



1EW03 – Enabling Works Central

AWH - Route-wide LSWSI for Woodland Evaluation Site Code: 1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL

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1 Executive Summary

- 1.1.1This document forms a Location Specific Written Scheme of Investigation (LSWSI) for
evaluating the artefact population of woodland areas on the route of the Phase One of High
Speed Two Central Route (HS2) within Sections C2 and C3; between Great Missenden,
Buckinghamshire in the south and Southam, Warwickshire to the north.
- 1.1.2 The works will be managed by Fusion-JV, the Central Section Enabling Works Contractor (Fusion). The location, site conditions, geology and archaeology background, and selection rationale for each area are provided in the corresponding Project Plan (document ref: 1EW03-FUS-EV-REP-Cooo-000007).
- 1.1.3 This LSWSI, prepared by Infra (on behalf of Fusion), sets out the methodology, deliverables, programme, health, safety and environmental requirements, resources and interfaces necessary to deliver the archaeological works defined in the Project Plan (Appendix 1).
- 1.1.4 The archaeological works will comprise:
 - Topographical survey
 - Detailed woodland survey
 - Dendrochronology
 - Test pit sampling
 - Ecological/ arboricultural watching brief
- 1.1.5 Infra will investigate woodland history and pre-woodland land use potential of six areas of woodland (hereafter referred to as 'the Site(s)'). These areas have been specifically selected as elements of woodland, ancient or otherwise, which are proposed for removal as part of the HS2 Central scheme. Themes to be explored include lifespan of woodland, woodland management and agricultural/industrial activities and evidence of landscape change. It may also be possible to recover evidence of pre-woodland human activity, which would enable a greater understanding of the development and use of the surrounding landscape.
- 1.1.6This 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 ClfA Standards.
- **1.1.7** This document will be subject to approval by Fusion and in accordance with the change control process (Section 5.3).

2 Site Location, Extent and Condition

- 2.1.1 The Project comprises 6 shapefiles, made up of 6 individual woodlands (Table 1) over an approximate 78km long section between Great Missenden, Buckinghamshire in the south and Southam, Warwickshire to the north, on the route of the Phase One of High Speed Two (HS2) (Figures 1.1-1.16 to 4.1-4.16).
- 2.1.2 The locations of these sites are presented in Appendix 3 and the proposed schedule in Appendix 6.

Fusion GIS ID	Site Name	Site Code	Size (ha)		
C21022	Jones Hill Wood (ASNW)	1C20JHWHL	1.84		
C25071	Widmore Farm	1C20WIFHL	2.68		
C30027	Halse Copse Farm (ASNW)	1C20HACHL	1.88		
C30031	Fox Covert Whitfield	1C20FCWHL	1.12		
C32030	Windmill Hill Spinney	1C20WIHHL	2.35		
C32033	Fox Covert Glyn Davies Wood (ASNW)	1C20FCGHL	1.34		
ASNW: Ancient Semi-Natural Woodland					

Table 1: Fusion GIS ID numbers and Site Name

3 Overview of Project Plan

3.1 Archaeological Context

3.1.1 This section summarises several previous investigations undertaken in and around the Project as described in Section 3.2 of the Project Plan which led to the selection of the sites in Table 1.

Locations and Sites Information

3.1.2 The selected woodlands have different development history, some established relatively recently and comprising clear evidence of pre-woodland land use (determined from historic mapping and LiDAR surveys). Three of the selected woodland sites (C21022, C30027 and C32033) are classed, wholly or in part, as 'Ancient Woodland'. Ancient Woodland is defined as an area that has been wooded continuously since at least 1600 AD and includes both ancient and more recent trees, with felling and clearance a periodic part of the woodland cycle.

3.2 C21022 Jones Hill Wood

3.2.1 The woodland area is located within CFA10 Dunsmore, Wendover and Halton in the county of Buckinghamshire, (NGR centre 488715 204367) and measures 0.69ha. It lies between Bowood Lane to the south and Durham and Strawberry Hill Farms to the north.

Site Stratigraphy

3.2.2 The underlying solid geology within the Site is undifferentiated Lewes Nodular Chalk Formation and Seaford Chalk Formation. Superficial geology is generally absent from the Site except for a small area at its south-eastern corner which lies at the edge of Clay-with-Flints Formation. These deposits formed in the Quaternary and are characterised by unsorted sediment with flint gravel in a sandy mud matrix derived by dissolution of chalk below.

Specific Aims

- 3.2.3 The aims for Phase 1 investigations at Jones Hill Wood are to:
 - Establish the date of the Ancient Woodland using a dendrochronological sample
 - Establish the potential for medieval agricultural features to be present
 - Confirm the nature of the east-west aligned anomalies detected by LiDAR survey, and
 - Define the extent of post-medieval quarrying.
- 3.2.4 3.2.17 The results of this objective-led approach will contribute to the establishment of a chronology of the historic use and activities of Jones Hill Wood.

3.3 C25071 Widmore Farm

3.3.1 The woodland area is located within CFA14 Newton Purcell to Brackley, Oxfordshire, (NGR centre 462565 232083) and measures 2.98 ha. The site lies along a disused embankment of the Great Central Railway, approximately 300m south-east of Widmore Farm.

Site Stratigraphy

- 3.3.2 The Site lies on the boundary between two underlying solid geology units. To the north, these are comprised of White Limestone Formation. To the south are interbedded mudstone and limestone deposits of Forest Marble Formation. Both geological units were formed in the Bathonian age (168.3-166.1Ma) in willow carbonate seas of the Jurassic period.
- 3.3.3 Similar north-south geological dichotomy is reflected in the drift deposits. The northern part of the Site overlies mid-Pleistocene Glaciofluvial Deposits of sand and gravel formed between the Cromerian and Ipswichian stages by the accumulation of outwash deposits from melting ice.

Specific Aims

- 3.3.4 The aims for Phase 1 investigations at Widmore Farm are to:
 - Confirm or amend the provisional mid-19th century date for the woodland using a dendrochronological sample
 - Examine the potential for residual artefactual remains dating to the Mesolithic and Neolithic periods

- Investigate the potential for further evidence of Iron Age settlement, as recorded nearby at Finmere Quarry
- Establish the potential for medieval agricultural features to be present, and
- Define the extent of impacts resulting from the construction of the Great Central Railway.
- 3.3.5 The results of this objective-led approach will contribute to the establishment of a chronology of the historic use and activities of woodland at Widmore Farm.

3.4 C30027 Halse Copse Farm

3.4.1 The woodland area is located within CFA15 Greatworth to Lower Boddington, Northamptonshire (NGR centre 457383 241481) and measures 1.88ha and lies 800m east of Halse Copse Farm.

Site Stratigraphy

3.4.2 The British Geological Survey (BGS 2019) indicates that the Site overlies the solid geology of Blisworth Limestone Formation. It comprises biogenic and detrital deposits, generally comprising carbonate material (coral, shell fragments), forming beds and locally reefs in willow seas of the Bathonian age (168.3-166.1Ma). The superficial geology within the Site comprises Oadby Member, glacial till deposit formed by the action of ice and meltwater during the Anglian stage (478-424Ka) which was the most extreme glaciation during the last 2 million years.

Specific Aims

- 3.4.3 The aims for Phase 1 investigations at Halse Copse are to:
 - Establish the date of the Ancient Woodland and confirm that of the later plantation using a dendrochronological sample
 - Investigate the potential for late prehistoric and/or Roman features
 - Explore the potential for evidence of the medieval park pale, and
 - Establish the potential for medieval agricultural features to be present.
- 3.4.4 The results of this objective-led approach will contribute to the establishment of a chronology of the historic use and activities at Halse Copse.

3.5 C30031 Fox Covert Whitfield

3.5.1 The woodland area is located within CFA14 Newton Purcell to Brackley, Northamptonshire (NGR centre 459403 239482) and measures 1.12ha. The site lies c. 870m north-east of the outskirts of Brackley in a triangular area occupied by arable fields and pasture.

Site Stratigraphy

3.5.2 The British Geological Survey (BGS 2019) indicates that the Site overlies the solid geology of Blisworth Limestone Formation. It comprises biogenic and detrital deposits, generally comprising carbonate material (coral, shell fragments), forming beds and locally reefs in willow seas of the Bathonian age (168.3-166.1Ma). The superficial geology within the Site comprises Oadby Member, glacial till deposit formed by the action of ice and meltwater during the Anglian stage (478-424Ka) which was the most extreme glaciation during the last 2 million years.

Specific Aims

3.5.3 The aims for Phase 1 investigations at Fox Covert Whitfield are to:

- Establish the date of the woodland using a dendrochronological sample
- Investigate the potential for a continuation of the possible late prehistoric field system as recorded nearby
- Explore the potential for Roman features/artefacts associated with that recorded nearby at Sundale
- Establish the date and nature of linear earthworks identified within the woodland, and
- Investigate potential for features/artefacts associated with the parish boundary.
- 3.5.4 The results of this objective-led approach will contribute to the establishment of a chronology of the historic use and activities at Fox Covert Whitfield.

3.6 C32030 Windmill Hill Spinney

3.6.1 The woodland area is located within CFA16 Ladbroke and Southam in the county of Warwickshire NGR centre 442524 259279). It measures 2.35ha and lies c. 45om to the outskirts of Ladbroke to the west and Ladbroke Hill Farm to the east.

