Land off Halifax Road
Penistone
South Yorkshire

2020/0274

Written Scheme of Investigation

Archaeological Evaluation by Trial Trenching

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ARCHAEOLOGICAL EVALUATION BY TRIAL TRENCHING

CONTENTS PAGE

Figure List

Appendices

1 Introduction

1.1 This document is a Written Scheme of Works (WSI) for Archaeological Evaluation by Trial Trenching, which sets out the details for the archaeological work required on land to the south of Halifax Road, Penistone, South Yorkshire in order to inform South Yorkshire Archaeology Service of the archaeological potential of the site and to mitigate the impact of the residential development.

1.2 The Written Scheme of Works has been commissioned by the developers (Barratt and David Wilson Homes Yorkshire West) and in compliance with the South Yorkshire Archaeology Service '*Model Brief for Archaeological Evaluation by Trial Trenching*'.

1.3 In accordance with the recommendations of the National Planning Policy Framework (February 2019) on '*Archaeology and Planning*', an Archaeological Evaluation by Trial Trenching has been proposed, following the results of a Heritage Assessment and Geophysical Survey. The results of the evaluation will be summarised in a report for an appropriate mitigation strategy to be formulated if necessary. If required, the mitigation will be outlined in a separate Written Scheme of Investigation.

2. Planning Background and Site Description

2.1 An application for planning permission has been made to Barnsley Metropolitan Borough Council for a residential development, areas of open space, landscaping and associated infrastructure (planning reference 2020/0274)

2.2 The site, which measures approximately 16ha, is located to the south of Halifax Road, approximately 10km west of Barnsley (NGR SE 246 044). The site is bounded to the north by Halifax Road, to the east by residential housing to the south by Scout Dyke and a Mill Race and to the west by agricultural land.

2.3 The site consists of three pasture fields whish lie on bedrock geology of alternating bands of mudstone and siltstone of the Pennine Lower Coal Measures and sandstone of the Penistone Flags formation (BGS. 2021).

