1EW03 - Enabling Works Central

AWHf Location Specific Written Scheme of Investigation for a Trial Trench Evaluation at Ladbroke Warwickshire AC320

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1 Summary

1.1.1 This location specific Written scheme of Investigation (LSWSI) sets out the methodology, deliverables, programme, health, safety and environmental requirements, resource and interfaces necessary to deliver archaeological defined in the Project Plan for a Trial Trench Evlauation at Ladbroke Wardwickshire AC320 (1EW03-FUS-EV-REP-CS07_CL24-007846).

1.1.2 The project plan established the scope, aims and contributions to the Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI: HERDS) objectives, techniques, Post investigation reporting and archive.

1.1.3 The work are related to the construction of the rail alignment formation, Ladbroke Cutting, access Road, electricity substation, landscape mitigation planning and temporary storage stockpile areas. The site encompasses one parcel of land, C32031 measuring 7.77ha and is centre at NGR 442924 258807. The site forms part of several arable and pastorial field which lie east of Ladbroke Village (c.900m) and c3.2km south of Southam.

1.1.4 The results of this archaeological investigation will determine, as far as reasonably possible, the nature, extent and character of any surviving archaeological remains within the Site and to inform an archaeological resource assessment of its knowledge value and ability to contribute to Specific Objective and in doing so, this would be used to inform the requirement and strategy of further archaeological investigation.

1.1.5 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-000-000015) and Specification for Historic Environment Investigations (Document No. HS2-HS2-EV-STD-000-000035) and relevant CifA Standards.

2 Introduction

2.1.1 This Written Scheme of Investigation (WSI) has been prepared by Archaeological Research Services Ltd (ARS Ltd) on behalf Fusion. It details a scheme of works for archaeological trial trenching in satisfaction of planning for the HS2 Phase 1 Environmental Statement; Ladbroke, Warwickshire (NGR 442924 258807).

2.1.2 This site is required to enable the construction of the rail alignment formation, Ladbroke cutting, access roads, electricity substation, landscape mitigation planting, and temporary storage stockpile areas. The location for the evaluation has been selected to address construction programme risk to land required for the proposed development.

2.1.3 The trial trench evaluation is required to identify the location, extent, survival and significance of any heritage assets of archaeological interest within the Site (Figure 3) and will contribute

to the following specific GWSI: Historic Environment Research and Delivery Strategy (HERDS) objectives:

• KC5: Identifying settlement location and developing models for settlement patterns for the Mesolithic, Neolithic and Early Bronze Age.

• 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 investigative techniques?

• KC15: Can we identify regional patterns 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?

• KC18: Explore the evidence for increasing social complexity in the archaeological recording the Late Bronze Age and Iron Age, and identify patterns of intra-regional and regional variation.

• KC21: Assess the evidence for regional and cultural distinctiveness along the length of the route in the Romano-British period, with particular regard to the different settlement types encountered along the route.

• 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.

• KC31: Identify the location of Middle to Late Saxon settlement, explore processes of settlement nucleation and understand the development of associated field types and agricultural regimes.

• KC35: Investigate the impacts on rural communities of social and economic shocks in the mid-14th century and thereafter and their contribution to settlement desertion.

• KC40 Identify patterns of change within medieval rural settlement from the 11th to

mid-14th century.

• KC47: Test and develop geophysical survey methodologies.

• KC49: Ground truth and develop multispectral and LiDAR prospection techniques.

2.1.4 Guidance has been provided by Fusion on the programme of archaeological work required. This is stipulated as a staged programme of archaeological investigation that commences with the excavation of archaeological trial trenches

2.1.5 The trial trench evaluation (Figure 2) will comprise 52 trenches: 46 No. 25m x c. 1.8m and 6 No. 25m x c. 4m trial trenches (the actual trench width will be dictated by machine bucket width).

2.1.6 This Written Scheme of Investigation (WSI) confirms the nature of the archaeological investigation to be undertaken by Archaeological Research Services Ltd (ARS Ltd) at Ladbroke and has been prepared to comply with the stipulations of Fusion JV.

3 Project Background

3.1 Site Location

3.1.1 The site is located within CFA16 Ladbroke and Southam, in the county of Warwickshire and in the historic parish of Ladbroke. It lies *c.* 900m east of Ladbroke village and *c.* 3.2km south of Southam. The site encompasses one parcel of land, C32031 (NGR centre 442924 258807) measuring 7.77ha.

3.2 Site Description

3.2.1 The site forms part of several arable and pastoral fields located along Ladbroke Hill Lane, which crosses the site east to west. To the north-west lies Windmill Hill, to the north-east Lady Hill, and to the south the site is bounded by the narrow valley of an unnamed tributary of the Itchen.

3.3 Landform

3.3.1 The topography of the site is characterised by a gently rolling landscape sloping down from c. 110m aOD at the north-eastern boundary, located on the slopes of Lady Hill, to c. 100m aOD within the valley of the tributary of the Itchen at the southern boundary of the site.

3.3.2 A borehole sunk within the southern part of the site (ML122-CP012) has recorded a 0.25m thick layer of topsoil, comprising stiff brown mottled yellow sandy clay, which overlaid a 3.45m-thick layer of firm brownish grey mottled yellow slightly sandy slightly gravelly clay over the Charmouth Mudstone Formation. The layer overlying the solid geology was recorded as an unspecified drift deposit (DDBA), but considering the BGS classification it most likely represents undifferentiated drift, since the gently sloping topography of the site is unlikely to have produced colluvial deposits of such depth.

3.3.3 A nearby borehole (ML122-CP011) sunk within the floodplain of the tributary of the Itchen, but outside the site boundary, recorded a 0.2m-thick topsoil, a 0.5m-thick soft light brown gravelly clay and 1.4m-thick firm mottled orange clay with pockets of silt. Both deposits are likely to represent the build-up of alluvium over the solid geology.

4 Archaeological and Historical Background

4.1 Archaeological Review

4.1.1 The information presented below has been derived from the Environmental Statement, prepared in 2013 (ES 3.5.2.16.4-7), the Warwickshire Historic Environment Record (HER) data updated in August 2018, and results of the surveys undertaken within the Site and in its environs, that is geophysical and LiDAR surveys (ES 3.5.2.16.7; 1EW03-FUS-EV-REP-CS07_CL23- 007769). This section also draws upon the detailed Desk-Based Assessment of Ladbroke (1D037-EDP-EV-REP-C000-000027) which recorded multiple assets within the environs of the site (Figure 3), but only those of direct relevance to the development and potential of the site are discussed in this report.

4.1.2 The site extends across three Archaeological Sub-Zones (ASZ, Figure 1). The northern part of the Site lies within ASZ16-11 Ladbroke: Windmill Hill/ Lady Hill/ Ladbroke Hill. The zone is defined by an irregular chain of moderately sloped hills reaching 138m aOD running north-east to south-west. There is little known archaeology earlier than well-known remnants of ploughed out medieval field systems and post-medieval agriculture/farmsteads. However, hilltop positions may have been attractive for open and defended settlements in the past. There is, therefore, potential for unknown buried late prehistoric/Roman/early medieval archaeology.

4.1.3 The southern part of the site lies within ASZ16-10 Ladbroke: south facing slopes down to stream, which historically is defined by a combination of irregular enclosure and larger post-WW2 fields. Again, there is little known archaeology other than medieval and post-medieval features of agricultural character, but the potential for other periods exists.

4.1.4 The very southern edge of the site encroaches on ASZ16-08 Ladbroke: stream valley, which is defined by a narrow floodplain of a small stream. The zone has no identified potential for archaeological remains, although a possibility of stream-side activities of all periods cannot be discounted. Moreover, there is potential for archaeological and palaeoenvironmental remains to be buried in and under alluvium.

4.2 Prehistoric

4.2.1 There is no known evidence of early prehistoric (Palaeolithic to Neolithic) activity within the site or its environs. Traditionally, the topographic and geological character of the area would indicate a limited potential for early prehistoric use, as due to heavy soils, difficult to work wooded conditions may have prevailed. However, the lack of finds may be the effect of limited large-scale development (and associated investigations) as more recent research suggests, however, that claylands such as those found within the site may have some

potential for Mesolithic activity (Garwood 2011). Specifically, such evidence may be located within alluvium or in any surviving palaeosols along the Upper Itchen and its tributaries.

4.2.2 Although later prehistoric periods (Bronze Age and Iron Age) are better represented in Warwickshire, no known heritage assets datable to these periods are known within the site or its vicinity. However, given the presence of Bronze Age remains in the western part of the Itchen valley, it is possible that similar remains have not been identified within the site and its environs through a lack of previous research rather than an actual absence of remains in this location. It is not impossible that the circular enclosure identified by a geophysical survey within the site may represent a ploughed out barrow and the earliest of the identified settlement may date to this period. Consequently, the bulk of features (LBS102) identified through both geophysical and hyperspectral surveys on Windmill Hill, which arguably continue into the site, may date to either the Iron Age or Romano-British period.

4.2.3 The area to the north-west of the site was subject to a geophysical survey (site CN004, ES 3.5.2.16.7; Figure 5). The survey has uncovered a previously unknown complex of small rectilinear enclosures, which may have had an agricultural and/or settlement function. The survey was unable to date the archaeological features but given their rectilinear form it is unlikely to be an early prehistoric site.

4.2.4 Within the site, ARS Ltd consider the geophysical survey to have revealed the south-easterly continuation of this posited enclosure/settlement (site AC320/5, 1EW03-FUS-EV-REP-CS07_CL23- 007769; Figure 5) and a large system of field enclosures consisting of long linear and curvilinear boundary trends, including possible trackways or avenues. Generally, the field enclosure axes tend to follow the same alignment suggesting they are all part of the same phase or an accretion of enclosures in use together. However, in the southern part of the site it is possible that a second phase may be present as suggested by linear boundary axes running along a different alignment to the main field enclosure axes. Also, a series of curvilinear and rectilinear enclosures in the northern part of the site follow a slightly different alignment. Here, the boundary axes are much broader, curved and take in a wider area of land, thus implying a separate phase of activity. A circular anomaly, which could relate to a roundhouse or a ditched enclosure has also been identified, lending weight to the suggestion of a separate phase of activity. Although geophysical data is difficult to date, it is suggested that of the two phases of activity visible across the site. The more curvilinear boundaries and the circular feature could be Bronze Age to earlier Iron Age in date whilst the rectilinear enclosures and similarly aligned straighter boundaries could be later Iron Age – Romano-British in date. One phase is likely to be Bronze Age/Iron Age/Romano-British; the other could date to the early-medieval or medieval periods due to the regularity of some of the enclosures and structures. However, the weaker anomalies and those lying along an alternate orientation could represent an older settlement, perhaps predating the posited Iron Age/Roman phase.

4.3 Roman

4.3.1 Although a coin hoard (HER MWA10066) and a brooch (HER MWA7524) found at Ladbroke indicate that there was Romano-British settlement near the village, there are no firmly dated heritage assets that relate to the Romano-British period within the site and its immediate vicinity. Nevertheless, the features on Windmill Hill (LBS102) and their continuation within the site discussed in Section 3.2.14 may date to this period. The features have been putatively dated to the Iron Age/Romano-British period on morphological grounds, as the features identified from geophysical survey data look very similar to excavated examples of settlement enclosures of these periods elsewhere in Warwickshire (e.g. Long Lawford, Salford Priors, Hampton Lucy and Sherbourne).

4.4 Medieval and Later

4.4.1 For the medieval and later period there are no heritage assets recorded within the site and its environs that have been dated with any certainty, however, as discussed above, some of the geophysical anomalies identified within the site may be of early medieval/medieval date given their regularity.

4.4.2 During the medieval period settlement was focussed on the nucleated village of Ladbroke (LBS048) c. 900m west of the site. Ladbroke is a settlement that dates to the medieval and post-medieval periods, although it is known to have Anglo-Saxon origins. The area is likely to have been largely arable land during the medieval period with a windmill located on the crest of Windmill Hill. The place-name evidence indicates that although settlement was focused on the nucleated settlement at Ladbroke during this period there was dispersed settlement in the south and west of the parish. Indeed, there are extensive areas of surviving medieval ridge and furrow within the site and its vicinity (LBS044, LBS045, LBS046 and LBS100; Figure 3), and the extensive and well-preserved areas of ridge and furrow around Ladbroke have been highlighted by Historic England as of particular importance (Hall 2001). Remains of ridge and furrow have been recorded primarily in the southern part of the site (WA16.33; Figure 4) and further west and south (surrounding the medieval village of Ladbroke). Substantial linear earthworks, probably former lynchets or field boundaries, have also been recorded crossing the southern part of the site (WA16.34).