Site Stratigraphy

- 3.6.2 The British Geological Survey (BGS 2019) indicates that most of the Site overlies the bedrock of Charmouth Mudstone Formation, comprising interbedded sequences of sedimentary mudstone deposits formed in willow Jurassic seas (199-182Ma). Along the southern boundary of the Site at the ridge of Windmill Hill, the solid geology comprises an outcrop of limestone of the Charmouth Mudstone Formation formed in the same epoch in similar marine conditions, however comprising biogenic deposits of fine-grained sediments, with carbonate material (coral, shell fragments).
- 3.6.3 The BGS does not identify any drift or superficial geology within the Site.

Specific aims

3.6.4 The aims for Phase 1 investigations at Windmill Hill Spinney are to:

- Establish the date of the woodland using a dendrochronological sample
- Explore the potential for Mesolithic, Neolithic & Bronze Age evidence
- Investigate the potential for a continuation of Iron Age/Roman features as identified to the immediate south
- Establish the potential for medieval agricultural features to be present, and
- Confirm the nature of the linear features detected by LiDAR survey and visual inspection.
- 3.6.5 The results of this objective-led approach will contribute to the establishment of a chronology of the historic use and activities at Windmill Hill Spinney.

3.7 C32033 Fox Covert

3.7.1 The woodland area is located at the northern boundary of CFA15 Greatworth to Lower Boddington, Northamptonshire (NGR centre 446235 253548). The site measures 1.34ha and lies c. 1.3km to Wormleighton to the west and Upper Boddington to the east.

Site Stratigraphy

3.7.2 The British Geological Survey (BGS 2019) indicates that the Site overlies the bedrock of Charmouth Mudstone Formation, comprising interbedded sequences of sedimentary mudstone deposits formed in willow Jurassic seas (199-182Ma). There are no superficial (drift) deposits recorded within the Site.

Specific Aims

- 3.7.3 The aims for Phase 1 investigations at Fox Covert Lower Boddington are to:
 - Establish the date of the Ancient Woodland using a dendrochronological sample
 - Explore the potential for late prehistoric features/artefacts and an association with contemporary settlement evidence identified nearby
 - Examine the northern flank of Welsh Lane for evidence to better understand its origins and development
 - Investigate potential for features/artefacts associated with parish/county boundaries
 - Establish the potential for medieval agricultural features to be present
 - Establish the potential for Second World War defensive features to be present, and
 - Confirm and characterise the sub-circular feature identified within the Ancient Woodland.
- 3.7.4 The results of this objective-led approach will contribute to the establishment of a chronology of the historic use and activities at Fox Covert Lower Boddington.

3.8 Aims and Objectives of the Archaeological Mitigation

- 3.8.1 The proposed schedule of Archaeological Works is provided in Appendix 6 and summarised in Table 2.
- 3.8.2 The Project Plan identifies the following specific HERDS objectives.

Table 2: Contribution to Specific HERDS Objectives

HERDS Specific objective	Site Name	AIMS Site Codes	Investigation type	Contribution
CE1: Marking and communicating the changes to landscapes and environment.	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronol ogy, Test pitting, Ecological/ arboricultural watching brief	The broad scope of the route- wide Project Plan enables a wider view of the historic development of landscapes along the HS2 Central scheme. Utilisation of methods such as aerial photography, remote sensing and map regression interpretation enables a deeper understanding of past uses and activities within landscapes and how these are preserved in the archaeological and historical records.
KC5: Identifying settlement location and developing models for settlement patterns for the Mesolithic, Neolithic, and Early Bronze Age.	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronol ogy, Test pitting, Ecological/ arboricultural watching brief	Examples of Mesolithic, Neolithic and Bronze Age flintwork have been recovered within the wider environs of several of the Sites, indicative of some degree of early prehistoric presence (C25071, C30027, C32030). Should further evidence be encountered within the Site, this would contribute to our understanding of early prehistoric populations, activities and settlement along the route.
KC9: Does a lack of visibility of Neolithic and Bronze Age Monuments reflect genuine area distinctiveness, or is this due to variation in geology or	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronol ogy, Test pitting, Ecological/	A small number of confirmed and putative Bronze Age monuments have been recorded within the environs of the Sites. Although no such remains are suggested to lay within the Sites, the confirmation or disproving of this could contribute to our

HERDS Specific objective	Site Name	AIMS Site Codes	Investigation type	Contribution
investigative techniques?			arboricultural watching brief	understanding of the distribution of these monuments along the route.
KC15: Can we identify regional patterns in the in the form and location of Late Bronze Age and Iron Age settlements across the route, and are there associated differences in landscape organisation and enclosure?	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronolo gy, Test pitting, Ecological/ arboricultural watching brief	The potential for the presence of archaeological features and finds dated to the later prehistoric periods has been identified, to a varying degree, within the individual woodland parcels comprising the Site. The investigations proposed within these areas have therefore the potential to inform this objective.
KC23: Identify evidence for late Roman occupation and attempt to identify any continuity in settlement patterns between the end of the Romano-British period and the Early Medieval period.	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronolo gy, Test pitting, Ecological/ arboricultural watching brief	The Roman/Migration period transition and early medieval period comprises one of the most poorly evidenced and least understood eras of British history. Some landscape features formed during the Roman period, such as roads such as Welsh Road, have been proven to have continued in use into the medieval period and
KC30: Identify the location and form of Early and Middle Saxon settlement and investigate evidence for land use in these periods.	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronolo gy, Test pitting, Ecological/ arboricultural watching brief	markers for later field systems and estates. Buried Roman field systems are often encountered during archaeological investigations and are relatively well understood. By comparison, the rare phenomena of tracing Roman elements in extant field
KC31: Identify the location of Middle to Late Saxon settlement, explore processes of settlement nucleation and understand the development of	All site groups All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronolo gy, Test pitting, Ecological/ arboricultural watching brief	systems or the contribution of Roman forms to later layouts is poorly recognised. The Late Saxon period saw the stabilisation of English society after the amalgamation of several kingdoms and the expulsion of Scandinavian warlords in northern and

HERDS Specific objective	Site Name	AIMS Site Codes	Investigation type	Contribution
associated field types and agricultural regimes.				eastern regions. Numerous settlements and administrative parishes were established at this time, a process possibly
KC35: Investigate the impacts on rural communities of social and economic shocks in the mid- 14 th century and thereafter and their contribution to settlement desertion.	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronolo gy, Test pitting, Ecological/ arboricultural watching brief	period, many of which remain into the present. Evidence relating to the age of parish boundaries may contribute to our understanding of the development of these settlements and how the landscape was divided. It is possible that evidence for pre- afforestation may be
KC40: Identify patterns of change within medieval rural settlement from the 11 th to mid-14 th century.	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronolo gy, Test pitting, Ecological/ arboricultural watching brief	encountered, indicating other uses of the landscape during the medieval period. Afforestation may show how local industry developed and patterns of settlement. Three of the woodlands are situated alongside historic parish boundaries and the investigation of any historic boundary features which may be preserved within the woodland could provide evidence for land use and land divisions during the early medieval and medieval periods.
				Although the individual histories of the parcels comprising the Site differ, all have been wooded at least from the late 19th century and therefore are likely to have escaped impacts associated with modern deep ploughing. Consequently, they have the potential to comprise relatively undisturbed archaeological remains whose investigation can contribute to these objectives.
KC34: Undertake research and investigation into	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL,	Topographical survey, Woodland	The Site comprises parcels of land (C32030, C32033) which were located within the land

HERDS Specific objective	Site Name	Site AIMS Site Investigation Name Codes type		Contribution	
medieval manorial complexes. What was their origin, development, and impact on the landscape?		1C20HACHL, 1C20FCGHL, 1C20WIHHL	survey, Dendrochronolo gy, Test pitting, Ecological/ arboricultural watching brief	potentially associated with manorial complexes of Stoneton and Ladbroke Manors. Woodland evaluation in these areas is likely to provide evidence historical use of the land for agriculture, woodland planting and exploitation and potential changes in the landscape.	
KC36: How were medieval and later woodlands managed and exploited and what evidence do they preserve for earlier land use?	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronolo gy, Test pitting, Ecological/ arboricultural watching brief	The Site comprises areas of Ancient Woodland whose history may reach back to the medieval period. Features associated with the medieval and later management of the woodland, such as remains associated with charcoal burning or potash manufacture, coppicing and pollarding, and game management might be present within the Site.	
KC49: Ground truth and develop multispectral and LiDAR prospection techniques.	All site groups	1C20JHWHL, 1C20WIFHL, 1C20FCWHL, 1C20HACHL, 1C20FCGHL, 1C20WIHHL	Topographical survey, Woodland survey, Dendrochronolo gy, Test pitting, Ecological/ arboricultural watching brief	The woodland evaluation has the potential to provide artefactual and ecofactual evidence to assist in addressing this objective in relation to the features identified within the Site and its environs through the examination of LiDAR imagery.	

4 Programme

- 4.1.1 The provisional programme is presented in table 3. This includes a nominal start date of 26/10/2020 and an overall fieldwork duration of 11 weeks.
 - This program is subject to change
- 4.1.2 The works program will be confirmed following discussion between Fusion and Infra and will be dependent on approved land access.

