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1EW03-AWH

Location Specific Written Scheme of Investigation for additional Urgent Works Trial Trench Investigations in Buckinghamshire, Northamptonshire and Warwickshire

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1 Executive Summary

1.1.1 This document forms a Location Specific Written Scheme of Investigation (LSWSI) for an archaeological trial trench evaluation on the route of the proposed Phase One of High Speed Two (HS2) in Buckinghamshire, Northamptonshire and Warwickshire at the following sites:

- Tilehouse Lane Cutting Woodland habitat, Buckinghamshire (029-M1W);
- Putlowes Cottages, Fleet Marston, Buckinghamshire (066-M3W);
- North of Moat Farm, Chetwode, Buckinghamshire (084-M10W);
- South of Illets Farm, Northamptonshire (095-M4E);
- Halse Copse South, Northamptonshire (099-M2E)
- Halse Copse East, Northamptonshire;
- Windmill Hill Spinney, Warwickshire (LS093/94); and
- North of Field Cottage, Southam (LS122), Warwickshire.

1.1.2 The evaluation will be managed by Fusion, the Central Section Enabling Works Contractor (the Contractor). The location, site conditions, geology and archaeology background, and selection rationale for each survey are provided in the corresponding Project Plans, which are appended as Appendix 1 of this LSWSI.

1.1.3 This LSWSI, which sets out the methodology, deliverables, programme, health, safety and environmental requirements, resources and interfaces necessary to deliver the archaeological trail trench evaluation defined in the Project Plans, has been prepared by the Designer (on behalf of the Contractor) and will be completed by the Archaeological Contractor prior to the fieldwork taking place.

1.1.4 The Project Plans establish the scope, aims, contribution to the Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI: HERDS) objectives, techniques, deliverables and reporting mechanism for trial trench evaluation.

1.1.5 The location for the trial trench evaluation has been selected to address construction programme risk at locations required to enable urgent habitat creation work to be carried out, including pond excavation, bank construction, tree planting and landscaping.

1.1.6 The trial trench evaluation will comprise machine-assisted and manual archaeological excavation and recording across each site. The results of the evaluation will inform the detailed design of a programme of further archaeological investigations.

1.1.7 This LSWSI has been prepared in accordance with the standards and guidance provided by the GWSI: HERDS, the Technical Standards for Specification for Historic Environment Project Plans and Location Specific Written Schemes of Investigation (Document No. HS2-HS2-EV-STD-000-000036) and Specification for Historic Environment Investigations (Document No. HS2-HS2-EV-STD-000-000035) and relevant Historic England and CIfA Standards.

2 Location, Extent and Condition

2.1.1 The LSWSI covers eight habitat mitigation sites located in the counties of Buckinghamshire, Northamptonshire and Warwickshire (Figure 1), which include:

Tilehouse Lane Cutting Woodland habitat (029-M1W)

2.1.2 The trial trenching addresses an area of land located to the northwest of Durdent Court (CR01012a) and is located to the north of Denham Green, Uxbridge and west of the River Colne, Buckinghamshire (NGR 503082 189983). The single parcel of land encompasses an area of c. 1.95ha and is located directly south of a public footpath (Shire Way) which marks the county boundary between Buckinghamshire and Hertfordshire. The area is currently in use for pasture and arable cultivation.

Putlowes Cottages (066-M3W)

2.1.3 The trial trenching addresses an area of land located northeast of Fleet Marston Spinney, Buckinghamshire (NGR 477500 215400, centred), within Aylesbury Vale, north-west of the town of Aylesbury. It comprises a single land parcel (CR01434) occupying part of a single arable field, with the area to be evaluated covering a total area of 5.25 ha.

North of Moat Farm (084-M10W)

2.1.4 The trial trenching addresses an area of land at Chetwode, located to the north-east of Godington, Buckinghamshire (NGR 464590 228450, centred), and encompasses a single arable field with an area of c. 3.63ha (CR01444). It is located 250m north of the boundary between the county of Buckinghamshire to the north and the county of Oxfordshire to the south, and is bounded to the south-west by a dismantled section of railway (The Great Central Railway).

South of Illets Farm (095-M4E)

2.1.5 The trial trenching addresses a parcel of land (CR01057) located South of Illets Farm, near Turweston, Buckinghamshire (NGR 460310 238963, centred). It comprises a meadow measuring c. 1.78ha, bound to the west by a field of a former horse keeping site, and to the east by the River Great Ouse. This Site forms part of the larger site with CR01059 which was subject to a geophysical survey, however due to the site conditions, the survey could not be completed across the evaluation area.

Halse Copse South and Halse Copse East (099-M2E)

2.1.6 The trial trenching addresses two habitat creation sites on land located to the north of Halse and south-east of Greatworth, Northamptonshire (NGR457570 241997, centred), located near two areas of woodland, both known as Halse Copse, to the north and south:

- Halse Copse South (CRO1065) is located southeast of a covered reservoir (NGR 456893 242070). The northern part of this area comprises the north-eastern corner of an arable field, and measures 0.78 ha. The southern part of this area comprises the north-eastern parcel of the adjacent arable field, and measures 0.54ha. Footpaths run along the northern and eastern boundary of both parts of the Site.

Halse Copse East (CRO1527) lies west of a stream that marks the boundary between the parishes of Greatworth and Helmdon (NGR 457612 241980), and comprises the north-eastern half of an arable field. The northern, eastern and southern boundaries follow those of the present field. The area is outside the Consolidated Construction Boundary (CCB), and measures 4.45ha.

Windmill Hill Spinney (LS093/94)

2.1.7 The trial trenching at Windmill Hill Spinney (CR01080) addresses a parcel of arable land located north-east of the village of Ladbroke, Warwickshire. The Site is centred at NGR 442153 259252 and measures 11.81ha. It is bound to the southeast by Windmill Hill Spinney, to the southwest by Southam Road/Ladbroke Bypass (the A423), and in all other directions by agricultural fields and pasture.

North of Field Cottage, Southam (LS122)

2.1.8 The trial trenching North of Field Cottage (CR01083) will evaluate a parcel of arable land to the south of the market town of Southam. The Site is centred at NGR 440904 260876 and measures 2.59ha. It is bound to the north by an industrial estate, to the east by Kineton Road (the B4451) and to the south and west by agricultural fields surrounding The Old Coach House and The Fields House.

3 Overview of Project Plans

3.1.1 Trial trench evaluation within the eight sites is designed investigate archaeological anomalies identified by geophysical survey and to address construction programme risk at locations required to for the construction of new habitats providing ecological mitigation for Phase 1 of HS2.

3.1.2 This LSWSI has been prepared to provide the necessary specification and site-specific information to enable the delivery of the archaeological trial trench evaluation defined in the relevant Project Plans:

- Project Plan for Trial Trench Evaluation at Tilehouse Lane Cutting Woodland habitat, Buckinghamshire (029-M1W), Document no.: 1EW03-FUS-EV-REP-CS01_CL02-002686;
- Project Plan for Trial Trench Evaluation at Fleet Marston SpinneyPutlowes Cottages, Fleet Marston, Aylesbury, Buckinghamshire (066-M3W), Document no.: 1EW03-FUS-EV-REP-CS04_CL20-00002685;
- Project Plan for Trial Trench Evaluation North of Moat Farm, Buckinghamshire (084-M10W), Document no.: 1EW03-FUS-EV-REP-CS06_CL10-002690;
- Project Plan for Trial Trench Evaluation, South of Illets Farm, Buckinghamshire (095-M4E), Document no.: 1EW03-FUS-EV-REP-CS07_CL12-002688;
- Project Plan for Trial Trench Evaluation at Halse Copse South and Halse Copse East, Northamptonshire (099-M2E), Document no.: 1EW03-FUS-EV-REP-CS07_CL12-

00002687; and

- Project Plan for Trial Trench Investigations at Windmill Hill Spinney (LS093/94) and North of Field Cottage, Southam (LS122), Warwickshire, Document no.: 1EW03-FUS-EV-REP-CS07_CL24-002689.

