qualified and experienced professionals. The Contractor shall provide the Consultant with staff CVs of the Project Manager, Site Supervisor and any proposed specialists. Site assistants' CVs will not be required, but all assistants should have an appropriate understanding of excavation procedures.

All staff will be fully briefed and aware of the work required under this WSI and will understand the objectives of the required works and the methodologies to be employed.

The date for the commencement of field work will be confirmed in due course. The timetable for completion of the post-excavation assessment is 6 weeks after completion of the fieldwork.

The 'Contractor' shall give immediate warning to the Consultant should any agreed programme date not be achievable.

The post-excavation analysis and draft publication report shall be completed within 3 months of the completion of the post-excavation assessment.

15. ADHERENCE TO WSI

Prior to the commencement of the work, the 'Contractor' must confirm adherence to this specification in writing via email to BWB. Should the 'Contractor' wish to alter the WSI, a justification should be put forward in writing. Written confirmation is required from BWB confirming acceptance of any variations. The variation will also need agreement from Andrew Lines. Unauthorised variations implemented during the course of the project constitute a breach of contract.

Any technical queries arising from the WSI should be addressed to the Consultant without delay.

16. ACCESS ARRANGEMENTS AND WELFARE

Access to the land will be arranged and organised by BWB.

The survey schedule will be agreed in advance. There will be no separate negotiation concerning the availability of land for survey with landowners, their agents or representatives without the prior agreement of BWB.

Should the 'Contractor' require an adjustment to the location of the survey areas due to unforeseen local conditions, these shall be agreed with BWB prior to implementation.

The 'Contractor' will notify BWB immediately of any areas that cannot be surveyed and will provide a clear explanation for the situation.

17. INSURANCES & HEALTH AND SAFETY

The 'Contractor' will have their own Health and Safety policies compiled using national guidelines, which conform to all relevant Health and Safety legislation. A copy of the 'Contractors' Health and Safety policy will be submitted to the Consultant with their proposal. This should be in accordance with standards defined in:

- the Health and Safety at Work Act (1974) and related legislation; CDM regulations (2007);
- the Management of Health and Safety Regulations (1992);
- the SCAUM (Standing Conference of Archaeological Unit Managers) health and safety manual Health and Safety in Field Archaeology (2002); and
- the Council for British Archaeology Handbook no.6 Safety in Archaeological Fieldwork (1989).

The 'Contractor' shall prepare a Risk Assessments and submit these to the Consultant for approval prior to the commencement of within each phase. If amendments are required to the Risk Assessment during the works the Consultant and any other interested party must be provided with the revised document at the earliest opportunity.

All site personnel will familiarise themselves with the following:

- site emergency and evacuation procedures;
- the Contractors and the site's first aider;
- the location of the nearest hospital and doctors surgery; and
- the identification of buried and/ or overhead services.

No personnel are permitted to work in deep or unsupported excavations. The sides of all sections deeper than 1.2m will be stepped. Safety helmets must be worn whilst in the trench or working in vicinity of this. All deep sections will be fenced off using orange barrier fencing as a minimum. Similarly they will be clearly indicated by 'deep excavation signs'.

The 'Contractor' will not enter an area during machine stripping without alerting the machine driver to his/ her attention.

The 'Contractor' will remain alert and take care not to impede the progress of moving machinery. He/ she shall stand well back from the turning circle of excavator buckets and cabs.

Spoil will be stored at a safe distance away from the edges of the stripped areas unless otherwise agreed.

The site supervisor will ensure that a signed list of all personnel working within a particular phase is kept daily and will ensure that staff have signed out at the end of each working day or if they leave the site prior to this.

The 'Contactor' will ensure that all those visiting the site wear appropriate PPE. The 'Contactor' is permitted to prevent those without the correct PPE from visiting the site. All visitors must sign a record of attendance which will be administered by the 'Contactor'.

A competent person must inspect excavations:

- at the start of each working day prior to work commencing;
- after any event likely to have affected the strength or stability of the excavation; and
- after any accidental fall of earth or other material.

A record of the above must be documented daily by the site supervisor.

All archaeological personnel will have valid CSCS cards to be allowed to work within the site.

The Contractor will leave the site tidy and in a workmanlike condition and remove all materials brought onto the site.

High Visibility Orange Barrier Fencing (or equivalent) will be erected around all deep excavations if appropriate.

All staff will be fully briefed as to the site hazards before any work is commenced.

First aid boxes and fire extinguishers will be made available throughout the duration of the works. The site will also have at least one resident trained First Aider whose identity will be made known to all site personnel prior to the works commencing.

When Plant or Machinery is operating all staff must be a safe distance away from activity, and only start work once the machinery has ceased or is at a safe distance from the area requiring investigation.

The client and Consultant cannot be held responsible for any accidents while attempting to conform to this WSI. Any Health and Safety issues which may hinder compliance to this WSI should be discussed with the Consultant immediately.

18. GENERAL PROVISIONS

The 'Contractor' will undertake the works according to this WSI and any subsequent written variations. No variation from or changes to the WSI will occur except by prior agreement with the Consultant.

All communications on archaeological matters will be directed through the Consultant.

The archive of data and records generated during the fieldwork will be kept secure in appropriate conditions using suitable materials at all stages of the project. The archive will be removed from site each evening and will be kept in secure premises by the 'Contractor'.

Processing of datasets will be concurrent with the fieldwork and immediately after completion of fieldwork the processing of the remaining data will be completed.

19. REFERENCES

English Heritage, 2006., Our Portable Past. English Heritage. London.

ClfA 2014., Code of Conduct

ClfA, 2014., Standards and Guidance for archaeological eexcavation

ClfA, 2014., Standards and Guidance for an archaeological watching brief

Historic England, 2014 Our Portable Past

ClfA, 2014., Standards and Guidance for an archaeological watching brief. ClfA. Reading.

Phase Site Investigations 2015., Land of Cross Street, Monk Bretton
South Yorkshire: Archaeological geophysical survey.

Prospect Archaeology, 2015., Land off Cross Street, Monk Bretton, South Yorkshire

Figures



Geophysical Survey Interpretation

ANOMALY TYPE	INTERPRETATION
AREA OF STRONG DIPOLAR RESPONSES (MAGNETIC DISTURBANCE)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL
DIPOLAR LINEAR / POSSIBLE DIPOLAR LINEAR	MODERN LINEAR MAGNETIC FEATURE (PIPE OR CABLE)
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE. OTHER FEATURES WITHIN THIS AREA MAY NOT BE DETECTED
NEGATIVE LINEAR	PROBABLE TRACTOR OR OTHER VEHICLE WHEELINGS / TRACKS
APPROXIMATE ORIENTATION OF BROADLY PARALLEL NEGATIVE LINEARS	PROBABLE AGRICULTURAL FEATURES. DRAINAGE REGIME
APPROXIMATE ORIENTATION OF BROADLY PARALLEL POSITIVE LINEARS	AGRICULTURAL FEATURES. MODERN PLOUGHING REGIME
APPROXIMATE ORIENTATION OF BROADLY PARALLEL LINEARS	AGRICULTURAL FEATURES. POSSIBLE RIDGE AND FURROW OR MODERN PLOUGHING REGIME
ISOLATED POSITIVE OR ENHANCED RESPONSE	POSSIBLE GEOLOGICAL / PEDOLOGICAL VARIATION BUT COULD ALSO BE DEEPER BURIED FERROUS / FIRED MATERIAL OR INFILLED FEATURE
POSITIVE OR ENHANCED LINEAR / CURVI-LINEAR	POSSIBLE DRAINAGE OR INFILLED FEATURE

Investigation Areas

Extent of groundworks and construction works

Appendix 1

Standards and Guidance

Archaeological Standards and Guidelines

AAF, 2007, Archaeological Archives. A guide to best practice in creation, compilation, transfer and curation. Archaeological Archives Forum

Bewely, R., Donoghue, D., Gaffney, V., Van Leusen, M., Wise, M., 1998, Archiving Aerial Photography and Remote Sensing Data: A guide to good practice.

Brown, A. and Perrin, K., 2000, A Model for the Description of Archaeological Archives.

Heritage Centre for Archaeology/ Institute of Field Archaeologists.

Brown, D.H. 2007, Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation. IFA Archaeological Archives Forum.

CBI, 1991, Archaeological Investigations: Code of Practice for Mineral Operators

ClfA, 2014, Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology. Chartered Institute for Archaeologists.

ClfA, 2014, Code of Conduct. Chartered Institute for Archaeologists.

ClfA, 2014, Standard and Guidance for Archaeological Field Evaluation. Chartered Institute for Archaeologists.

ClfA, 2014, Standard and Guidance for Archaeological Excavation. Chartered Institute for Archaeologists.

ClfA, 2014, Standard and Guidance for the collection, documentation, conservation and research of archaeological materials. Chartered Institute for Archaeologists.

ClfA, 2014, Standard and Guidance for Archaeological Watching Briefs. Chartered Institute for Archaeologists.

Davis, S., 1992, A rapid method for recoding information about mammal bones from archaeological sites.

Darvill, T. and Atkins, M., 1991, Regulating Archaeological Works by Contract. IFA Technical Paper No 8, Institute of Field Archaeologists.

Department for Communities and Local Government 2012, National Planning Policy Framework.

Eiteljorg, H., Fernie, K., Huggett, J. and Robinson, D., 2002, CAD: A guide to good practice.

English Heritage, 1991, The Management of Archaeological Projects. Second Edition.

English Heritage, 1991, Exploring Out Past.

English Heritage, 2003a, Where on Earth Are We? The Global Positioning System (GPS) in archaeological field survey.

English Heritage, 2008b, Geophysical Survey in Archaeological Field Evaluation. English Heritage Research and Professional Services Guidelines No 1 (second edition). English Heritage (Swindon).

English Heritage, 2008, Mineral Extraction and the Historic Environment.

English Heritage, 2008, Mineral Extraction and Archaeology: A Practice Guide.

English Heritage, 2011 (2nd ed) Environmental Archaeology: A Guide to the Theory and Practice of Methods, fro, Sampling and Recovery to Post-excavation.

Historic England, 2007 Piling and Archaeology: Guidelines and Best Practice

Gaffney, C. and Gater, J., with Ovenden, S., 2002, The Use of Geophysical Techniques in Archaeological Evaluations. IFA Technical Paper 9, Institute of Field Archaeologists.

HMSO 1996 The Treasure Act 1996.

HMSO 2002 The Treasure (Designation) Order 2002.

Murphy and Wiltshire, 1994, A guide to sampling deposits for environmental analysis.

Schmidt, A., 2001, Geophysical Data in Archaeology: A guide to good practice.

Wilkinson, D, E., Neal, V., (CBA) 1987 (Third ed. 1998) First Aid for Finds.

Appendix 2

Archaeological Assessment

prospect archaeology

Land off Cross Street,

Monk Bretton, South Yorkshire

Archaeological Assessment

Client: Bellway Homes

Local Planning Authority: Barnsley Metropolitan Borough Council

Planning Ref.: N/a

NGR: SE 36091 07648

Author: Richard Lee

Report No: BEL01/01

Date of Report: April 2015

Prospect Archaeology Ltd, Prospect House, Garden Lane, Sherburn-in-Elmet, Leeds, North Yorkshire LS25 6AT.
Tel 01977 681885. Email mail@prospectarc.com. www.prospectarc.com
Limited company registered in England 07130161

Contents

LIST OF FIGURES II

LIST OF PLATES II

PLANNING SUMMARY III

EXECUTIVE SUMMARY 1

1.0 INTRODUCTION 2

2.0 SITE DESCRIPTION 2

3.0 STATUTORY AND PLANNING POLICY CONTEXT 2

4.0 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA 4

5.0 BASELINE CONDITIONS 6

6.0 MAP REGRESSION 9

7.0 ASSESSMENT 10

8.0 MITIGATION 12

9.0 REFERENCES 12

10.0 FIGURES 14

11.0 PLATES 27

List of Figures

FIGURE 1: SITE LOCATION 15
FIGURE 2: INDICATIVE SITE LAYOUT (STEN ARCHITECTURE, DRAWING SK06 NOVEMBER 2014) 16
FIGURE 3: LOCATION OF SITES AND MONUMENTS FROM SYAS 17
FIGURE 4: JEFFERYS 1771 MAP OF YORKSHIRE SHOWING APPROXIMATE LOCATION OF THE PROPOSED DEVELOPMENT SITE 18
FIGURE 5: ORDNANCE SURVEY 1:10,560 SCALE MAP OF 1855 19
FIGURE 6: ORDNANCE SURVEY 1:2,500 SCALE MAP OF 1892 20
FIGURE 7: ORDNANCE SURVEY 1:2,500 SCALE MAP OF 1906 21
FIGURE 8: ORDNANCE SURVEY 1:10,560 SCALE MAP OF 1931 22
FIGURE 9: ORDNANCE SURVEY 1:10,560 SCALE MAP OF 1955 23
FIGURE 10: ORDNANCE SURVEY 1:2,500 SCALE MAP OF 1962 24
FIGURE 11: ORDNANCE SURVEY 1:10,000 SCALE MAP OF 1974 25
FIGURE 12: ORDNANCE SURVEY 1:10,000 SCALE MAP OF 1981 26

List of Plates

PLATE 1: VIEW OF THE SITE LOOKING SOUTH FROM THE NORTH PERIMETER OF THE SITE 27
PLATE 2: VIEW TOWARDS NORTH PERIMETER OF THE SITE, WITH THE CRICKET GROUND TOP RIGHT 27
PLATE 3: VIEW ACROSS THE SITE TO THE SOUTH-EAST OF CLUB ROAD, AND THE CHURCH OF ST PAUL IN THE BACKGROUND 28
PLATE 4: VIEW FROM THE EDGE OF THE CRICKET GROUND LOOKING SOUTH-WEST ACROSS THE SITE 28

PLANNING SUMMARY

LPA	**Barnsley Metropolitan Borough Council**							
Relevant Policies	NPPF Paragraphs	17	126-141		169			
	Barnsley							
Curator	Andy Lines S.Yorkshire County Council							
Curator consulted	Yes	√	No					
Work undertaken to date	DBA	√	Geophys survey		Eval		Other	
Known Heritage Assets	National		Regional		Local		None	√
Potential Heritage Assets	Yes	√	No					
Potential impact on heritage assets	High		Medium		Low	√	None	
Further information required	Yes	√	No					
Condition required	Yes	√	No		TBA			

Every effort has been made to ensure the accuracy of reporting and appropriateness of recommendations. This report is based on information available at the time of writing, from the sources cited. It does not preclude the potential for future discoveries to be made, or for other unidentified sources of information to exist that alter the potential for archaeological impact. Any opinions expressed within this document reflect the honest opinion of Prospect Archaeology. However, the final decision on the need for further work rests with the relevant planning authority.

© Prospect Archaeology 2015

EXECUTIVE SUMMARY

Bellway Homes are making a planning application for residential development on land off Cross Street, Monk Bretton. This report has been prepared to consider the archaeological and historical implications of the proposed development in support of the planning application.

Monk Bretton is a former mining village situated about 2 miles northeast of Barnsley town centre. The proposed development site south-west of the historic core of the settlement and occupies the highest elevation in Monk Bretton with clear views across the region in all directions. The site is surrounded by residential dwellings along Cross Street and Horesby Avenue to the west. The irregular L-shaped plot is approximately 3.25ha in extent and comprises two fields, and the plot of land at no. 30 Cross Street which contains a single house, garage and gardens.

A map regression exercise and documentary search have provided background information about the history of the site. In addition, a site visit was made to assess existing ground conditions and archaeological potential. There are no Scheduled Ancient Monuments or Listed Buildings within the proposed development site.

There are two scheduled ancient monuments within the study area of 1km from the site: the Market Cross to the north-east and Monk Bretton Priory 1km south. There is no intervisibility between the scheduled monuments and the proposed development site.