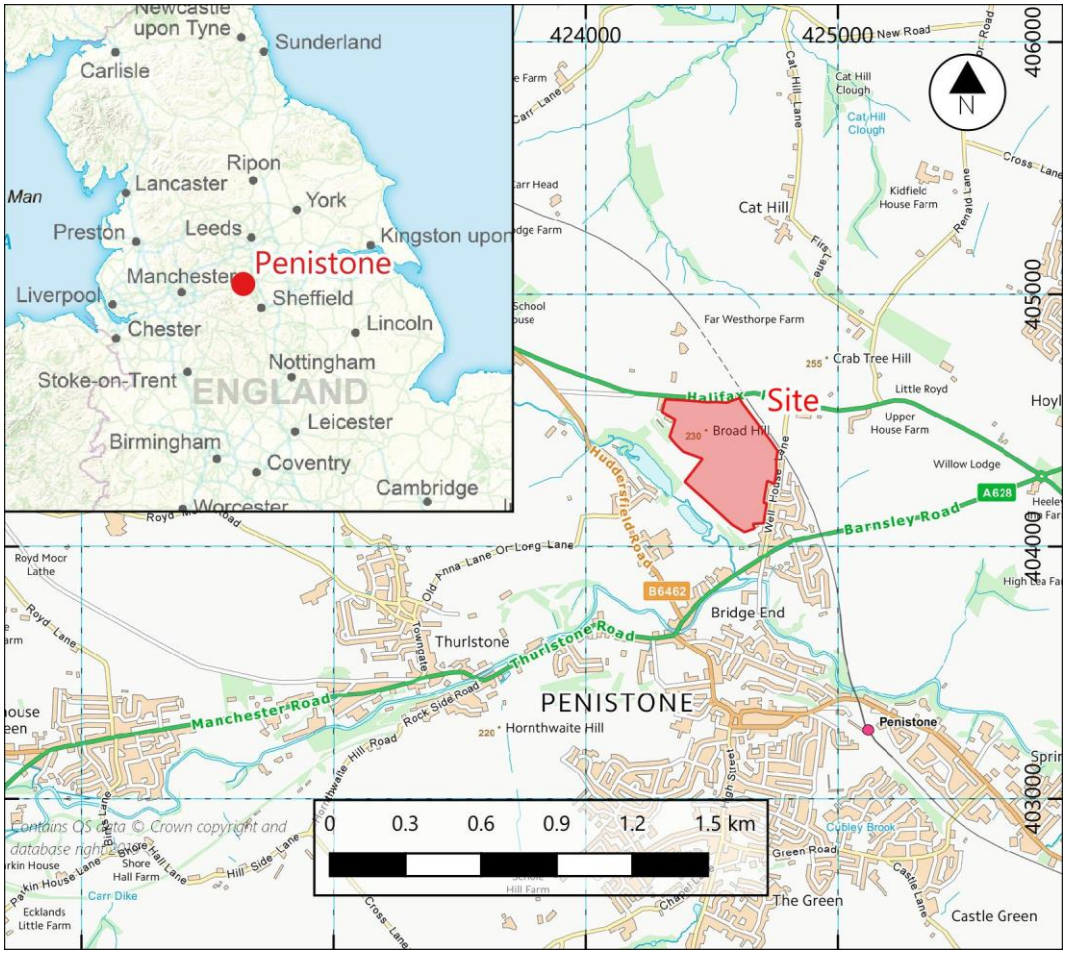

Figure 1. Site Location.

3. Archaeological and Historical Background

3.1 Penistone is recorded in the Domesday Survey of 1086 as *Pengestone'*. The village, which has pre-conquest origins developed into the Medieval period.

3.2 A Heritage Assessment was carried out by BWB in 2021. The Assessment concluded that field boundaries within the site consist of stone walls built as a result of enclosure of the landscape. No prehistoric or Romano-British activity is recorded within the vicinity of the site and records do not suggest that Medieval activity extended into the site.

3.3 A geophysical Survey was carried out at the site in 2018 by Phase Site Investigations. The survey provided evidence of archaeological activity, likely to represent enclosures, in the south-eastern region of the site. Other linear features may be of archaeological origin although they may represent agricultural activity. Anomalies relating to geological variations and drainage features were also identified.

4. Aims and Objectives

4.1 The aim of the Archaeological Trial Trenching is to determine the presence/absence, nature, date, quality of survival and importance of archaeological deposits to enable an assessment of the potential and significance of the archaeology to be made.

4.2 Based on the archaeological deposits which may be encountered during evaluation the site has the potential to inform the following research questions regarding the early Medieval, later Medieval and Post-Medieval periods

- What was the extent and nature of field systems associated with known Medieval villages?
- How can we improve our understanding of the processes of early enclosure and land improvement (including drainage schemes)?What were the economic, social or political roles of Iron Age and Romano-British field systems?

5. Compliance

5.1 MAP will adhere to the general principles of the CIfA Code of Conduct (CIfA 2019) throughout the project and to the CIfA 'Standards and Guidance for Archaeological Field Evaluations' (CIFA 2020a).

5.2 All work will be carried out in accordance with chapter 16 of the National Planning Policy Framework (2019) on 'Archaeology and Planning'.

5.3 The work will be monitored under the auspices of South Yorkshire Archaeology Service who will be consulted before the commencement of site works.

5.4 All maps within this report have been produced from the Ordnance Survey with the permission of the Controller of Her Majesty's Stationery Office, Crown Copyright. License No. AL 50453A and also data derived from Open Street Map (https://www.opennstreetmap.org/copyright).

5.5 If human remains are encountered during the course of this evaluation, it is considered best practice to not remove the remains at this stage, however, this should be considered at a site-specific level. If it is deemed necessary to

remove human remains, this will be carried out under the conditions of, and after the receipt of, licences for the removal of human remains (issued by the Ministry of Justice) and in accordance with the Burial Act (1857), 'Updated Guidelines to the Standards for Recording Human Remains' (Brickley & McKinley. 2017), CIFA guidelines 'Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains (McKinley & Roberts 1993), and all Historic England and Advisory Panel on the Archaeology of Burials in England (APABE) guidance, to ensure that they are treated with due dignity. The preferred option would be for them to be adequately recorded before lifting, and then carefully removed for scientific study, and long-term storage with an appropriate museum; however, the burial licence may specify reburial or cremation as a requirement.

5.6 MAP Archaeological Practice is an ISO 9001 accredited organisation (certificate number GB2005425). The award of the ISO 9001 certificate, independently audited by the British Standards Institution (BSI), demonstrates MAP's commitment to providing a quality service to our clients. ISO (the International Organisation for Standardisation) is the most recognised standards body in the world, helping to drive excellence and continuous improvement within businesses.

6 Fieldwork Methodology

6.1 Thirty-one Trial Trenches are proposed, positioned in order to assess anomalies in the Geophysical data but also areas supposedly devoid of such anomalies (Fig. 2), three measure 15m x 4m and the remainder 30m x 2m. An additional 10% of trenching may be required as a contingency. The results of the evaluation may lead to further archaeological mitigation work which will be specified in a separate Written Scheme of Investigation.

