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HS2

High Speed Rail (Crewe to Manchester)

Background information and data

Historic environment

BID HE-004-0MA05

MA05: Risley to Bamfurlong

Historic environment field survey report

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Historic environment field survey report

M204

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1 Introduction

1.1.1 This report presents the results of analysis of field survey data relating to the historic environment.

1.1.2 Baseline data have been collected for the Proposed Scheme in relation to the Risley to Bamfurlong area (MA05).

1.1.3 All identified heritage assets discussed in this report are shown in the Volume 5, Historic environment Map Book, Map Series HE-01, HE-02 and HE-03[1].

1.1.4 The historic environment detailed gazetteer is set out in Appendix A of the Historic environment baseline report (see Background Information and Data: BID HE-001-0MA05). It sets out Unique gazetteer identifier (UID) codes for the heritage assets considered in the baseline data; these are used for reference across all the historic environment reports and maps in the Environmental Statement (ES)[2] and BID reports.

1.1.5 The approach to assessing the archaeological potential of the landscape is outlined in the Historic environment summary gazetteer, impact assessment table and archaeological character areas report (HE-002-0MA05[3]). This breaks the study area down into areas of archaeological character; initially into broad Archaeological Character Areas (ACA), and then more narrowly defined Archaeological Sub-zones (ASZ).

1.1.6 The approach used for assessing historic landscape character (HLC) is described in the Historic environment Historic landscape character areas report (HE-003-0MA05[4]). The approach is used to determine historic landscape character areas (HLCA). HLCA are areas of coherent or distinctive historic landscape characteristics.

1.1.7 Within the historic environment reporting, various reference numbers have been used to provide a unique identifier to the heritage assets, HLCA, ACA/ASZ, geophysical survey anomalies and remote sensing features identified. These unique identifiers are referenced throughout the ES, BID reports and Map Books, and in summary are as follows:

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[1] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Volume 5, Historic environment Map Book*. Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

[2] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement*. Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

[3] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Risley to Bamfurlong, Summary gazetteer, impact assessment table and archaeological character areas, Volume 5: Appendix HE-002-0MA05.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

[4] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Risley to Bamfurlong, Historic landscape character areas, Volume 5: Appendix HE-003-0MA05.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

- heritage assets have been given a Unique gazetteer identifier (UID), for example MA05_0001. These have been allocated to all heritage assets within the gazetteer of heritage assets, provided in Volume 5: Appendix HE-002-0MA05 (summary gazetteer) and BID HE-001-0MA05 (detailed gazetteer);
- historic landscape character areas have been given a unique identifier, for example MA05_HLCA02. These have been allocated to all HLCA within the Historic landscape character assessment, provided in Volume 5: Appendix HE-003-0MA05;
- archaeological character areas and archaeological sub-zones have been given a unique identifier, for example: archaeological character area MA05_AC01; and archaeological sub zone MA05_AC01.002. These have been allocated to all of the assessed archaeological character areas and archaeological sub-zones, provided in Volume 5: Appendix HE-002-0MA05;
- geophysical survey areas and features identified through the geophysical survey have been allocated a unique identifier, for example: geophysical survey area MA01_GP001, and geophysical survey feature MA05_GP001.001. These have been allocated to all of the identified geophysical survey areas and features, provided in BID HE-004-0MA05; and
- features identified through remote sensing have been allocated a unique identified, for example MA05_RS001. These have been allocated to all of the identified remote sensing features, provided in BID HE-005-0MA05.

2 Geophysical survey

2.1 Introduction

2.1.1 This report provides the results of geophysical surveys undertaken at eight locations along the route within the Risley to Bamfurlong area.

2.1.2 The geophysical surveys were undertaken in accordance with the guidance and standards set out in:

- Generic written scheme of investigation for non-intrusive archaeological survey[5];
- Standards and Guidance for Archaeological Geophysical Survey[6];
- Geophysical Survey in Archaeological Filed Evaluation: Research and Professional Services Guidelines[7]; and
- Guidelines for the Use of Geophysics in Archaeology, Questions to Ask and Points to Consider[8].

2.1.3 The aims and general method for the geophysical survey are as set out in the GWSI (HE-06-00000).

2.1.4 Survey locations were identified in accordance with the method for risk assessment and survey prioritisation presented in Technical Note: Risk-based approach to prioritising archaeological surveys which is in the Environmental Impact Assessment Scope and Methodology Report (SMR)[9].

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[5] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Generic written scheme of investigation for non-intrusive archaeological survey Volume 5: Appendix HE-006-000000.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

[6] Chartered Institute for Archaeologists (CIfA) (2020), *Standards and Guidance for Archaeological Geophysical Survey,* Reading.

[7] David, A., Linford, N. and Linford, P. (2008), *Geophysical Survey in Archaeological Field Evaluation: Research and Professional Services Guidelines*, English Heritage, Swindon. On 1 April 2015 the part of English Heritage responsible for this guidance note changed its name to Historic England, this note remains valid but has not been updated to reflect this rebranding.

[8] Schmidt, A. R., Linford, P., Linford, N., David, A., Gaffney, C. F., Sarris, A. and Fassbinder, J. (2016), *Europae Archaeologogiae Consilium (EAC) Guidelines for the Use of Geophysics in Archaeology, Questions to Ask and Points to Consider*, Namur, Belgium.

[9] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Environmental Impact Assessment Scope and Methodology Report, Volume 5: Appendix CT-001-00001*. Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

2.2 Survey objectives

Aims of the survey

2.2.1 The aim of this survey is to establish the presence/absence, extent and character of detectable archaeological assets within the survey area, including both the testing of previously recorded sites and the identification of additional locations of archaeological potential not previously recorded.

Objectives of the survey

2.2.2 The results of the surveys have been combined with data from other archaeological assessments carried out as part of the project, such as desk-top studies, aerial photographic transcription and LiDAR[10] data, in order to analyse the archaeological potential of the survey locations.

2.3 Survey methodology

2.3.1 This section provides an overview of the used survey methods.

Data collection

2.3.2 The detailed magnetic survey was chosen as an efficient and effective method of locating archaeological anomalies. The survey was undertaken between 17 December 2018 and 6 February 2019 by MOLA-Headland using Bartington Grad-01-1000L sensors, variously configured for use on a manually carried frame (four sensors at 1m intervals).

Data processing

2.3.3 A zero median traverse function was used to remove the striping apparent in the raw data. In some cases, where beneficial, a high-pass filter was also applied to smooth the data.

2.3.4 The unprocessed and processed data sets have been presented in this report in greyscale format; the unprocessed data at a range of -8nT to 8nT and the processed at -3nT to 3nT. A comparison of the plots shows how the processing has removed the effects of drift in instrument calibration and maximised the clarity and interpretability of the detected anomalies.

[10] LiDAR (meaning 'light detection and ranging') is a surveying method that measures distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor; this can be used to identify archaeological earthwork evidence.

Data presentation

2.3.5 A general site location plan showing all eight of the individual survey areas is shown in Figure 1 at a scale of 1:75,000. Large-scale, fully processed (greyscale) data, unprocessed magnetometer data and accompanying interpretative plots of each individual survey area are presented at a scale of 1:2,500 in Figures 2 to 31 inclusive.

2.3.6 When interpreting the results, several factors are taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, phenology, topography etc.). Anomalies are categorised by their potential origin and divided into categories that are used in the graphical interpretation of the magnetic data:

- archaeology definitive/probable;
- archaeology possible;
- industrial/burnt flint;
- extraction;
- agricultural historic;
- agricultural modern;
- natural;
- ferrous;
- magnetic disturbance;
- uncertain; and
- modern service.

Assumptions and limitations

2.3.7 The results and subsequent interpretation of data from geophysical surveys should not be treated as an absolute representation of the underlying archaeological and non-archaeological remains. Confirmation of the presence or absence of archaeological remains can only be achieved by intrusive archaeological investigation of sub-surface deposits.

2.3.8 There were no site-specific issues encountered whilst undertaking the geophysical surveys in the Risley to Bamfurlong area.

2.3.9 Magnetic disturbance has mainly been limited to the peripheries of the survey area. Overhead electricity lines had no adverse effect on the survey results. Pipes and drains in MA05_GP001, MA05_GP002, MA05_GP006, MA05_GP008 and MA05_GP009 created magnetic halos, which may have hidden anomalies. Area_MA05_GP003 had significant magnetic disturbance over the majority of the survey area, which may have hidden anomalies.