Table 3: Schedule of Archaeological Works

Fusion GIS ID	Site Name	Phase 1a: Start date for: Topographical and Wodland Survey	Phase 1b: Start date for: Dendrochronology, Test Pitting and Ecological/ arboricultral watching brief
C21022	Jones Hill Wood	25/11/2020	04/12/2020
C25071	Widmore Farm	19/11/2020	02/12/2020
C30027	Halse Copse Farm	16/11/2020	30/11/2020
C32030	Windmill Hill Spinney	02/12/2020	10/12/2020
C30031	Fox Covert Whitfield	27/11/2020	08/12/2020
C32033	Fox Covert (Glyn Davies Wood	08/12/2020	14/12/2020

5 Specific Method Statements

5.1.1 A summary of the plant and equipment required is provided below, and Risk Assessment and Method Statement (RAMS) for this project (Doc Ref: 1EW03-FUS_IFA-HS-MST-Cooo-000002).

Equipment

- Trimble GNSS for surveying
- Hand tools (Shovels, mattocks, trowels, hoes etc as required) for archaeological excavation

Vehicles

- Appropriate vehicles for transporting staff to/ from the sites and provide welfare facilities
- 4x4 truck (with trailer when necessary) to deliver/remove Euromats if needed.

5.2 Work Package, Phasing and Delivery

- 5.2.1 The archaeological works are being undertaken as part of work package AWH.
- 5.2.2 The Phase 1 works will be sequenced in two sub-phases:
 - Phase 1a
 - Topographical survey
 - Woodland survey
 - HOLD POINT

- Phase 1b
 - Dendrochronology
 - Test pit sampling
 - Ecological/ arboricultural watching brief
- 5.2.3 The programming will be confirmed following discussion between Fusion and Infra and will be dependent on approved land access.

5.3 Change Control

- 5.3.1 The Archaeological Works have been designed to address the aims and objectives laid out in section 3.2.
- 5.3.2 The GWSI:HERDS, sections 7.6.5 and 7.6.17, establish the need to manage unexpected discoveries and regularly review ongoing fieldwork events. 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 pro-forma Historic Environment Fieldwork Change Control Acceptance Sheet and will comprise the following steps:
 - 1) INFRA 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 Fusions Historic Environment Manager who will disseminate the results and arrange a meeting on Site with HS2's Historic Environment Manager and Buckinghamshire County Council Archaeology Service (BCAS).
 - 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 Fusions Historic Environment Manager will instruct INFRA to implement the variation to the works.
- 4) Following the site meeting, Fusion will submit a copy of the completed the Historic Environment Fieldwork Change Control Acceptance Form to the HS₂ via eB.
- 5) Where the rapid implementation of mitigation measures is required Fusion 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 HS2; and
 - Update and resubmit the existing LSWSI to include the archaeological mitigation work. If unexpected remains are encountered, the remains will be reported in the evaluation report and an appropriate mitigation strategy will be designed by the HS2 HERDS team.
- 5.3.5 INFRA will maintain a register on Site of any change controls requested and their approval by Fusion (Appendix 2).

5.4 Information Management Plan

- 5.4.1 Digital data will be gathered on Site by a specialist team, supervised by Marcela Szalanska. This data will be sent daily to Infra's GIS Manager, Annemarie Gaunt, who will process the data and check for errors or omissions. This data will form part of Infra's weekly reports to Fusion.
- 5.4.2 The digital data will be held on secure servers at Infra's offices in Buckingham, Cardiff and Lincoln.
- 5.4.3 Following completion of the Archaeological Mitigation, Infra will provide Fusion with the required data, metadata and digital material as specified in the Historic Environment Digital Data Management and Archiving Procedure (C262-ARP-EV-SPE-000-000003). All data will be delivered in accordance with the GIS data standards set by HS2 and Fusion in the Site Project Plan.
- 5.4.4 CAD files will be GIS compatible and follow standards set out in the Cultural Heritage GIS Specification (HS2-HS2-GI-SPE-000-000004) and the Geographical Information System Standards (HS2-HS2-GI-STD-000-000002).

5.5 Fieldwork Procedures

Introduction

- 5.5.1 This section details the methodologies that will be adopted for investigating and recording archaeological remains during fieldwork to meet HS₂ Technical Standard: Specification for historic environment investigations (Doc. Ref. HS₂-HS₂-EV-STD-000-000035), and to meet the requirements of the Project Plan.
- 5.5.2 Variations to the methodologies outlined in Sections 5.6 to 5.12 will be undertake following the Change Control Process (Section 5.3).

Terms of reference

- 5.5.3 'Overburden' refers to non-archaeologically significant horizons which are either naturally formed (e.g. topsoil and subsoil) or man-made and are outside the scheduled monument.
- 5.5.4 'Subsoil' refers to soil horizon(s) in-between the topsoil and natural geology and may include alluvium and colluvium.

Site Codes and Finds Numbers

- 5.5.5 An individual AIMS site code will be applied to each site group and each activity code (Table 1).
- 5.5.6 Individual finds within either survey will be numbered with reference to the unique Fusion Field ID (FID).

5.6 Site Condition Record

5.6.1 Prior to and after work activities, photographs showing the initial and final conditions of the Site respectively will be undertaken by the Archaeological Contractor. The photographic record will be in digital format, resulting in high-resolution TIFF (uncompressed) images. Photographs will illustrate both the detail and context of any earthworks or other archaeological features. In addition, Infra will take appropriate record photographs il illustrate work in progress. All photographic records will include information detailing the site name and number/code, date, context, scale and orientation. A selection of progress photos of publication-quality will be submitted with the weekly progress report.

5.7 Topographic Survey

- 5.7.1 A detailed topographical survey will provide an accurate record of the topography of the site and precisely map the location of features than can be the subject of subsequent recording actions.
- 5.7.2 A detailed topographic survey will be undertaken by Infra utilising terrestrial laser scanning to the general requirements as described in the GWSI: HERDS. There will also be consideration

of the implementation of a concurrent UAV photogrammetric survey to achieve the stated aims.

- 5.7.3 A detailed topographic survey will provide an accurate record of the topography of a site and precisely map the location of features that can then be the subject of subsequent recording actions such as evaluation trenching. The topographic survey will be undertaken in accordance with Historic England's guidance 3D Laser Scanning for Heritage (Historic England 2018a) and the Royal Institute of Chartered Surveyors (RICS) Guidelines for the use of GNSS in Surveying and Mapping (RICS 2010).
- 5.7.4 Variables such as vegetation cover and scale of the survey will be considered when deciding on the most appropriate field survey methodology and equipment. Due to the wooded nature, under-storey shrubs and ground cover of the Sites observed during the site walkovers, it is unsuitable for laser-scanning and will instead be a combination of digital and analogue techniques.
- 5.7.5 A combination of a survey-grade Global Satellite Navigation Survey System (GNSS) receiver and a Total Station (TST) will be more appropriate or a TST which offers a direct interface with a survey-grade GNSS receiver to enable the two techniques to be interchangeable depending on satellite reception.
- 5.7.6 A GNSS receiver connected to the Ordnance Survey's GNSS correction network (OSNet) service will be used to establish the location of control points relative to the Ordnance Survey National Grid (Historic England 2015d). These points will be used to locate a baseline set up along a woodland transect or a closed traverse of survey stations using a TST (Historic England 2016, 19-20) to capture detail using the TST. To successfully merge GNSS and TST data, the same feature code library will be used on both devices.
- 5.7.7 Where dense vegetation precludes the use of digital survey techniques by restricting the field of view, detailed survey will be completed using standard tape and offset techniques (Historic England 2018b, 7-15), from a baseline referencing temporary control pegs located with the TST and/or GNSS. Hand-drawn plans will be scanned and georeferenced into the GIS environment and digitised to produce compatible graphical output.
- 5.7.8 Recording of individual earthworks will vary according to the level of special interest of the feature and its probable relationship to archaeological remains. Earthworks of little or no significance will be annotated on a site plan. Detailed drawings and interpretive analysis of important earthworks revealed during the survey will fulfil the aims and objectives of the investigation as defined here. Individual earthworks will be photographed as well as mapped.
- 5.7.9 The photographic record will be in digital format, resulting in high-resolution TIFF (uncompressed) images. Photographs will illustrate both the detail and context of the earthworks. In addition, Infra will take appropriate record photographs to illustrate work in progress. All photographic records will include information detailing: site name and

number/code, date, context, scale and orientation. A selection of progress photos of publication-quality will be submitted with the weekly progress report.

Setting-out Survey Methodology

- 5.7.10 A detailed survey will be undertaken by Infra to the general requirement as described in the GWSI:HERDS.
- 5.7.11 The Archaeological Contractor will follow the requirements set out in the Employer's Technical Standard (HS2-HS2-EV-STD-000-000035). All spatial setting out and recording will be in accordance with The Ordnance Survey National Grid and Ordnance Survey Newlyn Datum (ODN) as defined by the OS Active GNSS network and use of a Virtual reference system. A minimum of three Permanent Ground Markers (PGM) will be created using this system for each trench or group of geographically related trenches.
- 5.7.12 Surface heights will be related to PGMs. Ordnance Survey Benchmarks (OSBM) will not to be used. Levelling accuracy will be within 10 mm ± k: where 'k' is the total distance levelled in kilometres. Point codes will be used to clearly differentiate point cloud, ground reference and each kind of feature detail. The point codes used will be listed in the survey metadata. Survey methodology and a detailed survey record will be provided to the Employer within the Survey Report.