4.4.3 The landscape around Ladbroke, and within the site, has remained largely rural up to the present day. The landscape has been defined primarily by the post-medieval enclosed fields dotted with a number of post-medieval buildings, including: a barn (LBS041); the Bungalow (LBS042) and an agricultural shed (LBS043). The enclosed landscape surrounding Ladbroke has seen limited modifications during the modern period, with the most notable change represented by the construction of the Ladbroke bypass road which cut through the ridge and furrow to the east of the village core. The remote sensing has also recorded a number of post-medieval and still extant ponds within the site and its vicinity (WA16.32 and WA16.38; Figure 4).

4.5 Previous Disturbance

4.5.1 The Site appears to have remained rural since at least the medieval period and non-intrusive surveys undertaken within the site provide extensive evidence for agricultural use of the land, comprising predominantly medieval ridge and furrow remains. Much of the site is currently in use as arable land, and it is possible that areas of pasture were ploughed in the 20th century. This agricultural activity will have damaged and truncated upper horizons of buried archaeological features, but it is unlikely that any other impacts are present within the site. The extant drainage would have had only localised and negligible impact on any archaeological remains that may be present within the site.

4.6 Previous Archaeology

4.6.1 The site lies within an area whose archaeological potential is not well understood due to the limited amount of previous intrusive investigations. However, a number of remote-sensing surveys have been undertaken in close vicinity of the site. The site was included in a remote sensing survey (interpretation of aerial photographs, hyperspectral imagery and LIDAR imagery) as part of the ES (ES 3.5.2.16.7, Figure 5), which identified remains of ridge and furrow and linear earthworks within the site.

4.6.2 The site and the area in its immediate vicinity have been subject to a series of geophysical surveys undertaken as part of HS2 investigations supporting the ES and as part of HS2 urgent works (Figure 5): the area to the north-west of the site was investigated as site CN004 (ES 3.5.2.16.7); and the site itself was investigated as site AC320/5 (1EW03-FUS-EV-REP-CS07_CL23-007769). Results of these surveys are discussed in the sections below.

5 Aims and Objectives

5.1 Needs and Aims

5.1.1 The trial trench evaluation is required to determine, as far as reasonably possible, the nature of the archaeological resource within the site. The evidence suggests there is strong potential for the site to contain archaeological remains of late prehistoric/Roman, medieval and post-medieval date. These are likely to be associated with complex multi-phase settlement and agricultural activity. The geophysical survey undertaken within the site has identified potential rectilinear, curvilinear and circular enclosures of unknown, presumably Bronze Age or late prehistoric/Roman date, possible trackways and field enclosures of unknown date, but presumably associated with the aforementioned settlement and clearly predating the post-medieval period since they have not been recorded in the available cartographic evidence, and numerous remains of parallel linear anomalies, many of which may be the remains of medieval ridge and furrow agriculture.

5.1.2 The southern edge of the site is located along the margin of the recorded extent of the alluvium (Geological Character Zone 25, Geoarchaeological DBA document no. 1D037-EDP-

EV-REP- 000-000031) laid down by a tributary stream of the Itchen. These relatively restricted deposits of alluvium have, nonetheless, the potential to mask archaeology or contain localised organic deposits or palaeosols. There may also be potential for preservation of palaeochannels within river floodplains, representing ideal locations for preservation of archaeology and deposits of palaeoenvironmental potential. On encountering alluvium it will cleaned and recorded. Following discussion and agreement with FUSION JV sondages could be excavated into the base of each trial trench where alluvial/peat deposits have been identified to test and to establish the nature and depth of the sedimentary sequence in the valley floor, as well as for artefact and palaeoenvironmental sample retrieval subject to agreement of methodology and additional costs.

5.1.3 The aims of the trial trenching evaluation are to produce the information necessary to inform on the archaeological impacts of HS2 in this work package, it's effect on the significance on those archaeological remains and recommendations for any further mitigation.

5.2 Evaluation Objectives

5.2.1 The objectives of the investigation are:

- • to test the presence/absence, extent and depth of any surviving archaeological
- remains within the site;
- • to determine the nature, date, condition, state of preservation, complexity and
- significance of any archaeological remains;
- • to determine the likely range, quality and quantity of artefactual and environmental evidence present;
- • 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 5.3.

5.3 Contribution to Specific Objectives

5.3.1 Through delivery of the works set out in Sections 5 and 6 and through addressing the aims set out in 4.1, the trial trench evaluation will create knowledge and outputs that will contribute to the following specific objectives in the following ways:

Table 1 Contributions to HERS Objectives

SPECIFIC OBJECTIVE	CONTRIBUTION
KC5: Identifying settlement location and developing models for settlement patterns for the Mesolithic, Neolithic and Early Bronze Age	Although there is limited evidence for earlier prehistoric activity in the area, it is recognised that there is potential, especially for Mesolithic activity along the watercourse and Bronze Age activity in association with the potential barrow and curvilinear boundaries.
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 investigative techniques?	Although no assets datable to Bronze Age have previously been recorded within the environs of the site, the circular enclosure identified within the site in the geophysical survey could potentially relate to a round barrow. The evaluation provides the opportunity to verify the results of magnetometer surveys on the identification of this monument type and compare it with evidence from other sites on different geologies.
KC15: Can we identify regional patterns 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?	The evaluation has the potential to verify the presence/absence, character and date of the enclosures identified by geophysical surveys within the site and immediately to the north-west. Characterising the date and function of the enclosures will contribute to these objectives by adding to the understanding of late prehistoric and Romano-British cultural distinctiveness of Warwickshire by analysis of feature forms and any finds.
KC18: Explore the evidence for increasing social complexity in the archaeological recording the Late Bronze Age and Iron Age, and identify patterns of intra-regional and regional variation.	
KC21: Assess the evidence for regional and cultural distinctiveness along the length of the route in the Romano-British period, with particular regard to the different settlement types encountered along the route.	
KC23: Identify evidence for late Roman occupation and attempt to identify any continuity in settlement patterns between the	The geophysical survey has identified within the

end of the Romano-British period and the Early Medieval period.	site the remains of multi-phase settlement and associated field systems. The evaluation has the potential to verify the hypothesis that some of the recorded anomalies may post date the putative main Roman phase and therefore contribute to these objectives.
KC31: Identify the location of Middle to Late Saxon settlement, explore processes of settlement nucleation and understand the development of associated field types and agricultural regimes.	
KC35: Investigate the impacts on rural communities of social and economic shocks in the mid-14th century and thereafter and their contribution to settlement desertion.	The site has been located within a rural medieval landscape and the previous investigations have confirmed the presence of agricultural features within the site which are considered to be predominantly medieval in origin. It is also possible that some discrete anomalies identified by the geophysical surveys may represent settlement and agricultural features predating the post-medieval mapping. Moreover, the documentary evidence associated with Ladbroke and its hinterland indicate abandonment of homesteads as a result of social and economic shocks. The evaluation has the potential to uncover archaeological features relating to changing land use in the medieval period and therefore will help to inform this objective.
KC40: Identify patterns of change within medieval rural settlement from the 11th to mid-14th century.	The site has been located within a rural medieval landscape and the non-intrusive investigations have confirmed the presence of agricultural features within the site which are medieval in origin. The evaluation has the potential to uncover archaeological features relating to land use in the medieval period and therefore will help to inform this objective.
KC47: Test and develop geophysical survey methodologies.	The site and its environs have been subject to a series of remote sensing and geophysical surveys, which produced varying results including clear concentrations of archaeological features. The evaluation has the potential to ground-truth these results and help develop non-intrusive archaeological prospection techniques.
KC49: Ground truth and develop multispectral and LiDAR prospection techniques.	

6 Trench Evaluation Scope

6.1.1 The trial trench evaluation will be undertaken in accordance with specific guidance produced by HS2, namely the Technical Standard Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035) and the GWSI: HERDS (HS2-HS2-EV-STR-000-000015).

6.1.2 In the first instance, exploratory test pits will be excavated in each trench location to recover artefacts from the topsoil and upper subsoil horizons (see Section 8.2: Artefact Collection for methodology). Key areas of potential for earlier prehistoric activity are anticipated near the edge of the steam (above any alluvium) and in the vicinity of the potential barrow. In other areas, the topsoil sampling and artefact recovery will be carried out as part of a wider strategy, allowing comparison with other locations. Test pits will be excavated prior to the main trenches (0.25 x 0.25m) to sample sieve the topsoil for artefacts. This method will test for the possible presence of early prehistoric and early medieval finds and plot their distributions. There will be two test pits excavated within each trial trench giving a total of 90 test pits (No. of trenches x 2).

6.1.3 The trial trench evaluation (Figure 2) will comprise 52 trenches: 46 No. 25m x c. 1.8m and 6 No. 25m x c. 4m trial trenches (the actual trench width will be dictated by machine bucket width).

6.1.4 The trial trenches (Figure 2) have been sited individually using the reconnaissance information gathered during the course of the ES and the subsequent geophysical survey. This evidence-led approach has also considered the topography, geology and areas of known settlement, as identified by adjacent geophysical survey and archaeological investigation. This represents an approximate 3.4% sample of the site by area, and it was determined to be sufficient to ground-truth the survey results, characterise the archaeological presence and test the areas of scant survey results, including potential ephemeral sites or areas of activity, particularly on the lower lying ground in the vicinity of the watercourse. The site was subdivided into two broad character areas, in advance of the placement of trial trenches: the southernmost part of the site, containing significantly fewer anomalies of potential archaeological interest (as identified by the geophysical and remote sensing surveys), but where evidence for other, non-settlement activity may be encountered; and the remainder of the site, within which anomalies likely associated with prehistoric, and later, settlement activity are present:

- Area C32031 (northern & central parts): geophysical survey has identified a complex arrangement of possible archaeological features within these parts of Area C32031, comprising curvilinear, linear and amorphous forms, in addition to small ferrous anomalies. Interpretation of the local topography places the site on a south-facing slope of a valley formed by a small tributary of the River Itchen, running within c. 30m to the south-east from the site. The topography rises to the immediate north of the site as Lady Hill (<138m aOD). The site's position on a south-facing slope above a watercourse, in the lee of a hill protecting it from colder north winds, suggests a typical location for prehistoric, and later, settlement

activity. The geophysical survey results suggest a series of rectilinear enclosures and other features, indicative of settlement evidence, and possibly divided by tracks or droveways. Of particular interest is a collection of tightly inter-nesting concentric forms, which may represent a roundhouse or similar structure (targeted by Trench 13). Alternatively, this may represent the remnant ring ditch of a levelled round barrow. Prominent topographical locations are also typical sites for such funerary activity. Further areas of particular interest include a rectilinear enclosure identified by the geophysical survey, possibly representing an industrial space or floor surface (targeted by Trench 33) and a dense group of circular forms and discrete anomalies (targeted by Trench 36).

- Area C32031 (southern part): the geophysical survey indicated several ditches within this southern part of Area C32031, of uncertain origin, crossing identified agriculture-related ditches. The margins of any settlement are likely to lay close to the boundary of the central and southern parts of the site, the latter likely lying within the floodplain of the adjacent watercourse and more likely to have been utilised for agricultural rather than settlement purposes. Two trenches (43 and 44) have also been placed to investigate the potential for alluvial deposits related to the nearby watercourse and determine the potential for remains of archaeological interest to be contained therein.

6.1.5 If necessary, an additional contingency of up to 400m2, equating to 4 No. trenches measuring c. 50m (l) by c. 1.8m (w), will be excavated to further investigate and characterise significant or unexpected remains should they be encountered during the trial trench evaluation. Any contingency trenching will only be carried out following approval by Fusion JV.

6.1.6 All trial trenches listed in Table 2 have been assigned a unique ID in accordance with HS2 Ltd's Asset Information Management System (AIMS). The trenches have been positioned to avoid the identified constraints, and placed to provide appropriate coverage of the available evaluation area.

6.1.7 Although it is unlikely that any of the trenches will be located within the alluvial deposits of the tributary stream of the Itchen, the presence of alluvium within the floodplain and also the presence of former palaeochannels cannot be completely discounted. In the event of alluvium and/or peat deposits being identified their presence will be noted and the trench cleaned and recorded. FUSION JV will be informed and should investigation into the alluvial deposits be requested a method will be agreed and additional costs agreed accordingly. For example, a sondage could be excavated into the base of the trial trench to:

Test the depth of any alluvium;

- Identify if there are surfaces contained within the alluvium; and
- Recover any artefacts and/or take palaeoenvironmental samples.