3 Geophysical survey results

3.1 Introduction

3.1.1 Geophysical Survey was undertaken at eight locations in the Risley to Bamfurlong area, comprising:

- North of Holcroft Firs (MA05_GP001), see Figures 2 to 4;
- Wigshaw to Little Covert (MA05_GP002), see Figures 5 to 13;
- Birchalls Farm (MA05_GP003), see Figures 14 to 16;
- Land North of the A580 East Lancashire Road, Lowton (MA05_GP004), see Figures 17 to 19;
- Slag Lane to Byrom Hall (MA05_GP006), see Figures 20 to 22;
- East of Balmer's Farm (MA05_GP008), see Figures 23 to 25;
- North of Balmer's Farm (MA05_GP009), see Figures 23 to 25; and
- Aye Bridge Farm to Coffin Lane Brook (MA05_GP010), see Figures 26 to 31.

3.1.2 The survey results are presented for each of the above areas, providing a brief background to the survey location, the results obtained and a brief discussion of those results.

3.1.3 In the following paragraphs magnetic anomalies identified in the course of the survey are discussed across each survey area within classification types based on their origin. Only anomalies that are distinctive or unusual are discussed individually. Where appropriate, such congruent groups of anomalies and individual anomalies have been identified by alphanumeric identifiers, e.g. MA05_GP001.001 refers to a feature or group of features within survey area MA05_GP001.

3.2 North of Holcroft Firs - MA05_GP001

Survey location

3.2.1 The survey area comprised pastural land across two fields measuring 10ha in total located by Franks Farm to the north, the M62 to the south, a disused landfill site to the west and centred on NGR 366989 393969. The site topography was flat at 22m metres above Ordnance Datum (mAOD). The underlying geology was recorded as sandstone with superficial glaciofluvial (sands and gravels) glacial till deposits.

3.2.2 The survey area was located within the Holcroft and Glazebrook Moss ASZ (ASZ, MA05_AC01.001). The ASZ covers the former extents of a number of mosslands and now comprises open areas of post-enclosure and modern field systems bisected by the M62. The area is typical of former wetlands drained and improved from the 18th century to make prime agricultural land. The agricultural fields are largely regular with linear hedged

boundaries indicative of 20th century rationalisation of post-enclosure fields. The superficial geology of the area is mapped as glacial till and alluvial deposits which follow the alignment of watercourses, and wetlands formed of peat. The ASZ is within the Hollins Green and former mosses HLCA MA04_HLCA03. The areas of mossland reclamation are characterised by distinctive flat landscapes broken up by deep drainage ditches. Apart from a small section of Holcroft Moss (MA05_0007), now a Site of Special Scientific Interest, the area has been historically worked for peat, an industry still evidenced to the east of Holcroft Moss in an area of former peat cuttings.

3.2.3 Historic Environment Record (HER) data indicates the presence of prehistoric and Roman settlement and industrial activity on the fringe of the mosses, including a single prehistoric findspot. The ASZ also contains an area previously used as accommodation for Royal Ordnance Factory Risley (MA05_0004) although any archaeological remains are likely to be ephemeral and truncated due to later development of the Taylor Business Park. Where the ASZ is bisected by the M62 and the A574 Warrington Road, remains are unlikely to survive. A number of undated cropmark enclosures (MA05_0019) and (MA05_0022) have also been identified from aerial photographs.

3.2.4 There is good potential for the survival of archaeological material within and underneath the peats of the mosses. Archaeological material potentially within this area is more likely to date from the Mesolithic to the Bronze Age. However, there is also potential for palaeoenvironmental evidence for all periods up until the medieval period.

Survey results

Agricultural historic

3.2.5 The 1849 Ordnance Survey map[11] indicated that a field boundary was formerly within the centre of the survey area. This field boundary was identified as an east to west linear anomaly by the survey (see Figure 4, MA05_GP001.002). A pair of parallel linear anomalies were identified at the northern and southern boundaries of the survey area, these follow the alignment of current field boundaries. Their alignment and double nature are likely to indicate a former trackway (see Figure 4, MA05_GP001.003 and MA05_GP001.004).

3.2.6 Extant ridge and furrow (MA05_RS001) identified during remote sensing analysis were not identified during the geophysical survey.

Agricultural modern

3.2.7 Parallel linear anomalies were identified throughout the survey area. These were either parallel or at right angles to the current field boundaries and reflect the alignment of recent

[11] Ordnance Survey (1849), *Lancashire County Series, Map Sheet CIX*, 2nd edition, Scale: 1:10,560.

ploughing. Further linear anomalies represent the course of modern field drains, typically aligned diagonally to the field boundaries.

Natural

3.2.8 Numerous low magnitude discrete anomalies were identified across the survey area. These are due to the variation in the depth and composition of the soils, and superficial deposits from which the soil was partly derived.

Ferrous

3.2.9 Ferrous anomalies, characterised as individual 'spikes', were identified across the survey area. The spikes are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil.

Magnetic disturbance

3.2.10 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundaries.

Modern service

3.2.11 In the south-east corner (see Figure 4, MA05_GP001.001) of the survey area, a north-south aligned highly magnetic linear anomaly was detected. This response was interpreted as a buried service pipe.

Conclusions

3.2.12 The survey has identified a buried service pipe and anomalies which reflect the historical agricultural landscape in the form of a former field boundary, two potential trackways, drains and ploughing trends.

3.3 Wigshaw to Little Covert - MA05_GP002

Survey location

3.3.1 The survey area consisted of nine fields of pasture with a combined extent of 19ha. It was bounded by Milton Lane to the north, Wigshaw Lane to the south, a public footpath to the east and centred on NGR 363976 395430. The site was flat, being situated at 35 mAOD. The underlying geology was recorded as sandstone overlain by superficial glacial till deposits.

3.3.2 The survey area was located within the Kenyon House to Pocket Nook ASZ (MA05_AC01.008). The ASZ covers an area between Culcheth and Lowton within the MA05_HLCA02: Culcheth and Croft. The superficial geology of the area comprises deposits of glacial till of poorly

sorted sandy, silty clay. The area mostly comprises enclosed farmland surrounding post-medieval farmsteads. Although it also includes the former parkland area of Kenyon Hall (MA05_0032) including the Grade II listed walls and gate posts (MA05_0053) and the lodge (MA05_0052). The area is bisected north to south by the former Wigan branch line of the Great Central Railway (MA05_0115) and east to west by the extant Liverpool Manchester Line (Chat Moss) and the A580 East Lancashire Road. Where these bisect, remains are unlikely to survive.

3.3.3 The location of Kenyon Hall (MA05_0032), is now owned by Leigh Golf Club but had previously belonged to a wealthy cotton manufacturer. The outline of the former post-medieval parkland (MA05_RS007/MA04_0136), that existed prior to the landscaping associated with the creation of the golf course, remains faintly visible on recent aerial imagery.

3.3.4 Geophysical survey undertaken as part of the West East Link Main Pipeline works[12] identified anomalies which reflect the local rural industry and agricultural landscape.

Survey results

Archaeology possible

3.3.5 The survey identified nine high magnitude irregularly shaped anomalies (see Figures 6 and 7, MA05_GP002.015; MA05_0166) which because of their distinct magnetic signal are considered to be of possible archaeological origin. It is not possible to interpret their origins or function.

Agricultural historic

3.3.6 The 1849 first Ordnance Survey maps[13] shows several field boundaries in the south of the survey area. They have been since removed, but still manifest as negative linear anomalies by the geophysical survey (see Figures 6 to 10, MA05_GP002.002 to MA05_GP002.008).

3.3.7 In the north of the survey area, four additional former field boundaries were identified (see Figures 9 to 13, anomalies MA05_GP002.009 to MA05_GP002.014). These define the limits of levelled ridge and furrow identified during remote sensing analysis (see BID HE-005-0MA05). The levelled ridge and furrow was not identified by the geophysical survey.

[12] Gregory, R.A. (2013), *The Archaeology of the West-East Link Main Pipeline.* Lancaster: Oxford Archaeology (North).