There are eight Listed Buildings within the study area. The dovecote, on the other side of the cricket ground would be partly visible from some parts of the site, but the main elevation of this building faces north and it is already surround to the north and west by modern development. The steeple of the Church of St Paul is visible from most of the site over house roofs but the site would not be visible from the church. The other Listed Buildings within the study area are not visible from the site. In all cases the potential impact on these assets is indirect, in the form of changes to their setting. The proposed development is low-rise and will be well screened behind existing housing fronting on to Church St. It is therefore considered that there would be no impact on any designated assets by the proposed Site, and no mitigation is recommended.

There is no evidence for archaeological activity within the limits of the site, and there is very little known about the archaeology of the surrounding area. A Roman coin was found on the sports field next to the site, and a possible medieval copper thimble was found at the site's northern perimeter. There is therefore insufficient information to adequately assess the impact of the proposed development on potential remains. The South Yorkshire Archaeology Service (SYAS) has requested a phased programme of archaeological evaluation which should comprise geophysical survey in the first instance, followed by trial trench evaluation if required, in order to better understand the archaeological potential of the site.

1.0 Introduction

1.1.1 Prospect Archaeology Ltd has been appointed by Bellway Homes to consider the archaeological implications of the proposed development (NGR SE 36091 07648). The development site lies in the centre of Monk Bretton village, a suburb of Barnsley, a little to the west of Cross Street which is the main thoroughfare through the area. This report will be used to support the planning application for development. It considers the known or suspected archaeological remains lying within and adjacent to the proposed Development Site.

2.0 Site Description

2.1 Geology

2.1.1 The site lies on the Upper Coal Measures bordering on the Lower Coal Measures. (www.mapapps.bgs.ac.uk/geologyofbritain/home.html).

2.2 Topography and setting

2.2.1 Monk Bretton is a former mining village situated about 2 miles northeast of Barnsley town centre. The proposed development site south-west of the historic core of the settlement and occupies the highest elevation in Monk Bretton with clear views across the region in all directions. The irregular L-shaped plot is approximately 3.25ha in extent and comprises two fields, and the plot of land at no. 30 Cross Street which contains a single house, garage and gardens of mid-20th century date. The buildings on this plot would be demolished as part of the development proposals. A low stone wall aligned north-south, separating the parcels of land. Both fields are currently scrubland with short grass cover although there is some indication that the land has been cultivated in the recent past. The ground falls from over 115m OD at the northern limits of the site to c.110m OD to the south. The northern site boundary is marked by a public footpath running east/west, beyond which is a reservoir. The eastern boundary is delineated by the local cricket field, and the southern boundary by an adjacent field. The western site boundary has a sharp, almost vertical, 20m drop down to the properties along Horesby Avenue and Wordsworth Road. Access to the site is off the west side of Cross Street adjacent to the Club and the adjoining Club Street residential properties.

3.0 Statutory and Planning Policy Context

3.1 National Policy

3.1.1 The National Planning Policy Framework (NPPF) was published on 27 March 2012, coming into immediate effect and replacing all previous Planning Policy Guidance notes (PPGs) and Planning Policy Statements (PPSs). Set out below is a summary of the relevant NPPF guidance in Section 12 'Conserving and enhancing the historic environment'.

3.1.2 Section 12 provides guidance on the treatment of archaeological remains within the planning process. Whilst it is recognised that important remains should be retained, the benefits of development may be considered to outweigh the benefit of retention, especially where remains of less than national importance are concerned. Early consideration of the potential for 'heritage assets' is advised.

3.1.3 Paragraph 129 states: In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting..... As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

3.1.4 In determining planning applications, local planning authorities should take account of:

- the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;
- the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and
- the desirability of new development making a positive contribution to local character and distinctiveness.

3.1.5 Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

- the nature of the heritage asset prevents all reasonable uses of the site; and
- no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and
- conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and
- the harm or loss is outweighed by the benefit of bringing the site back into use.

3.1.6 Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible.

3.2 Local Policy

3.2.1 The Barnsley Local Plan is still in preparation and final adoption is not anticipated until the end of 2015. Until such time the policies of the Unitary Development Plan adopted 2000 saved under a direction from the Secretary of State in September 2007 remain in force.

CSP 30 THE HISTORIC ENVIRONMENT

We will positively encourage the management, conservation and enjoyment of Barnsley's historic environment and make the most of the heritage assets which define Barnsley's local distinctiveness.

POLICY BE4 ARCHAEOLOGICAL SITES

Where the authority decides that the physical preservation of archaeological remains in situ is not justified, and that development which would destroy the remains should proceed, the authority will ensure, before granting planning permission, that the developer has made appropriate and satisfactory provision for the excavation and recording of the remains.

Explanation

On some archaeological sites it may be possible to modify the design to preserve part or all of the archaeological remains. In other cases it may not be appropriate to preserve the remains in situ but it is important to carry out excavation works and record the remains before they are destroyed.

The Authority will expect developers to enter into an agreement with the County Archaeologist and the Authority to provide for excavation and recording work before development commences, to work to an agreed project brief, and subsequently to publish the results of the excavation.

4.0 Assessment methodology and significance criteria

4.1 Built Heritage

4.1.1 Built heritage includes listed buildings, conservation areas, registered parks and gardens, and scheduled monuments. It also includes non-listed buildings of local architectural or historic

interest which are included in the Historic Environment Record. All statutorily protected built heritage assets are of national importance.

4.2 Buried Heritage

4.2.1 The buried heritage (archaeology) has been considered through desk-bases assessment and a site visit. A full list of referenced sources is provided and references are given. Staff at South Yorkshire Archaeology Service gave advice and information about known archaeological sites of interest in the vicinity of the study area, and where relevant these were further investigated. Relevant primary and secondary sources held in the Barnsley Archives and Local Studies office have been consulted.

- Information available on a variety of internet sites including the University of Leicester Historical Directories (www.historical directories.org/), Access to Archives (www.a2a.org.uk) and the Archaeology Data Service (http://ads/ahds.ac.uk/); the Heritage Gateway (www.heritagegateway.org.uk) and data from Pastscape (www.pastscape.org.uk). A full list of sites accessed can be found in the Bibliography section.

- Cartographic sources held by the Ordnance Survey;

- A site visit and walkover survey was undertaken by Richard Lee on April 2nd 2015.

4.2.2 The historical development of the site has been established through reference to these sources and is described in the Baseline Conditions section of this report. This has been used to identify areas of potential archaeological interest. Each area of archaeological potential has been assessed for its archaeological significance in geographical terms, although it should be noted that despite the national policy guidance's reliance on geographical significance, there is no statutory definition for these classifications :

- International – cultural properties in the World Heritage List, as defined in the operational guidelines for the implementation of the World Heritage Convention;
- National – sites or monuments of sufficient archaeological/historical merit to be designated as Scheduled Ancient Monuments. Other sites or monuments may also be considered of national importance but not appropriate for scheduling due to current use(s) or because they have not yet been fully assessed;
- Regional – sites and monuments of archaeological or historical merit that are well preserved or good examples of regional types or that have an increased value due to their group associations, regional rarity or historical associations.
- Local – sites and monuments of archaeological or historical interest but that are

truncated or isolated from their original context and are of limited use in furthering archaeological or historical knowledge.

- Negligible – areas of extremely limited or no archaeological or historic interest. These commonly include areas of major modern disturbance such as quarries, deep basements etc.

4.2.3 The concluding chapter of this document summarises the findings, and provides an opinion on the potential for archaeological remains to be identified, the likely importance of such remains should they exist and the likely impact of the proposed development. Recommendations for further work are provided.

5.0 Baseline Conditions

5.1.1 The assessment of existing conditions has been based on a 'study area' extending 1km around the perimeter of the area of proposed development. This enables the significance of existing and potential archaeological features to be considered in their local, regional and national contexts.

5.2 Designated Heritage Assets

5.2.1 There are eight listed buildings within the 1km search area. On the perimeter of the search area is a Grade I listed building which is the gatehouse (1315023), and the administrative building (1151179) to the Monk Bretton Priory however these are approximately 1km from the development site. The remaining six buildings within the study area are listed Grade II. Osbourne House (1191460) on Burton Road is an 1820 built property for a former colliery owner. The Church of St Paul, built 1878, situated on the Burton Road-Cross Street junction (1315009) will be visible from most areas of the site. Closer to the site on Cross Street is the Dovecote at Cricket Farm (1191467) in Dovecote Mews adjacent to the cricket ground. A series of farm buildings (1151148) immediately to the south of Manor Farm (1151148), including the Manor house (1315010), barns and out buildings date to the late 18th century.

5.2.2 There are two Scheduled Ancient Monuments within the search area. Within 150m of the site is the Monk Bretton Market Cross located at the junction of Cross Street and High Street. The Monk Bretton Priory Cluniac and Benedictine monastery is the only other Scheduled Ancient Monument and this is located on the southern boundary of the 1km search area.

5.2.3 There is no Conservation Area in Monk Bretton and there are no Registered Parks and Gardens or Registered Battlefields within the search area.

5.3 Undesignated Heritage Assets

5.3.1 There are very few findspots or archaeological sites within the study area. The majority of recorded heritage assets are monuments and buildings

PREHISTORIC - ROMAN (10,000BC-AD410)

5.3.2 A probable Neolithic leaf-shaped flint arrowhead (MNY 03027) was found during excavations for the reservoir. There is however some doubt about the exact provenance of this find.

5.3.3 A Roman coin (MNY 52418) was found on the cricket ground, immediately next to the site, its findspot recorded by the Portable Antiquities Scheme.

5.3.4 Cropmarks indicating a potential enclosure are known on land to the rear of Pinehall Drive a residential area on the eastern periphery of the search area (MNY 05001). These have not been investigated and there is no indication of their likely date.

HER No.	Name / Description	Period
03027	Neolithic leaf shaped flint arrowhead and scraper finds	Prehistoric
52418	Roman Coin, Monk Bretton cricket ground	Roman
05001	Cropmark Enclosure	Prehistoric/Roman
00341	Standing Cross, Cross Street	Medieval
05014	Cliffe Wood landscape features	Medieval
02051	Manor Farm Farmhouse, Farm buildings Cross Street	Medieval
03519	Dovecote, Cross Street	Post Medieval
02171	Site of the Ridings, Westgate, Monk Bretton	Post-Medieval
04592	Hoyle Mill Bleach Works, Pontefract Road	Post-Medieval
04597	Newbridge Bleach works, Priory Road	Post-Medieval
04749	Monk Bretton Miners Welfare Ground, incorporating Ridge and Furrow	Post-Medieval
04986	Old Mill Gas Works, Old Mill Lane	Post-Medieval
03027	Copper Alloy Thimble, (PAS findspot, on the site)	Post-Medieval

Table 1: known heritage assets in the vicinity of the site

EARLY MEDIEVAL –MEDIEVAL (AD410-AD1543)

5.3.5 The settlement is mentioned in the Domesday Survey of 1086 as *Brettone*, meaning settlement or farmstead of the Britons, indicating that the village had its origins in the Saxon period. Suggestions that the village took its name from Adam fitz Swain de Bretton [Brittany] whose family owned much of the land in the area in the twelfth century are therefore unlikely to be correct as the name of the

village was already established. This family also founded the priory in 1154 and by 1225 the settlement was referred to as Munkebretton. Archaeological excavation and watching briefs have taken place at the Priory in recent years although without any significant new discoveries (Willmott and Townend 2014).

5.3.6 A medieval cross is located at the junction of Cross Street and High Street, approximately 100m east of the site. The cross, also known as the Butter Cross, was built c.1300 as a meeting point and local land mark. It has since lost its original head and shaft, being replaced with a street lamp, although the steps and base are original. The lamp was converted to electric and gas in the late 19th century, and the cross moved to its present location in 1960.

5.3.7 The South Yorkshire Historic Environment Characterisation Project identifies Monk Bretton as "a mix of privately built housing styles on the historic core of Monk Bretton. The core of the medieval settlement, represented by the Monk Bretton Cross, is entirely encased within the 20th century housing that has since been constructed. The application site lies to the west of the medieval core and would have been within the medieval open fields.

5.3.8 St Helen's Well, at Carlton, north-east of the proposed development site, is said to have been a Holy Well, or sacred spring (Hey 1979), and is named on the Jefferys 1771 map of Yorkshire. Excavation took place there in 2000 (ASWYAS 2001) and found little evidence for the well itself, although a cistern and its associated drains were found. The remains of the well are thought to lie underneath modern buildings.

POST-MEDIEVAL & MODERN (AD 1543-PRESENT)

5.3.9 To the extreme north-west corner of the development site is a PAS (Portable Antiquities Scheme) findspot that records a post-medieval copper alloy thimble found there. No further details are known about the thimble, but the findspot is very close to a former Observatory/Castle or folly, now replaced by an Ordnance Survey trig point, immediately beyond the site's north boundary.

5.3.10 Although records are very poor it is understood that the general area around Monk Bretton was mined for coal, in shallow pits, from 1700, with the resource in demand as both domestic fuel and for metalworkers smithies.

5.3.11 Monk Bretton Colliery was opened in 1870, extracting coal from the Barnsley Seam. The colliery was modernised on nationalisation and pit head baths, which still stand today, were opened. A village Miners' Welfare Hall (MNY 04749) was opened in Cross Street. The colliery was closed in 1968.

5.3.12 An archaeological survey of Cliffe Woods was undertaken (ASE 2005), bordering the southern limit of the search area, part of the local Fuelling a Revolution programme. Cliffe Wood is located about 1.5

km east of the centre of Barnsley. It lies on the north side of the River Dearne. Documentary evidence links the woods to the Monk Bretton priory nearby. A total of 77 sites were highlighted during the survey, all of which were dated to the post-medieval or modern period. Of particular note were a charcoal burning platform (Site 17) and two mine shafts (sites 3 and 7).

5.3.13 A watching brief of remediation of the Old Mill Gas Works, on the south-west side of the 1km search area, concluded that the site had industrial archaeological potential of local significance (ARCUS 2008). An assessment in advance of the proposed Quality Bus Corridor along the Burton Road concluded that industrial pollution had left no archaeological potential along the route (ARCUS, 2007).

6.0 Map Regression

JEFFERYS' MAP OF YORSKHIRE 1771

6.1.1 Jefferys' 1771 map shows Monk Bretton with the Cross Street and Burton Road axis characterising the settlement. Properties and buildings are shown along Cross Street although no further details are provided. The proposed development site, apparently open fields, can be seen to the west of Cross Street, with woodland to the west, but no field boundaries are depicted. Monk Bretton priory is shown to the south of the settlement, with St Helen's Well to the north of the site and beyond the extent of the search area.

ORDNANCE SURVEY 1855 1:10,560

6.1.2 This map shows the village of Monk Bretton, characterised by Cross Street, developing to the immediate east of the proposed site. The site itself is shown as two fields. The medieval cross is indicated in front of the Pheasant Inn east of the site. Buildings are located east of the site along Cross Street which include the 18th century dovecote.

ORDNANCE SURVEY 1892 1:2,500

6.1.3 By 1892 Monk Bretton is shown as a developing settlement. The development site is shown unchanged from 1885 and with its present field boundaries already in place. An Observatory is indicated immediately on or beyond the northern site boundary and although no record of this exits in the HER, black and white photos of a two storey tower do exist. The tower was erected by the Reverend Mr Wordsworth.

ORDNANCE SURVEY 1906 1:2,500

6.1.4 There is no change within the site, but the Cricket and Football ground is shown to the east of the site. Vine House is located along Cross Street beyond the sports ground.

ORDNANCE SURVEY 1931 1: 2,500

6.1.5 The site remains largely unchanged. To the south of the site Club Street, it's Club, and residential properties are shown. Two small buildings are shown on the sports ground to the immediate east of the site.

ORDNANCE SURVEY 1955 1:10,560

6.1.6 By the 1950s Monk Bretton village is quickly developing on all sides of the site. The Observatory on the north perimeter of the site is noted as 'disused' but no other changes are apparent.