6.1.8 Where the depth of alluvium cannot be safely ascertained the trench base will, where safe and practicable, be hand augered to sample the depth and record the stratigraphic unit.

Table 2 Schedule of Trial Trenches

AIM ID.	Tr. No.	Length	Tr. Width	Max Trench Depth	Objectives/Comments
	1	25	1.8	To natural geology	Investigate uncertain anomalies from geophysics and any settlement-related activity on the hillside
	2	25	1.8	To natural geology	Investigate possibility for edge-of-settlement activity on the hillside
	3	25	1.8	To natural geology	Investigate possibility for edge-of-settlement activity on the hillside
	4	25	1.8	To natural geology	Targeted on linear geophysical anomaly (enclosure boundary?) and investigate potential for edge-of-settlement activity
	5	25	1.8	To natural geology	Targeted on concentration of linear geophysical anomalies (phases of enclosure/trackways?) and potential remains associated with edge-of- settlement activity
	6	25	1.8	To natural geology	Investigate possible enclosure or edge-of- settlement activity
	7	25	1.8	To natural geology	Targeted on linear geophysical anomalies close to possible structural/settlement remains
	8	25	1.8	To natural geology	Targeted on geophysical anomalies (trackway/enclosure?)
	9	25	1.8	To natural	Targeted on linear geophysical anomalies (trackway/enclosure?)

				geology	and uncertain discrete anomaly
	10	25	1.8	To natural geology	Targeted on geophysical anomalies (trackway/enclosure?) and possible droveway between
	11	25	1.8	To natural geology	Investigate ferrous & uncertain geophysical anomalies and possible internal enclosure activity
	12	25	4	To natural geology	Targeted on amorphous geophysical anomalies (pit cluster?) within potential settlement
	13	25	4	To natural geology	Targeted on concentric circular geophysical anomalies (enclosure/barrow/roundhouse/pit cluster?)
	14	25	1.8	To natural geology	Targeted on discrete geophysical anomalies
	15	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosures?) associated with possible settlement
	16	25	4	To natural geology	Targeted on curvilinear geophysical anomaly (enclosure/roundhouse?)
	17	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosures?)
	18	25	1.8	To natural geology	Investigate potential for settlement evidence on edge of geophysical survey area
	19	25	1.8	To natural geology	Investigate area not covered by geophysical survey, close to anticipated settlement evidence

	20	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosures?)
	21	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosures?)
	22	25	1.8	To natural geology	Targeted on linear geophysical anomaly (enclosure?) and possible internal enclosure activity
	23	25	4	To natural geology	Investigate possible internal enclosure activity
	24	25	1.8	To natural geology	Targeted on curvilinear geophysical anomaly (enclosure/pit cluster/structure)
	25	25	1.8	To natural geology	Targeted on curvilinear geophysical anomaly (enclosure/pit cluster/structure)
	26	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosures/trackways?)
	27	25	1.8	To natural geology	Targeted on linear geophysical anomaly (enclosure?) & possible internal enclosure activity
	28	25	1.8	To natural geology	Targeted on linear geophysical anomaly (enclosure?) & possible internal enclosure activity
	29	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosures?) & possible internal enclosure activity
	30	25	1.8	To natural geology	Targeted on several geophysical anomalies (pit cluster/small enclosure/structure?)

	31	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosures?) & possible internal enclosure activity
	32	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosure/trackway/droveway?)
	33	25	1.8	To natural geology	Targeted on rectilinear area of geophysical anomaly (enclosed industrial space/floor surface?)
	34	25	4	To natural geology	Targeted on linear geophysical anomalies (enclosure/trackway/droveway?)
	35	25	1.8	To natural geology	Targeted on cluster of discrete geophysical anomalies (pit cluster/structure?)
	36	25	1.8	To natural geology	Targeted on cluster of curvilinear & discrete geophysical anomalies (pit cluster/structures/enclosure?) at the edge of the potential settlement
	37	25	4	To natural geology	Investigate area of scant geophysical anomalies within floodplain at edge of anticipated settlement
	38	25	1.8	To natural geology	Investigate area of scant geophysical anomalies within floodplain at edge of anticipated settlement
	39	25	1.8	To natural geology	Investigate area of scant geophysical anomalies within floodplain at edge of anticipated settlement & possible features masked by later agricultural activity

	40	25	1.8	To natural geology	Investigate area of scant geophysical anomalies within floodplain at edge of anticipated settlement & possible features masked by later agricultural activity
	41	25	1.8	To natural geology	Targeted on linear geophysical anomalies within floodplain at edge of anticipated settlement & possible features masked by later agricultural activity
	42	25	1.8	To natural geology	Investigate area of scant geophysical anomalies and remote sensing anomalies within floodplain at edge of anticipated settlement
	43	25	1.8	To natural geology	Targeted on geophysical anomalies (enclosure/structure?) and possible alluvium
	44	25	1.8	To natural geology	Targeted on possible geophysical survey anomalies potentially related to edge-of- settlement activity as well as possible alluvium
	45	25	1.8	To natural geology	Targeted on faint geophysical anomalies and remote sensing anomaly within floodplain – to test for edge of settlement activity and investigate possible alluvial deposits
	46	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosures?) associated with possible settlement
	47	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosures?) and to test for potential internal features
	48	25	1.8	To natural	Targeted on linear geophysical anomalies (enclosure/field

				geology	boundaries?)
	49	25	1.8	To natural geology	Targeted on linear geophysical anomalies (enclosure/field boundaries/trackway?)
	50	25	1.8	To natural geology	Investigate area of scant geophysical anomalies within floodplain south of an anticipated area of settlement
	51	25	1.8	To natural geology	Investigate area of scant geophysical anomalies within floodplain south of an anticipated area of settlement
	52	25	1.8	To natural geology	Targeted on geophysical anomalies (linear anomaly) and possible alluvium

7 Evaluation Trenching and Fieldwork Methodology

7.1 Setting Out and Recording

7.1.1 All spatial setting out and recording shall be in accordance with The Ordnance Grid and Ordnance Survey Newlyn Datum (ODN) as defined by the OS Active GNSS network. HS2 Primary Control PGMs, where they exist within the accessible contract package area, will be re-occupied during each survey to check the accuracy of the equipment.

7.1.2 Trial trenches shall be located (i.e. 'staked out') to a horizontal accuracy of +/-500mm. The corner points of each trench location shall be set out with Global Navigation Satellite System (GNSS) equipment with Real Time Kinematic (RTK) corrections from the Leica Smartnet service, or other suitable automated equipment referenced from Temporary Bench Marks (TBMs) should they be required.

7.1.3 Trial trench or excavation limits, height data and significant archaeology shall be recorded 'as dug' using RTK GNSS equipment to a 3-dimensional accuracy of +/- 100mm. Ground level height data shall be recorded for each trench. Survey methodology and a detailed survey record will be provided to FUSION JV within the survey report.

7.2 Artefact Collection

7.2.1 Prior to the excavation of each trial trench the topsoil/ploughsoil will be sampled for the recovery of artefacts.

7.2.2 Two sample locations will be tested at each trench location and should be recovered from each end of the trench, for a total of 90 test pits. Each sample will be recovered using a shovel or mechanical excavator fitted with a toothless ditching bucket and placed on an adjacent board or tarpaulin/ geotextile.

7.2.3 Samples will be equivalent in volume to a 0.25m by 0.25m test pit of a depth corresponding to the particular plough soil depth at each test pit location and the plough soil will be dry hand-sieved through a 10mm wire mesh. Samples will be sieved on site.

7.2.4 In the event of encountering substantial quantities of archaeological artefactual evidence during the test pit phase, an amended trenching strategy may be employed to better understand the factors behind the evidence. Any trial trench amendments will be discussed with Fusion JV and a change control process (see Section 9) will be implemented if required.

7.3 Mechanical Excavation

7.3.1 Trial trenches shall be excavated to the first archaeological horizon or natural geology, whichever is encountered first. Excavation will be undertaken using a mechanical excavator with toothless ditching bucket.

7.3.2 In the unlikely event that modern foundations are encountered, and where it is clear that modern foundations have truncated certain archaeological levels, they should be removed to assess lower archaeological levels. ARS Ltd shall take all reasonable care to ensure that any damage to archaeological deposits is limited as far as practicable. If significant damage is likely to occur the work shall be suspended and Fusion JV's Historic Environment Manager informed so that a technical solution can be agreed.

7.3.3 Machining shall be carried out under the constant supervision of ARS Ltd to excavate the ground in spits. ARS Ltd shall use their professional judgement to determine the appropriate depth of each spit. Any variations to the excavation methodology shall be at the discretion of the ARS Ltd and recorded in writing for inclusion in the final report. Each spit shall be examined carefully to assist the recovery of any archaeologically significant artefacts and thus to determine when to cease machining. It is the responsibility of the ARS Ltd to ensure that the finished surface is machined to a suitably 'clean' state in order to identify, define and investigate any exposed archaeological deposits. If the surface is not sufficiently clean, hand cleaning of the surface will be required. Machine excavation will comply with HS2 Ltd's Technical Standard - Route wide soil resources plan (HS2-HS2-EV-STD-000-000008).

7.3.4 Metal detectors will be used by experienced staff to scan for metallic finds during the excavation of key archaeological features or deposits. The spoil from each trench will also be subject to a metal detector survey, with any finds recorded on the relevant trench sheet.

7.3.5 ARS Ltd shall ensure that water is discharged and excavated material from archaeological excavations are stored in accordance with Fusion JV's environmental protection requirements (as set out in the package Works Information and their Environmental Management Plan) and any relevant consents for the worksite. Fusion JV shall monitor discharge rates and, if necessary, conductivity of discharge waters to ensure compliance.

7.3.6 In the unlikely event that deep stratigraphy is encountered, such as alluvial or colluvial sequences, each intervention shall be excavated to the base of the stratigraphic sequence, and shall be appropriately stepped or shored and kept free of water sufficient to allow 'person entry' to the excavations to allow ARS Ltd to undertake investigation and recording and any sampling to fulfil the aims of the work prior to backfilling. ARS Ltd will ensure that all works undertaken in deep stratigraphy will comply with HS2 Ltd's Technical Standard – Temporary Works (HS2-HS2-CV-STD-000-000005). When recording deep stratigraphic sequences ARS Ltd shall pay particular attention to establishing the vertical extent of layers of archaeological potential and shall be aware that horizons of cultural activity may be interdigitated with horizons of sterile sediments. ARS Ltd will supervise the excavation in such a manner so as to allow a cumulative or continuous section to be recorded.

7.3.7 Should any material be excavated that is deemed to be contaminated or potentially contaminated it shall be investigated, controlled (e.g. placed separately from clean material) and removed from the site in accordance with Fusion JV's environmental protection requirements (as set out in their Environmental Management Plan).

7.4 Sondages into Alluvium

7.4.1 The BGS has mapped alluvial deposits along the route of a small watercourse to the immediate south-east of the site. In the event that alluvial deposits are identified within the site in the trenches nearest to the watercourse (Trenches 43-45), following the excavation of any overlying features, ARS Ltd will inform FUSION and discuss whether to investigate and sample the alluvium. Should it be decided to proceed with this a method and any additional costs will be agreed. The intention would be to sample any such deposits to test their depth, sedimentary sequence and for the recovery of artefacts. It is anticipated such alluvial deposits will be investigated through the excavation of a single sondage to the full depth of the deposit in each trench location where it is identified.

7.4.2 Any such sondages cut into the alluvium will measure no less than 1.5m x 1.5m and will be excavated to the top of the underlying drift or solid geology. This will be undertaken through the excavation of a single machine-excavated sondage where the alluvium is expected to be at its deepest. It is expected that in practice this will mean excavating sondages within the ends of trenches closest to the watercourse in the centre of the valley.

7.4.3 Sondages will provide the opportunity to observe the full stratigraphic sequence in section and access larger volumes of sample than is achievable through coring.

7.4.4 Where identified, the alluvial layers will be first assessed by ARS Ltd's geo-archaeologist and investigated for the presence of artefacts, primarily lithic implements, flakes etc. Unless the initial inspection of the exposed alluvial deposits should produce surface finds, each slot will be excavated with the use of the machine under constant archaeological supervision. Arisings from each machine-excavated spit will be inspected for the presence of artefacts. Should lithic artefacts be identified, the machine excavation will be halted and the excavation of a sondage will be undertaken manually at minimum to the base of the discrete stratum that produced the artefacts.