Survey Control

- 5.7.13 To ensure adequate site cover, inter-visible survey markers and points of reference will be established at a reasonable proximity to the perimeter of the survey area and the detail to be mapped. A full methodology will be submitted in the survey report.
- 5.7.14 Permanent and temporary survey control stations will be established according to good survey practice following HS2 technical standards (Doc. Ref: Document No. HS2-HS2-EV-STD-000-000035. Permanent stations will be one of the following types:
- 5.7.15 Marker of type as agreed by the Employer;
 - Earth anchor
 - Stainless steel nail (e.g. PK nail); or
 - Cut mark or punch mark
- 5.7.16 The type of marker used for temporary stations will be any of the following:
 - Wooden peg or stake
 - Stainless steel nail (e.g. PK nail), or
 - Cut mark or punch mark
- 5.7.17 GNSS observations will be made in accordance with the TSA guidance notes using at least two periods of three-minute observation separated by at least 20 minutes. Observations will

be pre-planned so that each window of observations can be made under different satellite configurations.

- 5.7.18 A survey control coordinate will be created and utilised from the measured control points. A Daily Survey Log will be maintained which will include GNSS observations of control points used in the survey at the start and end of each day's survey. Traverse calculations will also be recorded on the Daily Survey Log.
- 5.7.19 Double run spirit levelling will be undertaken between control points once levels have been derived from GNSS.
- 5.7.20 Any scan location will be set up either on the established control points or resected from established control points to maximise data coverage and minimise the number of setups needed.
- 5.7.21 A point distribution of 5mm will be required to record a level of detail sufficient to enable subsequent detailed drafting and analysis to take place. Any areas of fine detail will be rescanned at a higher resolution to ensure that the data is sufficient for interpretation and digitising.

Data Processing

- 5.7.22 The datasets will be processed in a 3D point cloud from which linework drawings and 3D models can be derived. It will also be capable of delivery as an E57 or LAS dataset for use in Esri ArcGIS. All extraneous data will be cleaned from the point cloud dataset prior to delivery.
- 5.7.23 Deliverables will include:
 - A 2D topographic linework plan of the site at an appropriate scale
 - A 2D contour map of the site at a similar scale
 - A vertically exaggerated isometric visualisation and different illumination directions will be produced to identify possible subtle landscape features
 - A Digital 3D Terrain Model Triangulated irregular network (TIN), and
 - A registered, unified and cleaned point cloud in E₅₇ of LAS format (colour RGB values).
- 5.7.24 Symbology will be utilised for all interpretive mapping in accordance with Historic England's *Understanding the Archaeology of Landscapes* (Historic England 2017). The scaling of plans will be agreed with the employer but should at least be 1:2,250 or larger. Particularly complex areas of the site can be depicted as larger scale insets, the location of which is clearly defined.
- 5.7.25 Profiles will also be produced where necessary to enhance the understanding of the behaviour of the ground surface. These will be drawn at a larger scale than the plans, typically 1:250 and exaggeration of the vertical axis will not be utilised. The location of all profiles must be accurately indicated on the mapping.

5.8 Detailed Woodland Survey Methodology

- 5.8.1 The detailed woodland survey will be undertaken in accordance with the guidelines set out in the Woodland Trust guidance on field surveys for ancient woodlands (Woodland Trust 2009). The documentary research and site walkovers undertaken with the purpose is to identify archaeological features that may be associated with woodland management as well as those indicative of pre-woodland land use. The comments made by the arboriculturist will inform the historic woodland management.
- 5.8.2 The detailed woodland survey will be guided and undertaken by Ruskins Tree Consultancy to accurately evaluate this potential by conducting a detailed record and mapping of all veteran, ancient and worked trees to provide evidence of woodland continuity and history of woodland management.
- 5.8.3 The woodland survey will focus on ancient woodland flora indicators to help determine the Site's antiquity and management history, including
- 5.8.4 Ancient woodland ground flora indicators vascular plants and other species
- 5.8.5 Species that are indicative to the woodland history, for example dense cover of bluebells is often associated with soil stripping for charcoal production, planted non-native species can indicate that the site was managed by the Victorians as a park.
- 5.8.6 Species may indicate woodland archaeology, for example moss covered areas are often associated with willow soils over rocks which may relate to building remains.
- 5.8.7 Ground flora survey will be undertaken in the form of a quadrat survey, comprising 20m x 20m quadrats covering each woodland area. This approach provides an objective way of collecting data to allow for:
 - Comparisons of surveyed and known areas
 - Intense recording which is likely to pick up difficult species
 - Spatially precise information to be generated so it is easier to link to other spatial data
 - Accurate change detection
 - individual plots which can be assigned to growth stage/ vegetation type/ origin, and
 - a valid statistical analysis.

5.9 Dendrochronology Methodology

5.9.1 The sampling of living trees is undertaken using a Swedish increment corer, extracting a core sample with a diameter of 5mm. Samples of trunk cross-sections will be taken and examined. An appropriate number of samples will be taken by the specialist (Nottingham Tree-Ring Dating Laboratory), to sample specific key species and areas of the Site. This will comprise 5

no. samples from non-Ancient Woodland species and 10 no. samples from Ancient Woodland species.

- 5.9.2 The samples will be taken before or after felling of the trees in agreement with NTRDL and Fusion. If the samples are to be taken after felling, the sample specimens will be physically marked and their geospatial locations recorded prior to removal.
- 5.9.3 Once the samples are taken, they will be removed from the Site for closer analysis.

5.10 Test Pitting Methodology

- 5.10.1 This phase of the investigation will be undertaken within the extant woodland prior to clearance. The methodology of setting out, survey control and data processing will be the same as those set out in the topographical survey (sections 5.7).
- 5.10.2 During the works the site boundary will be demarcated with visible markers (e.g. survey flags), to provide clear separation of the work area so that staff/visitors do not accidently stray into the rest of the woodland and disturb/damage it.
- 5.10.3 <u>All work will be undertaken by hand. No vehicles (plant or personal) will enter the woodland</u>.
- 5.10.4 The woodland will be accessed by foot and all hand tools will be brought in and out by the same means.
- 5.10.5 Welfare and tool facilities will be located outside the woodland.
- 5.10.6 Daily morning briefings and toolbox talks will include measures to ensure work has minimal impact and disturbances of the woodland (damage to branches etc.) Signed copies will be submitted to Fusion.

Test Pit Design

- 5.10.7 The test pit arrays for each site are shown on Figures 4.1 to 4.6. These may be subject to change following completion of the woodland survey and topographic surveys.
 - Each test pit will measure 2m² (2m x 1m)
 - The test pits sizes and locations have been selected using information to provide the evidence led approach. Site specific evidence from the topographical and woodland survey will be taken into accounts in addition to geological information, historic mapping evidence and known areas of past human activity.
 - The final dimensions and location of the test pits will be determined by constraints encountered on Site or to answer research questions.
- 5.10.8 The test-pit array has been designed to account for constraints and their exclusion zones (Figures 3.1 to 3.6). All test pits are listed in Table 4 and will be assigned a unique ID in accordance with the Employer's Asset Information Management System (AIMS). The test pits are positioned to avoid identified constraints (section 6.5).

5.10.9 Infra will confirm the final location of each test pit on site in consultation with Ruskins Tree Consultancy to avoid impact on the trees and their root systems.

Test Pit contingency

5.10.10 The design includes a contingency of up to 4m2 per Site, equating to c. 2m (l) by 2m (w) of additional test pit, to further investigate and characterise significant or unexpected remains should they be encountered during the evaluation (i.e. if remains indicative of extensive pre-woodland occupation are identified or to target additional features revealed in the topographic survey). Activation of the contingency requires approval by the Contractor.