ORDNANCE SURVEY 1962 1:2,500

6.1.7 Three new properties are added along Cross Street on the east extent of the site. The observatory, or castle/folly as it is also referred to in local records, is no longer indicated on this map having been demolished for 'safety reason' in 1950. In its place is a concrete 'pillar' which is an Ordnance Survey triangulation point that is still extant. The public footpath is shown across the northern perimeter of the site next to the 'pillar'.

ORDNANCE SURVEY 1974 1:10,000

6.1.8 The site is unchanged in 1974, although the Monk Bretton area is now very developed around the site, without any changes taking place on the site itself.

ORDNANCE SURVEY 1984 1:10,000

6.1.9 There are no further significant changes to the site at this time.

7.0 Assessment

7.1 Archaeological Potential

7.1.1 There is no evidence for prehistoric or Roman activity in the area and the cartographic evidence shows that medieval settlement lay to the east and north of the site. While it is possible that remains of these periods might be present the present available evidence suggests the potential to be very low. This may be due to its topography, which has the highest elevation in Monk Bretton, and particularly the steep incline that characterises the site's western boundary. This landscape may have made it unattractive for past occupation.

7.1.2 The Castle or Folly that existed just on or beyond the northern perimeter of the site, currently marked by the OS triangulation point, may have left foundation deposits that could be picked up by this development.

7.2 Potential Impact on Designated Assets

7.2.1 There are no Designated Assets within the Site boundary. There is no Conservation Area in Monk Bretton and there are no Registered Parks and Gardens or Registered Battlefields within the study area. There are two Scheduled Ancient Monuments and eight Listed Buildings within the study area. and consideration must be given to the impact of the proposed development on the designated assets within their wider setting which in some cases includes the application site.

7.2.2 In all cases the potential impact on these assets is indirect, in the form of changes/impacts to their setting. However, some are more sensitive than others to changes in their setting. Paragraphs 133 and 134 of NPPF describe the requirement to consider the impact of a proposed development on the significance of a designated heritage asset. Its significance derives not only from its physical presence, but also from its setting. Furthermore, significance can be harmed or lost not only through alteration or destruction of the heritage asset but by development within its setting. NPPF defines the setting of an asset as 'The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve.' The significance of these heritage assets does rely entirely on their setting.

7.2.3 In its guidance document of 2011 English Heritage sets out the process by which an asset's physical surroundings can be considered to contribute to its significance (EH 2011, p. 18-19). In other words does the setting of the heritage asset contribute to its significance? In addition, to the value of the heritage asset consideration must be given to its sensitivity to change of setting without fundamentally altering its present character. Heritage assets with a moderate capacity to absorb change without significantly altering its present character are defined to be of moderate sensitivity. Heritage assets tolerant of change without detriment are defined as being of low sensitivity.

7.2.4 The Market Cross is located at the junction of Cross Street and High Street and Monk Bretton Priory is located 1km south of the proposed development site but there is no intervisibility between the scheduled monuments and the proposed development site.

7.2.5 There are eight Listed Buildings within the study area. The dovecote, on the other side of the cricket ground would be partly visible from some parts of the site, but the main elevation of this building faces north and it is already surround to the north and west by modern development. The significance of this building does not rely on its setting and its significance would not be altered by the proposed development. .

7.2.6 Looking south-east, the steeple of the Church of St Paul is visible from most of the site over house roofs but the site would not be visible from the church and its setting would not be altered by the proposed development. The other Listed Buildings around the Site are located farther way and are not visible from the site. Their settings would not be affected by the proposed development.

7.3 Potential Impact on Non-Designated Assets

7.3.1 Any surviving archaeological features would be present within the horizon immediately below the topsoil / subsoil, cutting into undisturbed natural geology below. The proposed removal of all topsoil will make them very vulnerable during the movement of machinery over the ground during the landscaping process.

8.0 Mitigation

8.1 Designated Assets

8.1.1 In all cases the potential impact on these assets is indirect, in the form of changes to their setting. The proposed development is low-rise and will be well screened behind existing housing fronting on to Church St. The Priory to the south is not visible from the proposed development site. It is therefore considered that there would be no impact on any designated assets by the proposed Site, and no mitigation is recommended.

8.2 Non-Designated Assets

8.2.1 On available evidence the archaeological potential appears to be low but the proposed development area has not been archaeologically investigated there is insufficient information to adequately assess the impact of the proposed development on potential remains. The South Yorkshire Archaeology Service (SYAS) has requested a programme of geophysical survey and trial trench evaluation should be carried out to accompany the planning application in order to better understand the archaeological potential of the site.

8.2.2 Mitigation based on the results of this initial assessment may be required based on the results of the initial assessment work attached to planning approval as a condition. This is in line with National Planning Policy Framework (NPPF) guidelines.

9.0 References

Published Sources

ARCUS, 2007, *Archaeological Desk-based Assessment of the Quality Bus Corridor, Burton Road, Barnsley*, South Yorkshire

ARCUS, 2008, *Archaeological Watching Brief at Former Gas Works, Old Mill Lane, Barnsley, West Yorkshire*, Project Report 1075b.2 (1)

ASE, 2005, *Archaeological Survey, Barnsley Ancient Woodlands ,Cliffe Wood*

ASWYAS 2001, *St Helen's Well Desk Based Assessment and Excavation, Barnsley, South Yorkshire*, Report 875

Elliott, B, 2004, *The Making of Barnsley*, Wharncliffe Books

Hey, D, 1979, *The Making of South Yorkshire*, Moorland Publishing

Marchant, J, Ratcliffe, D, Lines, A & Saich, D. 2008 South *Yorkshire Historic Environment Characterisation* South Yorkshire Archaeology Service, Sheffield and English Heritage, London (http://sytimescapes.org.uk/technical accessed 20/02/2014)

Wilmott H & Townend P, 2014, *Excavation at Monk Bretton Priory*, University of Sheffield

Cartographic / Archival Sources

Thomas Jefferys Map of Yorkshire 1771

Ordnance Survey 1:10,000 1988

Ordnance Survey 1:10,560 1851-54, 1956, 1966

Ordnance Survey 1:2,500 1892, 1906, 1930, 1962

Digital Sources

http://ads.ahds.ac.uk/

http://mapapps.bgs.ac.uk/geologyofbritain/home.html

http://www.heritagegateway.org.uk/gateway/

http://www.visionofbritain.org.uk/index.jsp

http://www.heritagewoodsonline.co.uk/map/002/002c.html

www.a2a.org.uk

www.mapapps.bgs.ac.uk/geologyofbritain/home.html

10.0 Figures

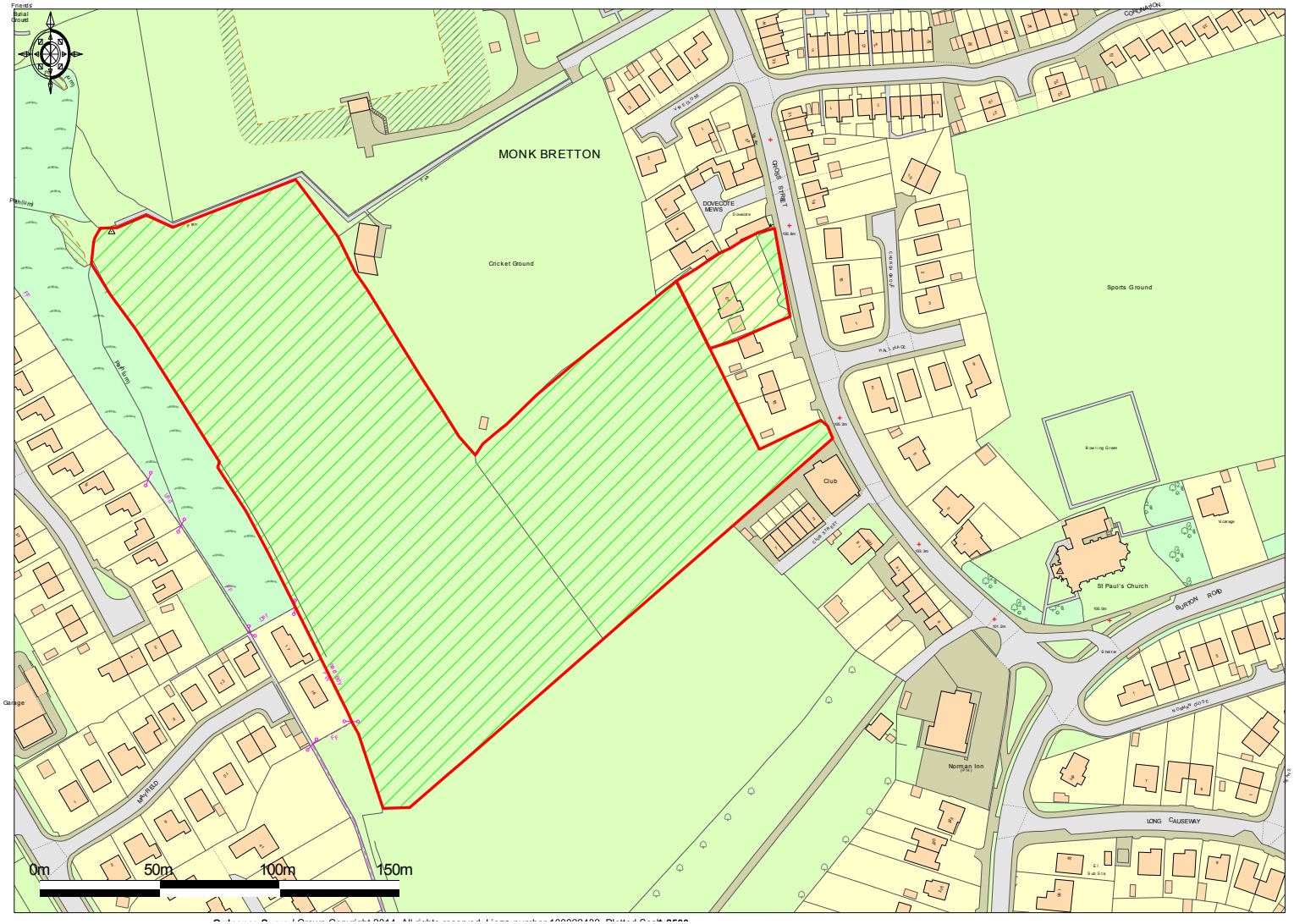


Figure 1: Site location

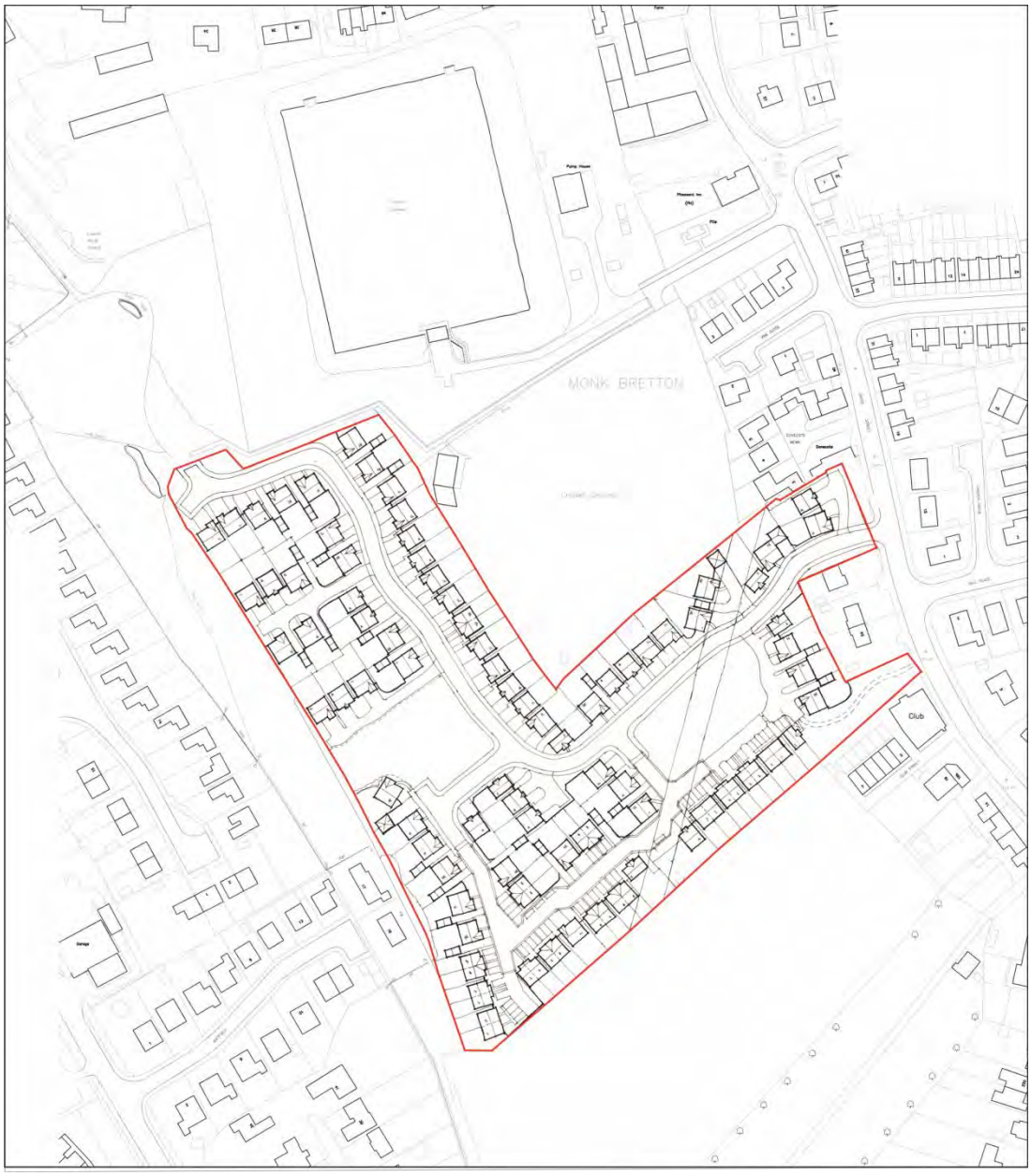


Fig. 2 Indicative site layout (Sten Architecture, Drawing SK06 November 2014)