[13] Ordnance Survey (1849), *Lancashire County Series, Map Sheet CII*, 2nd edition, Scale: 1:10,560.

Agricultural modern

3.3.8 In the south of the survey area, a series of linear anomalies aligned both parallel with, and at 45 degrees to the extant and former field boundaries, were interpreted as modern field drains. Interestingly, these typically follow the alignment of former ploughing regimes.

Natural

3.3.9 Numerous low magnitude discrete anomalies were identified across the survey area. These were due to the variation in the depth and composition of the soils and superficial deposits from which the soil was partly derived.

Ferrous

3.3.10 Ferrous anomalies, characterised as individual 'spikes', were identified across the survey area.

Magnetic disturbance

3.3.11 The northernmost field encompassed an area of high magnetic disturbance indicative of the spreading of green waste[14] as part the recent agricultural regime. This masked the visibility of any underlying anomalies which may be present. Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to, the boundaries, and was of no archaeological interest.

Modern service

3.3.12 A linear anomaly, indicative of a service pipe, has been identified towards the southern end of the survey area (see Figures 6 and 7, MA05_GP002.001). This was aligned north to south and was parallel with an existing field boundary.

Conclusions

3.3.13 Nine irregular anomalies (MA05_GP002.015; MA05_0166) have been identified by the survey that could be of possible archaeological origin, although it is impossible to discern their purpose. The survey has identified a buried service pipe and anomalies which reflect the local rural industry and agricultural landscape in the form of former field boundaries, ploughing trends and field drains.

[14] Used to increase efficiency of composting operations providing nutrients for plant growth (manufactured topsoil).

3.4 Birchalls Farm - MA05_GP003

Survey location

3.4.1 The survey area comprised four arable fields measuring a combined 8.73ha, located to the north of Birchalls Farm, centred on NGR 363426 396551. The site was bounded to the south by the B5207 Wilton Lane, the west by the B5207 Kenyon Lane and to the east by the disused Wigan Junction Railway branch line. It was relatively flat, rising from 30 mAOD in the north-east to 38 mAOD in the south-west. The underlying geology was mapped as sandstone overlain by surface deposits of glacial till. The survey area was also located within the Kenyon House to Pocket Nook ASZ (MA05_AC01.008), as described above in relation to MA05_GP002.

Survey results

Extraction

3.4.2 An area of high magnetic disturbance located in the centre of the south-eastern field corresponds with a former marl pit[15] (see Figures 13 and 16, anomaly MA05_GP003.001) depicted on the 1849 Ordnance Survey map[13] later used as a pond. The disturbance was caused by the magnetic properties (brick, tile, iron etc.) of the material used to infill the former pond.

Agricultural modern

3.4.3 A small number of parallel linear anomalies on a north-west to south-east alignment were present in the south-east corner of the survey area. These are parallel to the current field boundaries and represent modern ploughing activity.

Natural

3.4.4 Numerous low magnitude discrete anomalies were identified across the survey area. These were due to the variation in the depth and composition of the soils, and superficial deposits from which the soil was partly derived.

[15] Marl pits were an early method of agricultural improvement. They were dug in Cheshire from the medieval period onwards to extract marl, a calcareous soil, which was then spread on fields to improve soil fertility.

Ferrous

3.4.5 Ferrous anomalies, characterised as individual 'spikes', were identified across the survey area.

Magnetic disturbance

3.4.6 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundaries. In the north and west of the survey area the survey detected a relatively noisy magnetic background which is characterised by widespread areas of magnetic enhancement. These are most probably caused by the spreading of green waste.

Conclusions

3.4.7 The survey has identified anomalies which reflect the agricultural landscape in the form of ploughing trends, as well as a discrete area of marl extraction which corresponds with the site of a former pond. A widespread area of magnetic enhancement is most probably caused by the spreading of 'green waste' that may mask other anomalies.

3.5 Land North of the A580 East Lancashire Road, Lowton - MA05_GP004

Site location

3.5.1 The survey area consisted of a single triangular-shaped arable field measuring 10.9ha. It was located immediately south-east of the village of Lowton St Mary's and centred on NGR 363157 397069. The site was bound to the south by the A580 East Lancashire Road, the north-west by the rear boundaries of residential properties on Maple and Beech Avenues and Lowton Junior and Infants School, and the east by the dismantled Wigan Branch Line of the Great Central Railway. The site was located on generally flat land at 31 mAOD. The underlying geology was mapped as sandstone overlain by surface deposits of glacial till. It is also located within the Kenyon House to Pocket Nook ASZ (MA05_AC01.008), as described above in relation to MA05_GP002.

Survey results

Archaeology definitive/probable

3.5.2 A clear, high magnitude circular anomaly (see Figures 18 and 19, MA05_GP004.009; MA05_0176) measuring 10m in diameter was identified in the east of the survey area. This was tentatively interpreted as a ring ditch (representing a former hut circle or burial mound) and within it are six small discrete anomalies also thought to be archaeological.

Extraction

3.5.3 Two areas of high magnetic disturbance located in the centre and east of the field correspond with former marl pits[16] (see Figure 19, anomalies MA05_GP004.001 and MA05_GP004.002) depicted on the 1849 Ordnance Survey map[13] later used as ponds. The disturbance was caused by the magnetic properties (brick, tile, iron etc.) of the material used to infill the former ponds.

Agricultural historic

3.5.4 Analysis of the 1849 Ordnance Survey map[13] shows several field boundaries. They have been since removed but still manifest as negative linear anomalies by the geophysical survey (see Figure 19, MA05_GP004.003 to MA05_GP004.008).

3.5.5 An area of extant ridge and furrow identified during the remote sensing analysis (MA05_RS009) was not detected by the geophysical survey.

Agricultural modern

3.5.6 Across the survey area linear anomalies, mostly parallel or at right angles to the former field boundaries, were identified. These anomalies predominantly reflect the alignment of recent ploughing. In the west of the survey area, a series of linear anomalies were interpreted as modern field drains.

Natural

3.5.7 Numerous low magnitude discrete anomalies are identified across the survey area. These are due to the variation in the depth and composition of the soils, and superficial deposits from which the soil was partly derived.

Ferrous

3.5.8 Ferrous anomalies, characterised as individual 'spikes', were identified across the survey area. These are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil.

Magnetic disturbance

3.5.9 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundaries.

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[16] Marl pits were an early method of agricultural improvement. They were dug in Cheshire from the medieval period onwards to extract marl, a calcareous soil, which was then spread on fields to improve soil fertility.

Conclusions

3.5.10 The survey has interpreted a series of highly magnetically elevated discrete anomalies contained within a ring-shaped anomaly (MA05_GP004.001; MA05_0176), thought to be of archaeological origin, in the eastern part of the survey area. Alongside this, anomalies which reflect the agricultural landscape in the form of drains, ploughing trends and former field boundaries have also been identified. Two discrete areas of magnetic disturbance have been identified which correspond with the sites of former ponds and most likely indicate the sites of marl pits.

3.6 Slag Lane to Byrom Hall - MA05_GP006

Survey location

3.6.1 The survey area consists of five arable fields measuring 6.7ha in total. These are located to the north-east of the town of Golborne and centred on NGR 362273 398765. The site was bound to the east by Slag Lane and Byron House, to the south by Lowton Riding Centre and to the north and west by extant field boundaries. It was located on generally flat land at 30 mAOD. The underlying geology was mapped as Chester Formation sandstone, overlain by surface deposits of glacial till.

3.6.2 The survey area was located adjacent to Byrom Hall land within the Lightshaw, Byrom and Mossley Halls ASZ (MA05_AC02.002). The ASZ is located to the south of the Hey Brook within MA05_HLCA05 and includes three medieval moated sites at Mossley Hall (MA05_0101), Byrom Hall (MA05_0057) and Lightshaw Hall (MA05_0045) and the surrounding agricultural landscape. The superficial geology of the area comprises deposits of glacial till and alluvium. The distribution of moated sites in the Greater Manchester region is south and west of the city centre. This reflects the waterlogged glacial tills and the expansion of settlement from the west that resulted in the clearance of woodland and heathland.