3.1.3 Copies of the Project Plans are appended as Appendix 1 of this LSWSI.

3.1.4 The Project Plans establish the scope, aims, objectives, methodology and deliverables for the archaeological evaluations in accordance with the commitments made in Environmental Minimum Requirements (EMRs) for HS2 Phase One; the objectives set out in the GWSI: HERDS and HS2 Technical Standards (see section 9 of this LSWSI). They also establish the requirements for information management, quality assurance and the results of engagement with the archaeological advisor to the local planning authority.

3.1.5 The Project Plans identify requirements to undertake archaeological trial trenching in advance of construction. The trial trench evaluations across these sites will comprise the excavation of 50 No. trenches measuring 30m(l) by 2m(w), and 2 No. trenches measuring 30m(w) by 4m(w) as detailed in Table 2 of each Project Plan and shown on relevant figures. A provision for a contingency has been made should additional archaeological investigations be required if further clarification of the archaeological remains is considered necessary to meet the aims of the evaluation. The area specific contingencies are detailed in Section 5 of the Project Plans (cf. Appendix 1).

3.1.6 Section 4 of each Project Plan identifies the contribution the results of the trial trench investigations can make to a number of specific research objectives set out in the GWSI: HERDS. Trial trench investigation will provide the most suitable method for the recovery of archaeological evidence to inform the research objectives. Sections 5 and 6 of the project plans provide a methodology and deliverables for the trial trench evaluation. The specific aims, research objectives and the potential knowledge outcomes for the site are identified within each Project Plan.

3.2 Aims and Objectives

Aims of the Fieldwork

3.2.1 The aims of the trial trenching are to:

- confirm the presence/absence, extent and depth of any surviving archaeological remains within the Site;
- confirm the presence/absence of alluvium and/or terrace gravel deposits and if present test the depth of any alluvium;
- determine the nature, date, condition, state of preservation, complexity and significance of any archaeological remains;
- determine the likely range, quality and quantity of artefactual and environmental evidence present, particularly with regard to identification of artefacts buried within alluvium and to identify the presence of any potential buried land surfaces within any

alluvium;

- suggest measures, if appropriate and feasible, for further archaeological investigation to mitigate identified significant impacts; and
- contribute to the delivery of GWSI: HERDS Specific Objectives as specified in Section 4.2 of each Project Plan.

3.2.2 The reasons for the selection of the individual investigation areas are provided in Appendix 1.

Objectives of the Fieldwork

3.2.3 The results of the evaluation will be combined with data from other archaeological assessments carried out as part of the project, such as the desk-based studies which contributed to the ES for Phase One of HS2, geophysical surveys etc., in order to analyse the surviving archaeological resource within each site, and to develop a programme of further archaeological investigation, as required.

4 Programme

4.1.1 Fusion intend for the trial trenching to be completed between December 2017 and the end of January 2018, in order to allow for the ecological mitigation works to commence. COPA Archaeology JV are currently developing the detailed programme and sequencing of the works (including detailed GANNT chart baseline programme) in consultation with Fusion.

4.1.2 Where archaeological remains of significance are identified, further investigation in the form of trial-trench evaluation, or other appropriate mitigation measures may be implemented prior to or concurrent with works required as part of construction.

5 Archaeological Contractor's Topic Specific Method Statement

5.1 Plant and equipment

5.1.1 Plant and equipment for the works is set out in the site-specific method statement which combined with the site-specific risk assessment and site access review are compiled as a single document (RAMS) and issued to Fusion for approval prior to each site mobilisation. The RAMS describes the plant/mechanical excavator used and compound site facilities set up. For these sites plant will be either a 14 tonne tracked machine or JCB. Both types of mechanical excavator will be fitted with a flat bladed ditching bucket c1.8 m wide.

5.1.2 Welfare and other support facilities for the works will be agreed with Fusion via the submission of a RAMS statement.

5.2 Work package, phasing and delivery

5.2.1 Enabling Works Central, Urgent Works package. The works comprise a number of trial trench evaluations in advance of the critical path construction of habitat mitigation sites.

5.2.2 The trial trench evaluation forms the second phase of archaeological work, the need for which has been identified by a previous phase of geophysical survey. The trial trench evaluation will be delivered according to the specification, aims, objectives and methodology established in this Project Plans, this LSWSI and the programme developed by the Archaeological Contractor in collaboration with the Contractor.

5.2.3 The results of the trial trench evaluation will determine the potential of surviving archaeological remains at each site to provide knowledge gain contributing to specific research objectives set out in the GWSI:HERDS. The programme and delivery of any further archaeological investigation will be either be communicated via the Change Control process or a new Project Plan and LSWSI.

5.3 Change control

5.3.1 During the course of the archaeological investigation if unexpected, complex or undated archaeological remains are encountered, in order to inform the decision-making process and to minimise delays to the enabling works construction programme it may be necessary to implement a contingency or vary the methodology or extent of the archaeological investigation.

5.3.2 The GWSI:HERDS establishes the need to manage unexpected discoveries and regularly review ongoing fieldwork events in order to promote rapid decision making and to minimise delays a clearly defined change control process will be followed. This change control process will enable:

- rapid decision making during historic environment investigations;
- the implementation of contingencies;
- the variation of methodologies being used on site;
- the localised extension of investigation areas: and
- the rapid implementation of mitigation measures.

5.3.3 The change control process will also enable effective cost control while minimising the risk to the enabling works programme.

5.3.4 The change control process will be recorded using the proforma Historic Environment Fieldwork Change Control Acceptance Sheet at Appendix B of the site-specific project plans and will comprise the following steps:

1) COPA will:

- prepare an interim summary of the investigation results noting key features or elements of the archaeological remains or structure;
- provide a proposal for the variation to the works or methodologies ; and
- suggest any new or existing HERDS objectives to which the variation may provide opportunities for knowledge gain;

2) The interim summary will be submitted to the Fusion Archaeologist who will disseminate the results and arrange a meeting on site with the Employer's Historic Environment Manager and local authority (stakeholder) archaeologist;

3) At the site meeting all parties will:

- review the nature, extent and significance of the archaeological remains;
- review and agree the proposed variation to the works; and
- signify their endorsement or approval of the variation by signing the Historic Environment Fieldwork Change Control Acceptance Form.
- at the end of the site meeting the Fusion Archaeologist will instruct COPA to implement the variation to the works.

4) Following the site meeting the Contractor will submit a copy of the completed the Historic Environment Fieldwork Change Control Acceptance Form to Fusion.

5) Where the rapid implementation of mitigation measures is required COPA will, prior to completion of the ongoing archaeological investigation:

- prepare a new Project Plan detailing the aims, HERDS objectives and specification of the archaeological mitigation and submit it to the Employer for acceptance;
- Request a new site code from the Fusion Archaeologist; and
- Update and resubmit the existing LSWSI to include the archaeological mitigation works.

5.4 The Archaeological Contractor's information management plan

5.4.1 GIS deliverables will be provided in accordance with the Employer's Cultural Heritage GIS Specification (HS2-HS2-GI-SPE-000-000004). CAD files will be GIS compatible and follow standards set out in the same Specification. Figures may be produced using CAD but final deliverables must be supplied in GIS format.

5.4.2 Mapping and spatial data deliverables will conform to the Employer's GIS Standards as set out in HS2-HS2-GI-STD-000-000002 and other associated referenced documents.

5.4.3 The Employer's standard template for reports (HS2-HS2-PM-TEM-000-000004) will be used.

5.5 Fieldwork methods

5.5.1 All sites will be subject to trial-trenching. Trench location plans are included below.

5.6 Setting out and survey

5.6.1 On setting out trenches at all sites shall be positioned to an accuracy of ± 500mm of the specified trench location using Real Time Kinematic (RTK) Global Navigation Satellite System (GNSS) equipment or other suitable automated equipment referenced from a minimum of three Permanent Ground Markers (PGM) created within the Site.

5.6.2 All trench or excavation limits, and significant archaeology details will be surveyed 'as dug' in relation to the project grid before leaving the site. Ground level height data will be recorded for each trench. Survey methodology and a detailed survey record will be provided to the Employer within the survey report.