6.2 A minimum of one week's notice of the commencement of fieldwork will be given to the SYAS.

6.3 All overburden, topsoil and any subsoils will be carefully removed by mechanical excavator using a wide toothless blade (ditching bucket), under archaeological supervision, to the top of archaeological features or layers, thereafter all excavation will be by hand. Areas of intensive modern disturbance will be given a low priority in excavation. Where practicable, the fills of these features will be removed by mechanical excavator.

6.4 Context recording methodologies and systems will be used. All archaeological deposits will be recorded according to principles of stratigraphic excavation on MAP's *pro forma* sheets, which are compatible with the MoLAS recording system. The MAP recording manual will be used on site where necessary. The stratigraphy of trenches will be recorded even if no archaeology is found.

6.5 The excavation sampling policy is:

a. A 100% sample of stakeholes

b. An initial 50% sample should be taken of all postholes, but where they are part of a building these should be 100% excavated

c. A 50% sample of pits with a diameter up to 1.5m (where justified, these should be 100% excavated,

d. A minimum 25% sample of all pits over 1.5m in diameter, but this should include a complete section across the pit to record a full profile (where justified, these should be 100% excavated)

e. linear features will be sampled a minimum of 20% along their length (each sample section to be not less than 1m), or a minimum of a 1m sample section, if the feature is less than 5m long.

f. All junctions/intersections and corners of linear features will be investigated and their stratigraphic relationships determined – if necessary, using box sections and all ditch terminals will be examined,

g. Funerary contexts, buildings and industrial features will be subject to sufficient excavation to establish the objectives of the evaluation but no archaeological deposit will be entirely removed unless this is unavoidable to meet the aims of the fieldwork.

6.6 In certain cases, the use of mechanical excavation equipment may also be appropriate for removing deep intrusions (e.g. modern brick and concrete floors or footings), or for putting sections through major features after partial excavation (e.g. ditches), or through deposits to check that they are of natural origin.

6.7 A full written, drawn and photographic record will be made of all material revealed during the course of the Trial Trenching. Plans should be completed at a scale of 1:50 or 1:20 (as appropriate), whilst section drawings should be at a scale of 1:10. Black and white film photographs will form the basis of the photographic archive, with colour slides where necessary. Digital photography will only be used to supplement the record.

6.8 A sampling strategy for the recovery for environmental remains has been formulated in accordance with an Environmental Strategy written by an Environmental Consultant (Diane Aldritt, appendix 1) and also follows the

guidance of the Association for Environmental Archaeology (1995) and Historic England (2011).

6.9 Samples will be collected from primary and secondary contexts, where applicable, from a range of representative features, including pit and ditch fills, postholes, floor deposits, ring gullies and other negative features. Where features allow between 40 and 60 litres will be taken although entire contexts will be sampled if the volume is low, and specialist samples will be taken, the volume of these samples will be dependent on the material being sampled. Positive features will also be sampled; retention of structural material such as bricks will be implemented where necessary. Sampling will also be considered for those features where dating by other methods (for example pottery and artefacts) is uncertain. Animal bones will be hand collected, and course sieved samples collected from contexts containing a high density of bones. Small samples of other material will be recovered where applicable. Flotation samples and samples taken for coarse-mesh sieving from dry deposits will be processed at the time of the fieldwork wherever possible, partly to permit variation of sampling strategies if necessary, but also because processing at a later stage could cause delays.

6.10 All finds (artefacts and ecofacts) visible during excavation will be collected and processed, unless variations in this principle are agreed with the Local Authority. Finds will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication First Aid for Finds. In accordance with the procedures outlined in MoRPHE, all iron objects, a selection of non-ferrous artefacts (including all coins), and a sample of any industrial debris relating to metallurgy will be X-radiographed before assessment. Any recording, marking and storage, materials will be of

archive quality. We have made an allowance for a minimum three boxes and a contingency for a small finds box in calculating estimates for museums storage grant.

6.11 We will make provision within our excavation strategies, where necessary, for use of shoring, pumps or artificial lighting. Such strategies will also follow for sampling for radiocarbon, archaeomagnetic and/or dendrochronological determinations, as appropriate: where in situ timbers are found to survive in good condition, samples should be taken for dendrochronological assay.

6.12 Arrangements for site access and reinstatement are to be agreed with the commissioning body.

6.13 Health and safety will take priority over archaeological matters. Archaeologists undertaking fieldwork must observe safe working practices; the Health and Safety arrangements must be agreed and understood by all relevant parties before work commences. Risk assessments must be carried out and documented in accordance with Management of Health and Safety at Work Regulations 1999. The Contractor should determine whether this project is covered by Construction (Design and Management) Regulations 2015 and ensure that all requirements under the regulations are met. All archaeologists and visitors to site will comply with necessary precautions regarding COVID-19 as outlined in the RAMS for the site and sign a declaration to declare they are not infectious, adhere to social distancing and approved safety measures. Should stepping of the trenches be required, where depths exceed safe dimensions (in depth), the trench width of 2m should be measured at the base of the trench.