3.6.3 The site of Mossley Hall (MA05_0101) is no longer extant, with earthworks having been removed through a process of infilling and ploughing. The moat is still present at Byrom Hall, although the extant hall dates to the 17th century. Lightshaw Hall has 13th century origins and is noted on estate maps from 1587 and 1611. It is a timber-frame building with a two-storey extension to the east. The Hall was enclosed by ditches rather than a moat. Lowton Common at the southern end of the ASZ was the site of an English Civil War skirmish (MA05_0098). The remote sensing survey noted an enclosure that is potentially a further moated site (MA05_0162/MA05_RS017). However, this is now covered by Byrom Hall Wood (a community woodland on reclaimed spoil heaps).

Survey results

Extraction

3.6.4 Two areas of high magnetic disturbance located at the west of the survey area correspond with former marl pits[15] (see Figures 21 and 22, anomalies MA05_GP006.002 and MA05_GP006.003) depicted on the 1849 Ordnance Survey map[13] later used as ponds. The disturbance (brick, tile, iron etc.) was caused by the magnetic properties of the material used to infill the ponds.

Agricultural modern

3.6.5 At the southern end of the survey area, linear anomalies on mostly parallel or at right angles to the field boundaries, were identified. These anomalies predominantly reflect the alignment of recent ploughing. In the north and west of the survey area, a series of linear anomalies were identified. These were aligned parallel with, or at 45 degrees to the extant field boundaries and represent modern field drains. Drains tend to naturally follow the patterns of former extant ridge and furrow which has been identified as MA05_RS016 during the remote sensing analysis. However, no evidence of ridge and furrow has been identified by this survey.

Natural

3.6.6 Numerous low magnitude discrete anomalies are identified across the survey area. These are due to the variation in the depth and composition of the soils and superficial deposits from which the soil was partly derived.

Ferrous

3.6.7 Ferrous anomalies, characterised as individual ‘spikes’, are identified across the survey area. These are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil.

Magnetic disturbance

3.6.8 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundaries.

Modern service

3.6.9 A high magnitude linear anomaly, indicative of a service pipe, was identified entering the survey area from the east before turning in a northerly direction (see Figures 21 and 22, MA05_GP006.001).

Conclusions

3.6.10 The survey has identified a buried service pipe and anomalies which reflect the agricultural landscape in the form of ploughing trends and field drains. Two discrete areas of magnetic disturbance have been identified which correspond with the sites of former ponds and most likely indicate the sites of marl pits[15].

3.7 East of Balmer's Farm - MA05_GP008

Survey location

3.7.1 The survey area consisted of a single arable field measuring 1.6ha, located 1km to the north of the town of Golborne and centred on NGR 360809 399813. The site was bound to the west by the A573 Wigan Road, to the south and east by Windy Bank Brook and was undefined to the north. The site topography was relatively flat rising from 30 mAOD in the south of the site to 34 mAOD in the north of the survey area. The underlying geology was mapped as sandstone overlain by surface deposits of glacial till.

3.7.2 The survey area was located adjacent to Balmer's Farm and within the Balmer's Farm ASZ (MA05_AC02.004). The ASZ contains Balmer's Farm post-medieval farmstead with associated farmland. It is located between Hey Brook and the West Coast mainline (WCML). The geology of this area is a mixture of glacial till and alluvium which comprises poorly sorted sandy, silty clay. The farmstead is not noted on the HER. A building identified as 'Holt's Well Brow' was depicted on the 1849 Ordnance Survey map, within the northern tip of the area.

Survey results

Agricultural modern

3.7.3 At the east of the survey area parallel linear anomalies on a north to south alignment were identified. Similar anomalies occur in the centre of the field on a north-east to south-west alignment. These anomalies predominantly reflect the alignment of recent ploughing.

Natural

3.7.4 Numerous low magnitude discrete anomalies are identified across the survey area. These are due to the variation in the depth and composition of the soils and superficial deposits from which the soil was partly derived.

Ferrous

3.7.5 Ferrous anomalies, characterised as individual 'spikes', are identified across the survey area.

Magnetic disturbance

3.7.6 The disturbance caused by two high magnitude linear anomalies, indicative of service pipes (detailed below), masks the location of the now demolished properties of Holt's Well Brow.

3.7.7 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundaries.

Modern service

3.7.8 Two high magnitude linear anomalies, indicative of service pipes, were identified. One was located at the west of the site and was aligned north to south parallel with the A573 Wigan Road and the second was aligned east to west across the north of the survey area (see Figures 24 and 25, MA05_GP008.001 and MA05_GP008.002).

Conclusions

3.7.9 The survey has identified buried service pipes and anomalies which reflect the agricultural landscape in the form of ploughing trends.

3.8 North of Balmer's Farm - MA05_GP009

Survey location

3.8.1 The survey area consisted of three arable fields measuring 2.9ha in total, located to the north of the town of Golborne and centred on NGR 360675 399929. The survey area was bounded to the east by A573 Wigan Road, to the south by Balmer's Farm and to the north by Nan Holes Brook and agricultural fields to the west. It was located on sloping land rising from 24 mAOD at the north to 36 mAOD in the south. The underlying geology was mapped as the Manchester Marls and Kinnerton Sandstone Formations, overlain by surface deposits of glacial till. It is also located within the Balmer's Farm ASZ (MA05_AC02.004), as described above in relation to MA05_GP008.

Survey results

Agricultural historic

3.8.2 The 1849 Ordnance Survey map[13] shows several field boundaries. They have been since removed but still manifest as negative linear anomalies by the geophysical survey (see Figures 24 to 28, MA05_GP009.002 to MA05_GP009.004).

3.8.3 Levelled ridge and furrow identified during remote sensing analysis were not identified during the geophysical survey.

Agricultural modern

3.8.4 Throughout the survey area, parallel linear trend anomalies on broadly north to south alignments were identified. These anomalies predominantly reflect the alignment of recent ploughing. These tend to follow the pattern of former ploughing trends.

Natural

3.8.5 Numerous low magnitude discrete anomalies are identified across the survey area. These are due to the variation in the depth and composition of the soils and superficial deposits from which the soil was partly derived.

Ferrous

3.8.6 Ferrous anomalies, characterised as individual spikes, are identified across the survey area.

Magnetic disturbance

3.8.7 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundaries.

Modern service

3.8.8 A high magnitude linear anomaly, indicative of a service pipe, has been identified aligned east to west across the survey area (see Figures 24 and 25, MA05_GP009.001).

Conclusions

3.8.9 The survey has identified a buried service pipe and anomalies which reflect the agricultural landscape in the form of ploughing trends and former field boundaries.

3.9 Aye Bridge Farm to Coffin Lane Brook - MA05_GP010

Survey location

3.9.1 The survey area consists of seven fields under both pasture and arable use and measuring 20.2ha in total. It was located to the north of the town of Golborne and centred on NGR 360368 400466. The site surrounds Aye Bridge Farm and was bound to the west by the West Coast Mainline (WCML), to the south by Nan Holes Brook, to the north by Coffin Lane Brook and the east by extant field boundaries. It was located on sloping land rising from 22 mAOD at the north-east to 36 mAOD in the south. The underlying geology was mapped as sandstone overlain by superficial deposits of glacial till.

3.9.2 The survey area was located adjacent to Aye Bridge Farm and was within the Aye Bridge Farm to Bamfurlong Moated site ASZ (MA05_AC02.005). The ASZ contains the post-medieval farmstead of Aye Bridge Farm (MA05_0092) and Barn (MA05_0093), with associated agricultural land located between the WCML and Hey Brook. The superficial geology of this area is a mixture of glacial till and alluvium which comprises poorly sorted sandy, silty clay. The site of Bamfurlong Hall (MA05_0094) is noted in 14th century, though it was likely altered or rebuilt in the 16th century. This timber-framed building was demolished by 1959. Part of the moated site is now within an agricultural field and has been ploughed out. Some earthwork remains of a moat may still survive within a wooded area to the north-east.

Survey results

Archaeology possible

3.9.3 A series of high magnitude linear anomalies (see Figures 24 to 28, MA05_GP010.008 to MA05_GP010.012) were identified in the south-west of the survey area. These anomalies were interpreted to be of possible archaeological origin due to their highly magnetic response and to the fact they do not appear on early mapping of the area, although they may represent former field boundaries removed before the earliest available mapping of the area was produced.