5.7 Environmental sampling

5.7.1 For evaluation purposes sampling will aim to retrieve material that will assess the absence/presence and preservation of environmental indicators as well as characterising site use where possible. Sample locations will be focussed on sealed deposits with visual potential and associated dating across a range of archaeological features where present.

5.7.2 Different environmental and geoarchaeological sampling strategies may be employed according to the character of any revealed remains the site-specific research targets and the perceived importance of the strata under investigation. Where possible an environmental specialist(s) will visit the site to advise on sampling strategies. COPA Sampling methods will follow guidelines produced by Historic England and the Oxford Archaeology environmental guidelines. A register of samples will be kept. Specialists will be consulted where non-standard sampling is required (eg. TL, OSL or archaeomagnetic dating) and if appropriate will be invited to visit the site and take the samples.

5.7.3 Bulk soil samples, where possible of 40 litres or 100% of a deposit if less is available, will be taken from potentially datable features and layers for flotation for charred plant remains and for the recovery of small bones and artefacts. Larger soil samples (up to 100L) may be taken for the complete recovery of animal bones, marine shell and small artefacts from appropriate contexts. Smaller bulk samples (general biological samples) of 10-20 litres will be taken from any waterlogged deposits present for the recovery of macroscopic plant remains and insects. Series of incremental 2L samples may be taken through buried soils and deep feature fills for the recovery of snails and/or waterlogged plant remains, depending on the nature of the stratigraphy and of the soils and sediments. Columns will be taken from buried soils, peats and waterlogged feature fills for pollen and/or phytoliths, diatoms, ostracods and foraminifera if appropriate. Soil samples will be taken for soil investigations (particle size, organic matter, bulk chemistry, soil micromorphology etc.) and possibly for metallurgical analysis in consultation with the appropriate specialists.

5.7.4 Bulk samples from dry deposits will be processed by standard water flotation using a modified Siraf-style machine and meshes of 0.25mm (flot) and 0.5 or 1mm depending (residue). Heavy residues will be wet sieved, air dried and sorted. Samples taken exclusively for the recovery of bones, marine shell or artefacts will be wet sieved to 2mm. Waterlogged samples (1L sub-sample) and snail samples (2L) will be processed by hand flotation with flots and residues collected to 0.25mm (waterlogged plants) and 0.5mm (snails) respectively; these flots and residues will be sorted by the specialist. Samples specifically taken for insects, pollen, other microflora and microfauna, metallurgy and soil analysis will be submitted as whole earth to the appropriate specialists or processed following their instructions.

5.7.5 Dried residues and unprocessed samples will be retained until such point as discard has been agreed with the Contractor's Historic Environment Manager.

5.8 Human remains

5.8.1 In the event of discovery of human remains excavation will cease and the excavation team will inform the COPA Project Manager and Contractor's Historic Environment Manager who will inform the Employer.

5.8.2 The examination, excavation and recording of inhumations and cremations will be in compliance with the HS2 Human Remains and Monuments Procedure (Document No. HS2-HS2-EV-PRO-000-000008).

5.8.3 Where human remains are identified, all subsequent work must be undertaken in accordance with the Employer's Human remains and monuments procedure (HS2-HS2-EV-PRO-0000-000008).

5.8.4 At locations known to contain human burials, or that have a high potential for the presence of human remains, provision will be made for site inspection by a suitably qualified osteoarchaeologist.

5.8.5 Should human remains be discovered, COPA will notify the Contractor's Historic Environment Manager immediately, who will notify the Employer, so that these procedures can be implemented. This notification may be initially made personally or by telephone but shall be confirmed in writing (including email) within 24 hours of discovery.

5.8.6 The Archaeological Contractor will be required to cease all works at that location until further instruction is provided by the Employer and communicated by the Contractor's Historic Environment Manager. The Archaeological Contractor shall undertake an initial in situ observation and assessment of the remains and shall advise the Contractor's Historic Environment Manager of the course of action required. The Contractor's Historic Environment Manager will then notify the Employer.

5.8.7 Lifting of human skeletal remains shall be kept to the minimum which is compatible with an adequate evaluation or excavation, where the remains contribute to Specific Objectives and as required by the Project Plan.

5.8.8 Visible grave goods and other obvious artefacts shall be recorded and lifted before the end of the working day to avoid the risk of vandalism and theft. Where this is not feasible or appropriate, the Contractor shall ensure, on liaison with the Employer that adequate site security is provided. As a minimum, this will require a 24hour comprehensive security regime until sensitive remains have been recorded and lifted. This is a particular issue for rural sites and 'occasional burials'.

5.9 Deliverables

5.9.1 Deliverables for the works are as follows:

5.9.2 The Archaeological Contractor will submit an interim statement to Fusion within 14 days of completion of the evaluation. The interim statement will be consistent with the requirements detailed in the Specification for historic environment investigations (Document no. HS2-HS2-

EV-STD-000-000035) and will provide the Contractor and Employer with the information necessary to inform design decisions relating to:

a. the next stage of archaeological works (if required) and

b. engineering design.

5.9.3 A fieldwork report will be produced with the following structure:

- Executive Summary
- Introduction
- Summary of project's background (including the Specific Objectives addressed)
- Assumptions and limitations
- Description and illustration of the site location
- Previous work(s) relevant to the archaeology of the site (e.g. DDBA, previous surveys)
- Geology and topography of the site
- Specific Objectives and Aims
- Scope and Methodology, to include:
  - Date(s) of fieldwork;
  - Number and dimensions of trial trenches;
- Results and observations
  - Stratigraphic report
  - Finds report
  - Environmental evidence report
  - Interpretation of results against original expectations and Specific Objectives
  - Review of evaluation strategy [where appropriate].
- Recommendations and research aims for further investigation
- Conclusions
  - Statement of potential of archaeology
  - Assessment of achievement (or not) of survey objectives.
- Evaluation of methodology employed and results obtained (i.e. a confidence rating)
- Publication and dissemination proposals, including archive deposition

- References to all primary and secondary sources consulted.
- Appendices to include illustrations, contextual summary by trench, finds reports, environmental reports, site matrices [where appropriate] and full definitions of the interpretation terms used in the report.

5.9.4 The trial trenching report will contain figures accompanied by supporting text. All figures within the report shall be on the same paper size, where appropriate. All categories of anomaly identified will be labelled with the appropriate assigned number code on the figures, which will be referred to in the text document.

5.9.5 The following figures will be included in trial trenching reports:

- General plan (mandatory)
- Engineering design (mandatory)
- Site location
- Survey extent and trial trench locations
- Survey results to include plans and sections of archaeological features, deposits and sequences
- Selected photographs of representative and/or significant features and finds

5.9.6 Artefact recovery, conservation, retention and disposal:

5.9.7 Any artefacts recovered during the archaeological work detailed in this LSWSI will be the property of the Employer. Arrangements will be made via the Contractor's Historic Environment Manager and the Employer to organise legal deposition with an agreed depository.

5.9.8 All artefacts recovered from hand-excavated contexts will be retained unless they are of recent origin. In these cases, sufficient quantities of the material will usually be retained to validate the date and establish the function of the deposit from which the finds have been recovered.

5.9.9 Some categories of finds of limited intrinsic interest may be sampled and recorded on site where their retention is not considered to contribute to the archaeological aims and objectives (e.g. burnt stone or undifferentiated post-medieval tile fragments). Exact retention and disposal policies, will be set out in subsequent revisions of this method statement.

5.9.10 Unstratified objects from topsoil/modern made ground or other modern deposits will not normally be retained except where they are collected for a specific purpose or are of intrinsic interest either in their own right or in contributing to an understanding of the site.

5.9.11 Recovery will normally be by hand, except where bulk samples are taken for other purposes or for special recovery of small items.

5.9.12 In certain circumstances, where unusual or extremely fragile and delicate objects are found, their recovery will be undertaken by the appropriate in-house and external specialists named below. Metal objects requiring identification will be x-rayed during the course of fieldwork.