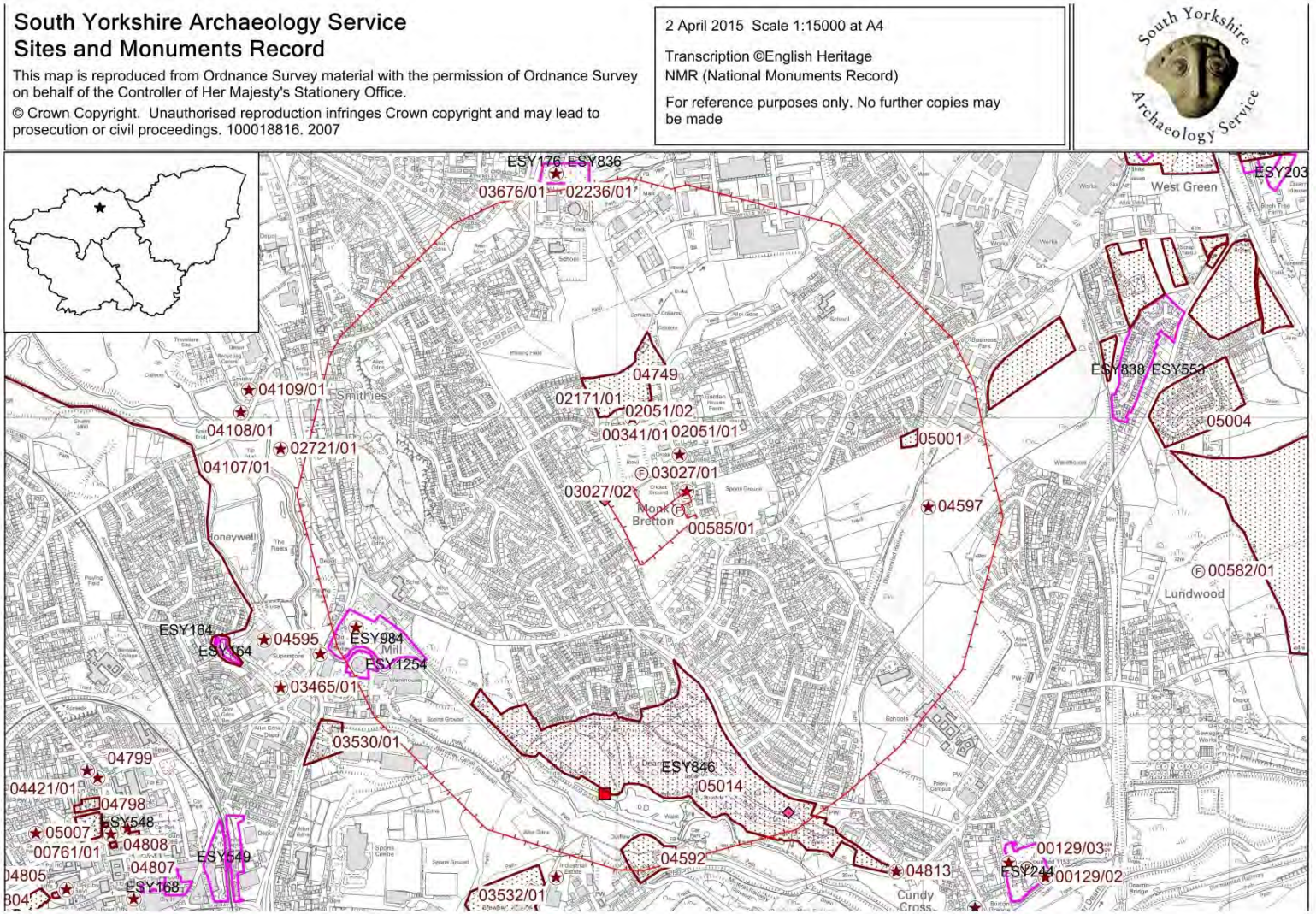


Figure 2: Location of Sites and Monuments from SYAS



Figure 3: Jefferys 1771 map of Yorkshire showing approximate location of the proposed development site