7.4.5 ARS Ltd shall supervise the excavation of such sondages in such a manner as to allow a cumulative or continuous section to be recorded. Particular attention will be made to establishing the vertical extent of layers of archaeological and/or palaeoenvironmental potential with an awareness that horizons of cultural activity could be interdigitated within layers of sterile alluvium. Archaeologically significant horizons such as palaeosols will be cleaned and hand excavated.

7.4.6 ARS Ltd shall ensure that any water is discharged and arisings stored in accordance with Fusion JV's environmental protection requirements and any other relevant consents for the site. ARS Ltd shall monitor discharge rates and if necessary conductivity of discharge waters to ensure compliance.

7.4.7 Where sondages into alluvium are unsafe to enter, ARS Ltd shall direct excavation in a manner that will allow excavated sediments to be adequately sampled and interpreted by their geo-archaeologist. Material to be sampled will be placed by the excavator at a safe distance from both the sondage and plant, and scanned for finds. The sedimentary sequence will be recorded by ARS Ltd's geo-archaeologist according to standard conventions (HE 2015c) to include sediment structure, colour, texture, sorting and any identifiable boundary characteristics. Depths of each stratigraphic boundary will be recorded, or where full access is unsafe, estimated and recorded as such. Should in-situ lithic horizons be discovered, and access to deep excavation be deemed necessary in prior consultation with Fusion JVs Historic Environment Manager, there may be a need for trenches to be stepped or temporary works to be installed, to provide safe access and working environment to adequately evaluate the archaeological horizons.

7.4.8 Where entry to a sondage is safe and practicable, buried soils will be inspected and recorded by ARS Ltd's geo-archaeologist to provide data for understanding formation processes. Procedures and techniques for this data capture will be as outlined in Historic England guidance (Campbell et al. 2011 and HE 2015c). Samples for laboratory assessment, analysis and dating shall be collected where appropriate following agreement with the FUSION JV Historic Environment ManagerHS2 Ltd.

7.4.9 All sondages into alluvium will be backfilled as soon as their stratigraphy has been recorded and arisings inspected/sieved for artefacts.

7.4.10 Where significant alluvial deposits are identified within a sondage by the geo-archaeologist, or archaeological remains are encountered, ARS Ltd with Fusion JV shall implement a change-control process (see Section 15) for additional sondages and, where appropriate, further surveys.

7.5 Hand Excavation

7.5.1 Archaeological hand excavation and recording shall be undertaken to the general requirements as described in the GWSI: HERDS and the Technical Standard Specification for historic environment investigations (HS2-HS2-EV-STD-000- 000035; section 4.14 and 4.17). The sufficient sample strategy will be guided by the CIfA Standard and guidance for archaeological field evaluation (2014), as well as, where applicable, Local Planning Authority guidance. ARS Ltd will ensure that sufficient sample of the features and deposits encountered are sampled/fully excavated to allow the resolution of the aims and objectives of the work. Structures, features, or finds which might reasonably be considered to merit preservation in situ are not be unduly damaged.

7.5.2 Where areas of extensive archaeological stratification are encountered, the horizontal and vertical extent of archaeological stratification shall be through implementation of an appropriate strategy including, either the excavation of features cut into horizontal stratification, limited test pitting or auguring. The aim shall be to recover suitable stratigraphic, finds and environmental samples from the first archaeological horizon of the trench. The exact methodology for stratified layers/deposits will need to be discussed with Fusion JV and a change-control process implemented should layers of archaeology require excavation and removal so that underlying layers of archaeology can be cleaned, sampled and recorded.

7.5.3 All investigation of archaeological layers will usually be by hand, with cleaning, examination and recording both in plan and section.

7.5.4 Within significant archaeological layers, the minimum number and proportion of features required to meet the aims of the evaluation will be sample excavated by hand. Pits and postholes will usually be subject to a 50% sample by volume. Linear features will be sectioned as appropriate. More complex features such as those associated with funerary activity will usually be sampled, but any human burials will be left in situ and the Fusion JV Historic Environment Manager informed (see below 8.2). The sample volume of features may be increased, in some circumstances, should the archaeological content or value of a feature warrant further investigation at the evaluation stage, following agreement with Fusion JV.

7.5.5 It is not necessarily the intention that all trial trenches will be fully excavated to natural stratigraphy, but the depth of archaeological deposits across the site will be assessed. The stratigraphy of a representative sample of the evaluation trenches will be recorded even

where no archaeological deposits have been identified. Any excavation, both by machine and by hand, will be undertaken with a view to avoiding damage to any archaeological features or deposits, which appear to be worthy of preservation in situ.

7.5.6 Where deposits are investigated, and found to be undated, and where these have the potential to be of archaeological significance (e.g. of earlier prehistoric or early medieval date, or any other deposit types notable for artefactual scarcity) appropriate samples will be taken for artefact recovery. The soil will be hand excavated and then sieved or screened through 10mm wire mesh to recover artefacts. Samples will be sieved on site or retained for immediate sieving off-site.

7.5.7 In order to protect any waterlogged remains during the works, ARS Ltd may identify a requirement for trial excavations to be allowed to refill with water overnight. In such cases, the ARS Ltd shall ensure that any hazards to staff or 3rd parties are minimised.

8 Recording

8.1 Fieldwork Recording

8.1.1 The site will be tied into the National Grid and located on a 1:2500 or 1:1250 map of the area. The site will be recorded in accordance with the ARS Ltd. field recording manual and Fusion JV requirements.

8.1.2 Archaeological recording is to include, as a minimum:

- At least one representative section at (1:10 or 1:20 scale) of each evaluation trench, from ground level to the base of the excavation;
- the written record of individual context descriptions on appropriate pro-forma;
- plans at appropriate scales (1:10, 1:20 or 1:50);
- single context planning will be used only if appropriate;
- photographs and other appropriate drawn and written records; and ·
- other sections, including the half-sections of individual layers or features shall be drawn as appropriate to 1:10 or 1:20.

8.1.3 A 'site location plan', indicating site north shall be prepared at 1:1250. Individual as dug 'trench plans' at 1:200 (or 1:100) will be prepared which show the location of archaeology investigated in relation to the investigation area. The location of site plans will be identified using OSGB co- ordinates.

8.1.4 Section drawings shall be located on the relevant plan and OSGB co-ordinates recorded. The locations of the PGM bench marks used to relate the survey to and any site TBM shall also be indicated.

8.1.5 A record of the full extent in plan of all archaeological deposits as revealed in the investigation shall be made. These plans will be based on digital survey data and supplemented where appropriate by hand drawn records on polyester based drawing film (at a scale of 1:10 or 1:20 unless otherwise agreed with Fusion JV's Historic Environment Manager and HS2 Ltd). All hand drawn information shall be digitised (or preferably generated digitally in the first instance), and final deliverables will be supplied in an Esri format and adhere to standards set out in the HS2 Ltd's Cultural Heritage GIS Standard (HS2-HS2-GI-SPE-000-000004). Single context planning shall be used where complex stratigraphy is encountered.

8.1.6 A 'Harris matrix' stratification diagram shall be employed to record stratigraphic relationships (Harris et al. 1993) where appropriate. This record shall be compiled and fully checked during the course of the excavations. Spot dating shall be incorporated onto this diagram.

8.1.7 Recording of structural evidence revealed below ground level will vary according to the level of special interest of the structure and its relationship to archaeological remains. Structures of little or no significance shall be noted on a site plan. Detailed drawings of important features revealed in investigations may be required in accordance with the aims and objectives of the investigation as defined in the Project Plan.

8.1.8 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 principal archaeological features discovered. In addition, ARS Ltd shall 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.

8.2 Human Remains

8.2.1 Where human remains are identified, all subsequent work must be undertaken in accordance with HS2 Ltd's Human remains and monuments procedure (HS2-HS2-EV-PRO-0000- 000008) and Technical Standard Specification for historic environment investigations (HS2- HS2-EV-STD-000-000035 section 4.18 Methodology for archaeological excavation of human burials). Whilst previous investigations have not recorded any burials, the site is located on the periphery of a posited prehistoric/Roman settlement and, therefore, the potential for encountering human remains within the site cannot be ruled out. Should human remains be discovered, ARS Ltd shall notify Fusion JV's Historic Environment Manager immediately, who will notify HS2 Ltd, so that the procedures set out in HS2 Ltd's Human Remains and Monuments Procedure (HS2-HS2-EV-PRO-0000-000008) 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.

8.2.2 In the event that human remains are identified, all works will cease at that location until further instruction is provided by HS2 Ltd and communicated by Fusion JV's Historic

Environment Manager. ARS Ltd shall undertake an initial in situ observation and assessment of the remains and shall advise Fusion JV's Historic Environment Manager of the course of action required. Fusion JV's Historic Environment Manager will then notify HS2 Ltd.

8.3 Treasure

8.3.1 Finds of "treasure" will be reported to Fusion JV for onward contact to the Coroner in accordance with the Treasure Act (DCMS 2008). Fusion JV will also notify the Local Planning Archaeologist and the Portable Antiquities Finds Liaison Officer.

8.3.2 Fusion JV will agree and arrange, if necessary, a site meeting with the Local Planning Archaeologist and the Portable Antiquities Liaison Officer to determine if further investigation in the vicinity of the findspot is required.

9 Sampling Strategy

9.1 Environmental Samples

9.1.1 In line with HS2 Ltd's Technical Standard Specification for Historic Environment Investigations (HS2-HS2-EV0STD-000-000035) an initial sampling strategy is set out below for the site. This strategy is based on the existing information about the site, gathered from non-intrusive surveys and the HERDS objectives outlined in Table 1.

9.1.2 This sample strategy, along with the HERDS objectives outlined in Table 1, identify the key elements that should, where present, be sampled during the evaluation. However, the strategy will need to be reviewed throughout the on-site work and, where unexpected features or deposits are identified, revised accordingly to take these into account.

9.1.3 The purpose of sampling at the evaluation stage is to identify the range of environmental materials present on site, their preservation, significance and distribution.

9.1.4 The site has the potential for features associated with prehistoric/Roman activity as well as with medieval and post-medieval archaeological remains, which could include enclosures, land boundaries, trackways, and ridge and furrow earthworks as identified in Section 4.1. Sampling will, therefore, target the following, where present, as a minimum:

- Archaeological features identified as cropmarks or geophysical anomalies which are likely associated with potentially prehistoric, Roman or medieval activity, including settlement-related features (i.e. ditches, gullies, earthworks) as well as other relevant remains (i.e. pits or postholes); and
- Deposits representing the main phases of activity on site (to assess whether there are changes in rates of deposition or material survival over time).

9.1.5 Sampling will not only target organic-rich or wet deposits, but will be undertaken on those features outlined above, taking into account advice from Fusion JV's environmental

archaeologist. This will ensure that samples are recovered from a representative range of contexts, which adequately characterise past activities on site and allow an assessment to be made of the extent to which they help address palaeoenvironmental and palaeoeconomic questions.

9.1.6 Where unexpected deposits or features are identified during the evaluation which are not covered in the initial sampling strategy above, the need for sampling will be assessed in terms of the specific objectives (both those in Table 1 as well as the remaining HERDS objectives), the sampling strategy will be updated as necessary and the features will be sampled accordingly.

9.1.7 All samples will be taken to address a specific question. The purpose of the sample, and the question it has been taken to address will be recorded on ARS Ltd's sample record sheet.

9.1.8 Samples will be taken using ten litre plastic buckets (with lids and handles), or strong polythene bags (double bagged) secured at the neck, for the recovery of bulk 'disturbed' environmental samples. Labelling will follow guidance set out in the Technical Standard Specification for Historic Environment Investigations (HS2-HS2-EV-STD-000-000035).

9.1.9 For non-waterlogged deposits bulk samples will normally be taken in the range of 40-60 litres. Where contexts have a volume of less than that stated above, then 100% of the context will be sampled. Each bulk sample will only contain sediment derived from a single context. Where waterlogged deposits are encountered, sample sizes will usually be in the range of 10-20 litres, which is suitable for the recovery of macrofossils from these contexts. Samples shall be protected at all times from temperatures below 5°C and above 25°C and from wetting and drying out due to weather exposure.