5.9.13 Artefacts collected during the excavation will be identified by context. The artefacts will be exposed, lifted, cleaned, stabilised, marked, bagged and boxed in appropriate materials and conditions to ensure that no deterioration occurs. All artefact/ecofact processing/storage will be carried out in accordance with UKIC (United Kingdom Institute for Conservation) - Archaeology Section Guidelines for the Preparation and Storage of Excavation Archives for Long-Term Storage (1990) and Standards and Guidelines for the collection, documentation, conservation and research of archaeological materials (Institute for Archaeologists 2001), and any specific guidelines provided by the recipient organisation identified as the repository for the above.

5.10 Digital deliverables

5.10.1 Subsequent to report approval digital deliverables will be submitted to the Contractor. These will be compliant with Employer's Technical Standard for Cultural Heritage (HERDS) GIS Specification (forthcoming).

5.11 Resourcing

5.11.1 COPA's team structure for the works comprise:

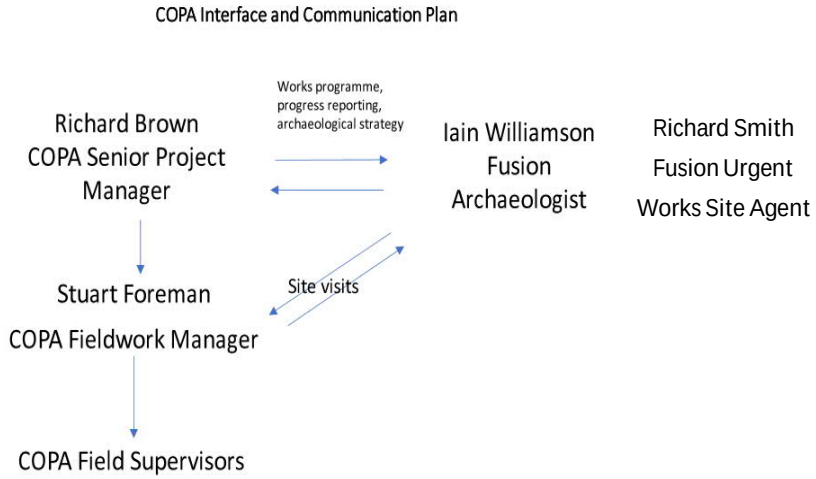
- Management: John Dillon - COPA Director, Richard Brown COPA Senior Project Manager, Stuart Foreman COPA Field Work Senior Manager.
- Site Supervision. Chris Ellis Project Officer, Supervisors: Julian Newman, Wayne Perkins, Pete Vellet, Lee Sparks, Sam Wilson.

5.11.2 The following specialists will be used, as required:

Specialist	Specialism	Qualifications
Lisa Brown	Early Prehistoric pottery	BA, PGDip, Mlitt, MIfA
Paul Booth	Iron Age and Roman pottery	BA, FSA, MIfA
John Cotter	Medieval and Post Medieval pottery	BA (Hon.), MifA
Cynthia Poole	CBM and Fired Clay	BA (Hon.), MSc
Michael Donelly	Flint	BA
Ian Scott	Metalwork and Glass	BA (Hon.)
Leigh Allen	Metalwork and worked bone	BA (Hon.), PGDip
Dr Ruth Shaffrey	Worked stone artefacts	BA, PhD
Julian Munby	Architectural Stone	BA, FSA
Dr Rebecca Nicholson	Fish and Bird Bone	BA (Hon.), MA, D.Phil, MifA, FSA Scot
Elizabeth Huckerby	Pollen and waterlogged plant remains	BA, MSc, MIfA
Lena Strid	Animal bone	MA
Dr Wendy Smith	Charred and waterlogged plant remains	BA, MSc, PhD, MIfA
Dr Denise Druce	Pollen, charred plant remains and charcoal	BA, PhD, MIfA
Liz Stafford	Geoarchaeology and land snails	BA, MSc
Specialist	Specialism	Qualifications
Lynne Keys	Slag	BA (Hon.)
Quita Mould	Leather	BA, MA
Penelope Walton Rogers	Textiles	FSA, Dip.Acc
Dana Goodburn Brown	Conservation	BSc (Hon.), BA, MSc
Steve Allen, York Archaeological Trust	Conservation	BA, MA, MAAIS
Dr Richard McPhail	Soils, especially Micromorphology	BA (Hon.), MSc, PhD
Dana Challinor	Charcoal	MA (Hon.), MSc
Dr Nigel Cameron	Diatoms	BSc, MSc, PhD
Dr David Smith	Insects	BA (Hon.), MA, PhD
Professor Adrian Parker	Phytoliths and pollen	Bsc (Hons.), D.Phil
Dr David Starley	Slag	BSc, PhD
Wendy Carruthers	Charred and waterlogged plant remains	
Dr Sylvia Peglar	Pollen	PhD
Dr John Whittaker	Ostracods and Foraminifera	BA (Hons), PhD
Dr John Crowther	Soil Chemistry	MA, PhD
Dr Martin Bates	Geoarchaeology	Bsc, PhD
Professor Mark Robinson	Insects, molluscs, waterlogged plant remains	MA, PhD
Dr Dan Miles	Dendrochronology	D.Phil, FSA
Simon Parfitt	Archaeozoology	BSc
Dr Jean-luc Schwenninger	Optically Stimulated Luminescence Dating	PhD

6 Archaeological Contractor's Interface and Communication Plan

6.1.1 COPA's contractors interface and communication plan for the works is set out below:



6.1.2 Site Monitoring and Engagement

6.1.3 Weekly written progress reports describing progress on-site to date, the processing of samples and artefacts and feedback from any initial assessment will be submitted to the Contractor's Historic Environment Manager. The Progress Report will contain an executive summary and a format to be agreed, but will address the following aspects:

- Programme and progress
- All KPI performance, particularly regarding Health and Safety;
- Forecast end date;
- Issue of drawings (where applicable);
- Design progress (where applicable);
- Resources;
- Quality Management System updates, Inspection & Test Plan progress and results, audit progress and results;
- Nonconformities, Concessions and Quality issues;
- Status of preventive and corrective actions and improvement activities;
- Safety, review of any incidents and accident statistics, RIDDOR report;
- Near misses, accidents and incidents;
- Environment - Review of any issues and consents applications status;
- Progress photographs where applicable;
- Financial and contractual matters, including valuation, certificate and payments, instructions, compensation events, early warning notices and change control, risk, insurance claims and responsible procurement;
- Third parties;
- Community Liaison and Equality, Inclusivity and Diversity; and
- Weather.

6.1.4 An Interim Statement will be produced within 14 days of the completion of each fieldwork 'event'. This will be a brief document, commensurate with the timescale for production, that summarises the works undertaken and the initial results (including text summary, site plan and relevant profiles, photographs where pertinent) will be submitted (as hard copy and digitally as PDFs) to the Contractor's Historic Environment Manager. These will be produced at the appropriate levels for the archaeological investigations specified under this LSWSI.

6.1.5 COPA will prepare and submit 'as excavated' site area outlines and levels in accordance with HS2 technical standards. Each drawing will identify the relevant event code and sub-site division, if applicable.

6.1.6 A Fieldwork Report for each event code will be submitted within eight weeks (unless otherwise specified) from the completion of the event. A full report detailing the results of the investigation will be produced. If appropriate and agreed by the Contractor's Historic Environment Manager single reports will be produced to combine different elements of the site work.

6.1.7 The Fieldwork Report will provide an illustrated factual statement of results, a statement of significance, and an associated assessment of potential for further fieldwork and/or analysis of the archive. The Fieldwork Report will utilise information collected during archaeological fieldwork and from any other appropriate sources agreed with the Contractor's Historic Environment Manager.

- Introduction: Background to the project (incl. geology and topography, historical and archaeological, planning etc);
- Aims and objectives; Methodology; Quantification;
- Results: Phased stratigraphic descriptions and Specialist reports (finds/environmental etc);
- Conclusions: Assessment of reliability of results and significance (using period, relative completeness, condition, rarity, and group value [along with previous observations etc]) /Statement of potential/Recommendations for mitigation;
- Plans and Sections etc locating the works and illustrating the results and subsurface topography; and
- Trench/Recording event summary table, Archive arrangements, Bibliography, Acknowledgements.