Extraction

3.9.4 Three areas of high magnetic disturbance located at the south of the survey area close to Aye Bridge Farm correspond with former marl pits (see Footnote 15) (see Figures 24 to 28, anomalies MA05_GP010.001 to MA05_GP010.003) depicted on the 1849 Ordnance Survey map[13] later used as a ponds. The disturbance was caused by the magnetic properties (brick, tile, iron etc.) of the material used to infill the former ponds.

Agricultural historic

3.9.5 Analysis of the 1849 Ordnance Survey map[13] shows several field boundaries. They have been since removed but still manifest as negative anomalies by the geophysical survey (see Figures 27 and 28, MA05_GP010.004 to MA05_GP010.007). A group of anomalies in the eastern part of the field, are likely to be levelled ridge and furrow (MA05_RS023) also identified during remote sensing analysis.

Agricultural modern

3.9.6 In the south of the survey area, parallel linear anomalies on a broadly north-west to south-east alignments are present. These anomalies predominantly reflect the alignment of recent ploughing.

3.9.7 In the north of the survey area, a more dispersed series of parallel linear anomalies on a broadly north to south alignment are aligned parallel with former field boundaries. These anomalies also reflect the alignment of recent ploughing activity.

Natural

3.9.8 Numerous low magnitude discrete anomalies are identified across the survey area. These are likely due to the variation in the depth and composition of the soils and superficial deposits from which the soil is partly derived.

Ferrous

3.9.9 Ferrous anomalies, characterised as individual spikes, are identified across the survey area.

Magnetic disturbance

3.9.10 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundaries.

Conclusions

3.9.11 The survey has interpreted a series of highly magnetically elevated linear anomalies in the south-west of the survey area as possibly being of archaeological origin. They relate to a group of field boundaries of unknown date. Alongside this, anomalies which reflect the agricultural landscape in the form of ploughing trends and former field boundaries have also been identified. Three discrete areas of magnetic disturbance have been identified which correspond with the sites of former ponds and most likely indicate the sites of marl pits.

3.10 Geophysical survey conclusions

3.10.1 The above geophysical surveys have provided an overview of the archaeological character of the Risley to Bamfurlong area. The ground conditions and overall data quality was good throughout. The survey areas were dominated by former field boundaries depicted on 19th century mapping and ponds used as marl pits and quarries, a common agricultural phenomenon across Cheshire and Greater Manchester. Modern features include buried services, ferrous debris and a large area of magnetic disturbance caused by manure spreading. The archaeological evidence provided by the geophysical survey, for the study area, reflects the general archaeological pattern identified by the local HER. The majority of evidence identified by geophysical survey, relates to late post-medieval and modern land division, activity and mineral extraction.

3.10.2 The surveys have detected possible archaeological features within the Land North of the A580 East Lancashire Road, Lowton (MA05_GP004), Wigshaw to Little Covert (MA05_GP002), and Aye Bridge Farm to Coffin Lane Brook (MA05_GP0010):

- nine irregular anomalies (MA05_GP002.015; MA05_0166) could be of possible archaeological origin in survey location MA05_GP002, although it was impossible to discern their function;
- a circular shaped anomaly was identified within survey area MA05_GP004 (MA05_GP004.009; MA05_0176) containing six smaller anomalies. This was interpreted as a possible pre-medieval ring ditch; and
- a series of highly magnetically elevated linear anomalies in the south-west of survey location MA05_GP010 (MA05_0164) as possibly being of archaeological origin. They do not appear on early mapping of the area, although they may represent former field boundaries removed before the earliest available mapping of the area was produced.

4 Gazetteer of identified features in MA05

4.1.1 Table 1 provides a summary of the features identified during the field surveys described above.

Table 1: Gazetteer of identified features in MA05

Reference	Asset UID	Anomaly category	Feature type	Period	Comment	Figure	NGR
MA05_GP001.001		Modern service		Modern	Linear anomaly interpreted as a service pipe.	Figures 3 and 4	367038 393976
MA05_GP001.002		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 3 and 4	366912 394092
MA05_GP001.003		Agricultural historic	Trackway	Post-medieval	A pair of linear anomalies along the northern boundary of the field following the current alignment. Possibly a former trackway.	Figures 3 and 4	366974 393916
MA05_GP001.004		Agricultural historic	Trackway	Post-medieval	A pair of linear anomalies along the southern boundary of the field following the current alignment. Possibly a former trackway.	Figures 3 and 4	366808 394305
MA05_GP002.001		Modern service		Modern	Linear anomaly interpreted as a service pipe.	Figures 6 and 7	364379 394951 364385 395031
MA05_GP002.002		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 6 and 7	364505 394837
MA05_GP002.003		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 6 and 7	364535 394919
MA05_GP002.004		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 6 and 7	364471 394969

Reference	Asset UID	Anomaly category	Feature type	Period	Comment	Figure	NGR
MA05_GP002.005		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 6 and 7	364411 395025
MA05_GP002.006		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 6 and 7	364331 395047
MA05_GP002.007		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 6, 7, 9 and 10	364273 395167
MA05_GP002.008		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 6, 7, 9 and 10	364216 395170
MA05_GP002.009		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 9 and 10	363957 395452
MA05_GP002.010		Agricultural historic	Field boundary	Post-medieval	Former field boundary shown to have been removed on 1849 Ordnance Survey map.	Figures 9 and 10	363961 395490
MA05_GP002.011		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 9 and 10	363844 395689 363818 395662
MA05_GP002.012		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 9, 10, 12 and 13	363640 396027 363692 395818
MA05_GP002.013		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 9, 10, 12 and 13	363711 395982
MA05_GP002.014		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 12 and 13	363693 396049 363660 396026
MA05_GP002.015	MA05_0166	Archaeology possible		Undated	Nine high magnitude irregularly shaped anomalies identified. Due to distinct magnetic signal are of possible archaeological origin, interpretation and date unknown.	Figures 6 and 7	364442 395013

Reference	Asset UID	Anomaly category	Feature type	Period	Comment	Figure	NGR
MA05_GP003.001		Extraction	Marl pit	Post-medieval	Highly magnetic material within a former pond, shown on 1849 Ordnance Survey map. Former marl pit.	Figures 12, 13, 15 and 16	363528 396449
MA05_GP004.001		Extraction	Quarry	Post-medieval	Quarry, later, used as a pond, as shown on the 1849 Ordnance Survey map. Disturbance likely caused by magnetic objects within backfill.	Figures 18 and 19	363071 397009
MA05_GP004.002		Extraction	Marl pit	Post-medieval	Highly magnetic material within a former pond, shown on 1849 Ordnance Survey map. Former marl pit.	Figures 18 and 19	363286 397068
MA05_GP004.003		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 18 and 19	362971 397009
MA05_GP004.004		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 18 and 19	363217 397037
MA05_GP004.005		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 18 and 19	363282 397012
MA05_GP004.006		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 18 and 19	363174 397112
MA05_GP004.007		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 18 and 19	363273 397102
MA05_GP004.008		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 18 and 19	363245 397198
MA05_GP004.009	MA05_0176	Archaeology definitive/ probable	Ring ditch	Prehistoric	Circular-shaped ring ditch, measuring 10m in diameter, with six small discrete anomalies within.	Figures 18 and 19	363301 397091
MA05_GP006.001		Modern service		Modern	High magnitude linear anomaly, indicative of a service pipe.	Figures 21 and 22	360761 399852 362271 398685