9.1.10 Where house floor deposits or other buried land-surfaces are encountered and these are sampled, appropriately sized monolith or kubiena boxes will be used for the recovery of 'undisturbed' monolith samples for soil micromorphology and to sub-sample for microfossils (e.g. pollen and spores, diatoms, ostracods). Where longer sequences are sampled, contiguous column samples will be collected for the retrieval of macrofossils (e.g. molluscs, plant remains and insects). Further guidance on specialist samples is provided in the Technical Standard Specification for Historic Environment Investigations (HS2-HS2-EV-STD-000-000035 – Sections 4.21.22-26).

9.1.11 Processing of all soil samples collected for biological assessment, or subsamples of them, will be completed within two weeks of collection. The preservation state, density and significance of material retrieved shall be assessed by an ARS Ltd palaeoenvironmental specialist. Special consideration shall be given to any evidence for recent changes in preservation conditions that may have been caused by alterations in the site environment. Unprocessed sub-samples shall be stored in appropriate conditions in accordance with ARS Ltd's method statement.

9.2 Metallic Objects and Residue

9.2.1 Where works are intended to address specific objectives, or any further objectives identified during the course of the investigation, relating to industrial activity and there is evidence for industrial activity, macroscopic technological residues (or a sample of them) shall be collected by hand. Separate samples (c. 10ml) shall be collected for micro-slags (hammer-scale and spherical droplets). Reference should be made to the guidance on Archaeometallurgy (Historic England guidance, 2015). Assessment of any technological residues shall be undertaken. Assessment of finds assemblages shall, where appropriate to the specific objectives being addressed, include x-radiography of all iron objects (after initial screening to exclude obviously recent debris) and, where appropriate, nonferrous artefacts (including all coins). Where necessary, active stabilisation/consolidation shall be carried out to ensure long-term survival of the material, but with due consideration to possible future investigations.

9.3 Geoarchaeology

9.3.1 Samples collected for geoarchaeological assessment will be processed promptly by the ARS Ltd's specialist, and appropriate assessment undertaken as agreed with FUSION JV and HS2 Ltd.

9.4 Preservation of Archaeological Remains

9.4.1 Where preservation has been identified as an option for areas of the site, or it becomes clear during the evaluation that certain parts of the site might be retained in situ within the scheme design, ARS Ltd will ensure that suitable samples are taken to assess the state of preservation (as set out in Historic England guidance on preserving archaeological remains). Where it is proposed that waterlogged deposits are preserved, discussion will be held with Fusion JV about initiating a water environment study. If preservation is considered to be a viable and desirable option, the areas proposed should be excluded from further plant/vehicle movement, to minimise the possible effects of compression and loading on the physical integrity of the site. Thought should also be given to whether the proposed construction works will have any short or long term hydrogeological or chemical impacts on the archaeological remains.

10 Backfilling

10.1.1 Trenches shall only be backfilled following approval by Fusion JV. The trenches shall be pumped dry (under a permit to pump as per Fusion JV's procedure) and any necessary protection measures for archaeological remains (in addition to those for below ground infrastructure, services or utilities) shall be completed prior to backfilling. Backfilling shall be

undertaken in layers of 250mm whilst being adequately compacted. Trenches shall be commonly reinstated with arising, comprising subsoil first then topsoil (i.e. reverse order of excavation).

10.1.2 Generally, all backfill material shall consist of non-toxic, uncontaminated, non-putrescible, natural and inert material which shall be compacted and (if necessary) tested (dynamic compaction test or other) in accordance with a specification provided by Fusion JV. Surface conditions shall be reinstated to the required standard.

10.1.3 Sondages into alluvium will be excavated and recorded rapidly so that deep trenches are not left overnight. These deeper pits will be backfilled as soon as their stratigraphy has been recorded.

10.1.4 Fusion JV shall ensure, in liaison with HS2 Ltd, that adequate protection is provided for any archaeological remains. Any specific archaeological requirements relating to backfilling including use of materials to mark excavated depth, such as geotextiles, shall be specified.

11 Finds Processing and Storage

11.1.1 All finds processing, conservation work and storage of finds will be carried out in accordance with the CIfA (2014c) Standard and Guidance for the collection, documentation, conservation and research of archaeological materials and the UKIC (1990) Guidelines for the Preparation of Archives for Long-Term Storage.

11.1.2 Artefact collection and discard policies will be appropriate for the defined purpose.

11.1.3 Bulk finds which are not discarded will be washed and, with the exception of animal bone, marked. Marking and labelling will be indelible and irremovable by abrasion. Bulk finds will be appropriately bagged, boxed and recorded. This process will be carried out no later than two months after the end of the excavation.

11.1.4 All small finds, except ceramic sherds, will be recorded as individual items and appropriately packaged (e.g. lithics in self-sealing plastic bags and ceramic in acid-free tissue paper). Ceramic sherds will be recorded together by context. Vulnerable objects will be specially packaged and textile, painted glass and coins stored in appropriate specialist systems. This process will be carried out within two days of the small find being excavated.

11.1.5 During and after the evaluation excavation all objects will be stored in appropriate materials and storage conditions to ensure minimal deterioration and loss of information (including controlled storage, correct packaging, and regular monitoring, immediate selection for conservation of vulnerable material). All storage will have appropriate security provision.

11.1.6 The deposition and disposal of artefacts will be agreed by Fusion JV with the legal owner and appropriate recipient museum prior to the work taking place. All finds except treasure trove are the property of the landowner.

11.1.7 All retained artefacts and ecofacts will be cleaned and packaged in accordance with the requirements of the recipient museum.

12 Post-Investigation reporting and Archiving

12.1 Interim Report

12.1.1 ARS Ltd shall submit an interim statement to HS2 Ltd within two weeks 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 HS2 with the information necessary to inform design decisions relating to:

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

b. engineering design.

12.1.2 Interim reports are only used to inform on decision-making for further works in programme-critical areas and when confidence in the geophysical survey and trial trenching results has indicated that a site has no significant archaeological potential. It is preferable that all decisions for further works are based on the full factual fieldwork reports.

12.2 Trial Trench Technical Report

12.2.1 The C01 fieldwork report will be produced within 6 weeks of completion of fieldwork, compliant with the following structure:

- Non-technical summary;
- Introduction;
- Summary of project's background;
- Description and illustration of the site location;
- Previous work(s) brief summary relevant to the archaeology of the site (e.g. previous surveys);
- Geology and topography of the site;
- Aims and Specific Objectives;
- Methodology of site-based and off-site work;
- Results and observations, including quantitative report, stratigraphic report and any constraints on site;

- Assessment and interpretation of results against original expectations and objectives and, where appropriate, a review of evaluation strategy;
- Statement of potential archaeology;
- Conclusions and recommendations for appropriate archaeological investigation strategy or post–excavation assessment in light of Specific Objectives;
- Considerations of the results and conclusions within the wider context;
- Evaluation of methodology employed and results obtained (i.e. a confidence rating);
- Publication and dissemination proposals (in addition to fieldwork report);
- Archive deposition;
- Bibliography
- Acknowledgements;
- OASIS/HER form;
- Site matrices, where appropriate;
- Specialist assessment or analysis reports where undertaken;
- Illustrations, including location plans with scale and grid co-ordinates.

12.2.2 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.

12.2.3 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

12.2.4 With regard to Digital Archival Material including OASIS/Historic Environment Record summary sheets, ARS Ltd will provide the required data, metadata and digital material as specified in the Historic Environment Digital Data Management and Archiving Procedure (C262-ARP-EVSPE-000-000003).

12.3 Survey Report

12.3.1 A survey report will include a written and graphic survey report for the works upon completion of fieldwork as an appendix to the Fieldwork report. Evidence shall be provided for check measurements and results of levelling for establishment of any TBMs where used. Unless otherwise agreed, the survey report shall be submitted by ARS Ltd to Fusion JV and HS2 Ltd within two weeks of completion of fieldwork.

12.3.2 ARS Ltd shall prepare and submit site area outlines and levels in accordance with HS2 Ltd's Cultural Heritage GIS Standard (HS2-HS2-GI-STD-000- 000010) and BIM requirements. Each drawing shall identify the relevant event code and sub- site division, if applicable.

12.4 Archaeological Summary Report

12.4.1 A short summary report of no more than 500 words (the Summary Report) for the works shall be prepared by ARS Ltd for submission to Fusion JV for subsequent publication within an appropriate journal or publication outlet specified by HS2 Ltd.

12.4.2 ARS Ltd shall submit the draft summary report to Fusion JV for approval within 8 weeks of the completion date of the fieldwork event. Fusion JV will review the draft summary report and then issue it to HS2 Ltd for comment and approval. ARS Ltd shall allow two weeks in the programme of works for Fusion JV and HS2 Ltd to provide comments.

12.4.3 ARS Ltd shall include any amendments required by Fusion JV and HS2 Ltd in the final Summary Report which shall be submitted within one week of receiving comments on the draft report.

12.5 GIS Deliverables

GIS Deliverables will be provided to Fusion JV for approval within 8 weeks of the completion date of the fieldwork. The specific requirements of this deliverable are provided by HS2 in the Technical Standard Specification for historic environment investigations (HS2- HS2-EV-STD-000-000035) and the GWSI: HERDS (HS2-HS2-EV-STR-000-000015).

13 Information Management

13.1.1 GIS deliverables will be provided in accordance with HS2 Ltd'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 will be supplied in GIS format.

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

13.1.3 HS2 Ltd's standard template for reports (HS2-HS2-PM-TEM-000-000004) will be used.

14 Quality Assurance Processes

14.1.1 All archaeological works will be delivered in accordance with Fusion JV's AWH Quality Plan (ref. 1EW03-FUS-QY-PLN-C000-001658). The trial trenching report will be prepared and conducted by suitably qualified, experienced and competent professionals.

14.1.2 The trial trenching report will be checked and then reviewed by senior qualified, experienced and competent professionals prior to issue to HS2 Ltd for acceptance. Final reports, following comments, will be checked and reviewed again prior to issue.

15 Change Control

15.1.1 During the course of the archaeological investigation unexpected, complex or undated archaeological remains may be 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.

15.1.2 The GWSI: HERDS establishes the need to manage unexpected discoveries and regularly review ongoing fieldwork events (Sections 7.6.5 and 7.6.17; Document no.: HS2-HS2-EV-STR-000-000015). 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.

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

15.1.4 The change control process will be recorded using the proforma Historic Environment Fieldwork Change Control Acceptance Sheet at Appendix B of this project plan and will comprise the following steps:

1. ARS Ltd 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 Fusion JV's Historic Environment Manager who will disseminate the results and arrange a meeting on site with HS2 Ltd'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.
- Following agreement with the Fusion commercial team a work instruction will be issued to the subcontractor via the Fusion Package Manager.

4. Following the site meeting Fusion JV will submit a copy of the completed Historic Environment Fieldwork Change Control Acceptance Form to HS2 Ltd via eB.

5. Where the rapid implementation of mitigation measures is required Fusion JV 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 HS2 Ltd for acceptance;
- Request a new site code from HS2 Ltd; and
- Update and resubmit the existing LSWSI to include the archaeological mitigation works.

16 Archive Deposition

16.1.1 Should the project produce no archaeologically significant finds, then Fusion JV will be advised accordingly that it would be the intention of ARS Ltd that no site archive be placed with a recipient museum.

16.1.2 If the project produces archaeologically significant finds, then Fusion JV will be notified at the earliest opportunity. A paper and artefactual archive and any appropriate digital archive will

be prepared by ARS Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data (in a format required by Fusion JV).

16.1.3 All artefacts and associated material will be cleaned, recorded, properly stored and deposited in the archive.

16.1.4 A full set of annotated, illustrative pictures of the site, excavation, features, layers and selected artefacts will be deposited with the archive as digital images on a CD ROM.

16.1.5 At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form will be completed for submission to the HER. This will include an uploaded .pdf version of the entire report (a paper copy will also be included within the archive).

17 Monitoring Arrangements

17.1.1 Archaeological Research Services Ltd. acknowledges that it is the responsibility of the Fusion JV to monitor the archaeological works. Reasonable notice shall be provided before the commencement of works and to arrange monitoring visits with the ARS Ltd Project Manager.

17.1.2 ARS Ltd will liaise with the Fusion JV Historic Environment Manager at regular intervals throughout the course of the work.