6.1.8 Where required, the Contractor's Historic Environment Manager shall arrange site visits with specialist stakeholders and expert bodies to provide advice on-site where this is considered beneficial and agreed with the Employer. This will be undertaken within the Employer's communication protocols set out in the Employer's Community Relations Strategy.

6.1.9 Periodic updates on the progress of the Area Central Enabling Works archaeology programme shall be submitted to the Employer and Local Authority Archaeologist by the Contractor's Historic Environment Manager. The Archaeology Contractor shall provide information to the Contractor's Historic Environment Manager as requested to inform this reporting.

6.1.10 The Contractor's Historic Environment Manager shall arrange and convene monitoring site visits with the Employer to assess the quality and progress of the archaeological works and their adherence to HS2 technical standards and procedures.

6.1.11 The Employer may invite the Local Authority Archaeologist to attend these meetings, as appropriate. The Employer will be responsible for informing Historic England and the local authority historic environment specialists on the progress of fieldwork activities and findings.

6.1.12 In addition to monitoring visits, the Employer may plan and host media events or documentary recording, particularly in the event of a significant archaeological discovery. If requested to do so, the Archaeological Contractor shall provide the HS2 media team with escorted access to the Site. Any request for media access will be confirmed in advance, in writing, by the Contractor's Historic Environment Manager.

6.1.13 There shall be no unauthorised access to the works in any other circumstances. Any visits to the works shall be in accordance with the COPA health and safety, site access and security requirements.

7 Quality Assurance

7.1.1 All archaeological works will be delivered in accordance with the Contractor's Urgent Works Package 1 Quality Plan (Document No. 1EW03-FUS-QY-PLN-C000-000022). The trial trenching report will be prepared and conducted by suitably qualified, experienced and competent professionals.

7.1.2 Trial trenching reports will be checked and then reviewed by senior qualified, experienced and competent professionals prior to issue to the Employer for acceptance. Final reports, following comments, will be checked and reviewed again prior to issue.

7.1.3 All archaeological works will be delivered in accordance with the Contractor's Urgent Works Package 1 Quality Plan (Document No. 1EW03-FUS-QY-PLN-C000-000022) and the standards and guidance set out in the following documents:

- High Speed Rail (London–West Midlands) Environmental Minimum Requirements.
- High Speed Rail (London–West Midlands) Environmental Minimum Requirements Annex 3: Heritage Memorandum (Document No. CS755 02/17).
- High Speed Rail (London–West Midlands) Environmental Minimum Requirements Annex 1: Code of Construction Practice (Document No. CS755 02/17).
- HS2 Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (Document No. HS2-HS2-EV-STR-000-000015).
- HS2 Technical Standard: Specification for Historic Environment Investigations. (Document No. HS2-HS2-EV-STD-000-000035).
- HS2 Technical Standard: Historic Environment Physical Archive Procedure (Document No. HS2-HS2-EV-STD-000-000039).
- HS2 Technical Standard: Historic Environment Digital Data Management and Archiving Procedure (Document No. HS2-HS2-EV-STD-000-000040).
- HS2 Cultural Heritage GIS Specification (Document No. HS2-HS2-GI-SPE-000-000004).
- Historic England, 2008. Geophysical Survey in Archaeological Field Evaluation.
- Chartered Institute for Archaeologists (CIfA), 2014a. Code of Conduct.
- CIfA, 2014b. Standard and Guidance for Archaeological Geophysical Survey.
- English Heritage, 2006. Management of Research Projects in the Historic Environment (and associated guides and project planning notes).

7.1.4 The three parent companies of COPA all have Chartered Institute for Archaeologists (CIfA) accreditation as a Registered Organisation (RO) and their supervisory staff to have an appropriate and relevant level of demonstrable experience for the specific task in question, i.e. full or associate members of the CIfA, or an equivalent demonstrable professional standing.

7.1.5 All members of the Archaeological Contractor's site team are expected to be suitably qualified, experienced and competent professionals. All site operatives will hold a current and valid CSCS qualification to at least 'Operative' level.

7.1.6 The interim and final trial trench evaluation reports will be prepared and conducted by suitably qualified, experienced and competent professionals. The resultant reports will be

issued in draft to the Fusion Archaeologist who will check and review each report prior to issue to the Employer for acceptance. Final reports, following comments, will be checked and reviewed again prior to issue.

8 Resourcing requirements and budget

8.1 General Requirements

8.1.1 The survey and recording of the works shall be directed by a Fieldwork Director who is a Member of the Chartered Institute for Archaeologists (MCIfA). Supervisory staff shall have an appropriate level of demonstrable experience commensurate with their specific role, i.e. an appropriate level of membership of the CIFA, IHBC or an equivalent demonstrable professional standing.

8.1.2 COPA's project team shall be staffed by technician grades with a minimum of six months' experience in appropriate aspects of excavation and recording.

8.1.3 Specialist staff employed on any aspect of the works, including post-excavation assessment or analysis of any kind including the writing of reports, shall be suitably qualified and shall be supervised by personnel with a minimum of ten years' relevant experience in their field (this may be inclusive of post-graduate studies).

8.1.4 Specialist staff shall be available, at 24 hours' notice, for the duration of the works to provide advice on any specialist tasks to be undertaken.

9 Archaeological Contractor's Site Management Plan

9.1.1 The site management plans for the sites is submitted in the site-specific RAMS method statements. These are approved by the Contractor prior to the commencement of works.

10 Archaeological Contractor's Safe Method of Working

10.1.1 The Safe Method of Working for the sites is submitted in the site-specific RAMS method statements. These are approved by the Contractor prior to the commencement of works.