Test Pit No.	Length (m)	Width (m)	Max Depth	Objectives/comments
001	2	1	To natural geology	C21022 Jones Hill Wood - located in a seemingly 'featureless' part of woodland
002	2	1	To natural geology	C21022 Jones Hill Wood - located in the location of a former footpath/track potentially associated with a quarry depicted in 1887 OS map and faintly visible on LiDAR
003	2	1	To natural geology	C21022 Jones Hill Wood - located on the edge of earthwork visible on LiDAR, not depicted on historical mapping
004	2	1	To natural geology	C21022 Jones Hill Wood - located on the edge of earthwork visible on LiDAR, not depicted on historical mapping
005	2	1	To natural geology	C21022 Jones Hill Wood – located on a former boundary of the woodland depicted on Wendover Tithe map and potentially on 1795 enclosure map
006	2	1	To natural geology	C25071 Widmore Hill Farm — located at the northern boundary of the woodland
007	2	1	To natural geology	C25071 Widmore Hill Farm – targeted on one of the narrow linear E-W features crossing the northern part of the Site, possible planting or ridge and furrow feature
008	2	1	To natural geology	C25071 Widmore Hill Farm – targeted on a linear feature perpendicular to the disused railway embankment, possible boundary/drainage feature

Table 4 Details of the Test Pits

Test Pit No.	Length (m)	Width (m)	Max Depth	Objectives/comments
009	2	1	To natural geology	C25071 Widmore Hill Farm – targeted on a linear feature perpendicular to the disused railway embankment, possible boundary/drainage feature
010	2	1	To natural geology	C25071 Widmore Hill Farm – targeted on one of the narrow linear E-W features crossing the northern part of the Site, possible planting or ridge and furrow feature
011	2	1	To natural geology	C25071 Widmore Hill Farm – located at the northern extent of ridge and furrow features identified by LiDAR imagery
012	2	1	To natural geology	C25071 Widmore Hill Farm – targeted on one of the widely spaced ridge and furrow remains identified in the southern part of the Site by LiDAR imagery
013	2	1	To natural geology	C25071 Widmore Hill Farm – targeted on one of the widely spaced ridge and furrow remains identified in the southern part of the Site by LiDAR imagery
014	2	1	To natural geology	C25071 Widmore Hill Farm — located at the edge of a possible former boundary
015	2	1	To natural geology	C25071 Widmore Hill Farm – targeted on one of the widely spaced ridge and furrow remains identified in the southern part of the Site by LiDAR imagery
016	2	1	To natural geology	C30031 Fox Covert Whitfield – targeted on a possible ridge and furrow feature
017	2	1	To natural geology	C30031 Fox Covert Whitfield – targeted on a possible ridge and furrow feature
018	2	1	To natural geology	C30031 Fox Covert Whitfield – targeted on a possible ridge and furrow feature
019	2	1	To natural geology	C30031 Fox Covert Whitfield – targeted on a possible ridge and furrow feature
020	2	1	To natural geology	C30027 Halse Copse Farm – Targeted on a possible ridge and furrow/planting furrow

Test Pit No.	Length (m)	Width (m)	Max Depth	Objectives/comments	
021	2	1	To natural geology	C30027 Halse Copse Farm — Targeted on a possible ridge and furrow/planting furrow	
022	2	1	To natural geology	C30027 Halse Copse Farm — Targeted on a possible extension of a potentially medieval boundary seen to the north-east on LiDAR	
023	2	1	To natural geology	C30027 Halse Copse Farm — Targeted on a possible ridge and furrow/planting furrow	
024	2	1	To natural geology	C30027 Halse Copse Farm — Targeted on a possible ridge and furrow/planting furrow	
025	2	1	To natural geology	C30027 Halse Copse Farm — Targeted on a possible ridge and furrow/planting furrow	
026	2	1	To natural geology	C32033 Fox Covert – targeted on a linear feature parallel to Welsh Road, possible ridge and furrow or former road(side) feature	
027	2	1	To natural geology	C32033 Fox Covert – targeted on a large subcircular feature identified by LiDAR imagery, posited prehistoric enclosure/Civ War defences/footpath	
028	2	1	To natural geology	C32033 Fox Covert – targeted on a linear feature parallel to Welsh Road, possible ridge and furrow or former road(side) feature	
029	2	1	To natural geology	C32033 Fox Covert – targeted on a linear feature parallel to Welsh Road, possible ridge and furrow or former road(side) feature	
030	2	1	To natural geology	C32033 Fox Covert – targeted on a linear feature parallel to Welsh Road, possible ridge and furrow or former road(side) feature	
031	2	1	To natural geology	C32033 Fox Covert – targeted on a large subcircular feature identified by LiDAR imagery, posited prehistoric enclosure/Civil War defences/footpath	

Test Pit No.	Length (m)	Width (m)	Max Depth	Objectives/comments	
032	2	1	To natural geology	C32033 Fox Covert – located within a large subcircular feature identified by LiDAR imagery, posited prehistoric enclosure/Civil War defences/footpath. Also targeted on a faint NWSE aligned linear feature, poss. ridge and furrow	
033	2	1	To natural geology	C32033 Fox Covert – targeted on a large subcircular feature identified by LiDAR imagery, posited prehistoric enclosure/Civil War defences/footpath	
034	2	1	To natural geology	C32033 Fox Covert – targeted on a faint NW-SE aligned linear feature, poss. ridge and furrow	
035	2	1	To natural geology	C32030 Windmill Hill Spinney – targeted on a former woodland boundary depicted in historic mapping (1639 Ladbroke manor and parish map) seen as a faint feature on LiDAR	
036	2	1	To natural geology	C32030 Windmill Hill Spinney – targeted on a former woodland boundary depicted in historic mapping (1639 Ladbroke manor and parish map) seen as a faint feature on LiDAR	
037	2	1	To natural geology	C32030 Windmill Hill Spinney – targeted o a possible terrace feature identified by LiDAR	
038	2	1	To natural geology	C32030 Windmill Hill Spinney – targeted on a former woodland boundary depicted in historic mapping (1639 Ladbroke manor and parish map) seen as a faint feature on LiDAR	
039	2	1	To natural geology	C32030 Windmill Hill Spinney – targeted on a former woodland boundary depicted in historic mapping (1639 Ladbroke manor and parish map) seen as a faint feature on LiDAR	
040	2	1	To natural geology	C32030 Windmill Hill Spinney – targeted on a possible terrace feature identified by LiDAR	

Excavation Methodology

• Test pits will be excavated by hand.

- All overburden will be excavated to natural geology
- Excavation of the topsoil will be undertaken in a manner to ensure minimal damage to the cohesion of the topsoil material.
- Each soil horizon will be assigned an individual context number
- Topsoil, subsoil and other arisings will be kept separate prior to reinstatement.
- N.B. Soils excavated during the Phase 1 works will not be sieved
- 5.10.11 If contaminated or potentially contaminated material is excavated, investigation of the test pit will stop to record any findings (if considered safe to do so) and the test pit will be promptly backfilled and Fusion will be notified promptly (section 6.5.9).

Test Pit Finds

5.10.12 Any archaeological finds recovered during the test pitting will be recorded and plotted on plans of the relevant test pit according to historical period.

Test Pit Recording

- 5.10.13 All on site recording will be undertaken to the standards presented in the Project Plan and in adherence to the Technical Standard Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035).
- 5.10.14 A test pit written record will be completed noting:
 - weather and atmospheric visibility
 - land use
 - soil ground conditions

processing conditions (wet/dry/optimal) and

- the survey personnel employed.
- 5.10.15 A confidence rating on the sieving process will be recorded as will any archaeological features cut into the natural substrate.
- 5.10.16 Within alluvial/colluvial sequences the sub-contractor will pay attention to establishing the vertical extent of layers of potential archaeological horizons of cultural activity.
- 5.10.17 Should it be necessary to move a test pit from its original location, all four corners of the moved test pit will be surveyed as dug following excavation and prior to reinstatement.

Reinstatement

5.10.18 Test pits will be re-instated in the reverse order to which they were excavated (i.e. Subsoil first followed by topsoil), and the surface restored to the as found condition. If ground water is encountered, each test pit will be bailed/pumped dry before re-instatement.

Fieldwork Recording

5.10.19 All on site recording will be undertaken to the standards presented in the Project Plan and in adherence to the Technical Standard Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035).

5.11 Ecological/Arboricultural watching Brief

- 5.11.1 An ecological/ aboricultural watching brief will take place during excavation of the archaeological test pits in Halse Copse, Jones Hill Wood and Fox Covert Glyn Davies Wood.
- 5.11.2 A soil scientist from Reading Agriculture will attend site during the hand excavation works.
- 5.11.3 The location of the test pits will be agreed with the soil scientist, who will be responsible for advising INFRA as to how to segregate the topsoil and subsoil, while leaving the soil intact
- 5.11.4 The soil scientist will provide an activity log demonstrating the method of excavation.
- 5.11.5 Translocation work will take the excavated soil from the donor woodland to the receptor site.

5.12 Environmental Sampling

Sampling strategy

5.12.1 It is not anticipated that any environmental sampling will be necessary.

Scientific Dating

5.12.2 If sampled material or finds are suitable for scientific dating in the opinion of the assessing specialist, a judgement will be made, in conjunction with Fusion, as to the benefit of scientific dating. Criteria such as the significance of the deposit or find, and the reliability of any other source of dating for the deposit or find will be taken into consideration.

Finds processing and reporting

- 5.12.3 Finds will be processed in house by Infra staff under the management of Victoria Rees.
- 5.12.4 Following this a preliminary catalogue will be produced, and the finds sent to their relevant specialists (see Appendix 5).
- 5.12.5 The specialists will produce assessment reports on the artefacts, which will be included in the final Fieldwork Report issued by Infra. Should the specialists recommend further analysis of any artefacts, these recommendations will be discussed and agreed with Fusion and HS₂ as required (see below).

5.13 Human Remains

5.13.1 Human remains will be treated in accordance with HS2s Human remains and monuments procedure (HS2-HS2-EV-PRO-0000-00008) and Technical Standard Specification for historic environment investigations.

- 5.13.2 If human remains are found, work will cease at the location where the remains are found, and Fusion's HERDS Manager will be notified promptly. The initial notification may be made personally or by telephone but will be confirmed in writing (including email) within 24 hours of discovery.
- 5.13.3 Human remains will not be investigated as part of this work. They will be left in situ and covered back over, in agreement with Fusion's HERDS Manager.