6.14 Necessary precautions should be taken over underground services and overhead lines.

6.15 All on site staff hold valid CSCS cards. All Project Officers and Project Managers hold a valid First Aid at Work Certificate and Site Supervisor Safety Training qualifications.

6.16 MAP will provide evidence of all necessary insurances, including Employer's Liability, Professional Liability and Public Liability Cover.

6.17 Site inspections will be arranged with SYAS, so that the general site stratigraphy can be assessed in the initial stage of trial trenching and/or so that the site can be inspected when fieldwork is near to completion but before any trenches have been backfilled. Site visits with the Historic England Yorkshire Region Science Advisor will be arranged if necessary.

7. Post Excavation Analysis and Report

7.1 Upon completion of the evaluation, the artefacts, soil samples and stratigraphic information will be assessed as to their potential and significance for further analysis.

7.2 A report will be prepared to include the following:

a) A non-technical summary of the results of the work, Introduction and aims and objectives.

b) An introduction which should include

- the site code/project number
- planning reference number and SMR Casework number
- dates when fieldwork took place

- grid reference

c) An account of the methods and results of the evaluation, describing structural data and associated finds and/or environmental data recovered.

d) Interpretation, including phasing of the site sequence and spot-dating of ceramics (Descriptive material should be clearly separated from interpretive statements). This shall be supported by the use of photographs and drawings, to include an overall plan of the site accurately identifying the location of trenches; individual trench plans as excavated indicating the location of archaeological features, with at least one section detailing the stratigraphic sequence of deposits within each trench.

e) A specialist assessment of the artefacts recovered with a view to their potential for further study. Allowance should be made for preliminary conservation and stabilisation of all objects and an assessment of long-term conservation and storage needs.

Assessment of artefacts must include inspection of X-radiographs of all iron objects, a selection of non-ferrous artefacts (including coins), and a sample of any industrial debris relating to metallurgy. A rapid scan of all excavated material should be undertaken by conservators and finds researchers in collaboration. Material considered vulnerable will be selected for stabilisation after specialist recording. Where intervention is necessary, consideration will be given to possible investigative procedures (e.g glass composition studies, residues in or on pottery, and mineral preserved organic material). Once assessed, all material will be packed and stored in optimum conditions, as described in First Aid For Finds. Waterlogged organic materials should be dealt with, following Historic England documents, Guidelines for the care of waterlogged archaeological leather, and guidelines on the recording, sampling, conservation and curation of waterlogged wood.

f) A specialist assessment of environmental samples taken, with a view to their potential for subsequent study.

Processing of all samples collected for biological assessment, or sub-samples of them, will be completed. Bulk and site-riddled samples from dry deposits should have been processed during excavation, where possible. The preservation state, density and significance of material retrieved must be assessed, following methods presented in Environmental Archaeology and archaeological evaluations, or existing local guidelines, until national guidelines are available. Unprocessed sub-samples must be stored in conditions specified by the appropriate specialists.

Assessments for any technological residues will be undertaken. Samples for dating must be submitted to laboratories promptly, so as to ensure that results are available to aid development of specifications for subsequent mitigation strategies.

g) The results from investigations in archaeological sciences will be included in the Site Archive and presented in the Evaluation Report. Reports must include sufficient detail to permit assessment of potential analysis. They will include tabulation of data in relation to site phasing and contexts and must include non-technical summaries. The objective presentation of data must be clearly separated from interpretation. Recommendation for further investigation (both on samples already collected, and at future excavations) must be clearly separated from the results and interpretation.

h) An assessment of the archaeological significance of the deposits identified, in relation to other sites in the region.

i) A conclusion with recommendations for further post-excavation work, if required.

j) Detailed archive location and destination.

k) Appendices and figures, as appropriate, including a copy of the specification and/or project design.

l) References and bibliography of all sources used

7.3 Copies of the report will be submitted to the commissioning body, the Local Planning Authority and South Yorkshire Archaeology Service within 3 months of the completion of the evaluation, unless an alternative timescale is agreed.