18 Timetables, Staffing and Resources

18.1.1 The Project Manager for the work is Will Throssel and the Archaeological Technical Lead is Lawrence Pontin. The Fieldwork Project Officer will be Caitlin Halton () or Dr. Rebecca Trow (ACIfA) or another as may be appointed by ARS Ltd. An outline timetable for project implementation is presented below

18.1.2	Task	18.1.3	Commencement date
18.1.4	Evaluation trenching on site	18.1.5	See Project Programme
18.1.6	Trial trenching post-excavation analysis, including any specialist reporting required	18.1.7	See Project Programme
18.1.8	Trial trenching report preparation and completion	18.1.9	See Project Programme

Table 3. Outline timetable for project implementation

18.1.10 Finds analysis will be carried out by appropriately qualified specialists as detailed subject to availability.

• Flint and prehistoric pottery:	Dr Robin Holgate MCIfA
• Romano-British pottery:	Ian Rowlandson
• Samian ware:	Dr Gwladys Monteil
• Medieval and post-medieval pottery:	Dr Chris Cumberpatch/Dr Robin Holgate MCIfA
• Clay pipes:	Dr Rebecca Trow
• Metalliferous materials	Dr Simon Timberlake
• Plant macros, charcoals & pollen:	Luke Parker / Denisa Cretu
• Geoarchaeologist	Luke Parker
• Insects	Denisa Cretu
• Human and animal bone:	Milena Grzybowska
• Radiocarbon dating:	Prof Gordon Cook (SUERC)
• Finds conservation:	Vicky Garlick (Durham University)

19 General Items

19.1 Health and Safety

19.1.1 All work will be carried out in accordance with The Health and Safety at Work Act 1974. Specific health and safety policies exist for all out workplaces and all staff employed will be made aware of the policy and any relevant issues. The particular risks involved with this project have been assessed, recorded and relevant mitigation measures put in place as part of the risk assessment and Method Statement submitted as part of this project.

19.2 Insurance Cover

19.2.1 ARS Ltd has full insurance cover for employee liability (£10 million) public liability (£10 million), professional indemnity (£10 million) and all-risks cover.

19.3 Changes to the Written Scheme of Investigation

19.3.1 See 15. Change Control.

19.4 Copyright

19.4.1 Any publicity will be handled by the client. ARS Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

20 Constraints

20.1.1 Given the present status of the site as a mixture of arable and pastoral land it will be necessary for ARS Ltd to ensure that the fields are in a suitable condition for the investigations (i.e. no livestock, mature crops) prior to commencement.

20.1.2 Several of the constraints listed below include existing services and this information has been prepared from data provided by Fusion JV. It is the responsibility of ARS Ltd to conduct a review of the services including new searches before works commence.

20.1.3 Survey data indicates there is a low potential for unexploded ordnance (UXO) on the site. Site specific constraints/hazards include:

- Great Crested Newts (Figure 6). Great Crested Newt (GCN) populations (AMP 109) have been recorded within the Site (eastern part of parcel C320026 and western part of C320027). An ecologist will need to be present during the trial trenching works to conduct a fingertip search. In order to protect GCN against being trapped in the trenches, access ramps will be excavated at the ends of the nearby trenches and each trench will be checked for newts daily prior to starting work. In the event that GCN are encountered, appropriate procedures, defined within the Great Crested Newt Unexpected Finds Method Statement (doc. No. 1EW03-FUS-EV-MST-C000- 000014) will be followed, with any work carried out by accredited agents (under the licence issued to HS2 by Natural England).
- Overhead services. No overhead services have been identified within the site.
- Buried services. A buried water main crosses the centre of the site along Ladbroke Hill Lane, and another water main follows the north-western boundary of the site (Figure 7). This has been taken into account in the scheme design, and a 5m buffer was applied.

- Watercourses. A stream flows near the southern boundary of the site. An 8m buffer has been taken into account in trench design, however it does not encroach on the site boundary, therefore no further measures need to be undertaken.
- Hedgerows. A number of hedgerows partition parts of the site. Appropriate measures will be implemented to avoid disturbing these features. Where breaches are required to gain access, the following procedure will need to be followed:
- Identify where a hedge will need to be removed;
- Stage 1 Tree Survey needs to be carried out. These are generally carried out by AWS across the scheme and may have been carried out (to be confirmed by Fusion JV);
- Any trees, groups of trees, woodlands or hedges being retained that are within 15m of the cutting area will require a Stage 2 Tree Survey to identify protection measures. It is recommended that the breach area is chosen carefully and away from trees/woodlands if possible;
- The re-use of any materials arising from removal has to be considered and planned (chippings etc.);
- Fusion will produce and issue an Ecological and Arboriculture Permit;
- Methodology for the removal needs to be agreed and an ecological watching brief may have to be arranged if required.

21 Temporary works

21.1.1 It is anticipated that most trial trenches excavated within the site will be shallow and that they will not require temporary works. However, should the access to deep excavation be deemed necessary in prior consultation with Fusion JV's Historic Environment Manager, and a need for temporary works identified, works will cease at that location, and the trench will be temporarily backfilled. Fusion JV will assess the requirement for temporary works and will be responsible for their design, installation and maintenance.

21.1.2 Temporary works will be co-ordinated by Fusion JV's Temporary Works Co-ordinator (TWC) who will be responsible for ensuring that the planning, erection, use, maintenance and dismantling of temporary works is undertaken in line with Fusion JV's temporary works process and as agreed with the relevant Temporary Works Manager (TWM). A temporary works schedule produced at tender stage will be reviewed and updated at regular intervals.

21.1.3 All temporary works will be designed and installed in accordance with HS2 Ltd's Technical Standard for Temporary Works (Document No. HS2-HS2-CV-STD-000-000005), Fusion JV's IMS and Construction Phase Health and Safety Plan.

22 Glossary of Terms

AIMS	Asset Information Management System
ANA	Archaeological Notification Area
ASZ	Archaeological Sub-Zone
BGS	British Geological Survey
CCB	Consolidated Construction Boundary
CFA	Community Forum Area
CIfA	Chartered Institute for Archaeologists DDBA Detailed Desk Based Assessment
ES	Environmental Statement
GIS	Geographical Information Systems
GWSI:	HERDS Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy
HER	Historic Environment Record
LSWSI	Location Specific Written Scheme of Investigation NGR National Grid Reference
PDF	Portable Document Format
QA	Quality Assurance

23 References

Title	Reference
British Geological Survey, Geology of Britain viewer http://mapapps.bgs.ac.uk/geologyofbritain/home.html	BGS Online 2019
Brunning, R and Watson, J 2010 Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood. Historic England guidance	Brunning and Watson 2010
Campbell, G, Moffett, L and Straker, V 2011 Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and recovery to Post-excavation	Campbell et al. 2011

(2nd ed.). Historic England guidance	
CIfA 2014 Standard and guidance for archaeological field evaluation. Chartered Institute for Archaeologists	CIfA 2014
Cranfield Soil and Agrifood Institute, Soilscapes http://www.landis.org.uk/soilscapes/index.cfm	Soilscapes 2019
Fusion AWH Quality Plan	1EW03-FUS-QY-PLN-C000-001658
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 Project Plan and LSWSI Contents Structure. Adjustment to align with delivery	1EW03-FUS-EV-SPE-C000-008268
Fusion Standard for Accident and Incident Investigation and Reporting	SH2 STD1
Garwood, P 2011 The Earlier Prehistory of the West Midlands. In Watt, S (ed) The Archaeology of the West Midlands: A framework for Research. Oxbow Books: Oxford	Garwood 2011
Great Crested Newt Unexpected Finds Method Statement	1EW03-FUS-EV-MST-C000-000014
Hall, D. 2001 Turning the Plough. Midland open fields: landscape character and proposals for management. English Heritage and Northamptonshire County Council	Hall 2001
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 and Lacey 2001
High Speed Rail (London-West Midlands) Environmental Minimum Requirements Annex 1: Code of Construction Practice	CS755 02/17
High Speed Rail (London-West Midlands) Environmental Minimum Requirements Annex 1: Code of Construction Practice	CS755 02/17
Historic England 2010 Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood. Historic England	Historic England 2010
Historic England 2011 Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and recovery to Post-excavation (2nd ed.). Historic England	Historic England 2011
Historic England 2012 Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation. Historic England	Historic England 2012

Historic England 2014 Animal Bones and Archaeology: Guidelines for Best Practice. Historic England	Historic England 2014
Historic England 2015a Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide	Historic England 2015a
Historic England 2015b Management of research projects in the historic environment (and associated guides and planning notes)	Historic England 2015b
Historic England 2015c Geoarchaeology: Using earth sciences to understand the archaeological record	Historic England 2015c
HS2 Cultural Heritage GIS Specification	HS2-HS2-GI-SPE-000-000004
HS2 Cultural Heritage GIS Standard	HS2-HS2-GI-STD-000-000002
HS2-HS2-GI-STD-000-000010	
HS2 Detailed Desk Based Assessment at Ladbroke	1D037-EDP-EV-REP-C000-000027
HS2 Employer's Technical Standard - Route wide soil resources plan	HS2-HS2-EV-STD-000-000008
HS2 Employer's Technical Standard – Temporary Works	HS2-HS2-CV-STD-000-000005
HS2 Enabling Works Information WI0200 General Constraints	1E001-HS2-PR-ITT-000-000098
HS2 Central -NIT2FinalReportfor Geophysical Magnetometer Survey at Lower Radbourne Farm, Ladbroke Grove Farm and west of Lady Hill, Warwickshire (AC320/5)	1EW03-FUS-EV-REP-CS07_CL23-007769
HS2 Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy	HS2-HS2-EV-STR-000-000015
HS2 Geoarchaeological Desk Based Assessment (GDBA): Review of the geoarchaeological potential of High Speed Two Phase One	1D037-EDP-EV-REP-000-000031
HS2 Historic Environment Digital Data Management and Archiving Procedure	C262-ARP-EVSPE-000-000003
HS2 Human remains and monuments procedure	HS2-HS2-EV-PRO-0000-000008
HS2 Ltd, 2015. Heritage Risk Model Phase 1 Review 2014 - Volume I	C253-ATK-EV-REP-000-000002
HS2 Phase One Environmental Statement and Supplementary Environmental Statements	ES3.5.2.16.4 ES3.5.2.16.5 ES3.5.2.16.6 CH-001-016 CH-002-016 - CH003-016 CH004-016

	CH001-016 CH002-016 CH004-016
HS2 Standard Template for Reports	HS2-HS2-PM-TEM-000-000004
HS2 Technical Standard Specification for Historic Environment Investigations	HS2-HS2-EV-STD-000-000035
HS2 Technical Standard: - Route wide soil resources plan	HS2-HS2-EV-STD-000-000008
HS2 Technical Standard: – Temporary Works	HS2-HS2-CV-STD-000-000005
HS2 Technical Standard: Cultural Heritage GIS Specification	HS2-HS2-GI-SPE-000-000004
HS2 Technical Standard: Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy	HS2-HS2-EV-STR-000-000015
HS2 Technical Standard: Historic Environment Digital Data Management and Archiving Procedure	HS2-HS2-EV-STD-000-000040
HS2 Technical Standard: Historic Environment Physical Archive Procedure	HS2-HS2-EV-STD-000-000039
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
Karsten, A, Graham, K, Jones, J, Mould, Q and Walton-Rogers, P 2012 Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation. Historic England	Karsten et al. 2012