5.14 Deliverables

- 5.14.1 Further details on reporting and deliverables can be found in Sections 8 and 9 of the Project Plan.
- 5.14.2 The deliverables will be as follows:
 - Fieldwork Sign Off Sheet 24hrs
 - Interim Statement 2 weeks
 - Survey Report 2 weeks
 - Fieldwork Report 6 weeks
 - Digital Deliverables 6 weeks
 - All timescales are from date of completing the site works (i.e. demobilisation)

Further information on the structure and design of the reports can be found in section 6 of the Project Plan.

5.15 Digital Deliverables

- 5.15.1 Following completion of the archaeological works, Infra will provide Fusion with the required data, metadata and digital material as specified in the Historic Environment Digital Data Management and Archiving Procedure (C262-ARP-EV-SPE-000-000003). Data management will be undertaken in accordance with HS2's Cultural Heritage GIS
- 5.15.2 All data will be in accordance with the Geographical Information System Standards (HS2-HS2-GI-STD-000-000002).
- 5.15.3 Infra will produce and deliver all reports, including illustrations, in accordance with Fusion's fieldwork guidance (Doc. Ref. HS2-HS2-EV-STD-000-000035) and HS2's Document Management Procedure (HS2-HS2-IM-PRO-000-000008).
- 5.15.4 CAD files will be GIS compatible and follow standards set out in the Cultural Heritage GIS Specification (HS2-HS2-GI-SPE-000-000004) and the GIS Standards (HS2-HS2-GI-STD-000-000002).

5.16 Resources

5.16.1 Infra's team and Fusion's team are listed in Tables 5 and 6 respectively.

Table 5: Infra Contacts

Name	Role	Phone	Email Address
Annemarie Gaunt	Geomatics Manager		
Chris Griffiths	Project Supervisor		
Ciaran Feeney	Project Officer		
David Bonner	Operations Director		
Graham Cruse	Field Operations Manager		
Louis Stafford	Site Manager		
Mark Collard	Project Director		
Simon Roper	Reports Manager		
Victoria (Vix)Hughes	Project Officer		
Victoria Rees	Post-Ex Manager		

Table 6: Fusion Contacts

Name	Role	Phone	Email Address
Abdul Abdulgafar	C3 Consents Lead		
Ajay Sahota	Assistant Project Manager (C2a South)		
Alex Robinson	Quantity Surveyor		
Alexandru Tapalaga	Project Engineer (C3)		
Alfred Pecout	Project Engineer BS19		
Amir Khalilzadeh	Senior Project Engineer		
Bernard Hanley	Shapes Delivery Manager (19 to 21)		

Name	Role	Phone	Email Address
Bruce Banks	Snr Project Engineer		
Christos Karalis	Assistant HERDS Manager		
Conor Paul	Snr Environmental Advisor		
Darian Rad	Senior Project Engineer (C3)		
Dave Burgess	Agent		
Dave Hopper	H&S Advisor		
Eleri Newman	Assistant HERDS Manager, C1, C23		
Felicity Andruszko			
Francis O'Connell	Sector Manager (C3)		
lain Girvan	C23 BS18 Snr Project Engineer		
lain Williamson	HERDS Manager C1, C23		
lan Sills	Senior Project Manager		
John Allen	AWE2b & d Senior Project Engineer		
John Ely	C23 Central Sector Lead		
Joseph Groarke	Assistant Design Manager (HERDS)		
Joseph Solomons	Senior Project Engineer		
Josh Cameron	Assistant HERDS Manager (C2a South)		
Katerina Bounou	Sector Coordinator (C23 Central)		
Keith White			
Mark Strachan			
Michael Owen	Big Shape 18 Lead, C23		

Name	Role	Phone	Email Address
Mike Perkins	Calvert/ C3 Area Lead Security Advisor		
Milan Mladenovic	Project Manager		
Monray Dodgen	Assistant Project Manager C3		
Nick Finch	HERDS Manager C3		
Rachel McDonald	Ecology Manager		
Richard Laws	Sector Ecologist		
Ryan Sammons	Security Advisor		
Shaun Stewardson			
Simon Mackrell			
Steve Blakemore	Commercial Manager		
Steven Evans	Shape Lead		
Tara Nourshargh	Project Engineer BS21		
William Dunster	H&S Advisor		
Yogesh Bhatt	Shape Lead BS21		

6 Health, Safety and Environment Management

6.1 Health and Safety Values

- 6.1.1 Infra represent two well-established archaeological companies with a reputation for safety within the world of infrastructure development.
- 6.1.2 Safety is a core HS₂ Ltd value, and Infra share that commitment.
- 6.1.3 The HS2 Health and Safety Strategy (Document: HS2-HS2-HS-STR-000-000002) describes HS2's approach, vision, mission, and values with respect to health and safety, and has been wholly adopted by Infra.

6.1.4 All archaeological works will be undertaken in accordance with Fusion's Health and Safety Policy (Document No. HS2-HS2-HS-POL-000-000001), the policies and guidance set out in the Enabling Works, Works Information (WI0900) and Fusion's Health and Safety Policy and Construction Phase Health and Safety Plan, which Infra have also adopted.

6.2 Risk Assessment and Method Statement

- 6.2.1 Infra has prepared a Risk Assessment and Method Statement (Doc Ref: 1EW03-FUS_IFA-HS-MST-Cooo-ooooo2), which provides a summary of the identified health, safety, ecological and environmental constraints and the planned control measures for the surveys and test-pitting.
- 6.2.2 No ground intervention or other survey will be made without approval of Infra's RAMS by Fusion accompanied by a Fusion approved Permit to Break Ground.

6.3 Site Inductions

- 6.3.1 New operatives will meet Fusion's latest induction criteria (18/08/2020), prior to mobilising to site:
- 6.3.2 New operatives programmed to work in areas under the custodianship of Effiage Kier Ferrovial BAM Joint Venture (EKFB), will undertake EKFB's induction and obtain an EKFB induction card, prior to mobilising to site.
- 6.3.3 At both inductions, safety critical operatives will be required to undertake a mandatory drugs and alcohol test. A random selection of non-safety critical operatives will also be tested.
- 6.3.4 Site operatives will receive a site-specific induction prior to working on site and daily briefings. Signed copies of the induction and briefings will be provided to Fusion.

6.4 **PPE**

6.4.1 Mandatory PPE is listed in Table 7.

Table 7: Mandatory PPE

Equipment description	Specification (e.g. type, grade)	Training required	
Hard Hat	BS EN 397:1995	Covered by induction	
Safety Boots with ankle support	EN 345	Covered by induction	
Hi-Vis Long Sleeve Jacket	GO/RT/3297 and BS EN 471:2003 class 3 /	Covered by induction	
Hi-Vis Trousers	GO/RT/3297 and BSEN471:2003 class 1	Covered by induction	
Light eye protection	BS EN 166F (where F = low energy impact 45 m/s) will be used. This may take the form of safety spectacles or a visor.	Covered by induction	

Equipment description	Specification (e.g. type, grade)	Training required
Safety Gloves	BSEN 388 4121	Covered by induction
Other:		

6.4.2 Specific low-risk tasks, such as production of records or photography, may be undertaken without gloves or eye protection.

6.5 Site Specific Constraints

- 6.5.1 Infra has prepared site-specific Site Access Plans
- 6.5.2 A summary of the identified constraints is in Table 8. Further information is in the Site Access Plans (SAPs) and the site-specific appendices of the RAMS (1EW03-FUS_IFA-HS-MST-Cooo-000002).

Fusion GIS ID	Site Name	Ecological Constraints Present	Utilities Constraints Present	Ancient Woodland	PRoW
C21022	Jones Hill Wood	yes	yes	yes	no
C25071	Widmore Farm	yes	yes	no	no
C30027	Halse Copse Farm	yes	yes	yes	no
C30031	Fox Covert Whitfield	yes	yes	yes	no
C32030	Windmill Hill Spinney	yes	yes	no	yes
C32033	Fox Covert Glyn Davies Wood	yes	no	no	no

Table 8: Site-specific constraints

Site vehicles

- 6.5.3 Site vehicles and equipment operated by Infra will be physically inspected, along with the required documentation and records of daily/weekly inspections, including fault reporting, will be maintained.
- 6.5.4 Fusions vehicle management system (VMS) sheet (PET1 FRM) will be completed for each vehicle entering and leaving the Site,
- 6.5.5 A vehicle safety check sheet (VSCS) will be completed for each item of vehicle that enters the Site.
 - Both the VMS and VSCS will be completed daily and sent to Fusions Logistics (logistics@fusion-jv.com) by 4.30pm.

6.5.6 Details of equipment operators will be maintained by Infra and evidence of periodic checks that the equipment has been adequately calibrated and maintained will be obtained from suppliers.

Environment

- 6.5.7 The following precautions will be taken:
 - There will be no damage made to any vegetation unless specified by the site clearance scope.
 - Field gates/fences to be secured and left in the same condition as found.
 - No litter to be abandoned on site; all waste will be removed by a licenced waste transferral
 - Noise will be kept to a minimum

Water

6.5.8 Infra will ensure that if there is a need to discharge water that this is done in accordance with Fusion's environmental protection requirements. Fusion will be responsible for monitoring discharge rates and, if necessary, conductivity of discharge water to ensure compliance.