7.4 We will provide a digital copy of the report in PDF format to the South Yorkshire Historic Environment Record.

7.5 A Brief, interim report may be required shortly after the completion of fieldwork.

7.6 The following Specialists have been contacted as are available to work on the project:

Pottery - T G Manby (Prehistoric),

M R Stephens (Medieval and Post-medieval)

P A Ware/P Mills (Roman)

Flint - P Makey

Animal Bone – J Richardson

Environmental Sampling – D Alldritt

Conservation – York Archaeological Trust

Human Remains – York Osteology

Ceramic Building Material – P Mills

Clay Tobacco Pipe - M R Stephens

7.7 A final report will comprise all below ground investigation and mitigation work.

8. Copyright, Confidentiality and Publicity

8.1 Unless the individual/organisation commissioning the project wishes to state otherwise, the copyright of any written, graphic or photographic records and reports rests with MAP.

9. Archive Preparation and Dissemination

9.1 The requirements for archive preparation and deposition must be addressed and undertaken in a manner agreed with Experience Barnsley who will be contacted before commencement of fieldwork. In line with the "Archaeological Archive Deposition Policy for Museums in Yorkshire and the Humber", produced by Renaissance Yorkshire, the museum will also be contacted during a mid-point review of the project during which information will be passed to the museum regarding the archive and the proposed timescale for deposition, and following the completion of work.

9.2 Guidance set out in the CIfA Toolkit for Selecting Archives (2019) will be followed, prior to the commencement of fieldwork in order to establish project-specific strategies for the retention or discarding of material. The retention of material will also be discussed with the Clifton Park Museum with regards to the significance and research potential of the archive.

9.3 The site archive, including finds and environmental material, subject to the permission of the relevant landowners, will be labelled, conserved and stored according to the United Kingdom Institute for Conservation (UKIC)'s.

Provision will be made for the stable storage of paper records and their long term storage on a suitable medium, such as microfilm, a copy of which should be deposited with the NMR (Historic England). An index to the contents of the archive together with details of its date and place of deposition should be lodged with the SMR.

9.4 Archive deposition will be arranged in consultation with Experience Barnsley and South Yorkshire Archaeology Service and in accordance with their deposition policy relating to the preparation and transfer of archives. The timetable for deposition shall be agreed on completion of the site archive and narrative.

9.5 The digital archive will be deposited with the ADS.

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Phase Site Investigations. 2018. Land South of Halifax Road, Penistone, Archaeological Geophysical Survey

South Yorkshire Archaeology Service & Historic England. *South Yorkshire Historic Environment Research Framework*. Web Resource. Available at https://researchframeworks.org/syrf/ [Accessed 25.052021].

11. Best Practice & Scientific Guidance

Archaeological Conservation

Investigative Conservation: Guidelines on how the Detailed Examination of Artefacts from Archaeological Sites can Shed Light on their Manufacture and Use (2008): Officially archived, but available on request.

Guidelines on the X-radiography of Archaeological Metalwork (2006): https://historicengland.org.uk/images-books/publications/x-radiography-of-archaeological-metalwork/

Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation (2018): https://historicengland.org.uk/images-books/publications/waterlogged-organic-artefacts/

Environmental Archaeology

Animal Bones and Archaeology - Recovery to Archive (2019): https://historicengland.org.uk/images-books/publications/animal-bones-and-archaeology/

Deposit Modelling and Archaeology: Guidance for Mapping Buried Deposits (2020): https://historicengland.org.uk/images-books/publications/deposit-modelling-and-archaeology/

Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (Second Edition) (2011): https://historicengland.org.uk/images-books/publications/environmental-archaeology-2nd/

Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record (2015): https://historicengland.org.uk/images-books/publications/geoarchaeology-earth-sciences-to-understand-archaeological-record/

Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains (2008): Currently being revised, but available on request.

Mineralised Plant and Invertebrate Remains: A Guide to the Identification of Calcium Phosphate Replaced Remains (2020):

https://historicengland.org.uk/images-books/publications/mineralised-plant-and-invertebrate-remains/

Geophysical Survey

EAC Guidelines for the Use of Geophysics in Archaeology: Questions to Ask and Points to Consider (2016) [Europae Archaeologiae Consilium]: https://historicengland.org.uk/images-books/publications/eac-guidelines-for-use-of-geophysics-in-archaeology/

Geophysical Survey in Archaeological Field Evaluation (2008): Officially archived, but available on request.