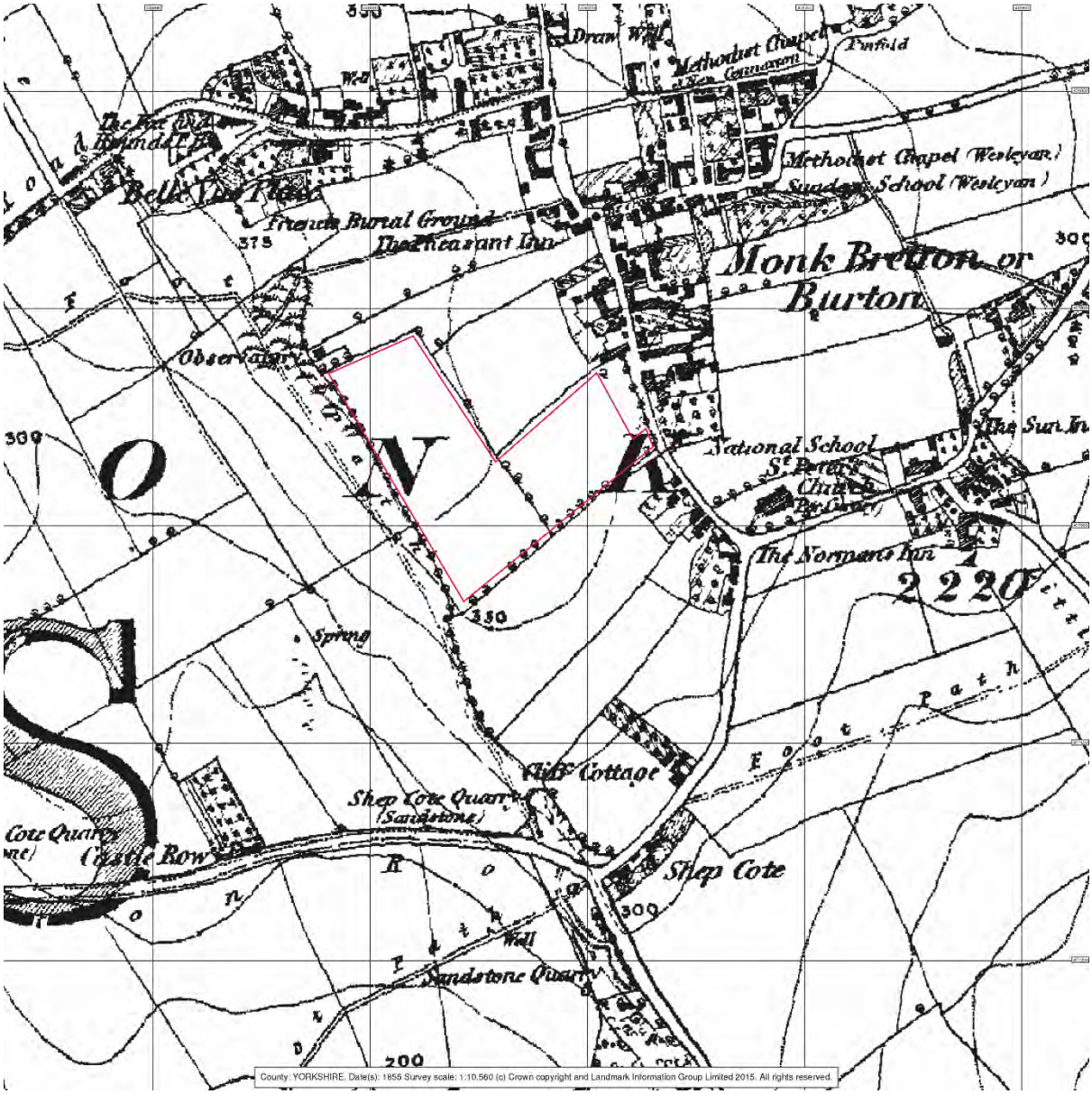


Figure 4: Ordnance Survey 1:10,560 scale map of 1855

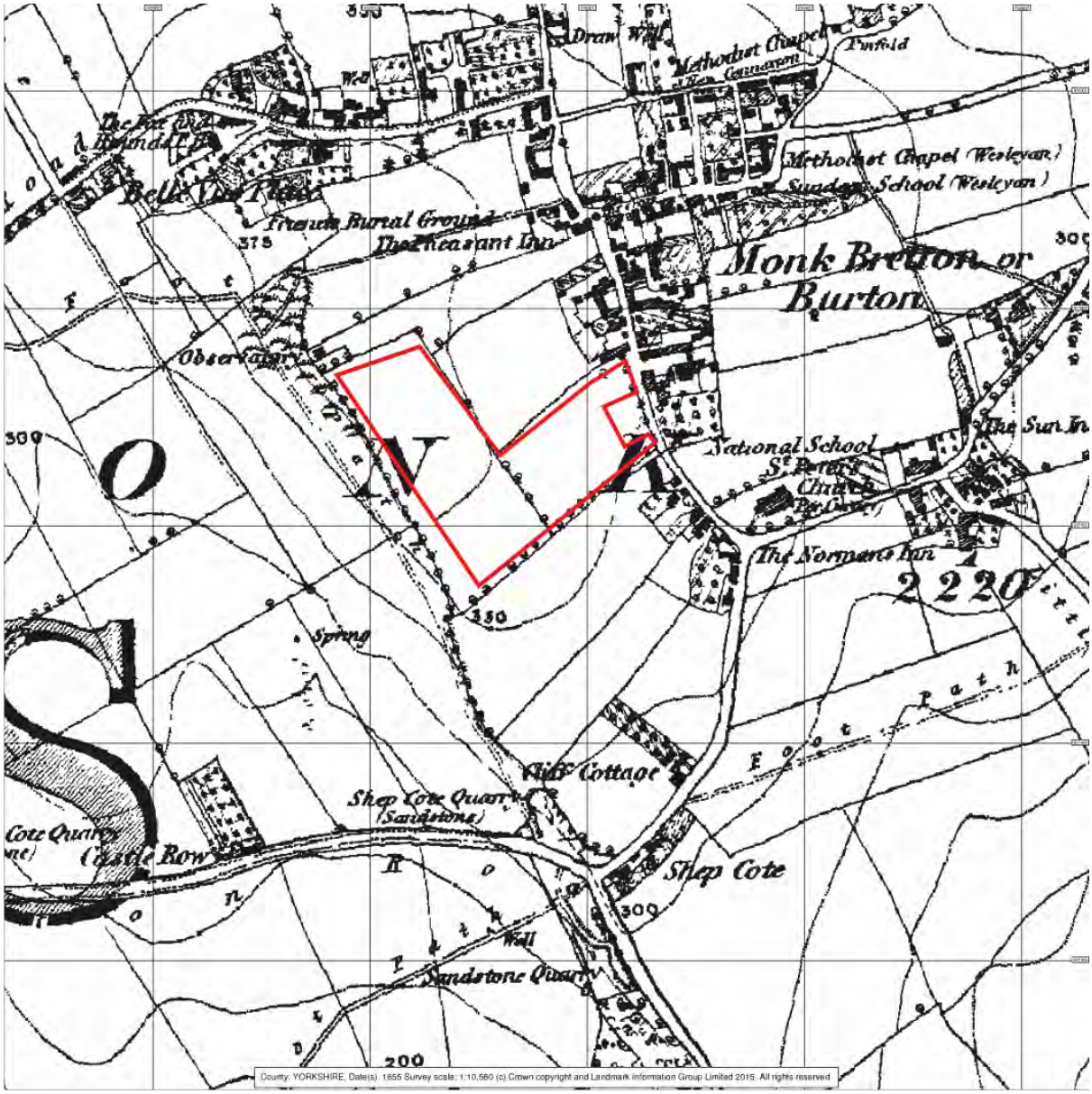


Figure 5: Ordnance Survey 1:2,500 scale map of 1892

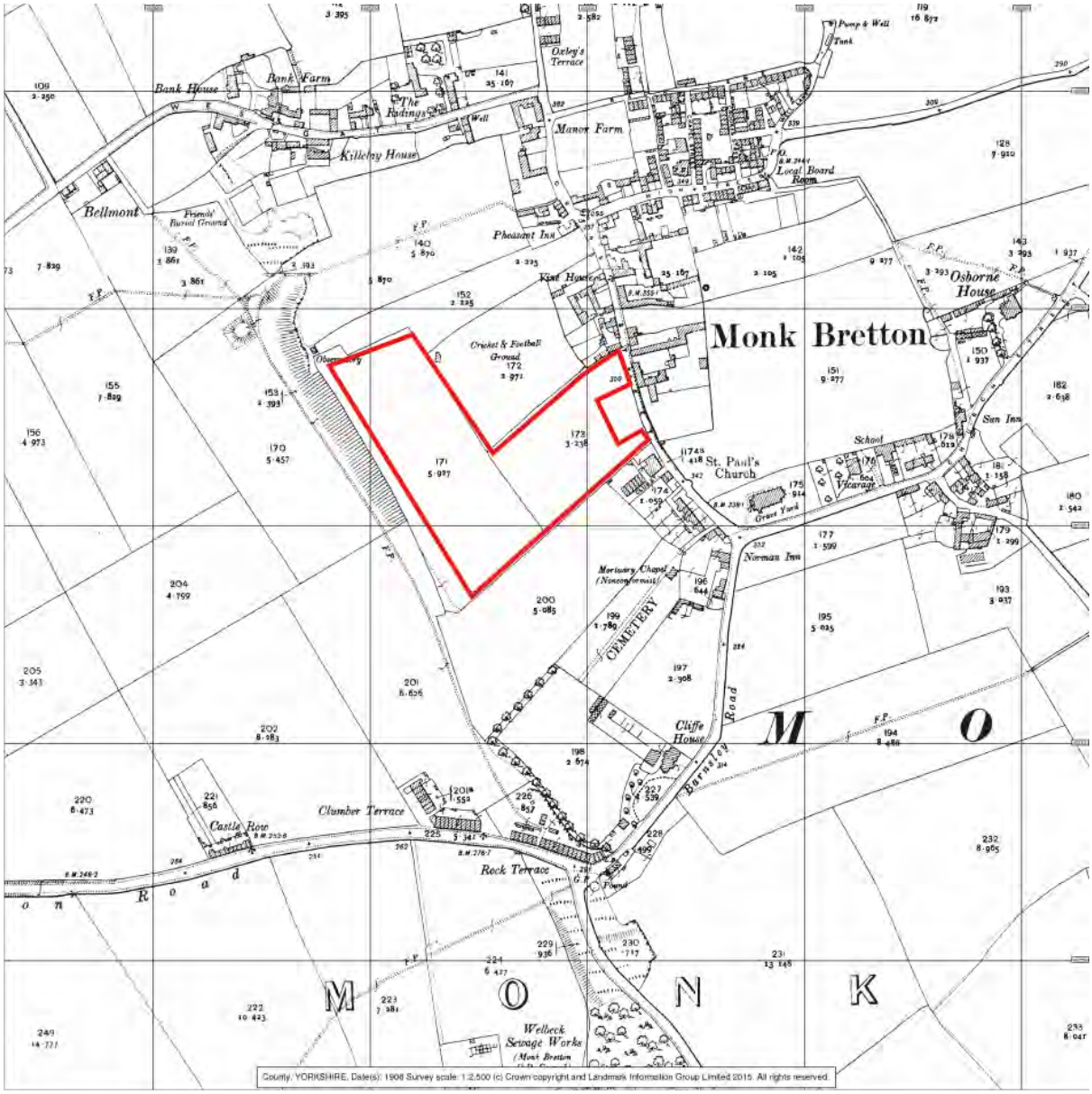


Figure 6: Ordnance Survey 1:2,500 scale map of 1906

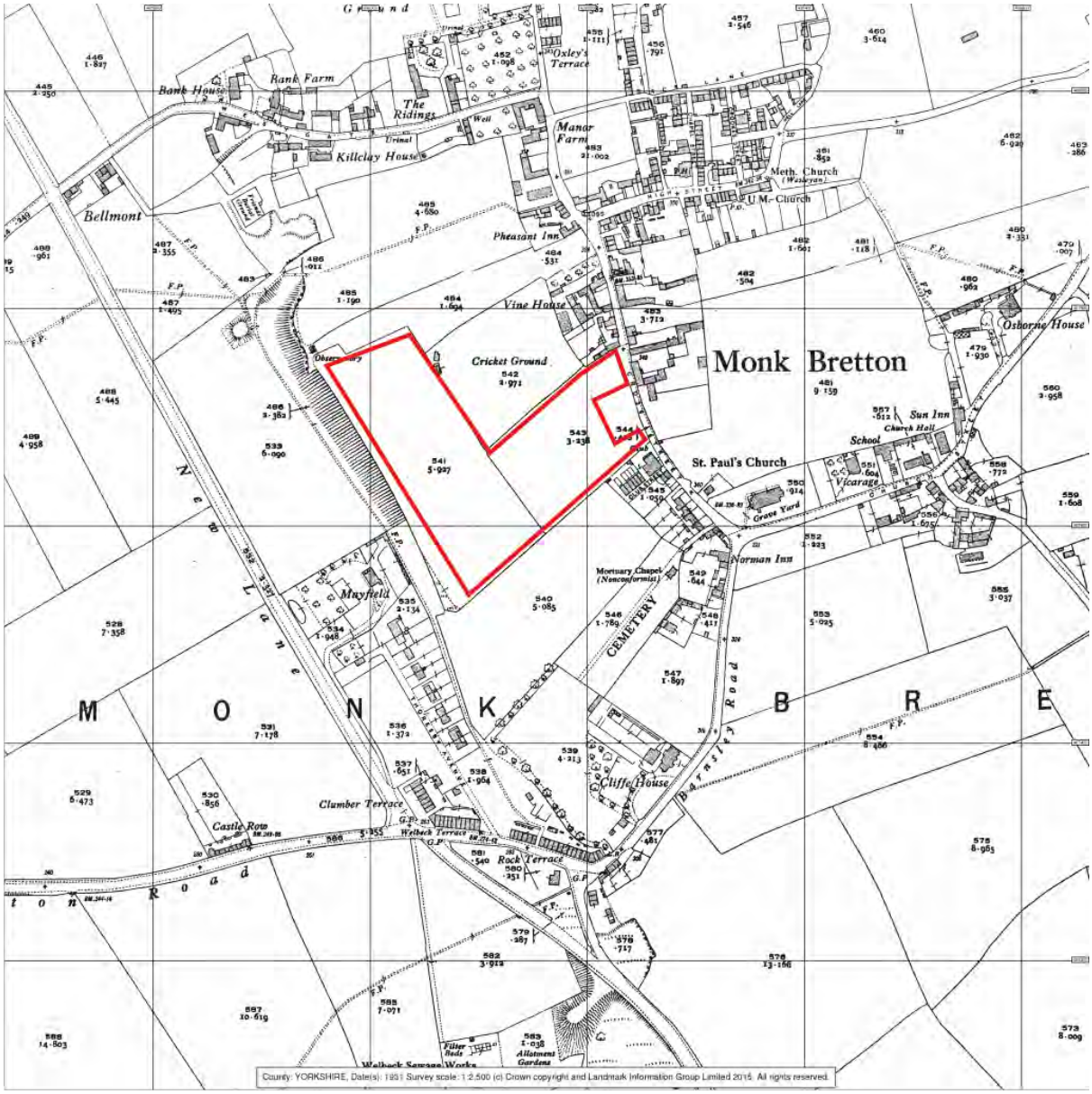


Figure 7: Ordnance Survey 1:10,560 scale map of 1931

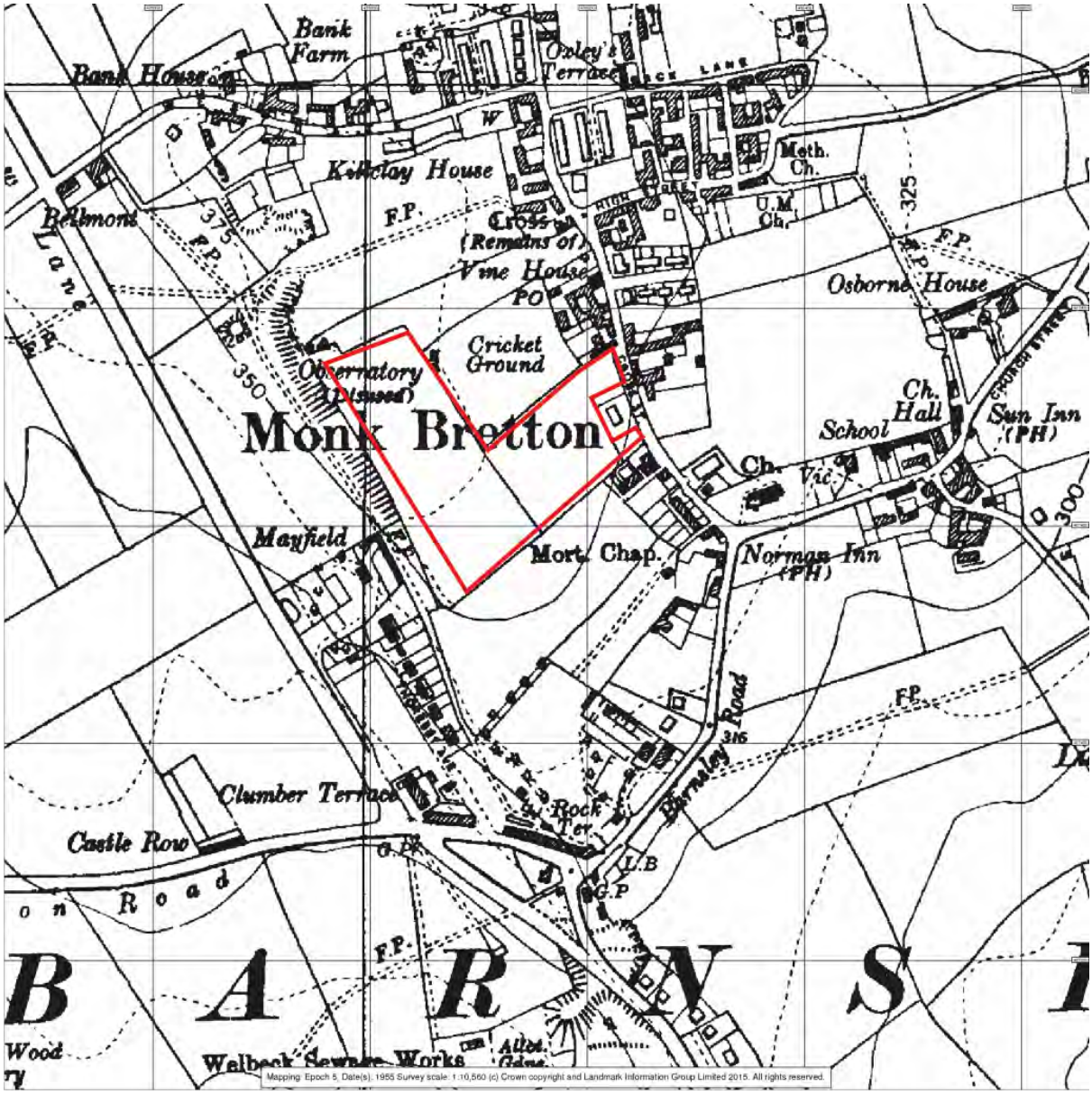


Figure 8: Ordnance Survey 1:10,560 scale map of 1955

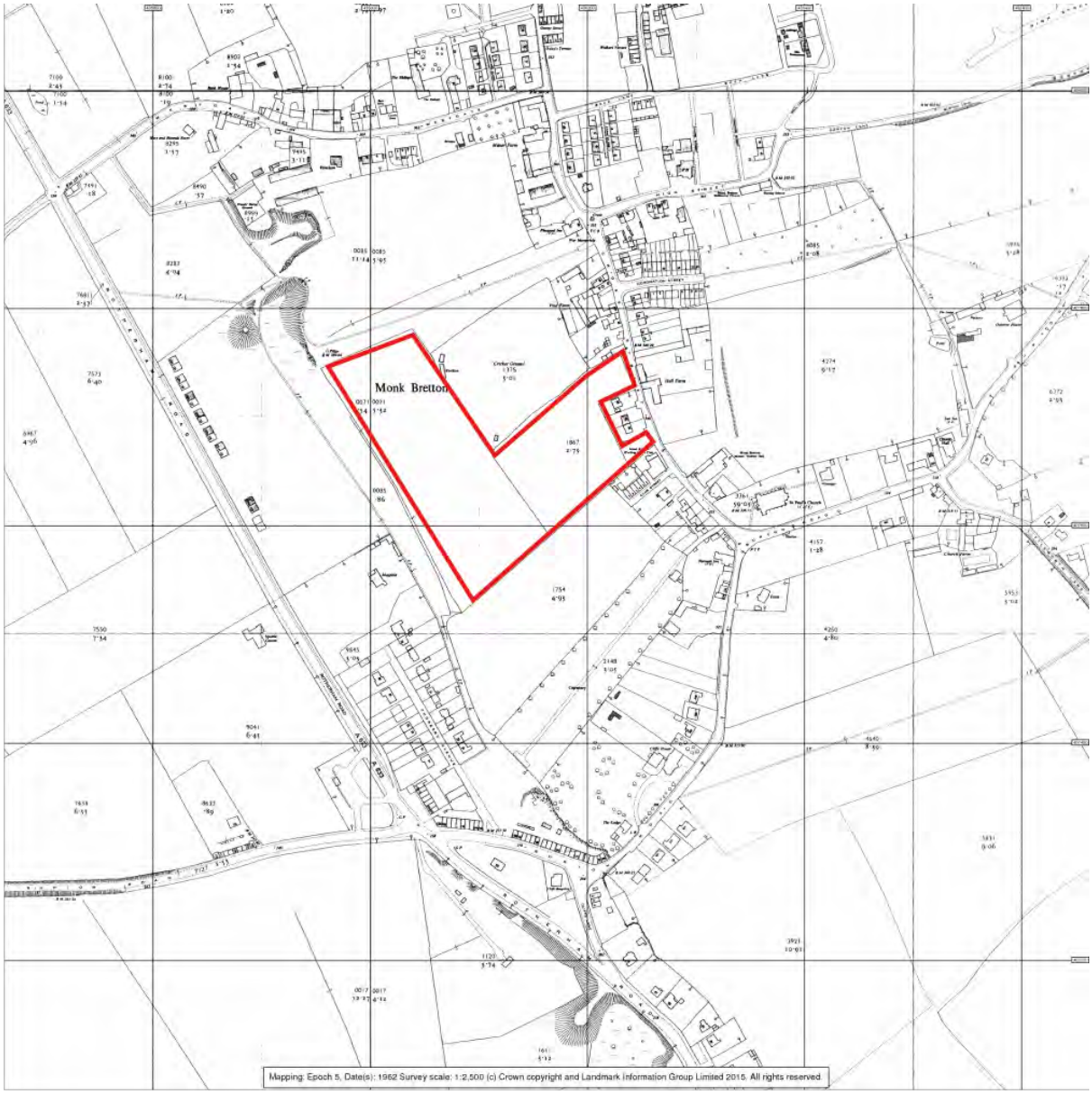


Figure 9: Ordnance Survey 1:2,500 scale map of 1962

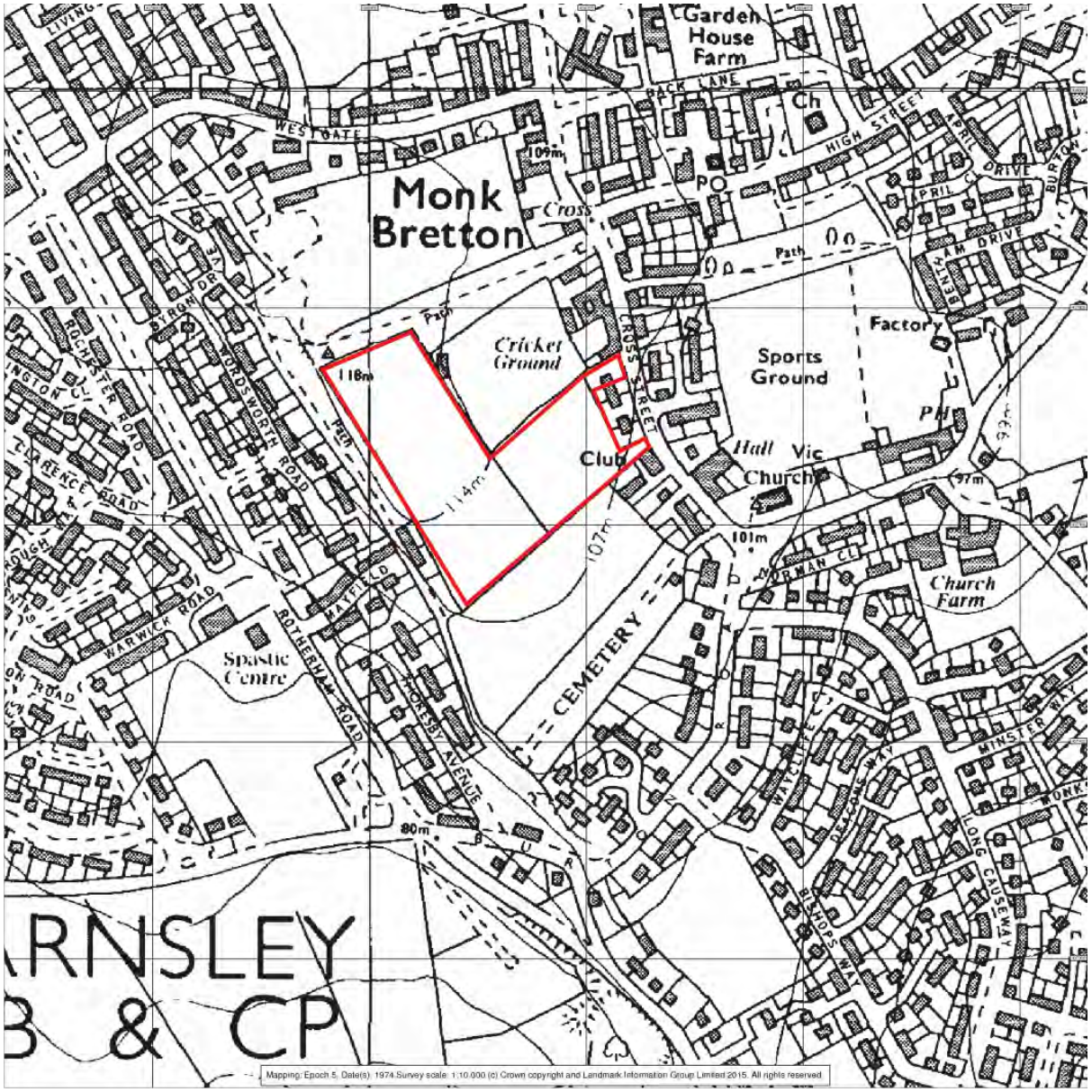


Figure 10: Ordnance Survey 1:10,000 scale map of 1974

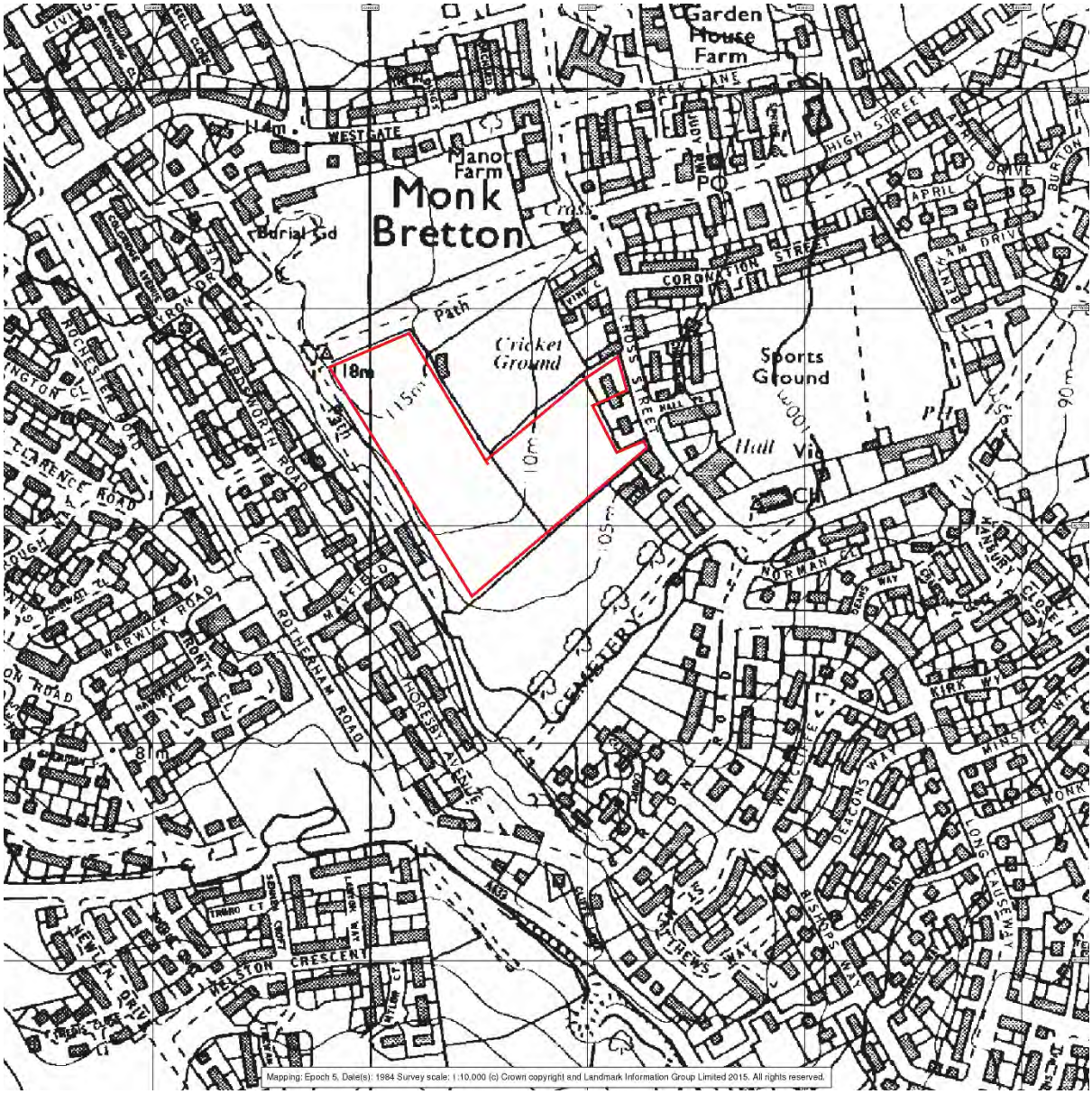


Figure 11: Ordnance Survey 1:10,000 scale map of 1981

11.0 Plates



Plate 1: View of the site looking south from north perimeter



Plate 2: Looking towards north perimeter of the site, with cricket ground to the top right.