Reference	Asset UID	Anomaly category	Feature type	Period	Comment	Figure	NGR
MA05_GP006.002		Extraction	Marl pit	Post-medieval	Highly magnetic material within a former pond, shown on 1839 Ordnance Survey map. Former marl pit.	Figures 21 and 22	361971 398717
MA05_GP006.003		Extraction	Marl pit	Post-medieval	Highly magnetic material within a former pond, shown on 1839 Ordnance Survey map. Former marl pit.	Figures 21 and 22	362024 398744
MA05_GP008.001		Modern service		Modern	High magnitude linear anomaly, indicative of a service pipe.	Figures 24 and 25	360761 399852
MA05_GP008.002		Modern service		Modern	High magnitude linear anomaly, indicative of a service pipe.	Figures 24 and 25	360769 3 99891
MA05_GP009.001		Modern service		Modern	High magnitude linear anomaly, indicative of a service pipe.	Figures 24 and 25	360655 399889 360712 399890
MA05_GP009.002		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 24, 25, 27 and 28	360608 399979 360633 399921
MA05_GP009.003		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 24, 25, 27 and 28	360714 399979
MA05_GP009.004		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 24, 25, 27 and 28	360761 400011
MA05_GP010.001		Extraction	Quarry	Post-medieval	Quarry, later used as a pond, as shown on the 1849 Ordnance Survey map. Disturbance likely caused by magnetic objects within backfill.	Figures 24, 25, 27 and 28	360647 400192
MA05_GP010.002		Extraction	Quarry	Post-medieval	Quarry, later used as a pond, as shown on the 1849 Ordnance Survey map. Disturbance likely caused by magnetic objects within backfill.	Figures 24, 25, 27 and 28	360597 400149
MA05_GP010.003		Extraction	Quarry	Post-medieval	Quarry, later used as a pond, as shown on the 1849 Ordnance Survey map.	Figures 24, 25, 27 and 28	360472 400231

Reference	Asset UID	Anomaly category	Feature type	Period	Comment	Figure	NGR
					Disturbance likely caused by magnetic objects within backfill.		
MA05_GP010.004		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 24, 25, 27 and 28	360457 400136
MA05_GP010.005		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 27 and 28	360446 400314
MA05_GP010.006		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 30 and 31	360326 400830 360326 400713
MA05_GP010.007		Agricultural historic	Field boundary	Post-medieval	A former field boundary depicted on the on 1849 Ordnance Survey map.	Figures 30 and 31	360259 400760 360343 400768
MA05_GP010.008	MA05_0164	Archaeology possible		Undated	Anomaly of possible archaeological origin due to highly magnetic response. May represent former field boundary removed before the earliest available mapping of the area was produced.	Figures 24, 25, 27 and 28	360412 400094
MA05_GP010.009	MA05_0164	Archaeology possible		Undated	Anomaly of possible archaeological origin due to highly magnetic response. May represent former field boundary removed before the earliest available mapping of the area was produced.	Figures 24, 25, 27 and 28	360403 400004
MA05_GP010.010	MA05_0164	Archaeology possible		Undated	Anomaly of possible archaeological origin due to highly magnetic response. May represent former field boundary removed before the earliest available mapping of the area was produced.	Figures 24, 25, 27 and 28	360379 400159
MA05_GP010.011	MA05_0164	Archaeology possible		Undated	Anomaly of possible archaeological origin due to highly magnetic response. May represent former field boundary	Figures 27 and 28	360411 400243

Reference	Asset UID	Anomaly category	Feature type	Period	Comment	Figure	NGR
					removed before the earliest available mapping of the area was produced.		
MA05_GP010.012	MA05_0164	Archaeology possible		Undated	Anomaly of possible archaeological origin due to highly magnetic response. May represent former field boundary removed before the earliest available mapping of the area was produced.	Figures 27, 28, 30 and 31	360391 400301

5 List of acronyms

5.1.1 The following acronyms in Table 2 have been used in this report.

Table 2: List of acronyms

Acronym	Meaning
ACA	Archaeological Character Areas
mAOD	metres above Ordnance Datum
ASZ	Archaeological Sub-zones
BID	Background Information and Data
CIfA	Chartered Institute for Archaeologists
EAC	Europae Archaeologogiae Consilium
GWSI	Generic Written Scheme of Investigation
HER	historic environment record
HLC/ HLCA	historic landscape character/ Historic Landscape Character Areas
LiDAR	Light Detection and Ranging
NGR	National Grid Reference
ROF	Royal Ordnance Factory
UID	Unique gazetteer identifier
WCML	West Coast Main Line

6 References

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Ordnance Survey (1849), *Lancashire County Series, Map Sheet CII*, 2nd edition, Scale: 1:10,560.

WORK IN PROGRESS

RISLEY TO BAMFURLONG

BROOMEDGE TO GLAZEBROOK

HE-004_MA05_Figure31
HE-004_MA05_Figure28
HE-004_MA05_Figure25
HE-004_MA05_Figure22
HE-004_MA05_Figure19
HE-004_MA05_Figure16
HE-004_MA05_Figure13
HE-004_MA05_Figure10
HE-004_MA05_Figure7
HE-004_MA05_Figure4

Connection To WCML
A573 Wigan Road Viaducts
Slag Lane Viaduct
Culcheth North (Railway) Viaduct
M62 West Viaduct

WIGAN
INCE-IN-MAKERFIELD
HINDLEY
ATHERTON
KEARSLEY
WALKDEN
TYLDSLEY
WORSLEY
WIGAN METROPOLITAN BOROUGH
LEIGH
GREATER MANCHESTER
SALFORD CITY
URMSTON
IRLAM
Partington
TRAFFORD METROPOLITAN BOROUGH
Little Bollington
LYMM
WARRINGTON BOROUGH
WARRINGTON
Great Sankey
Padgate
Birchwood
CHESHIRE
Burtonwood
St Helens Junction
Collins Green
Croft
Winwick
NEWTON LE WILLOWS
Earlestown
Newton-le-Willows
HAYDOCK
ST. HELENS METROPOLITAN BOROUGH
MERSEYSIDE
Lowton
Glazebury
Culcheth
Platt Bridge
Abram
Bickershaw
Garswood
ASHTON-IN-MAKERFIELD
Bryn
Pemberton
Ince
Hindley
Daisy Hill
Over Hulton
Hag Fold
Atherton
Kearsley
Walkden
Modeside
Patricroft
Irlam
Glazebrook
Flixton
Chassen Road
Urmston
Sankey for Penketh
Warrington Bank Quay
Warrington Central

Map Series Information:

These maps show the results of the geophysical surveys in relation to the land required for the construction of the Proposed Scheme.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets not included in this community area
- Survey areas

Map Number: HE-004_MA05_Figure1

Map Name: Geophysical Survey Index map

Community Area MA05: Risley to Bamfurlong

HS2

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

Scale at A3: 1:75,000

0 750 1,500 2,250 3,000 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002480-P01