Marine Geophysics Data Acquisition, Processing and Interpretation: Guidance Notes (2013): https://historicengland.org.uk/images-books/publications/marine-geophysics-data-acquisition-processing-interpretation/

Human Remains

Guidance for Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England (Second Edition) (2017) [Advisory Panel on the Archaeology of Burials in England]: https://www.archaeologyuk.org/apabe/pdf/APABE_ToHREfCBG_FINAL_WEB.pdf

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The Role of the Human Osteologist in an Archaeological Fieldwork Project (2018): https://historicengland.org.uk/images-books/publications/role-of-human-osteologist-in-archaeological-fieldwork-project/

Updated Guidelines to the Standards for Recording Human Remains (2017) [Chartered Institute for Archaeologists / British Association for Biological Anthropology and Osteoarchaeology]: https://babao.org.uk/assets/Uploads-to-Web/14-Updated-Guidelines-to-the-Standards-for-Recording-Human-Remains-digital.pdf

Materials Science and Industrial Processes

A Standard for Pottery Studies in Archaeology (2016) [Prehistoric Ceramics Research Group, the Study Group for Roman Pottery and the Medieval Pottery Research Group]: https://historicengland.org.uk/images-books/publications/standard-for-pottery-studies-in-archaeology/

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Organic Residue Analysis and Archaeology: Guidance for Good Practice (2017): https://historicengland.org.uk/images-books/publications/organic-residue-analysis-and-archaeology/

Science for Historic Industries: Guidelines for the Investigation of 17th- to 19th-century Industries (2018): https://historicengland.org.uk/images-books/publications/science-for-historic-industries/

Preservation in Situ

Land Contamination and Archaeology: Good Practice Guidance (2017): https://historicengland.org.uk/images-books/publications/land-contamination-and-archaeology/

Piling and Archaeology: Guidance and Good Practice (2019): https://historicengland.org.uk/images-books/publications/piling-and-archaeology/

Preserving Archaeological Remains: Decision-taking for Sites under Development (2016): https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/

Scientific Dating

Archaeomagnetic Dating: Guidelines on Producing and Interpreting Archaeomagnetic Dates (2006): Officially archived, but available on request; Historic England also suggests people consult the 'Archaeomagnetism: Magnetic Moments in the Past' webpages (https://www.bradford.ac.uk/archaeomagnetism/) hosted by the University of Bradford.

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Luminescence Dating: Guidelines on Using Luminescence Dating in Archaeology (2008): Currently being revised, but available on request.

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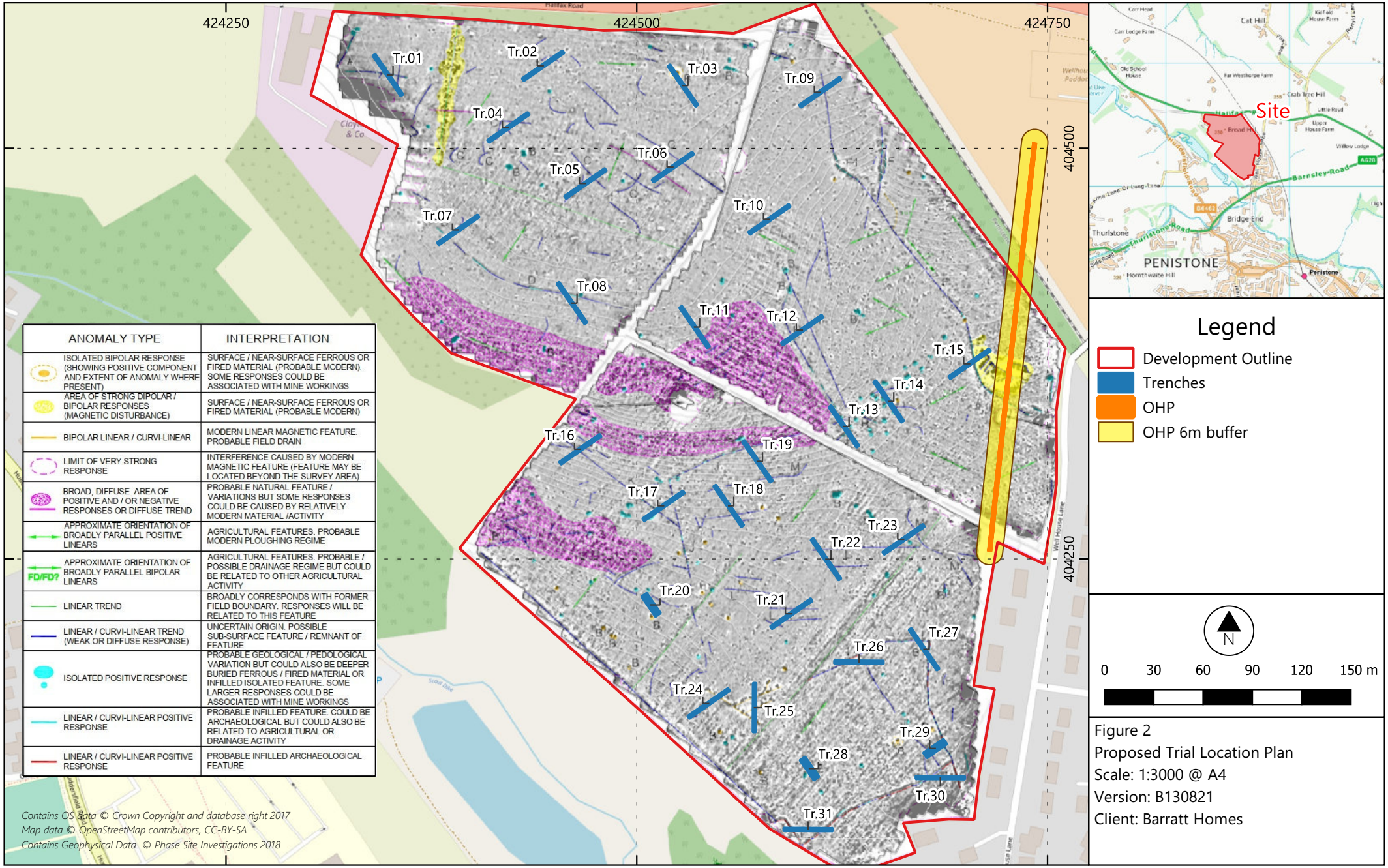