24 Appendices

24.1 Project Plans

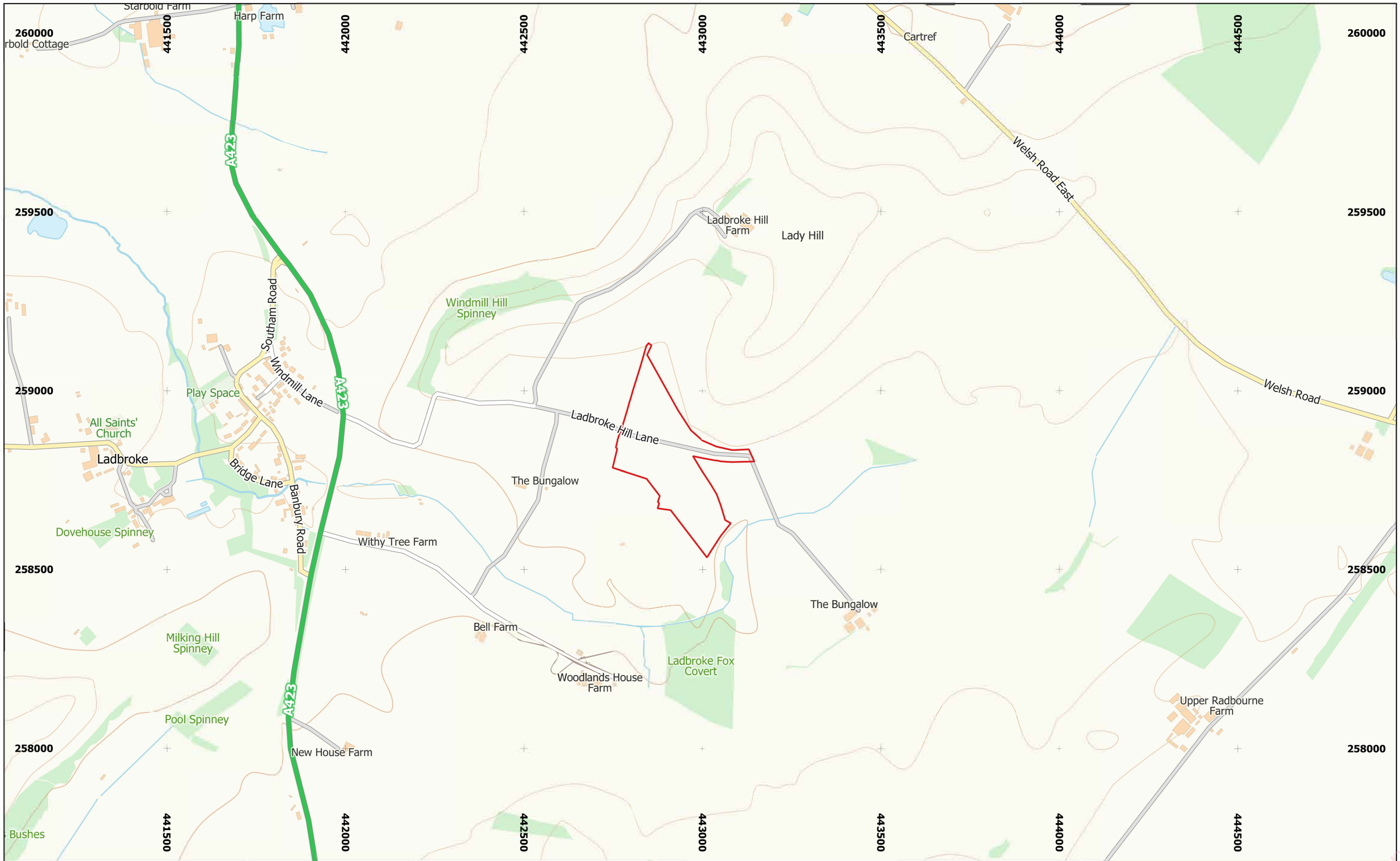
Document Number	Project Plan	Status
1EW03-FUS-EV-REP-CS07_CL24-007846	AWHf Project Plan for a Trial Trench Evaluation at Ladbroke Warwickshire AC320 Document no.: 1EW03-FUS-EV-REP-CS07_CL24-007846 Revision: C02	Code 1 Accepted

24.2 Appendix B - Fieldwork Change Control Acceptance Sheet

Historic Environment Fieldwork Change Control Acceptance Sheet	
Site Code:	
Site Name:	
Historic Environment Investigation Type:	
Contractor:	
Project Plan Doc. No.:	
LSWSI Doc. No.:	
Summary of Results	
Fieldwork Director:	Date:
Description of Proposed Change:	

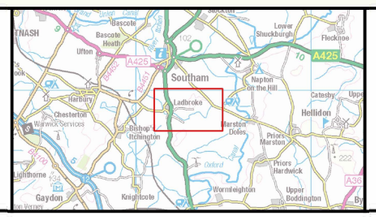
24.3 Appendix C -Figures

Figure title	Drawing No.
Figure 1 Site Location	1EW03-FUS-GI-MAP-CS07_CL24-000007
Figure 2 Trench location plan	1EW03-FUS-GI-MAP-CS07_CL24-000007
Figure 3 Heritage assets	1EW03-FUS-GI-MAP-CS07_CL24-000007
Figure 4 LiDAR survey and remote sensing interpretation	1EW03-FUS-GI-MAP-CS07_CL24-000007
Figure 5 Geophysical surveys	1EW03-FUS-GI-MAP-CS07_CL24-000007
Figure 6 1st edition OS map	1EW03-FUS-GI-MAP-CS07_CL24-000007
Figure 7 Ecological constraints	1EW03-FUS-GI-MAP-CS07_CL24-000007
Figure 8 Utilities constraints	1EW03-FUS-GI-MAP-CS07_CL24-000007



Legend

Ladbroke C32031 boundary



High Speed Two
Figure 1. Ladbroke C32031 location

Internal

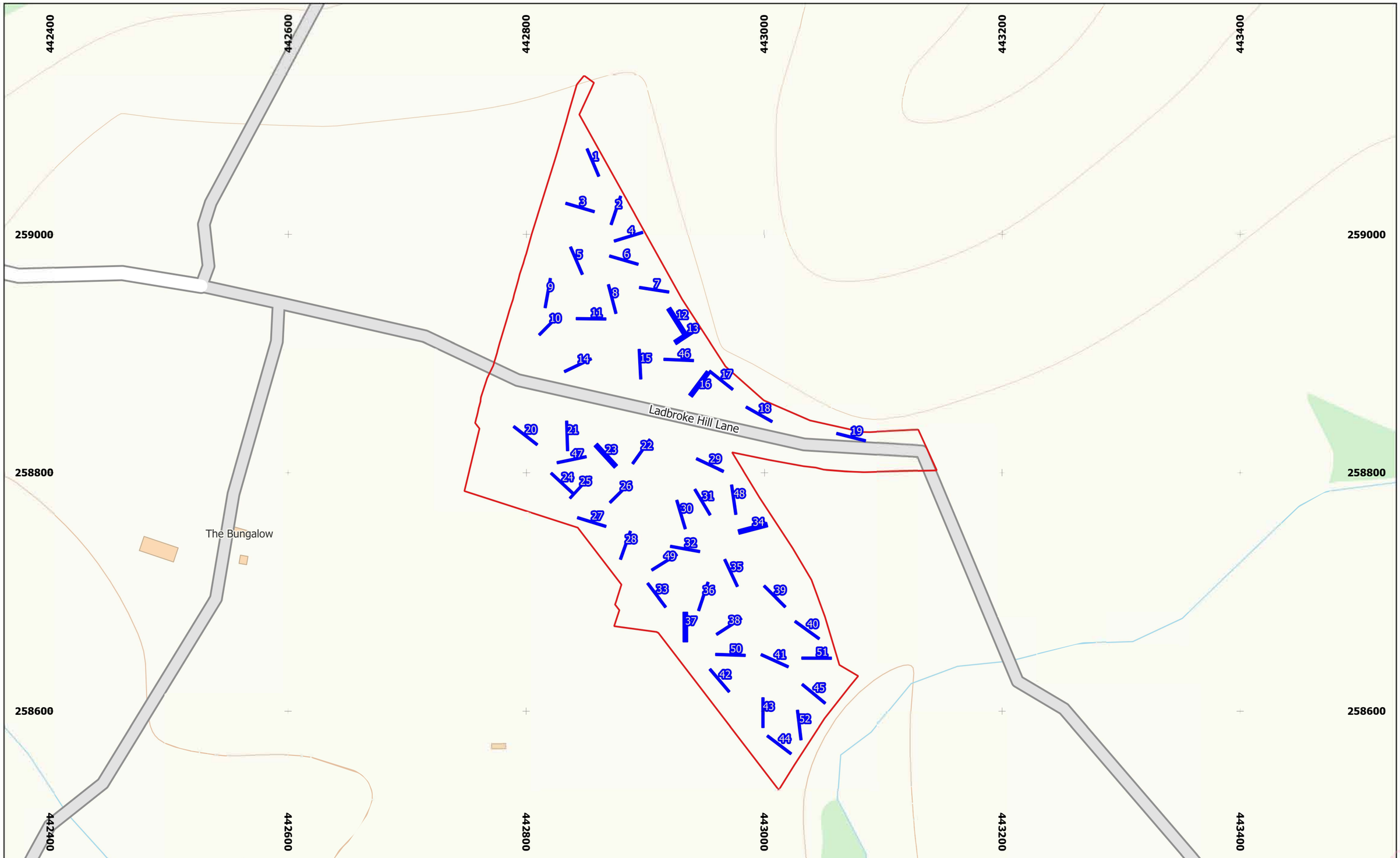
HS2

Scale at A3: 1:1000

0 50 100 150 200

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

Doc Number: 1EW03-FUS-GI-MAP-CS07_CL24-000007 Date: 04/02/20



Legend

- Ladbroke C32031 boundary
- Trench locations

High Speed Two

Figure 2. Ladbroke C32031 trench locations

Internal

HS2

Scale at A3: 1:3000

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Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA

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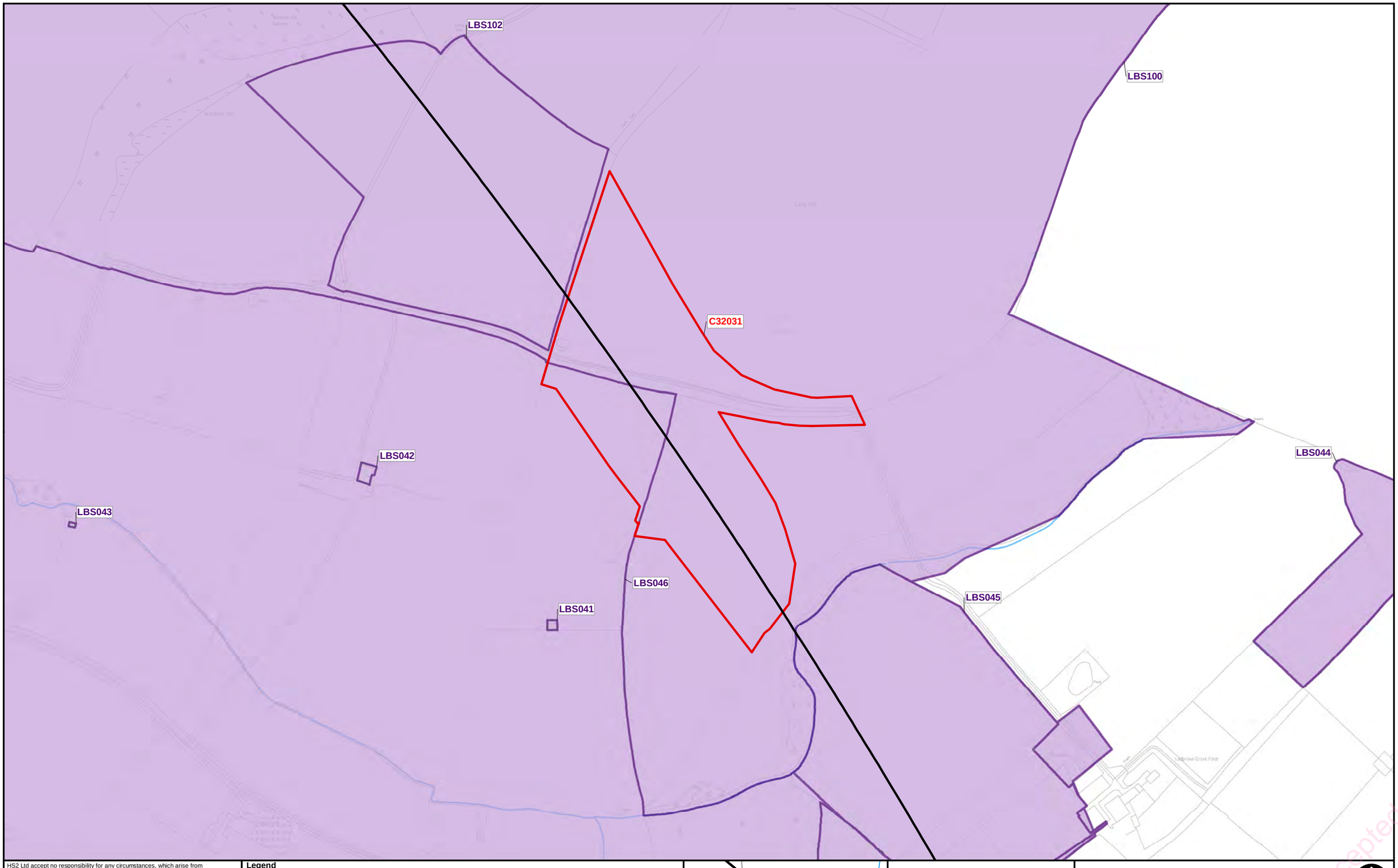
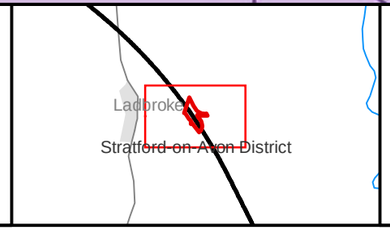
Doc Number: 1EW03-FUS-GI-MAP-CS07_CL24-0000 07 Date: 04/02/20