Date: 22/06/21

WORK IN PROGRESS

WARRINGTON

291+000

MA05_GP001

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number: HE-004_MA05_Figure2

Map Name: Site MA05_GP001 Unprocessed Greyscale

Community Area MA05: Risley to Bamfurlong

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

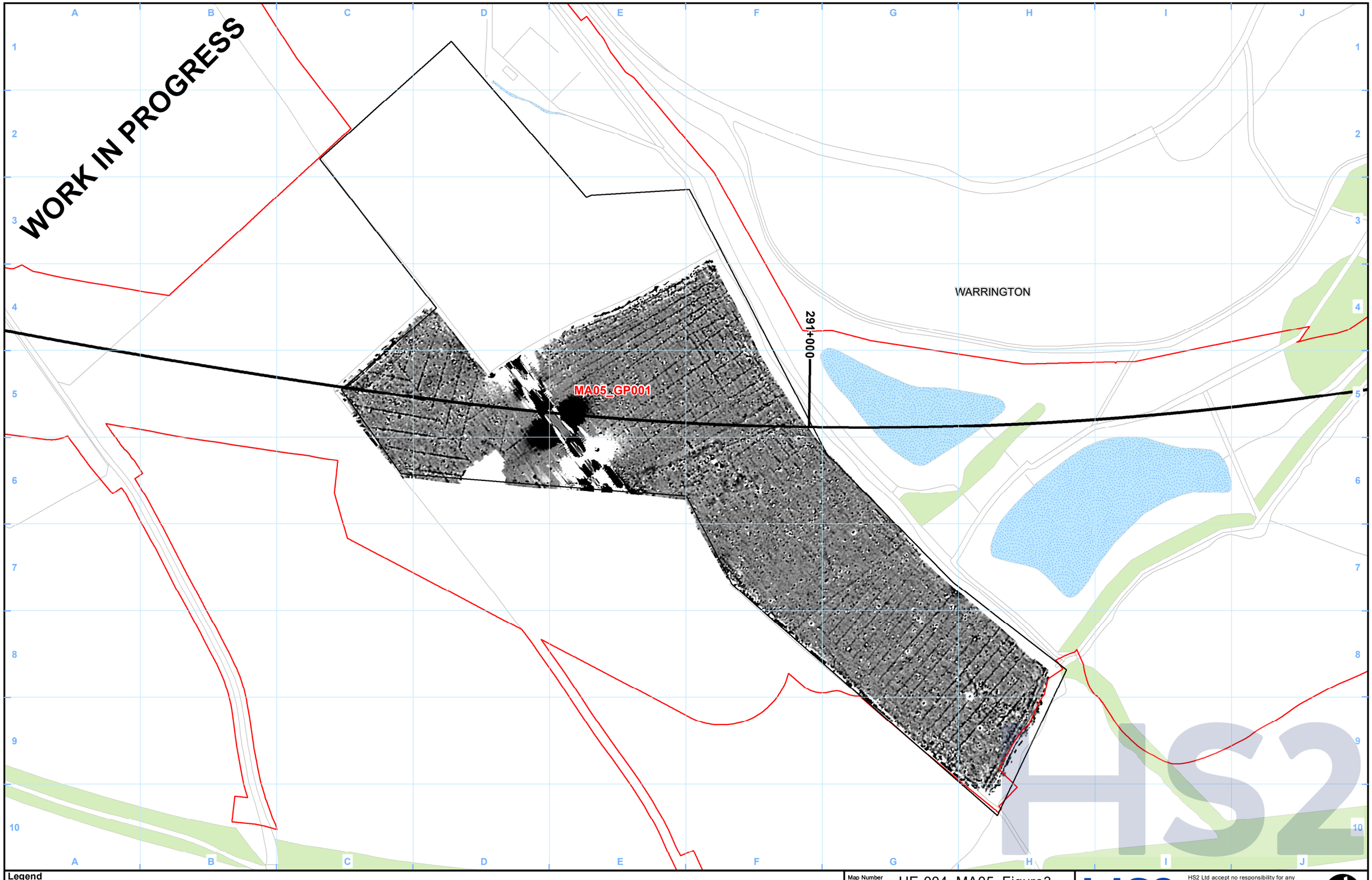
Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002481-P01

Date: 22/06/21

WORK IN PROGRESS



Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number	HE-004_MA05_Figure3
Map Name	Site MA05_GP001 Greyscale
	Community Area MA05: Risley to Bamfurlong

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0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002482-P01

Date: 22/06/21

WORK IN PROGRESS

MA05_GP001.003

MA05_GP001.001

MA05_GP001

MA05_GP001.002

MA05_GP001.004

291+000

WARRINGTON

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure4

Map Name: Site MA05_GP001 Interpretation

Community Area MA05: Risley to Bamfurlong

HS2

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Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002483-P01

Date: 22/06/21

WORK IN PROGRESS

Blakeley Farm

WIGSHAW LANE

WIGSHAW LANE

WIGSHAW LANE

294+000

MA05_GP002

WARRINGTON

ROBINS LANE

WIGSHAW LANE

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number	HE-004_MA05_Figure5
Map Name	Site MA05_GP002 Unprocessed Greyscale
	Community Area MA05: Risley to Bamfurlong

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Doc Number: 2DE01-MWJ-EV-MAP-M000-002484-P01

Date: 22/06/21

WORK IN PROGRESS

Blakeley Farm

WIGSHAW LANE

WIGSHAW LANE

WIGSHAW LANE

294+000

MA05_GP002

WARRINGTON

ROBINS LANE

WIGSHAW LANE

HS2

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number: HE-004_MA05_Figure6

Map Name: Site MA05_GP002 Greyscale

Community Area MA05: Risley to Bamfurlong

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Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002485-P01

Date: 22/06/21

WORK IN PROGRESS

Blakeley Farm

WIGSHAW LANE

294+000

MA05_GP002.001

MA05_GP002.002

MA05_GP002.008

MA05_GP002.006

MA05_GP002.007

MA05_GP002

MA05_GP002.005

MA05_GP002.004

MA05_GP002.015

MA05_GP002.003

WARRINGTON

ROBINS LANE

WIGSHAW LANE

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure7

Map Name: Site MA05_GP002 Interpretation

Community Area MA05: Risley to Bamfurlong

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

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002486-P01

Date: 22/06/21

WORK IN PROGRESS

WARRINGTON

MA05_GP002

294+000

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number: HE-004_MA05_Figure8

Map Name: Site MA05_GP002 Unprocessed Greyscale

Community Area MA05: Risley to Bamfurlong

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

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002487-P01

Date: 22/06/21

WORK IN PROGRESS

WARRINGTON

MA05_GP002

294+000

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number: HE-004_MA05_Figure9

Map Name: Site MA05_GP002 Greyscale

Community Area MA05: Risley to Bamfurlong

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

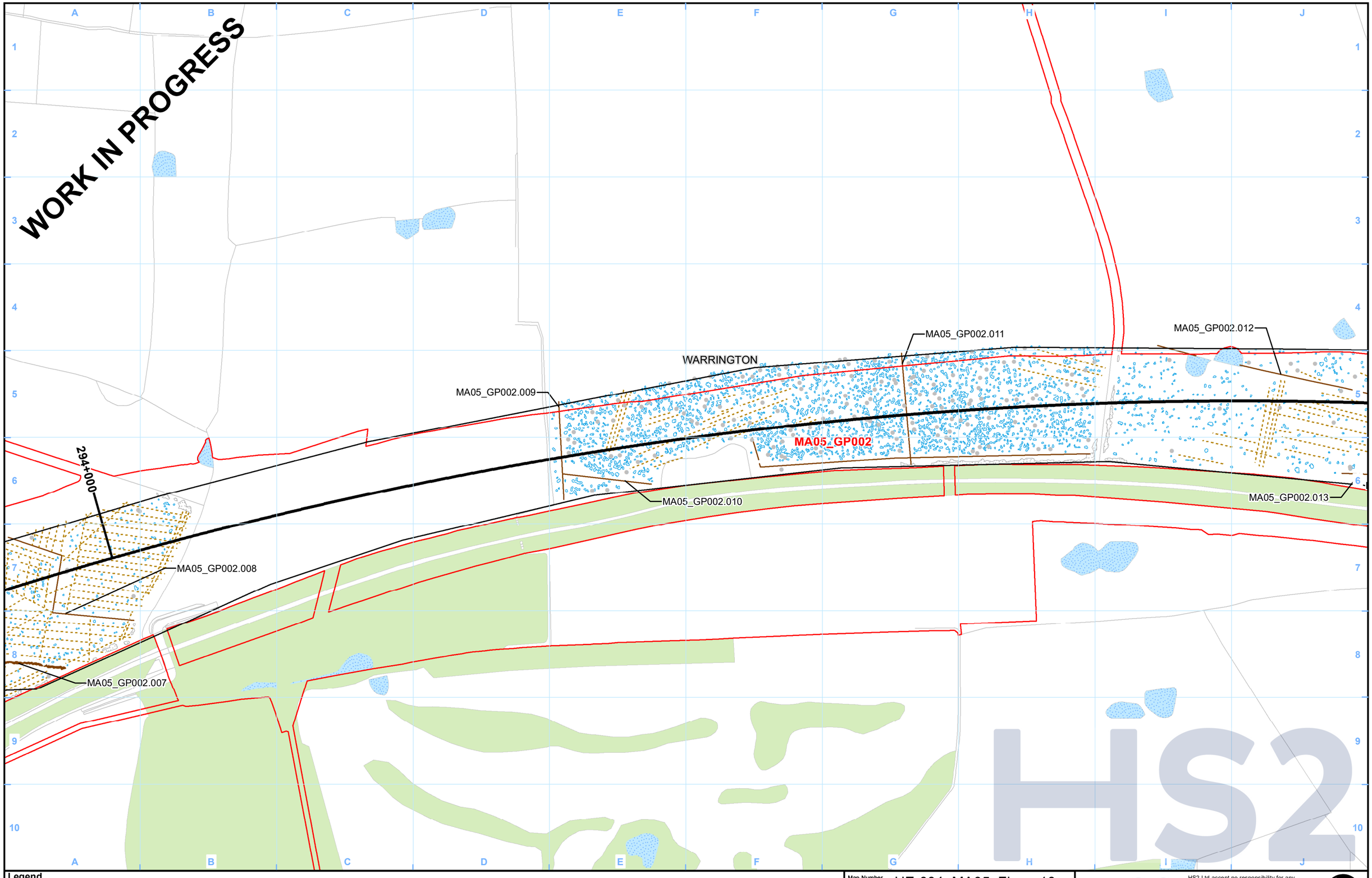
Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002488-P01