Plate 3: The view across the site to the south-east to Club Road, with the Church of St Paul in the background.



Plate 4: The view from the edge of the cricket ground looking south-west across the site.

Appendix 3

Geophysical Survey Report

Land off Cross Street, Monk Bretton, South Yorkshire

Archaeological geophysical survey

Project No. ARC/1560/557

June 2015

© Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe, Business Park, Newton Aycliffe, DL5 6AU

Land off Cross Street, Monk Bretton, South Yorkshire

Archaeological geophysical survey

Project No. ARC/1560/557

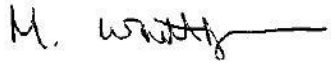
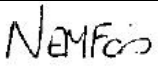
Report prepared by		Report checked by	
Name	Mark Whittingham BSc MA MCIfA	Name	Nicola Fairs BSc MSc DIC CGeol FGS
Signature		Signature	
Date	26/06/15	Date	26/06/15

Table of Contents

1. SUMMARY **1**

2. INTRODUCTION **2**

2.1 OVERVIEW 2
2.2 SITE DESCRIPTION 2
2.3 ARCHAEOLOGICAL BACKGROUND 2
2.4 SCOPE OF WORK 2

3. SURVEY METHODOLOGY **3**

3.1 MAGNETIC SURVEY 3
3.2 DATA PROCESSING AND PRESENTATION 3

4. RESULTS **5**

4.1 GENERAL 5
4.2 FIELD 1 5
4.3 FIELD 2 5

5. DISCUSSION AND CONCLUSIONS **7**

DRAWINGS

ARC_1560_557_01 Site location map
ARC_1560_557_02 Greyscale plots of magnetic gradient data
ARC_1560_557_03 Interpretation of magnetic gradient data

BIBLIOGRAPHY AND REFERENCES **8**

APPENDIX 1 Magnetic survey; technical information **9**

DIGITAL COPY OF REPORT CAN BE FOUND ON CD ATTACHED TO BACK COVER

1. SUMMARY

Phase Site Investigations Ltd was commissioned to carry out a magnetic gradient survey at a land off Cross Street, Monk Bretton. The aim of the survey was to help establish the presence / absence, extent, character, relationships and date (as far as circumstances and the inherent limitations of the technique permits) of archaeological features within the survey area.

The survey was undertaken using the Phase Site Investigations Ltd multi-sensor array cart system (MACS). The MACS comprises 8 Foerster 4.032 Ferex CON 650 gradiometers with a control unit and data logger. The MACS data was collected on profiles spaced 0.5 m apart with readings taken at between 0.1 and 0.15 m intervals.

The anomalies identified by this survey are thought to relate to agricultural practice / features, modern material / objects or geological / pedological variations and there is no evidence in the magnetic data for archaeological features / activity.

The high resolution of the survey, high data quality and the fact that soils appear to have a relatively high magnetic susceptibility (as evidenced by the presence of anomalies relating to the relatively recent ploughing regime) suggest that if significant archaeological features / activity were present that they would have been identified in the areas not affected by modern features / material.

2. INTRODUCTION

2.1 Overview

Phase Site Investigations Ltd was commissioned by BWB Consulting Ltd. to carry out an archaeological geophysical survey at land off Cross Street, Monk Bretton utilising magnetic gradiometers.

The aim of the survey was to help establish the presence / absence, extent, character, relationships and date (as far as circumstances and the inherent limitations of the technique permits) of archaeological features within the survey area.

The location of the site is shown in drawing ARC_1560_557_01.

2.2 Site description

The site is situated at Monk Bretton, approximately 2 km to the north-east of Barnsley (centred at NGR SE 361 076).

The site was approximately 3.38 ha and encompassed two fields and a residential property. The two fields were under long grass / set-aside. For the purposes of this survey each field has been given a number as shown in drawing ARC_1560_557_02.

The geology of the site consists of the Oaks Rock sandstone formation with no recorded superficial deposits (British Geological Survey, 2015).

2.3 Archaeological background

An archaeological desk-based assessment (DBA) undertaken by Prospect Archaeology Ltd (2015) states that '*There is no evidence for prehistoric or Roman activity in the area and the cartographic evidence shows that medieval settlement lay to the east and north of the site. While it is possible that remains of these periods might be present the present available evidence suggests the potential to be very low.*'

The DBA does highlight that the site '*has not been archaeologically investigated and so there is insufficient information to adequately assess the impact of the proposed development on potential remains*'.

A 19th century building appears to have been present at the northern edge of the site (variously described as a castle or folly or observatory in the DBA.

2.4 Scope of work

An 80 % sample of the fields was requested by the client, leaving a perimeter around the fields which would not be surveyed. The presence of metallic heras fencing around the majority of the perimeter of the fields and building, fences and walls adjacent to the survey area in the south-east and east mean that the majority of this perimeter strip would have shown strong magnetic disturbance and would not have provided useful data.

The location of the magnetic survey areas is shown in drawing ARC_1560_557_02.

No problems were encountered during the survey which was carried out between 15 June and 16 June 2015.

3. SURVEY METHODOLOGY

3.1 Magnetic survey

The survey was undertaken using a Phase Site Investigations Ltd multi-sensor array cart system (MACS).

The MACS comprised 8 Foerster 4.032 Ferex CON 650 gradiometers with a control unit and data logger. The Foerster gradiometers do not require balancing as each sensor is automatically 'zeroed' using the control unit software.

The MACS utilises an RTK GNSS system which means that survey grids do not have to be established. Instead an area is surveyed over a series of continuous profiles and the position of each data point is recorded using an RTK GNSS system. The sensors have a separation of 0.5 m which means that data was collected on profiles spaced at 0.5 m apart. Readings were taken at between 0.1 and 0.15 m intervals.

Data is collected on zig-zag profiles along the full length or width of a field, although fields can be sub-divided if they are particularly large. Marker canes are set-out along field boundaries at set intervals and these are used to align the profiles. The survey profiles are usually offset from field boundaries, buildings and other metallic features by several metres to reduce the detrimental effect that these surface magnetic features have on the data. The location of the MACS data is converted direct to Ordnance Survey co-ordinates using the UK OSTN 02 projection.

3.2 Data processing and presentation

The MACS data was stored direct to a laptop using in-house software which automatically corrects for instrument drift. A positional value is assigned to each data point based on the sensor number and recorded GNSS co-ordinates. No additional data processing is required and the data is gridded in Surfer 9 (Golden Software) using the Kriging option.

The data was exported as raster images (PNG files) and are presented in greyscale format with accompanying interpretations at a scale of 1:1000. All greyscale plots were clipped at -2 nT to 3 nT. Greyscale plots have been 'smoothed' using a visual interpolation but the data itself has not been interpolated.

The data has been displayed relative to a digital topographic survey base plan provided by the client as drawing *'S8213-Cross Street.dwg'*. The base plan was in the National Grid co-ordinate system and as the survey grids were set-out directly to National Grid co-ordinates the data could be simply superimposed onto the base plan in the correct position.

X-Y trace plots were examined for all of the data and overlain onto the greyscale plot to assist in the interpretation, primarily to help identify dipolar responses that will probably be associated with surface / near-surface iron objects. However, X-Y trace plots have not been presented here as they do not show any additional anomalies that are not visible in the greyscale data. A digital drawing showing the X-Y trace plot overlain on the greyscale plot is provided in the digital archive.

All isolated responses have been assessed using a combination of greyscale and X-Y trace plots.

Anomalies associated with agricultural practices are present in the data but each individual anomaly has not been shown on the interpretation. Instead the general orientation of the agricultural regime is indicated.

The data was examined over several different ranges during the interpretation to ensure that the maximum information possible was obtained from the data.

The anomalies have been categorised based on the type of response that they exhibit and an interpretation as to the cause(s) or possible cause(s) of each anomaly type is also provided.

A general discussion of the anomalies is provided for the entire site and then the results are discussed on an field by field basis. A discussion of the general categories of anomaly which have been identified by the survey is provided in Appendix 1.5.

The geophysical interpretation drawing must be used in conjunction with the relevant results section and appendices of this report.

4. RESULTS

4.1 General

The data quality across the majority of the survey area is very good allowing the data to be viewed at a narrow range of readings to better identify weak anomalies. There are several areas that have a more disturbed magnetic background but this is due to the presence of magnetic material in the topsoil or sub-surface, rather than low data quality.

Relatively strong, broadly parallel positive linear anomalies are present in most of the data, associated with ridge and furrow or modern ploughing activity. These responses indicate that the soil has a magnetic susceptibility that is sufficiently high to produce measureable magnetic responses when enhanced and suggests that if significant infilled archaeological features are present that they would also produce measureable magnetic responses.

4.2 Field 1

Basic topography: Sloped downwards to the south-east.

Field description: Long grass / set-aside. Relatively firm underfoot. Bounded by heras fencing to the south dense vegetation and a concrete wall to the north, fencing to the east and low stone wall to the west.

Summary of anomalies: A number of isolated responses, which are probably geological or modern in origin.

Areas of magnetic disturbance associated with relatively modern features / material.

A linear dipolar anomaly associated with modern sub-surface utility apparatus (water pipe(s)).

Very strong responses associated with strongly magnetic modern features / material.

Larger positive isolated responses that are probably caused by modern activity or material.

Further discussion / additional information:

The modern pipe(s) and modern features adjacent to this field have produced very strong magnetic responses.

There is no pattern to the larger positive isolated responses (**Anomalies A**) that would suggest an archaeological origin. It is thought that the responses are probably associated with material from the installation of the water pipes or other relatively modern activity / material.

4.3 Field 2

Basic topography: Sloped downwards to the south-east.

Field description: Long grass / set-aside. Relatively firm underfoot. Bounded by heras fencing to the south and east, heras fencing and dense vegetation to the north and fencing and a low stone wall to the east.

Summary of anomalies: Numerous isolated responses, the majority of which are probably geological or modern in origin.

Areas of magnetic disturbance associated with relatively modern features / material.

A possible linear dipolar anomaly that may be associated with modern sub-surface utility apparatus or drainage feature.

Very strong responses associated with strongly magnetic modern features / material.

Negative linear anomalies probably associated with tractor or other vehicles wheelings / tracks (only a selection of these responses have been shown).

Negative linear anomalies probably associated with field drains.

Positive linear responses associated with modern ploughing regime(s).

Broader positive linear responses associated with an agricultural regime. Possible ridge and furrow or modern ploughing.

A larger positive isolated response that is probably caused by modern activity or material.

A positive linear response of uncertain origin

Further discussion / additional information:

The negative anomalies on this site are believed to be related to vehicle wheelings / tracks or drainage features and are not thought to be archaeologically significant.

There is no evidence to suggest that the larger positive isolated response (**Anomaly A**) has an archaeological origin. It is thought that the response is probably associated with relatively modern activity / material.

The majority of the areas of magnetic disturbance suggest a greater than usually surface / near-surface concentration of magnetic material but do not indicate significant made ground. There are two areas of magnetic disturbance which have relatively regular components (**Anomalies B**) and these may be caused by relatively modern sub-surface features.

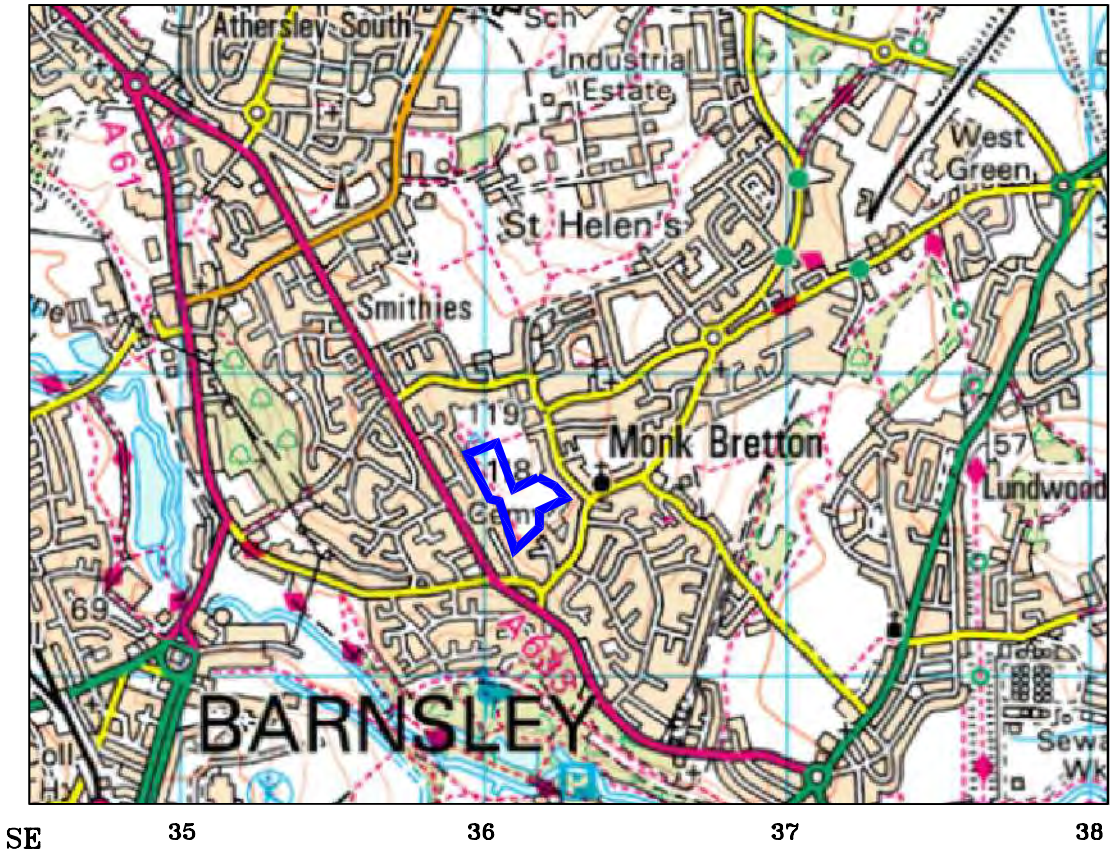
There is a relatively short positive linear anomaly in the south of the field (**Anomaly C**). This response could be caused by an infilled feature but there is no evidence to suggest that it is archaeological significant and it is reasonable to assume that it is caused by agricultural or drainage activity.

5. DISCUSSION AND CONCLUSIONS

The anomalies identified by this survey are thought to relate to agricultural practice / features, modern material / objects or geological / pedological variations and there is no evidence in the magnetic data for archaeological features / activity.

The high resolution of the survey (0.5 m by approximately 0.15 m), high data quality and the fact that soils appear to have a relatively high magnetic susceptibility (as evidenced by the presence of anomalies relating to the relatively recent ploughing regime) suggest that if significant archaeological features / activity were present that they would have been identified in the areas not affected by modern features / material.