ANOMALY TYPE	INTERPRETATION
ISOLATED BIPOLAR RESPONSE (SHOWING POSITIVE COMPONENT AND EXTENT OF ANOMALY WHERE PRESENT)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL (PROBABLE MODERN). SOME RESPONSES COULD BE ASSOCIATED WITH MINE WORKINGS
AREA OF STRONG DIPOLAR / BIPOLAR RESPONSES (MAGNETIC DISTURBANCE)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL (PROBABLE MODERN)
BIPOLAR LINEAR / CURVI-LINEAR	MODERN LINEAR MAGNETIC FEATURE. PROBABLE FIELD DRAIN
LIMIT OF VERY STRONG RESPONSE	INTERFERENCE CAUSED BY MODERN MAGNETIC FEATURE (FEATURE MAY BE LOCATED BEYOND THE SURVEY AREA)
BROAD, DIFFUSE AREA OF POSITIVE AND / OR NEGATIVE RESPONSES OR DIFFUSE TREND	PROBABLE NATURAL FEATURE / VARIATIONS BUT SOME RESPONSES COULD BE CAUSED BY RELATIVELY MODERN MATERIAL /ACTIVITY
APPROXIMATE ORIENTATION OF BROADLY PARALLEL POSITIVE LINEARS	AGRICULTURAL FEATURES. PROBABLE MODERN PLOUGHING REGIME
APPROXIMATE ORIENTATION OF BROADLY PARALLEL BIPOLAR LINEARS (FD/FD?)	AGRICULTURAL FEATURES. PROBABLE / POSSIBLE DRAINAGE REGIME BUT COULD BE RELATED TO OTHER AGRICULTURAL ACTIVITY
LINEAR TREND	BROADLY CORRESPONDS WITH FORMER FIELD BOUNDARY. RESPONSES WILL BE RELATED TO THIS FEATURE
LINEAR / CURVI-LINEAR TREND (WEAK OR DIFFUSE RESPONSE)	UNCERTAIN ORIGIN. POSSIBLE SUB-SURFACE FEATURE / REMNANT OF FEATURE
ISOLATED POSITIVE RESPONSE	PROBABLE GEOLOGICAL / PEDOLOGICAL VARIATION BUT COULD ALSO BE DEEPER BURIED FERROUS / FIRED MATERIAL OR INFILLED ISOLATED FEATURE. SOME LARGER RESPONSES COULD BE ASSOCIATED WITH MINE WORKINGS
LINEAR / CURVI-LINEAR POSITIVE RESPONSE	PROBABLE INFILLED FEATURE. COULD BE ARCHAEOLOGICAL BUT COULD ALSO BE RELATED TO AGRICULTURAL OR DRAINAGE ACTIVITY
LINEAR / CURVI-LINEAR POSITIVE RESPONSE	PROBABLE INFILLED ARCHAEOLOGICAL FEATURE

Figure 2
Proposed Trial Location Plan
Scale: 1:3000 @ A4
Version: B130821
Client: Barratt Homes

APPENDIX 1

Conservation Strategy By Ian Panter of York Archaeological Trust

Artefacts from all categories and all periods will be recovered as a matter of routine during the excavation. When retrieved from the ground finds will be kept in a finds tray or appropriate bags in accordance with First Aid for Finds. Where necessary, a conservator may be required to recover fragile finds from the ground depending upon circumstances.

If waterlogged conditions are encountered a wide range of organic materials may be recovered, including wood, leather and textiles. Advice will be sought from a conservator to discuss optimum storage requirements before any attempt is made to retrieve organic finds and structural timbers from the ground.