11 Appendices

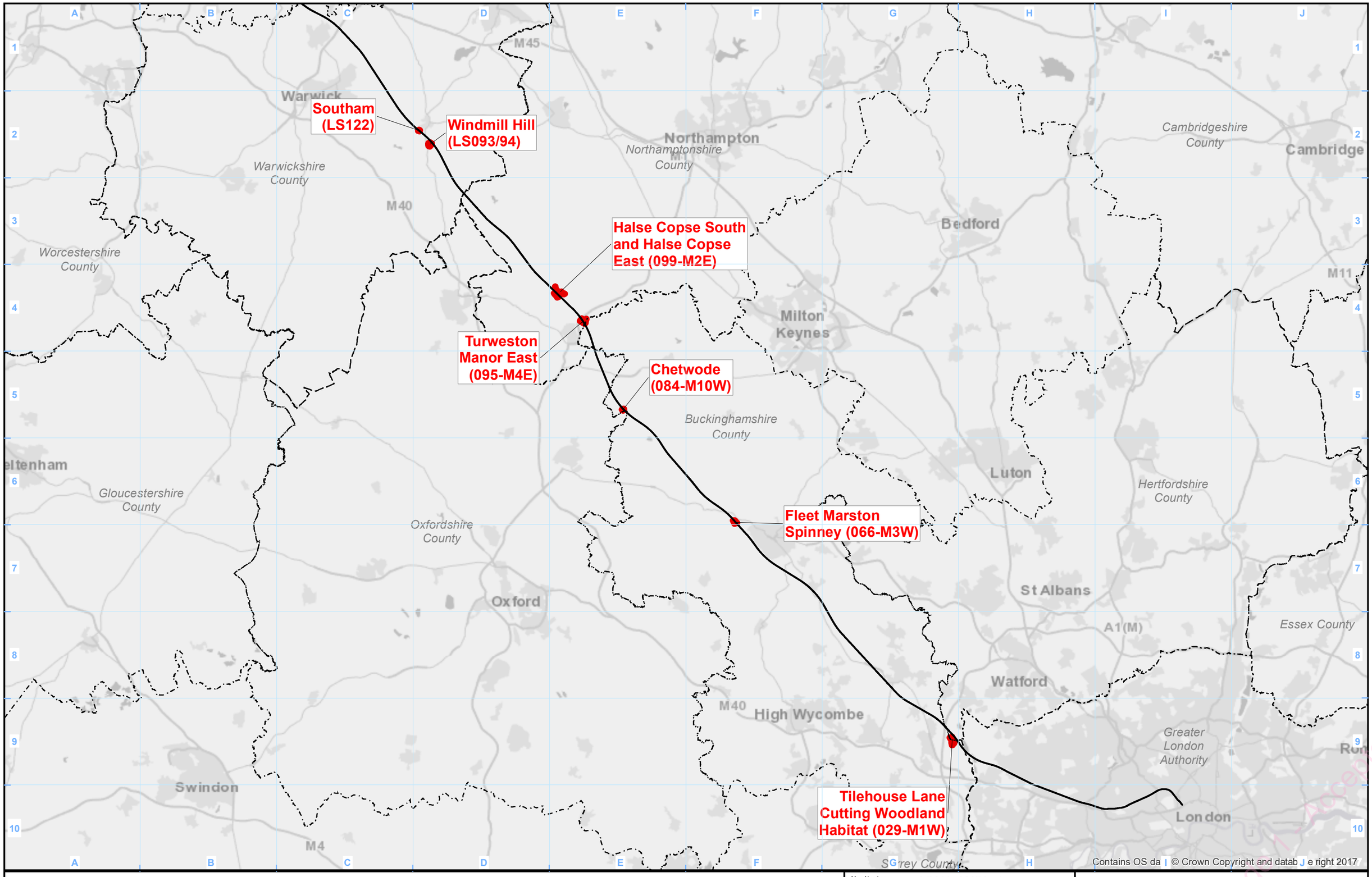
Appendix 1 – Project Plans

Document Number	Project Plan	Status
1EW03-FUS-EV-REP-CS01_CL02-002686	Project Plan for Trial Trench Evaluation at Tilehouse Lane Cutting Woodland habitat, Buckinghamshire (029-M1W)	Code 1
1EW03-FUS-EV-REP-CS04_CL20-00002685	Project Plan for Trial Trench Evaluation at Putlowes Cottages, Fleet Marston, Aylesbury, Buckinghamshire (066-M3W)	Code 1
1EW03-FUS-EV-REP-CS06_CL10-002690	Project Plan for Trial Trench Evaluation North of Moat Farm, Chetwode, Buckinghamshire (084-M10W)	Code 1
1EW03-FUS-EV-REP-CS07_CL12-002688	Project Plan for Trial Trench Evaluation, South of Illets Farm, Northamptonshire (095-M4E)	Code 1
1EW03-FUS-EV-REP-CS07_CL12-002687	Project Plan for Trial Trench Evaluation at Halse Copse South and Halse Copse East, Northamptonshire (099-M2E)	Code 1
1EW03-FUS-EV-REP-CS07_CL24-002689	Project Plan for Trial Trench Evaluation at Windmill Hill Spinney (LS093/94) and North of Field Cottage, Southam (LS122), Warwickshire	Code 1

Appendix 2 - References

Title	Reference
Management of Research Projects in the Historic Environment (and associated guides and project planning notes)	English Heritage 2006
Geophysical Survey in Archaeological Field Evaluation	Historic England 2008
HS2 Human Remains and Monuments Procedure	HS2-HS2-EV-PRO-000-000008
HS2 Technical Standard: Specification for historic environment investigations	HS2-HS2-EV-STD-000-000035
HS2 Technical Standard: Specification for Project Plans and Location Specific Written Scheme of Investigations	HS2-HS2-EV-STD-000-000036
HS2 Technical Standard: Historic Environment Physical Archive Procedure	HS2-HS2-EV-STD-000-000039
HS2 Technical Standard: Historic Environment Digital Data Management and Archiving Procedure	HS2-HS2-EV-STD-000-000040
HS2 Technical Standard: Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy	HS2-HS2-EV-STR-000-000015
HS2 Technical Standard: Cultural Heritage GIS Specification	HS2-HS2-GI-SPE-000-000004
High Speed Rail (London-West Midlands) Environmental Minimum Requirements Annex 3: Heritage Memorandum	CS755 02/17
High Speed Rail (London-West Midlands) Environmental Minimum Requirements Annex 1: Code of Construction Practice	CS755 02/17
Fusion Urgent Works Package 1 Quality Plan	1EW03-FUS-QY-PLN-C000-000022
Code of Conduct	Chartered Institute for Archaeologists (CIfA), 2014a
Standard and Guidance for Archaeological Geophysical Survey	Chartered Institute for Archaeologists (CIfA), 2014b

12 Figures



Legend

- Route
- Site Boundary
- County Boundary

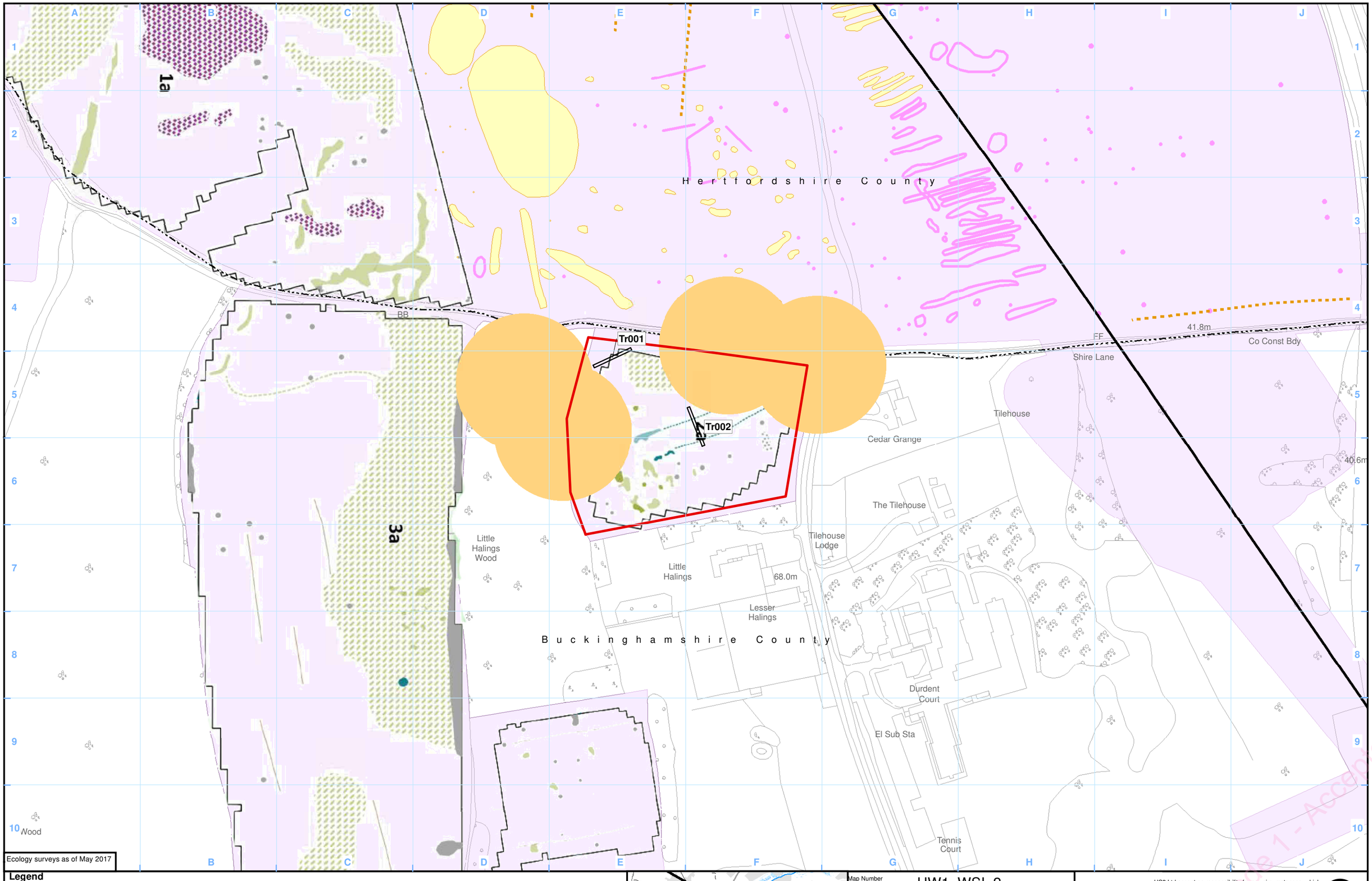
Map Number	UW1_WSI_1
Map Name	Site Location
	Community Forum Area