REPRODUCED BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT. ALL RIGHTS RESERVED. LICENCE NUMBER 100047783.



SITE LOCATION

SCALE

0m 500m 1000m

NOTE

THIS DRAWING AND THE INFORMATION CONTAINED THEREIN IS ISSUED IN CONFIDENCE AND IS THE COPYRIGHT OF PHASE SITE INVESTIGATIONS LIMITED. DISCLOSURE OF THIS INFORMATION TO THIRD PARTIES AND UNAUTHORISED COPYING OR REPLICATION OF THIS DATA WITHOUT APPROVAL IS FORBIDDEN.

PHASE SITE INVESTIGATIONS

Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
F: +44 [0] 01325 310 819
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A4 Sheet]	Drawing	Status
AS SHOWN	ARC_1560_557_01	FINAL

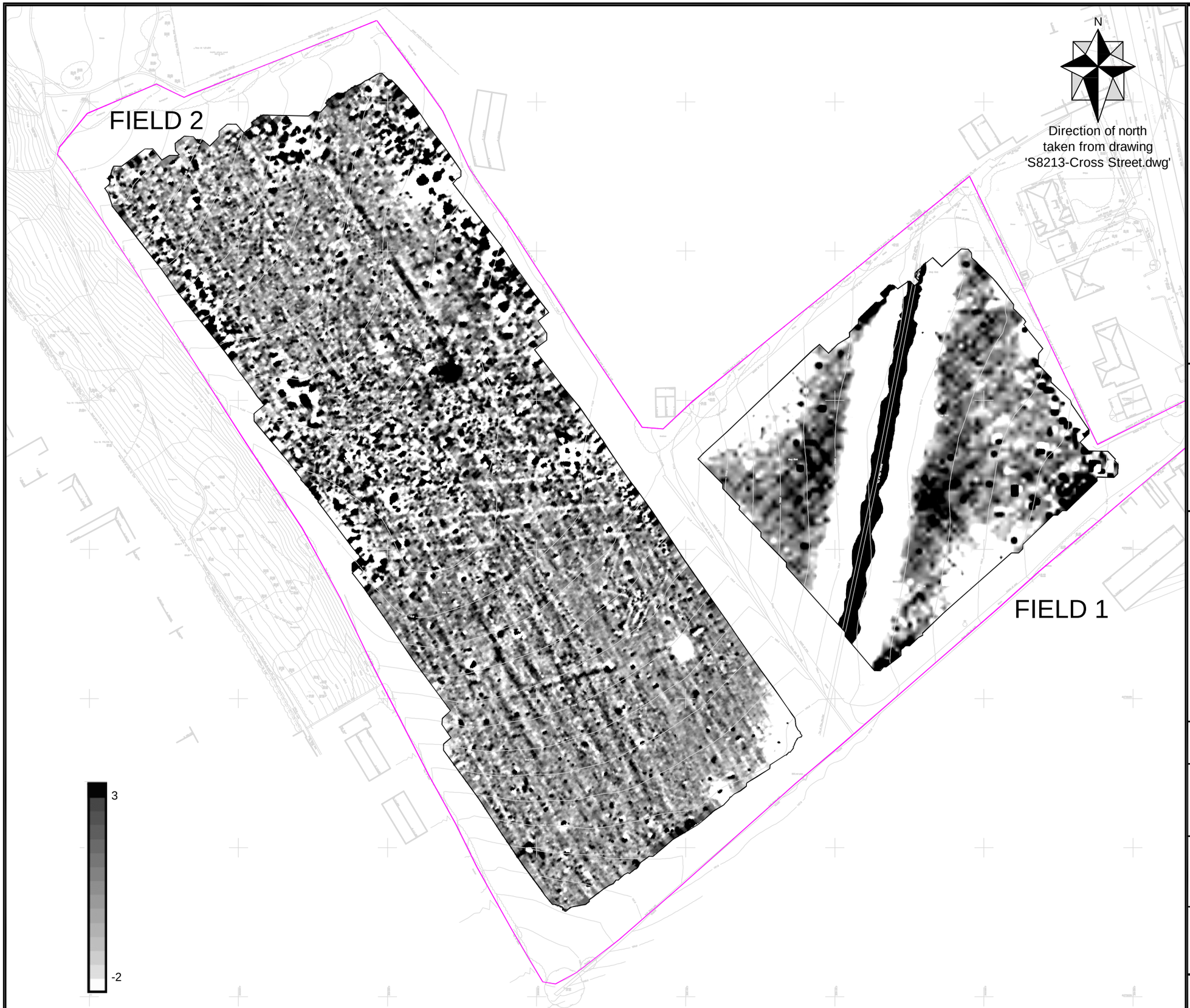
Client: BWB CONSULTING LIMITED LEEDS

Site: LAND OFF CROSS STREET MONK BRETTON, SOUTH YORKSHIRE

Title: SITE LOCATION MAP

Job No: ARC_1560_557

		Drawn	CW
Chk.	NF	Date	09/06/2015



NOTES

1. THIS DRAWING MUST BE USED IN CONJUNCTION WITH THE ACCOMPANYING REPORT (ARC_1560_557_RPT.DOC) WHICH PROVIDES DETAILS OF THE TECHNIQUES EMPLOYED, THEIR INHERENT LIMITATIONS AND ANY SITE SPECIFIC ISSUES.
2. THIS DRAWING IS BASED UPON DRAWING 'S8213-Cross Street.dwg'. PROVIDED BY THE CLIENT. THE ORDNANCE SURVEY CO-ORDINATES OBTAINED FOR THIS SURVEY WERE MEASURED USING THE UKOSTN02 PROJECTION. THIS PROJECTION SHOULD BE TAKEN INTO ACCOUNT IF THE SURVEY GRID IS RELOCATED.
3. PHASE SITE INVESTIGATIONS CANNOT ACCEPT RESPONSIBILITY FOR THE RELIABILITY OR ACCURACY OF ANY INFORMATION PROVIDED BY A THIRD PARTY.
4. THIS DRAWING AND THE INFORMATION CONTAINED THEREIN IS ISSUED IN CONFIDENCE AND IS THE COPYRIGHT OF PHASE SITE INVESTIGATIONS LIMITED. DISCLOSURE OF THIS INFORMATION TO THIRD PARTIES AND UNAUTHORISED COPYING OR REPLICATION OF THIS DATA WITHOUT APPROVAL IS FORBIDDEN.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING

KEY

SITE BOUNDARY

PHASE SITE INVESTIGATIONS

Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
F: +44 [0] 01325 310 819
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1000	ARC_1560_557_02	FINAL

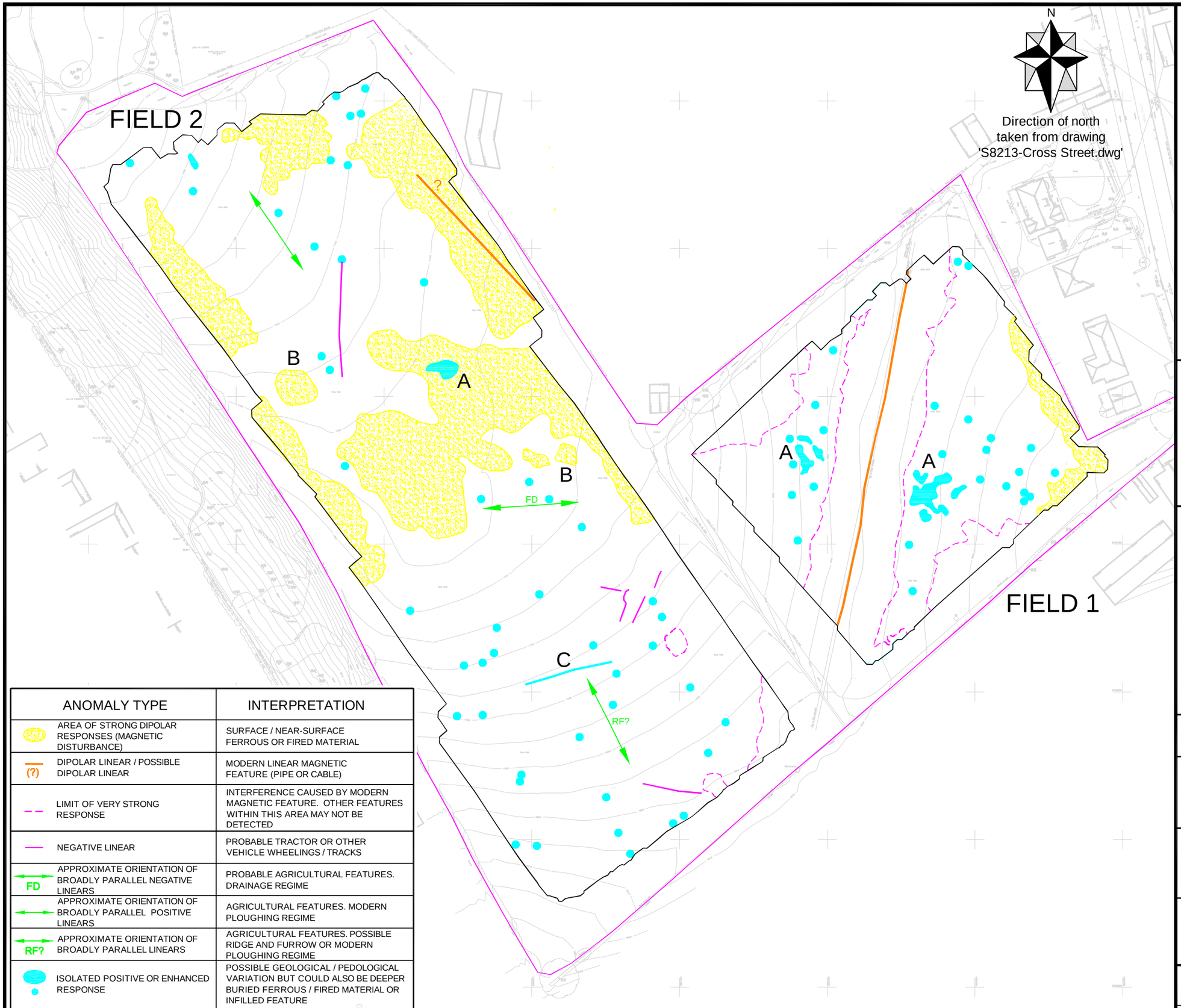
Client: BWB CONSULTING LEEDS

Site: LAND OFF CROSS STREET MONK BRETTON

Title: GREYSCALE PLOTS OF MAGNETIC GRADIENT DATA

Job No: ARC_1560_557

Surveyed	JG, AD	Drawn	JG
Chk.	NF	Date	17/06/2015



NOTES

1. THIS DRAWING MUST BE USED IN CONJUNCTION WITH THE ACCOMPANYING REPORT (ARC_1560_557_RPT.DOC) WHICH PROVIDES DETAILS OF THE TECHNIQUES EMPLOYED, THEIR INHERENT LIMITATIONS AND ANY SITE SPECIFIC ISSUES.
2. THIS DRAWING IS BASED UPON DRAWING 'S8213-Cross Street.dwg'. PROVIDED BY THE CLIENT. THE ORDNANCE SURVEY CO-ORDINATES OBTAINED FOR THIS SURVEY WERE MEASURED USING THE UK OSTN02 PROJECTION. THIS PROJECTION SHOULD BE TAKEN INTO ACCOUNT IF THE SURVEY GRID IS RELOCATED.
3. PHASE SITE INVESTIGATIONS CANNOT ACCEPT RESPONSIBILITY FOR THE RELIABILITY OR ACCURACY OF ANY INFORMATION PROVIDED BY A THIRD PARTY.
4. THIS DRAWING AND THE INFORMATION CONTAINED THEREIN IS ISSUED IN CONFIDENCE AND IS THE COPYRIGHT OF PHASE SITE INVESTIGATIONS LIMITED. DISCLOSURE OF THIS INFORMATION TO THIRD PARTIES AND UNAUTHORISED COPYING OR REPLICATION OF THIS DATA WITHOUT APPROVAL IS FORBIDDEN.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING

KEY

SITE BOUNDARY

ANOMALY TYPE	INTERPRETATION
AREA OF STRONG DIPOLAR RESPONSES (MAGNETIC DISTURBANCE)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL
DIPOLAR LINEAR / POSSIBLE DIPOLAR LINEAR (?)	MODERN LINEAR MAGNETIC FEATURE (PIPE OR CABLE)
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE. OTHER FEATURES WITHIN THIS AREA MAY NOT BE DETECTED
NEGATIVE LINEAR	PROBABLE TRACTOR OR OTHER VEHICLE WHEELINGS / TRACKS
APPROXIMATE ORIENTATION OF BROADLY PARALLEL NEGATIVE LINEARS FD	PROBABLE AGRICULTURAL FEATURES. DRAINAGE REGIME
APPROXIMATE ORIENTATION OF BROADLY PARALLEL POSITIVE LINEARS	AGRICULTURAL FEATURES. MODERN PLOUGHING REGIME
APPROXIMATE ORIENTATION OF BROADLY PARALLEL LINEARS RF?	AGRICULTURAL FEATURES. POSSIBLE RIDGE AND FURROW OR MODERN PLOUGHING REGIME
ISOLATED POSITIVE OR ENHANCED RESPONSE	POSSIBLE GEOLOGICAL / PEDOLOGICAL VARIATION BUT COULD ALSO BE DEEPER BURIED FERROUS / FIRED MATERIAL OR INFILLED FEATURE
POSITIVE OR ENHANCED LINEAR / CURVI-LINEAR	POSSIBLE DRAINAGE OR INFILLED FEATURE

PHASE SITE INVESTIGATIONS

Phase Site Investigations Ltd, 703A Whinfield Drive, Aycliffe Business Park, Newton Aycliffe, County Durham, DL5 6AU

T: +44 [0] 01325 311 751
F: +44 [0] 01325 310 819
E: enquiries@PhaseSI.com
W: www.PhaseSI.com

Scale [A3 Sheet]	Drawing	Status
1:1000	ARC_1560_557_03	FINAL

Client: BWB CONSULTING LEEDS

Site: LAND OFF CROSS STREET MONK BRETTON

Title: INTERPRETATION OF MAGNETIC GRADIENT DATA

Job No: ARC_1560_557

Surveyed	JG, AD	Drawn	MW
Chk.	NF	Date	17/06/2015

BIBLIOGRAPHY AND REFERENCES

Prospect Archaeology Ltd, 2015, Land off Cross Street, Monk Bretton, South Yorkshire, Archaeological Assessment.

British Geological Survey, 2015, online resource - www.bgs.ac.uk

APPENDIX 1

Magnetic survey: technical information

1.1 Theoretical background

1.1.1 Magnetic instruments measure the value of the Earth's magnetic field; the units of which are nanoTeslas (nT). The presence of surface and sub-surface features can cause variations or anomalies in this magnetic field. The strength of the anomaly is dependent on the magnetic properties of a feature and the material that surrounds it. The two magnetic properties that are of most interest are magnetic susceptibility and thermoremnant magnetism.

1.1.2 Magnetic susceptibility indicates the amount of ferrous (iron) minerals that are present. These can be redistributed or changed (enhanced) by human activity. If enhanced material subsequently fills in features such as pits or ditches then these can produce localised increases in magnetic responses (anomalies) which can be detected by a magnetic gradiometer even when the features are buried under additional soil cover.

1.1.3 In general, it is the contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of topsoils, subsoils and rocks into which these features have been cut which causes the most recognisable responses. This is primarily because there is a tendency for magnetic ferrous compounds to become concentrated in the topsoil, thereby making it more magnetic than the subsoil or the bedrock. Linear features cut into the subsoil or geology, such as ditches, that have been silted up or have been backfilled with topsoil will therefore usually produce a positive magnetic response relative to the background soil levels. Discrete feature, such as pits, can also be detected. Less magnetic material such as masonry or plastic service pipes which intrude into the topsoil may give a negative magnetic response relative to the background level. The strength of magnetic responses that a feature will produce will depend on the background magnetic susceptibility, how rapidly the feature has been infilled, the level and type of human activity in the area and the size and depth of a feature. Not all infilled features can be detected and natural variations can also produce localised positive and negative anomalies.