After the completion of the fieldwork stage, a conservation assessment will be undertaken which will include the X-radiography of all the ironwork (after initial screening to separate obviously modern debris), and a selection of the non-ferrous finds (including all coins). A sample of slag may also be X-rayed to assist with identification and interpretation. Wet-packed material, including glass, bone and leather will be stabilised and consolidated to ensure their long-term preservation. All finds will be stored in optimum conditions in accordance with First Aid for Finds and Guidelines for the Preparation of Excavation Archives for Long-Term Storage (Walker, 1990).

Waterlogged wood, including structural elements will be assessed following the English Heritage guidelines, Waterlogged wood: sampling, conservation and

curation of structural wood (Brunning 1996). The assessment will include species identification, technological examination and potential for dating.

The conservation assessment report will include statements on condition, stability and potential for further investigation (with conservation costs) for all material groups. The conservation report will be included in the updated project design prepared for the analysis stage of the project.

References

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APPENDIX 2

Environmental Strategy By Diane Alldrit

The on-site environmental sampling strategy will systematically seek to recover a representative sample of botanical, molluscan (both terrestrial and aquatic), avian and mammalian evidence from the full range of contexts encountered during the excavation. This will enable, at the assessment stage, the possibility for radiocarbon dating material to be obtained, and for an initial analysis of the economic and environmental potential of the site. In order to achieve this, a bulk sample (BS, Dobney *et al* 1992) comprising an optimum size of 40litre of sediment (where possible) should be taken from every stratigraphically secure and archaeologically significant context. In practice it may not always be possible to obtain 28l of sediment from certain features during the assessment stage, for instance from partially excavated pits or post-holes, in which case a single bucket sample, c.10 to 14litre should be taken at the site supervisors discretion. Deposits of mixed origin, for instance topsoil, wall fills and obvious areas of modern contamination, should be avoided where possible, as these will contain intrusive material and not provide secure radiocarbon dates.

All buckets and other sampling equipment must be clean and free of adherent soil in order to prevent cross-contamination between samples. If dry soil is to be stored for any length of time it should be kept in cool, dry conditions, and away from strong light sources. However, it is preferable to process samples as soon as possible after excavation.

Bulk soil samples shall be processed using an Ankara-type water flotation machine (French 1971) for the recovery of carbonised plant remains and charcoal. The

flotation tank should contain a >1mm mesh for collection of the retent or 'residue' portion of the sample (which may contain pottery, lithics and animal / bird bone, in addition to the heavier fragments of charcoal which do not float). The 'flot' portion of the sample, which may include carbonised seeds, cereal grain, charcoal and sometimes mollusc shell, should be captured using a nest of >1mm and >300micron Endicot sieves. Flotation equipment, including sieves, meshes, brushes and so forth must be meticulously cleaned between samples in order to prevent contamination of potential radiocarbon dating material. All material resulting from flotation will be dried prior to microscopic examination. Flotation is not suitable for the recovery of pollen or for processing waterlogged samples, which shall be discussed below.

Where there is potential for waterlogged preservation, shown for instance by the presence of wood and other organic or wet material, then a 5 to 10litre size sample should be taken (GBA sample, Dobney *et al* 1992). This material is to be retained for later processing using laboratory methods to enable the recovery of waterlogged plant material and insects. For assessment purposes a 1litre sub-sample of the organic sediment from each potential waterlogged sample shall be processed using laboratory wash-over methods, and once processed kept wet. All waterlogged samples awaiting processing should be kept damp, preferably stored in plastic sealable tubs, and in cool conditions. Where large waterlogged timbers are recovered these should be stored under refrigerated conditions and an appropriate conservator consulted.

There is the possibility that the waterlogged deposits may require parasite egg analysis. It is proposed that the 'squash' technique is adapted, this would require small lumps of raw sediment approximately 3mm in diameter taken from three separate points from within the sample and homogenised in a little water by

shaking. After allowing coarse particles to settle for a few moments, a drop of the supernatant was removed. This work would be undertaken by either John Carrott or Harry Kenwood if necessary.

If sediment suitable for pollen analysis is encountered, for instance rich organic peaty deposits, or deep ditch sections with organic preservation, the archaeobotanical specialist is to be consulted prior to any sampling taking place. These deposits would require sampling with large kubiena tins and require the specialist to be on-site. Pollen analysis, even at assessment level, would subsequently impose a considerable cost implication should it be carried out.

The specialist is available to provide consultation and advice on the environmental sampling strategy throughout the course of the excavation and during post-excavation processing if required.

References

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