Scale at A3: 1:400,000

0 3,900 7,800 11,700 15,600 Metres

Doc Number: Figure 1

Date: 24/11/17



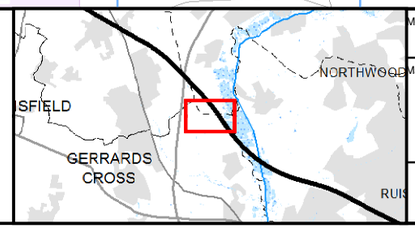
Ecology surveys as of May 2017

Legend

- Route
- Site Extent
- Trench Location
- Consolidated Construction Boundary
- Community Forum Boundary
- Water Body
- Watercourse
- County Boundary
- Badger Sett Buffer (50m)

Geophysics Survey Results

- Archaeology
- Plough Mark
- Agricultural (Trend)
- Anomaly
- Archaeology
- Ferrous
- Geophysics Survey Results
- Natural
- Natural (Spread)
- Anomaly
- Quarrying (Spread)



Map Number: UW1_WSI_2

Map Name: TILEHOUSE LANE SCHEME DESIGN

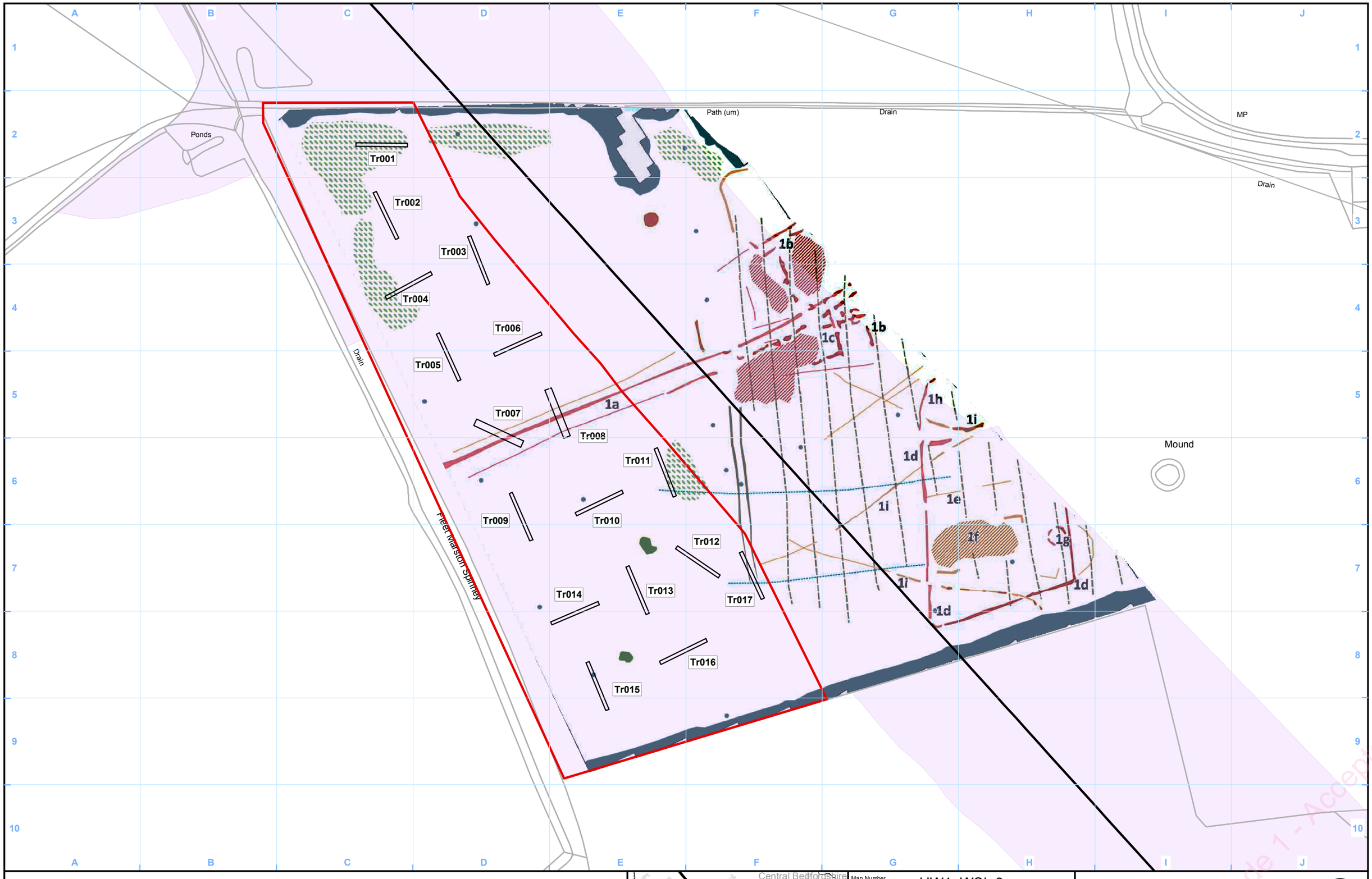
Community Forum Area (CFA09): Colne Valley

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: Figure 2

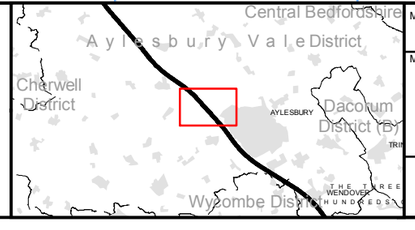
Date: 15/12/17



Legend

- Route
- Site boundary
- Trench Location
- Consolidated Construction Boundary

- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Archaeology Probale (Spread)
- Archaeology Probable (Trend)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Possible (Spread)
- Archaeology Possible (Trend)
- Agricultural (Weak)
- Ridge and Furrow (Trend)
- Natural (Strong)
- Natural (Spread)
- Ferrous (Dipolar)
- Undetermined (Trend)



Map Number: UW1_WSI_3

Map Name: Putlowes Cottages Scheme Design

Community Forum Area (CFA 11)
Stoke Mandeville & Aylesbury

Scale at A3: 1:2,000

0 20 40 60 80 Metres

Doc Number: Figure 3

Date: 15/12/17

Buckinghamshire County

Oxfordshire County

Spring
Pond
Pond
Dismantled Railway
Track
SS
Ward Bdy
Drain
Track
SS
Ward Bdy
CS
Pond
CS
Und
Co Const Bdy
Def

Tr001
Tr002
Tr003
Tr004
Tr005
Tr006
Tr007
Tr008

Legend

- Route
- Site Extent
- Trench Location
- Consolidated Construction Boundary
- Community Forum Boundary
- Water Body
- Watercourse
- Water Buffer (8m)
- County Boundary