Contaminated ground

6.5.9 Should any material be excavated that is deemed to be contaminated or potentially contaminated it will be investigated, controlled (e.g. placed separately from clean material) and removed from the Site in accordance with Fusions environmental protection requirements (as set out in the Environmental Management Plan) and the RAMS (Doc Ref: 1EWo3-FUS_IFA-HS-MST-Cooo-ooooo2). Incident reports will be submitted within 24 hours to Health and Safety.

6.6 Site Safety and Security

- 6.6.1 Following site set-up, all works will be conducted in accordance with Fusions requirements and the safe methods of work described in the RAMS.
- 6.6.2 In addition to the Site induction, Infra's site supervisor will give daily start of shift briefings and will maintain a record of site attendance for each day that there is a team in the field.
- 6.6.3 No plant, vehicles or materials will be stored on site overnight or at weekends

6.7 Deep stratigraphy

6.7.1 In areas of deep stratigraphy (>1.2m), each intervention will be appropriately shored or stepped and kept free of water to allow 'person entry' to the excavations. Works within deep stratigraphy will only be undertaken in accordance with a Temporary Works Design approved by Fusion's Temporary Works Manager and in compliance with the Fusions Technical
Standard (HS2-HS2-CV-STD-000-000005), the Mitigation RAMS and the Permit to Break Ground.

6.7.2 Infra will pay attention to establishing the vertical extent of layers of archaeological potential and will be aware that horizons of cultural activity may be interdigitated with horizons of sterile material. Infra will supervise the excavation of any interventions into such material in such a manner to allow a cumulative or continuous section to be recorded.

6.8 Accident and Incident Reporting

6.8.1 Accident and incident reporting will follow the guidance and procedures set out in HS2 Ltd Works Information and Fusions Standard for Accident and Incident Investigation and Reporting (Document No. SH2 STD1) and Incident & Emergency Preparedness Plan (Document No. 1EW03-FUS-HS-PLN-Cooo-000001). Infra's RAMS include a clear procedure for responding to an incident and list of emergency contacts including Fusion's Duty Manager and SHEQ Manager.

Core Working Hours

- 6.8.2 The core working hours are from 08:00 to 18:00 on weekdays (excluding public holidays).
- 6.8.3 A period of up to one hour before and up to one hour after core working hours may be utilised for start-up and close of activities.

Welfare and First Aid

- 6.8.4 Infra will provide adequate welfare and first aid in line with Fusion's Integrated Management System (IMS) standards and guidance.
- 6.8.5 The proposed works are classified as transient and will be facilitated by Garic welfare vehicles, which will travel to site with the fieldwork teams daily. The work teams will have access to additional welfare at centralised Secure Welfare Facilities being installed for the Blank Areas Testing works, as detailed in the RAMS and SAPs. The field team will include a trained First aider. First Aid kits will be located at the SWFs and in each works vehicle.

Emergencies

- 6.8.6 A designated point or points (normally the site access point(s) from the public highway) will be assigned to each site to which emergency services can mobilise if there is an emergency. The emergency locations are identified by postcodes and What₃words in Appendix 5. Plans showing these emergency points are presented in Appendix 8 of the RAMS.
- 6.8.7 The Site address and the route to the nearest accident and emergency hospital will be displayed in all welfare facilities (SWF and Garic welfare vehicles)
- 6.8.8 Fire extinguishers will be in welfare units and vehicles. A klaxon or similar alarm will be provided in the event of fire and the muster point will be identified at the perimeter of the compound (and detailed in the induction).

7 Interface and Communication Plan

- 7.1.1 All parties will follow the Employer's protocols for intra- and inter-project communication.
- 7.1.2 Infra will liaise with Fusion to ensure the compatibility of the investigations with the following:
 - Detailed scheme design: issues related to the works of other HS₂ Contractors and Sub-Contractors or others
 - Programme sequence for handover parts of the sites to other contractors.
 - Health and Safety arrangements.
 - Temporary works and logistical arrangements carried out by the sub-contractor or others.
 - Infras approach to communications with other contractors, local community, landowners and the general public.
- 7.1.3 Upon completion of the fieldwork, a site sign-off meeting will be held between Infra and Fusion to confirm that all works have completed, and the site reinstated to satisfactory standard. This will be recorded on the Fieldwork Sign Off Sheet in Appendix C of the Project Plan.
- 7.1.4 Photographic evidence of site conditions before and after the works will be recorded.

8 Site Monitoring and Engagement Plan

- 8.1.1 Infra will produce a programme of weekly-written progress reports and periodic progress meetings with Fusion's Historic Environment Manager and will be represented at such meetings to the satisfaction of Fusion.
- 8.1.2 Infra will provide information describing progress on-site to date and feedback from any initial assessment.
- 8.1.3 Where required, Fusion's Historic Environment Manager will arrange site visits with specialist stakeholders and expert bodies to provide advice on-site where this is considered beneficial and agreed with HS₂ Ltd.
- 8.1.4 This will be undertaken within HS2 Ltd communication protocols set out in HS2 Ltd Community Relations Strategy.
- 8.1.5 Periodic updates on the progress of the Area Central Enabling Works archaeology programme will be submitted to HS2 Ltd and Buckinghamshire County Archaeology Service (BCAS) by Fusion's Historic Environment Manager.
- 8.1.6 Infra will provide information to Fusion's Historic Environment Manager as requested to inform this reporting.

- 8.1.7 Fusion's Historic Environment Manager will arrange and convene monitoring site visits with HS2 Ltd to assess the quality and progress of the archaeological works and their adherence to HS2 technical standards and procedures.
- 8.1.8 HS2 Ltd may invite Buckinghamshire County Archaeology Service (BCAS) to attend these meetings, as appropriate. Fusion will be responsible for informing HS2 Ltd, Historic England and the local authority historic environment specialists on the progress of fieldwork activities and findings.
- 8.1.9 HS2 Ltd may plan and host media events or documentary recording, particularly in the event of a significant archaeological discovery. If requested to do so, Infra will provide the HS2 media team with escorted access to the Site. Any request for media access will be confirmed in advance, in writing, by Fusion's Historic Environment Manager.
- 8.1.10 Any visits to the works will be in accordance with Fusion's health and safety, site access and security requirements.
- 8.1.11 There will be no unauthorised access to the works in any other circumstances.

9 Quality Assurance Processes and Plan

- 9.1.1 All archaeological works will be delivered in accordance with Fusion's AWH Quality Plan (ref. 1EWo3-FUS-QY-PLN-Cooo-oo1658) 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).

- Chartered Institute for Archaeologists (CIfA), 2014a. Code of Conduct.
- ClfA, 2014b. Standard and Guidance for Archaeological Field Evaluation.
- Historic England, 2015. Management of Research Projects in the Historic Environment (and associated guides and project planning notes).
- Historic England, 2015. Geoarchaeology: Using earth sciences to understand the archaeological record.
- English Heritage, 2011. Environmental Archaeology: A guide to the Theory and Practice of Methods, from Sampling and Recovery to post-excavation (second edition).
- 9.1.2 The quality assurance process for the works will be detailed in the project Inspection and Test Plan (ITP) (Doc. Ref. 1EW03-FUS_IFA-QY-PLN-C000-00001) which will be implemented as per Infra's Subcontractor Quality Management Plan (Doc. Ref. 1EW03-FUS-QY-PLN-C000-009725). ITPs are a means of ensuring work processes are checked at pre-determined intervals against known criteria with all the relevant personnel in attendance.
- 9.1.3 As a minimum, the ITP will include activities and processes, control/ acceptance criteria, inspection frequency, inspection personnel, required documentation/ records and stakeholder involvement levels.
- 9.1.4 Compliance will be measured by the Contractor through a combination of on-site and off-site inspections.
- 9.1.5 Infra's RAMS will be implemented only once they have been approved by Fusion.
- 9.1.6 The Operations Director will be a full Member of the Chartered Institute of Field Archaeologists (CIFA).
- 9.1.7 All members of Infra's site team will be suitably qualified, experienced and competent professionals.
 - All site operatives will hold a current and valid CSCS qualification to at least 'Operative' level.
- 9.1.8 The interim and final reports will be prepared and conducted by suitably qualified, experienced and competent professionals.
 - The resultant reports will be issued in draft to Fusion, whose Historic Environment Manager will check and review each report prior to issue to HS₂ Ltd for acceptance.
 - Final reports, following comments, will be checked and reviewed prior to issue.