1.1.4 Thermoremnant magnetism indicates the amount of magnetism inherent in an object as a result of heating. Material that has been heated to a high temperature (fired), such as brick, can acquire strong magnetic properties and so although they may not appear to have a high iron content they can produce strong magnetic anomalies

1.1.5 The magnetic survey method is highly sensitive to interference from surface and near-surface magnetic 'contaminants'. Surface features such as metallic fencing, reinforced concrete, buildings or walls all have very strong magnetic signatures that can dominate readings collected adjacent to them. Identification of anomalies caused by sub-surface features is therefore more difficult, or even impossible, in the vicinity of surface magnetic features. The presence of made ground also has a detrimental effect on the magnetic data quality as this usually contains magnetic material in the form of metallic scrap and brick. Identification of features beneath made ground is still possible if the target feature is reasonably large and has a strong magnetic response but smaller features or magnetically weak features are unlikely to be identified.

1.1.6 The interpretation of magnetic anomalies is often subjective and it is rarely possible to identify the cause of all magnetic anomalies. Not all features will produce a measurable magnetic response and the effectiveness of a magnetic survey is also dependant on the site-specific conditions. The main factors that may limit whether a feature can be detected are the

composition of a feature, its depth and size and the surrounding material. It is not possible to guarantee that a magnetic survey will identify all sub-surface features.

1.1.7 Most high resolution, near surface magnetic surveys utilise a magnetic gradiometer. A gradiometer is a hand-held instrument that consists of two magnetic sensors, one positioned directly above the other, which allows measurement of the magnetic gradient component of the magnetic field. A gradiometer configuration eliminates the need for applying corrections due to natural variations in the overall field strength that occur during the course of a day but it only measures relative variations in the local magnetic field and so comparison of absolute values between sites is not possible.

1.1.8 Features that are commonly located using magnetic surveys include archaeological ditches and pits, buried structures or foundations, mineshafts, unexploded ordnance, metallic pipes and cables, buried piles and pile caps. The technique can also be used for geological mapping; particularly the location of igneous intrusions.

1.2 Instrumentation

1.2.1 A multi-sensor array cart system (MACS) utilising 8 Foerster 4.032 Ferex CON 650 gradiometers, spaced at 0.5 m intervals, with a control unit and data logger was used for the magnetic survey the site.

1.3 Survey methodology

1.3.1 The MACS utilises an RTK GNSS system which means that survey grids do not have to be established. Instead an area is surveyed over a series of continuous profiles and the position of each data point is recorded using an RTK GNSS system. The sensors have a separation of 0.5 m which means that data was collected on profiles spaced at 0.5 m apart. Readings were taken at between 0.1 and 0.15 m intervals.

1.3.2 Data is collected on zig-zag profiles along the full length or width of a field, although fields can be sub-divided if they are particularly large. Marker canes are set-out along field boundaries at set intervals and these are used to align the profiles. The survey profiles are usually offset from field boundaries, buildings and other metallic features by several metres to reduce the detrimental effect that these surface magnetic features have on the data. The location of the MACS data is converted direct to Ordnance Survey co-ordinates using the UK OSTN 02 projection.

1.3.3 The location of the survey grids was recorded directly to Ordnance Survey National Grid co-ordinates using the UKO OSTN2 projection to an accuracy better than 0.03 m. As the survey was related direct to Ordnance Survey National Grid co-ordinates temporary survey stations were not established.

1.3.4 The Foerster gradiometers have a resolution of 0.2 nT but the stability of the cart system significantly reduces noise caused by instrument tilt and movement when compared with a traditional hand-held gradiometer system and the increased data intervals provide a higher resolution data set. The sensors have a range of ± 10,000nT and readings are taken at 0.1 nT resolution.

1.4 Data processing and presentation

1.4.1 The MACS data was stored automatically to a laptop using in-house software which automatically corrects for instrument drift. A positional value is assigned to each data point based on the sensor number and recorded GNSS co-ordinates. No additional data processing is required and the data is gridded in Surfer 9 (Golden Software) using the Kriging option.

1.4.2 The data was exported as raster images (PNG files), and are presented in greyscale format at 1:1000.

1.4.3 The data has been displayed relative to a digital base plan provided by the client as drawing '*S8213-Cross Street.dwg*. The base plan was in the National Grid co-ordinate system and as the survey grids were set-out directly to National Grid co-ordinates the data could be simply superimposed onto the base plan in the correct position.

1.5 Interpretation

1.5.1 The anomalies have been categorised based on the type of response that they have and an interpretation as to the cause(s) or possible cause(s) of each anomaly type is also provided. The following anomaly types may be present within the data:

Dipolar responses

Dipolar responses are those that have a sharp variation between strongly positive and negative components. In the majority of cases dipolar responses are usually caused by modern ferrous features / objects, although fired material (such as brick), some ferrous or industrial archaeological features and strongly magnetic gravel could also produce dipolar responses.

There are numerous **isolated dipolar responses** (iron spikes) across the survey area that are indicative of ferrous or fired material on or near to the surface. The isolated responses are often caused by small objects, such as spent shotgun cartridges, iron nails and horseshoes or pieces of modern brick or pot. Archaeological artefacts can also produce this type of response but unless there is strong supporting evidence to the contrary they are assumed not to be of archaeological significance. This type of anomaly have not been shown on the interpretation as there is no evidence to suggest that they may be archaeological in origin. The isolated dipolar responses at this site are believed to be non-archaeological in origin and so responses of this type have not been shown on the interpretation.

Areas containing strong or numerous dipolar responses (**magnetic disturbance)** are usually caused by concentrations of ferrous or fired material and are often found adjacent to field boundaries where such material tends to accumulate. Above ground metallic or strongly magnetic features, such as fences, gates, pylons and buildings can also produce very strong dipolar responses. If an area of magnetic disturbance is located away from existing field boundaries then it could indicate a former field boundary, several large isolated objects in close proximity, an area where modern material has been tipped or an infilled cut feature, such as a quarry pit. Areas of dipolar response can occasionally be caused by features / material associated with archaeological industrial activity but they are usually caused by modern activity. Responses in areas of magnetic disturbance can sometimes be so strong that features located beneath them may not be detected.

Linear anomalies that contain dipolar responses (categorised as **dipolar linear**) are usually caused by modern pipes or cables.

Very strong responses from modern features can dominate the data for a significant distance beyond the feature. The extent of these areas is usually shown as a **limit of very strong response.** It should be noted that this effect extends beyond the feature and so the limit of the response does not correspond to the actual size or location of the feature within

it. It should be recognised that other sub-surface features located within these areas may not be detected.

Negative linear anomalies

Negative linear anomalies occur when a feature has lower magnetic readings than the surrounding material. It can often be associated with ploughing regimes or plastic / concrete pipes.

They can indicate the presence of a feature that cuts into magnetic soils or bedrock and which is infilled with less magnetic material and in certain geologies can be associated with archaeological features.

The negative linear anomalies in this data set are believed to be related to vehicle wheelings / tracks or drainage features.

Linear / curvi-linear anomalies (probable agricultural)

In many geological / pedological conditions agricultural features / regimes can produce magnetic anomalies due to the accumulation / alignment of magnetic topsoil. In most cases these are exhibited as a series of **broadly parallel positive linear** anomalies. The majority of these responses are associated with modern ploughing regimes but in some instances, where the responses are broader and more widely spaced, they can indicate the presence of the remnants of ridge and furrow.

Field drain systems can also produce linear anomalies, usually where the drains are made from fired ceramic or infilled with magnetic gravels.

Where a series of parallel anomalies are present then the approximate orientation of the anomalies are shown on the interpretation drawing to indicate the direction of the agricultural regime but for the sake of clarity individual anomalies have not been shown.

Individual anomalies may be shown if the response is not part of a regime.

Linear / curvi-linear trends

An anomaly is categorised as a **trend** if it is not certain that the response is associated with an extant sub-surface feature. Trends are usually weak, irregular, diffuse or discontinuous and it is usually not certain what their cause is, if they represent significant sub-surface features or even if they are associated with definite features.

It is possible that some of the trends are associated with geological / pedological variations. Others may be produced by artificial constructs within the data, either caused by processing or in some instances by intersecting anomalies (usually different agricultural regimes) that give the appearance of curving or regular shapes. Many trends are a product of weak, naturally occurring responses that happen to form a regular pattern but which are not associated with a sub-surface feature.

In some instances former features that have been severely truncated can still produce broad, diffuse or weak responses even if the underlying feature has been removed. This is due to the presence of magnetic soils associated with the former feature still being present along its route. In other instances the magnetic properties of the soils filling a feature may vary and so the magnetic signature of the feature can change, even if the sub-surface feature itself remains uniform. If a response from a feature becomes significantly weak or

diffuse then part of the anomaly may be shown as a trend as it is uncertain if the feature is still present or has been severely truncated or removed.

Isolated positive or enhanced responses

Isolated positive or enhanced responses can occur if the magnetism of a feature, area or material has been enhanced or if a feature is naturally more magnetic than the surrounding material. It is often difficult to determine which of these factors causes any given responses and so the origin of this type of anomaly can be difficult to determine. They can have a variety of causes including geological variations, infilled archaeological features, areas of burning (including hearths), industrial archaeological features, such as kilns, or deeper buried ferrous material and modern fired material.

The large number of isolated responses and lack of an obvious pattern to their distribution suggests that these anomalies are probably associated with geological / pedological variations or modern material. Only the larger or stronger areas of positive response have been shown on the interpretation.

Positive or enhanced linear / curvi-linear anomalies

Positive magnetic anomalies indicate an increase in magnetism and if the resulting anomaly is linear or curvi-linear then this can indicate the presence of a man-made feature. **Positive or enhanced linear / curvi-linear** anomalies can be associated with agricultural activity or sometimes infilled natural features but they can also be caused by ditches that are infilled with magnetically enhanced material and as such can indicate the presence of archaeological features.

1.5.2 Several different ranges of data were used in the interpretation to ensure that the maximum information possible is obtained from the data.

1.5.3 X-Y trace plots were examined for all of the data and overlain onto the greyscale plot to assist in the interpretation, primarily to help identify dipolar responses that will probably be associated with surface / near-surface iron objects. X-Y trace plots have not been used in the report as they do not show any additional anomies that are not visible in the greyscale data. A digital drawing showing the X-Y trace plot overlain on the greyscale plot has been provided in the digital archive.

1.5.4 All isolated responses have been assessed using a combination of greyscale and X-Y trace plots.

1.5.5 Anomalies associated with modern ploughing are present in the data. The general orientation of these has been shown on the interpretation but each individual anomaly has not been shown. The same approach has been taken for ridge and furrow or drainage due to the complexity of the overall interpretation.

1.5.6 The greyscale plots and the accompanying interpretations of the anomalies identified in the magnetic data are presented as 2D AutoCAD drawings. The interpretation is made based on the type, size, strength and morphology of the anomalies, coupled with the available information on the site conditions. Each type of anomaly is displayed in separate, easily identifiable layers annotated as appropriate.

1.6 Limitations of magnetic surveys

1.6.1 The magnetic survey method requires the operator to walk over the site at a constant walking pace whilst holding the instrument or to walk across the site in a straight line towing a cart.

The presence of an uneven ground surface, dense, high or mature vegetation or surface obstructions may mean that some areas cannot be surveyed.

1.6.2 The depth at which features can be detected will vary depending on their composition, size, the surrounding material and the type of magnetometer used for the survey. In good conditions large, magnetic targets, such as buried drums or tanks can be located at depths of more than 4 m. Smaller targets, such as buried foundations or archaeological features can be located at depths of between 1 m and 2 m.

1.6.3 A magnetic survey is highly sensitive to interference from surface and near-surface magnetic 'contaminants'. Surface features such as metallic fencing, reinforced concrete, buildings or walls all have very strong magnetic signatures that can dominate readings collected adjacent to them. Identification of anomalies caused by sub-surface features is therefore more difficult or even not possible in the vicinity of surface and near-surface magnetic features.

1.6.4 The presence of made ground also has a detrimental effect on the magnetic data quality as this usually contains magnetic material in the form of metallic scrap and brick. Identification of features beneath made ground is still possible if the target feature is reasonably large and has a strong magnetic response but smaller features or magnetically weak features are unlikely to be identified.

1.6.5 It should be noted that anomalies that are interpreted as modern in origin may be caused by features that are present in the topsoil or upper layers of the subsoil. Removal of soil to an archaeological or natural layer can therefore remove the feature causing the anomaly.

1.6.6 A magnetic survey does not directly locate sub-surface features - it identifies variations or anomalies in the local magnetic field caused by features. It can be possible to interpret the cause of anomalies based on the size, shape and strength of response but it should be recognised that a magnetic survey produces a plan of magnetic variations and not a plan of all sub-surface features. Interpretation of the anomalies is often subjective and it is rarely possible to identify the cause of all magnetic anomalies. Geological or pedological (soil) variations or features can produce responses similar to those caused by man-made (anthropogenic) features.

1.6.7 Anomalies identified by a magnetic survey are located in plan. It is not usually possible to obtain reliable depth information on the features that cause the anomalies.

1.6.8 Not all features will produce a measurable magnetic response and the effectiveness of a magnetic survey is also dependant on the site-specific conditions. It is not possible to guarantee that a magnetic survey will identify all sub-surface features. A magnetic survey is often most-effective at identifying sub-surface features when used in conjunction with other complementary geophysical techniques.

It should be noted that a geophysical survey does not directly locate sub-surface features - it identifies variations or anomalies in the background response caused by features. The interpretation of geophysical anomalies is often subjective and it is rarely possible to identify the cause of all such anomalies. Not all features will produce a measurable anomaly and the effectiveness of a geophysical survey is also dependant on the site-specific conditions. The main factors that may limit whether a feature can be detected are the composition of a feature, its depth and size and the surrounding material. It is not possible to guarantee that a geophysical survey will identify all sub-surface features. Confirmation on the identification of anomalies and the presence or absence of sub-surface features can only be achieved by intrusive investigation.

Appendix 2: Inventory of primary archive

Phase	File/Box No	Description	Quantity
Evaluation	File no.1	Context register sheets	1
		Context cards	10
		Trench sheets	4
		Drawing register sheets	1
		Permatrace sheet	1
		Sample register sheets	1
		Photo register sheets	1
		B&W negative strips	1

Appendix 3: Concordance of contexts

Context	Trench	Description
001	-	Topsoil
002	-	Subsoil
003	-	Natural
004	2	Cut of ditch
005	2	Fill of ditch 004
006	2	Fill of ditch 004
007	4	Cut of ditch
008	4	Fill of ditch 007
009	4	Cut of ditch
010	4	Fill of ditch 009

Bibliography

ASWYAS, 2011, Archaeological Recording Manual, ASWYAS (unpubl.)

British Geological Survey, 2016, http://mapapps.bgs.ac.uk/geologyofbritain/home.html (viewed August 2016).

Bellway Homes, 2016, Land off Cross Street, Monk Bretton: Written Scheme of Investigation for Archaeological Mitigation

CIfA, 2014, *Code of Conduct*. Chartered Institute for Archaeologists

CIfA, 2014, *Standard and Guidance for Archaeological Field Evaluation*. Chartered Institute for Archaeologists

French, D. H. 1971, An Experiment in Water Sieving. *Anatolian Studies* 21 59-64

Phase Site Investigations, 2015, Land off Cross Street, Monk Bretton, South Yorkshire: Archaeological Geophysical Survey

Prospect Archaeology, 2015, Land off Cross Street, Monk Bretton, South Yorkshire: Archaeological Assessment

Soil Survey of England and Wales, 1983, *Soils of Northern England*, Sheet 1