Geophysics Survey Results

- Archaeology
- Ferrous
- Natural
- Ridge and Furrow
- Uncertain

Geophysics Survey Results

- Archaeology
- Ferrous
- Natural

Preston Bissett
Godington

Map Number: UW1_WSI_4

Map Name: NORTH OF MOAT FARM SCHEME DESIGN

Community Forum Area (CFA13): Calvert, Steeple Claydon, Twyford & Chetwode

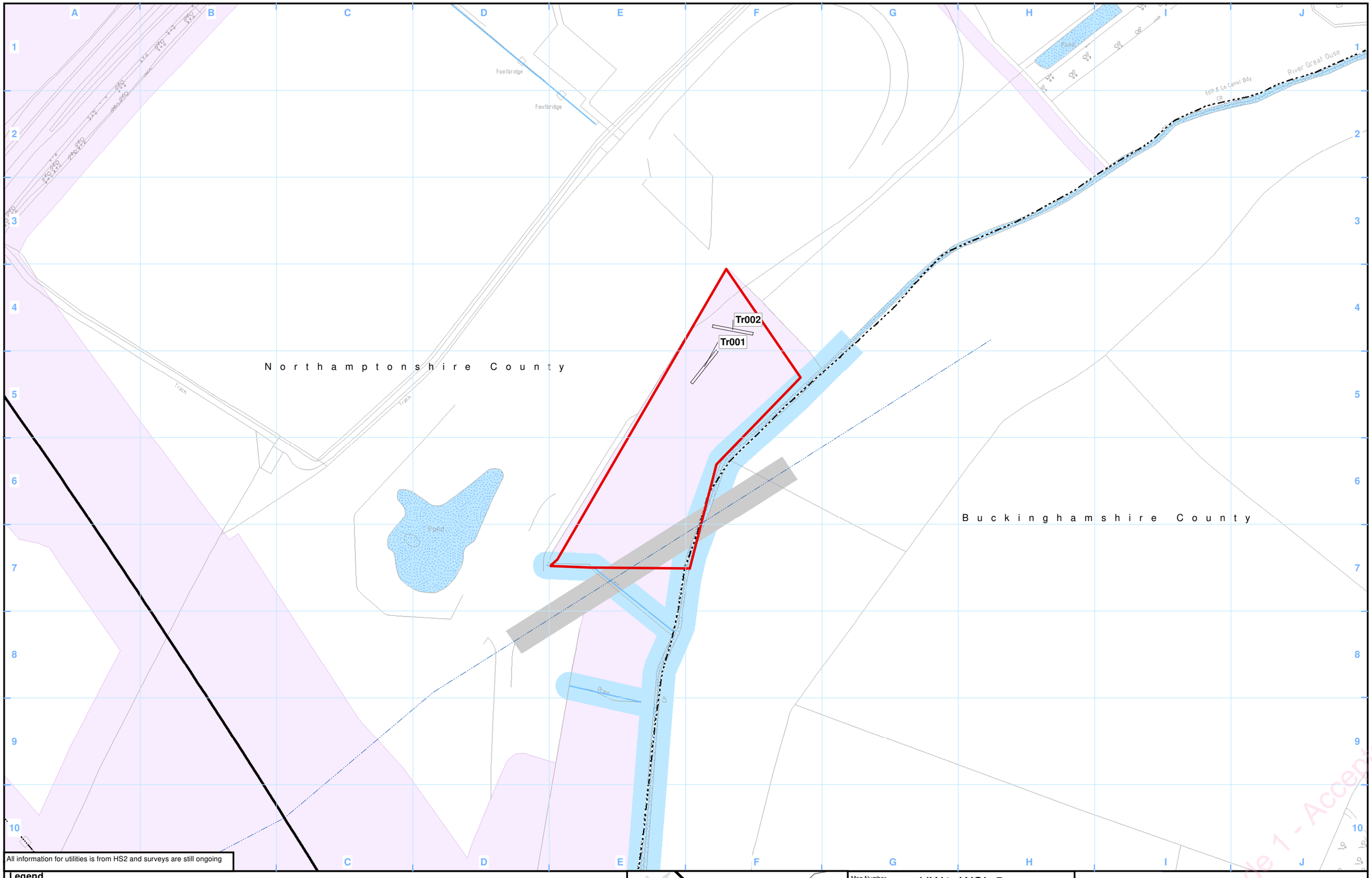
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: Figure 4

Date: 15/12/17



Legend

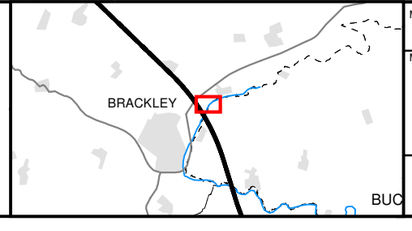
- Route
- Site Extent
- Trench Location
- Consolidated Construction Boundary
- Community Forum Boundary
- Water Body
- Watercourse
- County Boundary

Utilities

- OH - HV
- OH - MV

Constraints

- Utilities Constraint Buffer (10m)
- Water Constraint Buffer (8m)



Map Number: UW1_WSI_5

Map Name: TURWESTON MANOR EAST SCHEME DESIGN

Community Forum Area (CFA14): Newton Purcell to Brackley

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: Figure 5

Date: 15/12/17

Wind Pump
Well

Halse Copse

Pump

Reservoir

Tr001

Tr002

Tr003

Halse Copse South

Tr004

Tr005

Northamptonshire County

Tr006

Tr007

CS

Tr008

Tr009

Tr010

Halse Copse East

ED & Ward Bdy
CS

Tr011

Tr012

Tr013

Pond

Halse Copse

All information for utilities is from HS2 and surveys are still ongoing

Legend

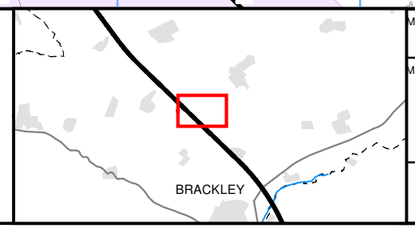
- Route
- Site Extent
- Trench Location
- Consolidated Construction Boundary
- Community Forum Boundary
- Water Body
- Watercourse
- County Boundary

Utilities

- OH - MV
- Water Main

Constraints

- Utilities Buffer (10m)
- Utilities Buffer (5m)
- Water Buffer (8m)



Map Number UW1_WSI_6

Map Name
HALSE COPSE SOUTH & EAST SCHEME DESIGN

Community Forum Area (CFA15):
Greatworth to Lower Boddington

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway,
Birmingham B4 6GA.

Scale at A3: 1:3,500

0 30 60 90 120
Metres

Doc Number: Figure 6

Date: 15/12/17

Legend

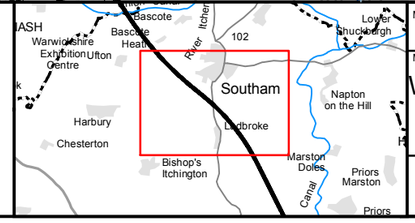
- Route
- Site boundary
- Consolidated Construction Boundary
- Watercourse
- Trench Location
- Great Crested Newt - population size class survey
- Great Crested Newt 20m buffer
- Water main
- LV OH

Archaeology (ditch / gully)
Thermoremnant feature ? (kiln, etc)
Weakly magnetic debris (brick rubble, etc)
Ridge and furrow direction
Ferrous object
Cable (indicative line)
Ferrous halo
Unsurveyable areas

4

Interpretation
Labels
Agricultural
Known former boundaries
Land drains
Linear Fills
Probable ditch
Possible ditch
Data Texture
Extent

MAG Survey Extents
Archaeology
Archaeology (very weak response)
Possible Archaeology
Possible Archaeology (very weak response)
Industrial, Burnt-Fired, Increased Magnetic Response
Agriculture - Ridge & Furrow
Agriculture - Ploughing
Agriculture - Drain
Natural
Uncertain Origin
Pipe, Modern Service
Ferrous



Map Number: UW1_WSI_7

Map Name: Windwill Hill and Southam Scheme Design

Community Forum Area (CFA 16)
Ladbroke & Southam

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Scale at A3: 1:2,000

0 20 40 60 80
Metres

Doc Number: Figure 7

Date: 15/12/17

13 Risk Assessment Method Statement (RAMS)

The following RAMS documents have been prepared in addition to and separately from this LSWSI.

Risk Assessment Number	Title
HS2EWC/00003/Harvil Road	Archaeological Trial Trenching at Harvil Road
HS2EWC/00004/1C17MHFTT (1473)	Archaeological Trial Trenching at Fleet Marston Spinney, Fleet Marston, Bucks
HS2EWC/00003/Chetwode	Archaeological Trial Trenching at Chetwode
HS2EWC/00003/Turweston Manor East	Archaeological Trial Trenching at Turweston Manor East
HS2EWC/00003/Halse Copse East Greatworth	Archaeological Trial Trenching at Halse Copse East
HS2EWC/00003/Windmill Hill, Warwickshire	Archaeological Trial Trenching at Windmill Hill, Warwickshire
HS2EWC/00003/Southam	Archaeological Trial Trenching at Southam