Legend

- Route
- Site
- CXXX Fusion Site GIS ID No.
- Watercourse
- Waterbody
- Non Designated Heritage Asset_ply



High Speed Two

FIG. 3
Ladbroke:
Heritage assets

Community Forum Area (CFA16)
Ladbroke & Southam

Internal

HS2

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

Scale at A3: 1:4,000

0 40 80 120 160
Meters

Doc Number: 1EW03-FUS-GI-MAP-CS07_CL24-000007 **Date:** 04/02/20

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WA16.29
WA16.28
WA16.36
WA16.33
WA16.32
WA16.30
WA16.32
WA16.31
WA16.29
WA16.31

Legend

- Route
- Site
- CXXX Fusion Site GIS ID No.
- Watercourse
- Waterbody
- Remote sensing interpretation
- Remote sensing interpretation

Ladbroke

Stratford-on-Avon District

High Speed Two

FIG. 4
Ladbroke:
LiDAR survey and remote sensing interpretation

Community Forum Area (CFA16)
Ladbroke & Southam
Internal

HS2

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Scale at A3: 1:4,000

0 40 80 120 160
Meters

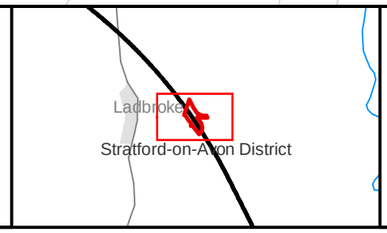
Doc Number: 1EW03-FUS-GI-MAP-CS07_CL24-000007 **Date:** 04/02/20

Legend

- Route
- Site
- CXXX Fusion Site GIS ID No.
- Watercourse
- Waterbody

Geophysics results

- Possible archaeology
- Agriculture / Field drain
- Uncertain origin
- Ferrous



High Speed Two

FIG. 5
Ladbroke:
Geophysical surveys

Community Forum Area (CFA16)
Ladbroke & Southam

Internal

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

Scale at A3: 1:3,000

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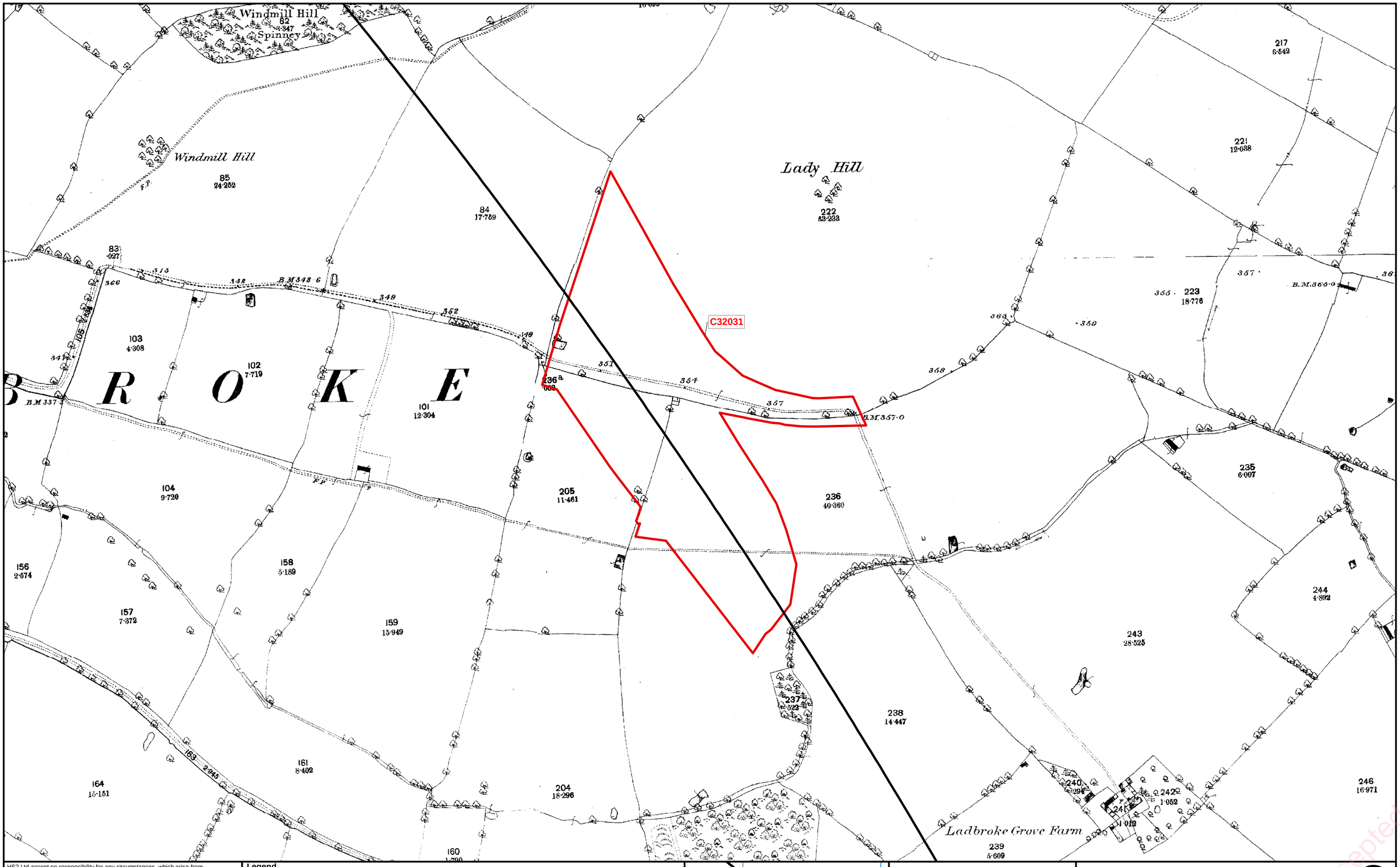
Meters

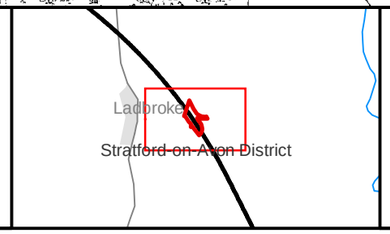
Doc Number: 1EW03-FUS-GI-MAP-CS07_CL24-000007 **Date:** 04/02/20



HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it issued in part or issued incomplete in any way.

Legend

- Route
- Site
- CXXX Fusion Site GIS ID No.



High Speed Two

FIG. 6
Ladbroke:
1st edition OS map

Community Forum Area (CFA16)
Ladbroke & Southam

Internal

HS2

Registered in England. Registration number 06791686.
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Scale at A3: 1:4,000

0 40 80 120 160
Meters

Doc Number: 1EW03-FUS-GI-MAP-CS07_CL24-000007 **Date:** 04/02/20

AMP056

AMP056

C32031

AMP055

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

Legend

- Route
- Site
- CXXX Fusion Site GIS ID No.
- Watercourse
- Watercourse buffer 8m
- Great Crested Newt AMP
- Extent of alluvium
- Proposed trench location

Ladbroke

Stratford-on-Avon District

High Speed Two

FIG. 7
Ladbroke:
Ecological constraints

Community Forum Area (CFA16)
Ladbroke & Southam

Internal

HS2

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

Scale at A3: 1:3,000

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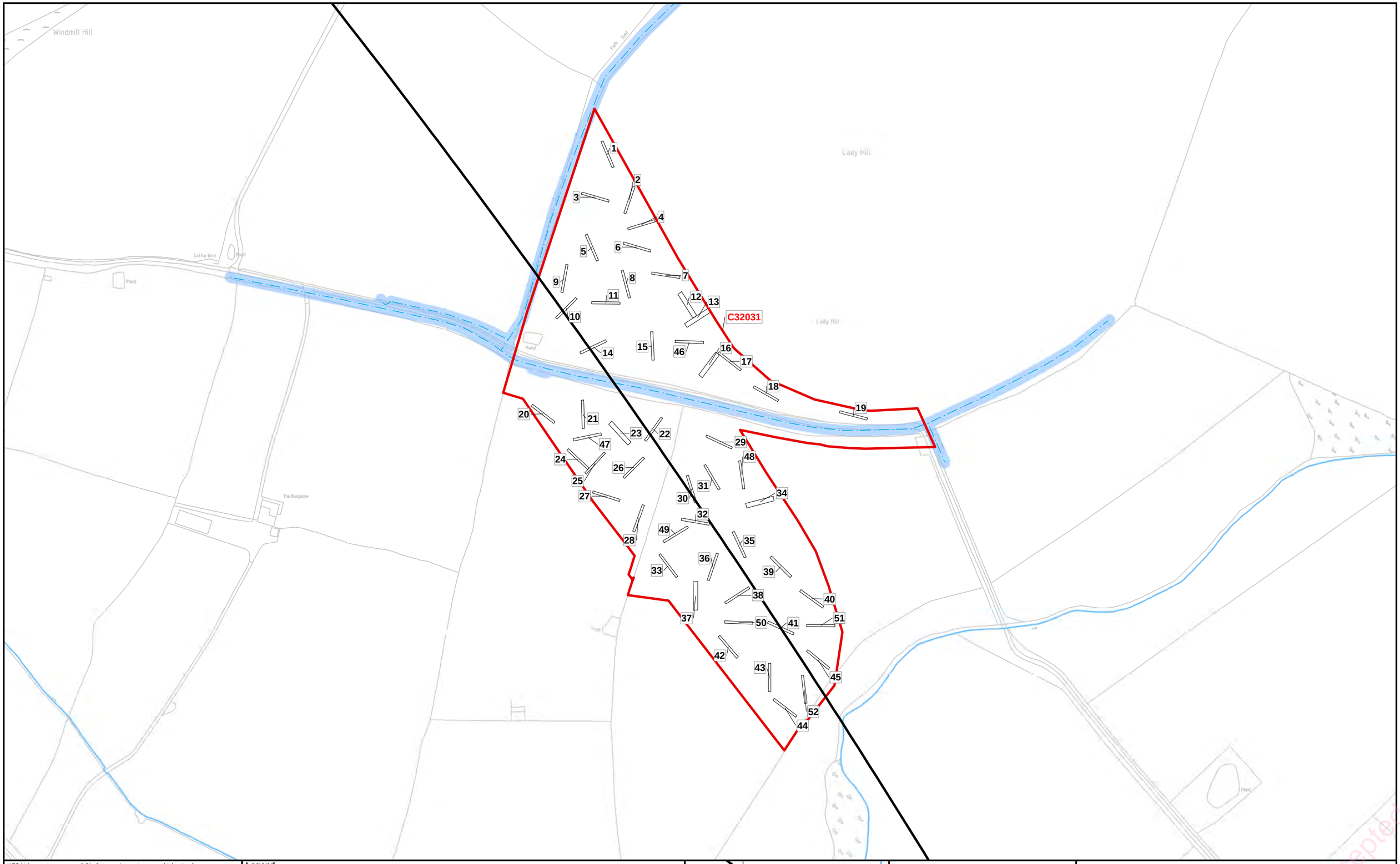
Meters

Doc Number: 1EW03-FUS-GI-MAP-CS07_CL24-000007 **Date:** 04/02/2



Legend

- Route
- Site
- CXXX Fusion Site GIS ID No.
- Watercourse
- Water pipe
- Water pipe buffer 5m
- Proposed trench location

Ladbroke

Stratford-on-Avon District

High Speed Two

FIG. 8
Ladbroke:
Utilities constraints

Community Forum Area (CFA16)
Ladbroke & Southam

Internal

HS2

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

Scale at A3: 1:3,000

0 30 60 90 120
Meters

Doc Number: 1EW03-FUS-GI-MAP-CS07_CL24-000007 **Date:** 04/02/20

Date, initials	Find ID - Δ	Square E - XXX...	Square N - XXX...	Spit	Context	Material	L-axis dir/dip	Tr-axis dir/dip	Description (+ details of any excavation damage)	Max L - mm
		...	...				/	/		
		...	...				/	/		
		...	...				/	/		

24.4 Appendix D – 3D recording Proforma

24.5 Appendix E – Resource Plan