10 Resource Plan

10.1.1 Infra's leadership team are listed in Table 9.

Table 9: Infra's Leadership Team

NAME	ROLE
Annemarie Gaunt	Geomatics Manager
Ciaran Feeney	Project Officer
Chris Griffiths	Project Supervisor
David Bonner	Operations Director
Francesca Giarelli	Project Supervisor
Graham Cruse	Operations Manager
Hayden Dunn	Surveyor
Louis Stafford	Contracts Site Manager
Marcela Szalanska	Survey Officer
Mark Collard	Project Director
Mary Lutescu-Jones	Project Officer
Matt Smithson-Shaw	Project Supervisor
Mike Wood	Geomatics Manager/
Nick Wells	Project Officer
Nick Watson	Geo-archaeologist & Mollusc Specialist
Patricia Long	Commercial Director
Simon Roper	Contracts Manager Post- Excavation
Victoria Rees	Post-Ex Manager

10.1.2 Infra's specialists who may visit the Site and perform laboratory works are listed in Table 10.

Table 10: List of Specialists

NAME	ROLE
Barry Cosham	Metallurgist
David Booker-Smith	Met Consultancy Group

Derek Hurst	Ceramics Specialist
lan Rowlandson	Ceramics Specialist
Jacqui Hutton	Finds Officer
Jane Timby	Late prehistoric and Roman ceramics
Katie Faillace	Osteo-archaeologist
Malin Holst	Osteo-archaeologist
Mike Wood	Post-Medieval Finds Specialist
Nick Watson	Geo-archaeologist & Mollusc Specialist
Peter Wilkins	Ruskins Tree Consultancy
Pieta Greaves (Drakon Conservation)	Conservator
Prof. Kevin Leahy	Artefacts Specialist
Richard Madgwick	Animal Bone Specialist
Robert Howard	NTRDL
Rob Hedge	Lithics Specialist
Rose Calis	Osteo-archaeologist
Toby Martin	Metalwork
Val Fryer	Palaeo-environmentalist

- 10.1.3 The phase 1a woodlands survey and topographic surveys will be undertaken by one person and two surveyors respectively.
- 10.1.4 The Phase 1b dendrochronology survey, test pitting and ecological/arboricultural watching brief will be undertaken by one specialist, two archaeologists and one soil scientist respectively.
- 10.1.5 The functional relationships of the leadership team and core team are shown on Infra team organogram (Appendix 4).

11 References

Title	Reference
Risk Assessment Method Statement for Route Wide Woodland	1EW03-FUS_IFA-HS-MST-C000-
Evaluation	000002

Title	Reference
CIFA 2014 Standard and guidance for archaeological field evaluation. Chartered Institute for Archaeologists	ClfA 2014
Harris, E C 1989 Principles of Archaeological Stratigraphy (2nd ed.) Academic Press	Harris 1989
Hey, G and Lacey, M 2001 Evaluation of archaeological decision- making processes and sampling strategies. Kent County Council	Hey, G and Lacey, M 2001
Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and recovery to Post-excavation (2nd ed.). Historic England	Historic England Guidance, 2011
Management of research projects in the historic environment (and associated guides and planning notes)	Historic England Guidance, 2015a
Geoarchaeology: Using earth sciences to understand the archaeological record	Historic England Guidance, 2015b
Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation. Historic England	Historic England Guidance, 2018
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 HS2
Phase One Environmental Statement, Supplementary	ES 3.5.2.13.7
Geophysical Survey Reports	C252-ETM-EV-REP-020-000263_P02
	EWo3-FUS-EV-REP-CSo6_CLo9- 007287
	1EW03-FUS-EV-REPCS06_CL09- 000001
HS2 Ltd, 2015. Heritage Risk Model Phase 1 Review 2014 - Volume I	C253-ATK-EV-REP-000-000002
HS2 Country South Utility Drawing, Sheet 20	C222-ATK-UT-DPL-020-207700-FPD
HS2 Technical Standard: Cultural Heritage GIS Specification	HS2-HS2-GI-SPE-000-000004
HS2 Technical Standard: – Temporary Works	HS2-HS2-CV-STD-000-000005
HS2 Technical Standard: - Route wide soil resources plan	HS2-HS2-EV-STD-000-000008
HS2 Technical Standard: Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy	HS2-HS2-EV-STR-000-000015

Title	Reference
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 Enabling Works Information WI0200 General Constraints	1E001-HS2-PR-ITT-000-000098
Fusion Standard for Accident and Incident Investigation and Reporting	1EW03-FUS-HS-PLN-C000-000001
Fusion Construction Phase Health and Safety Plan	1EW03-FUS-HS-PLN-C000-000053
Fusion Incident & Emergency Preparedness Plan	1EW03-FUS-HS-PLN-C000-000001
Fusion AWH Works Package 1 Quality Plan	1EW03-FUS-QY-PLN-C000-001658

12 Glossary of Terms

- 12.1.1 The following terms have been used in this report:
- **Archaeological Contractor** Infra, the organisation undertaking the specific historic environment works for the Contractor.
- 12.1.3 **Contractor** Fusion; the organisation undertaking the Enabling Works for Area Central on behalf of the Employer.
- 12.1.4 **Detailed Desk Based Assessment (DDBA)** analytical document that builds on the information gathered previously in the Environmental Statement to address issues, questions or uncertainties within a given area. It may be developed to provide a more detailed understanding of the resource in an area to inform design development or construction programming.
- 12.1.5 **Employer** HS2 Ltd, the organisation responsible for delivery of HS2 Phase One Scheme and all terms and conditions, policies and procedures, and payments.
- 12.1.6Generic Written Scheme of Investigation: Historic Environment Research and
Delivery Strategy (GWSI: HERDS) the framework for delivering all historic
environment investigations undertaken as part of the HS2 Phase 1 programme.

- 12.1.7 **Location** a specific HS2 worksite or group of worksites that are being addressed as a combined historic environment investigation programmed of assessment, evaluation and investigation.
- 12.1.8 Location Specific Written Scheme of Investigation (LSWSI) specification document assembling one or more Project Plans within an area of land defined primarily for construction programme purposes. The LSWSIs will be agreed with the Project Manager and would provide a costed and programmed approach to delivering outcomes.
- 12.1.9 **Project Plans** specification document for each specific package of activity (e.g. a survey, desk-based assessment, excavation, recording project). The plans would respond to the Specific Objectives set out in the GWSI: HERDS and be delivered within an agreed budget.
- 12.1.10 **Works** the specific historic environment assessment, evaluation or investigation works at each location.
- 12.1.11 The following abbreviations are used in this method statement:
 - CAT Cable Avoidance Tool
 - RAMS Risk Assessment and Method Statement
 - SWF Secure Welfare Facility



Appendix 1: Project Plan

This LSWSI addresses a single Project Plan:

Document Title	Document Reference	Revision	Acceptance Status
AWH - Project Plan for Woodland Evaluation	1EW03-FUS-EV-REP-C000-000007	C02	With HS2 for Acceptance

Appendix 2: Change Control Register

Infra will maintain a register on Site of any change controls requested and their approval by Fusion.

Maintenance of this register will be the responsibility of the Site Manager.

CHANGE CONTROL REGISTER						
Site Name		Site Code	Site Code			
Change No.	Description	Туре*	Date Requested	Fusion Approver	Approval Date	

* RIS (Reduction in Scope), VIM (Variation in Methodology), RI (Rapid Investigation), EIA (Extention of Investigation Area)

Appendix 3: Figures

Figure 1: Site Location (one per site, numbered 1.1 to 1.6)

Figure 2: Site Logistics and Traffic Management Plan (one per site, numbered 2.1 to 2.6)

Figure 3: Utilities / Hazards Locations (one per site, numbered 3.1 to 3.6)

Figure 4: Test Pit Array (one per site, numbered 4.1 to 4.6)

C21022 Jones Hill Wood

Figures 1.1-4.1









C25071 Widmore Farm

Figures 1.2-4.2











Figures 1.3-4.3











Figures 1.4-4.4









C32030 Windmill Hill Spinney

Figures 1.5-4.5








C32033 Fox Covert/Glyn Davies Wood

Figures 1.6-4.6









Appendix 4: Infra Organogram

HS2: Routewide Woodland Evaluation Infra



fusion intra

Technicians

Des O'Doneghue James Green (Survey) Magdalena Gruszecka (Survey) Raphael Ghanchi Sean Finley-Scott Weronika Aleksander

> **Subcontractors** Reading Agriculture Met Consultancy Group **Ruskins Tree Consultancy** Nottingham Tree-Ring **Dating Laboratory**

Officers & Supervisors (Associates & Seniors)

Directing and overseeing teams of technicians; intitial responsibility for quality and accuracy of all records

Technicians (Grad/Post Grad)

Performing assessments and recording archaeological data safely, to high professional standards

Appendix 5: Site Emergency Address Points

Fusion GISID	Site Name	Address	Postcode	Easting	Northing	What ₃ Words
C21022	Jones Hill Wood (Ancient Woodland)	Bowood Lane, Kingsash, Buckinghamshire	HP22 6PY	488783	204338	valued.smarting.midfield
C25071	Widmore Farm	Mixbury, Buckinghamshire	MK18 4AQ	462490	232342	pounces.bedrock.mobile
C30027	Halse Copse (small part of site Ancient Woodland)	Radstone, South Northamptonshire	NN13 5PZ	458473	241556	plotter.migrants.comb
C30031	Fox Covert Whitfield	Radstone, South Northamptonshire	NN13 5GJ	469497	239749	bypasses.venue.scorecard
C32030	Windmill Hill spinney	Ladbroke, Stratford Upon Avon, Warwickshire	CV47 2BZ	442408	259314	ripe.unloaded.newest
		Ladbroke Hill Lane, Stratford Upon Avon, Warwickshire	CV427 2BZ	442628	259251	penny.tested.scorpions
C32033	Fox Covert/Glyn Davies Wood (Ancient Woodland)	Stoneton, South Northamptonshire	NN1 6XX	446158	253559	newsreel.bead.belonged