Date: 22/06/21

WORK IN PROGRESS



Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure10

Map Name: Site MA05_GP002 Interpretation

Community Area MA05: Risley to Bamfurlong

Registered in England. Registration number 06791686.
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Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002489-P01

Date: 22/06/21

WORK IN PROGRESS

295+000

MA05_GP002

MA05_GP003

WARRINGTON

WIGAN DISTRICT

WILTON LANE

WILTON LANE

WILTON LANE

Birchall's Farm

HS2

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number: HE-004_MA05_Figure11

Map Name: Site MA05_GP002 Unprocessed Greyscale

Community Area MA05: Risley to Bamfurlong

HS2

Registered in England. Registration number 06791686.
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Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002490-P01

Date: 22/06/21

WORK IN PROGRESS

295+000

MA05_GP002

MA05_GP003

WARRINGTON

WIGAN DISTRICT

WILTON LANE

WILTON LANE

WILTON LANE

Birchall's Farm

HS2

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number HE-004_MA05_Figure12

Map Name

Site MA05_GP002
Greyscale

Community Area MA05:
Risley to Bamfurlong

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

Scale at A3: 1:2,500

0 25 50 75 100
Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002491-P01

Date: 22/06/21

WORK IN PROGRESS

295+000

MA05_GP002.012

MA05_GP002

MA05_GP002.014

MA05_GP002.013

WARRINGTON

WILTON LANE

WIGAN DISTRICT

MA05_GP003

Birchall's Farm

MA05_GP003.001

WILTON LANE

WILTON LANE

HS2

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure13

Map Name: Site MA05_GP002 Interpretation

Community Area MA05: Risley to Bamfurlong

HS2

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0 25 50 75 100 Metres

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Date: 22/06/21

WORK IN PROGRESS

KENYON LANE

WARRINGTON

WILTON LANE

WIGAN DISTRICT

MA05_GP002

MA05_GP003

Birchall's Farm

WILTON LANE

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number: HE-004_MA05_Figure14

Map Name: Site MA05_GP003 Unprocessed Greyscale

Community Area MA05: Risley to Bamfurlong

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

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002493-P01

Date: 22/06/21

WORK IN PROGRESS

KENYON LANE

WARRINGTON

WILTON LANE

WIGAN
DISTRICT

MA05_GP002

MA05_GP003

Birchall's
Farm

WILTON LANE

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number	HE-004_MA05_Figure15
Map Name	Site MA05_GP003 Greyscale
	Community Area MA05: Risley to Bamfurlong

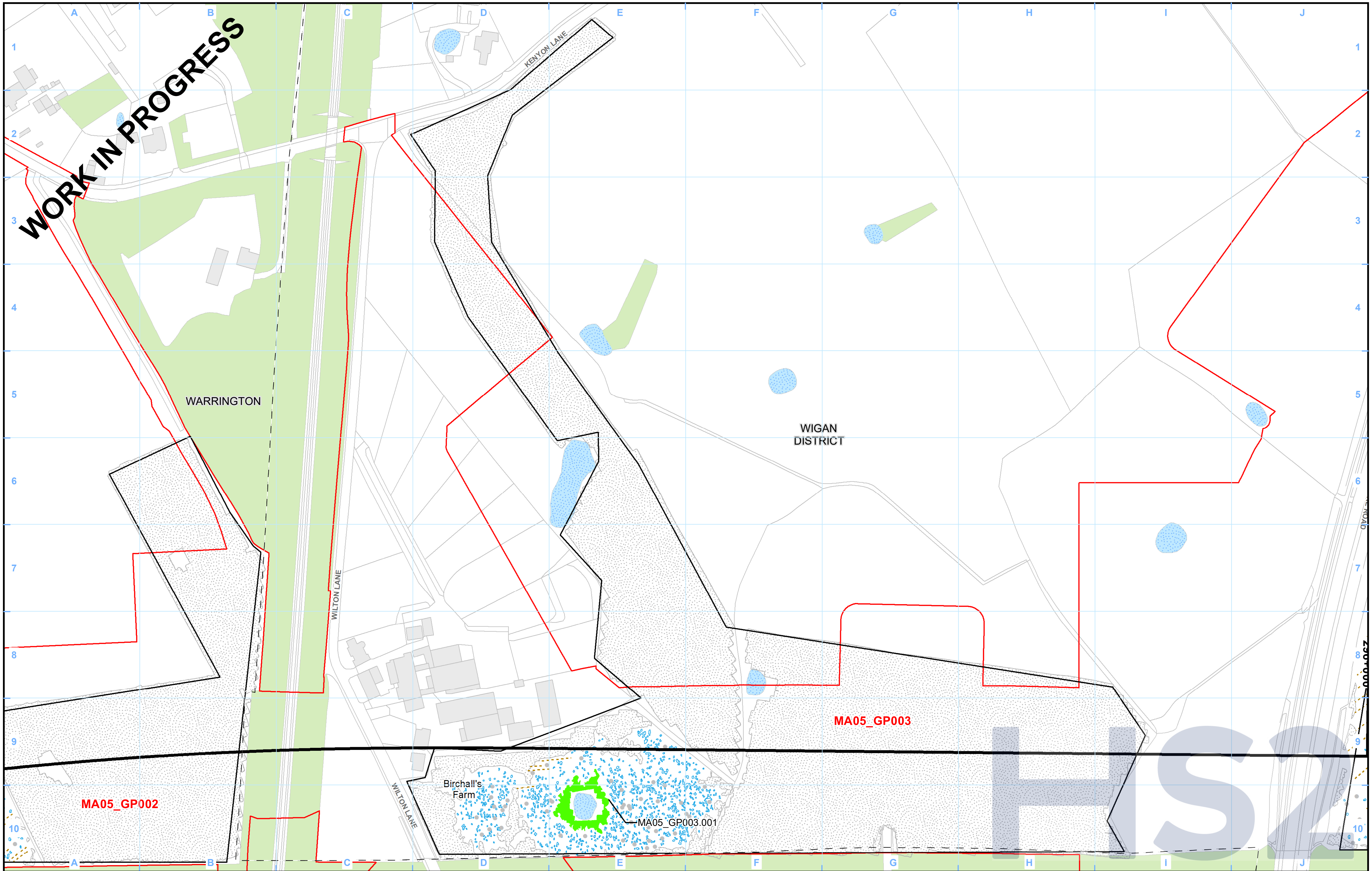
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002494-P01

Date: 22/06/21



Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure16

Map Name: Site MA05_GP003 Interpretation

Community Area MA05: Risley to Bamfurlong

Scale at A3: 1:2,500

0 25 50 75 100 Metres

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Date: 22/06/21

WORK IN PROGRESS

MA05_GP003

MA05_GP004

296+000

ROWAN AVENUE

KINGS AVENUE

BEECH AVENUE

CEDAR AVENUE

EAST LANCASHIRE RD

Carr Brook

THE ELMS

NEWTON ROAD

ENTERPRISE WAY

HESKET

Lowton
St Mary's

WIGAN
DISTRICT

WARRINGTON

EAST

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number	HE-004_MA05_Figure17
Map Name	Site MA05_GP004 Unprocessed Greyscale
	Community Area MA05: Risley to Bamfurlong

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Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002496-P01

Date: 22/06/21

WORK IN PROGRESS

MA05_GP003

MA05_GP004

296+000

EAST LANCASHIRE RD

Carr Brook

ROWAN AVENUE

KINGS AVENUE

BEECH AVENUE

CEDAR AVENUE

Lowton
St Mary's

WIGAN
DISTRICT

THE ELMS

NEWTON ROAD

ENTERPRISE WAY

HESKET

WARRINGTON

EAST

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number	HE-004_MA05_Figure18
Map Name	Site MA05_GP004 Greyscale
	Community Area MA05: Risley to Bamfurlong

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0 25 50 75 100
Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002497-P01

Date: 22/06/21

WORK IN PROGRESS

MA05_GP004.003

MA05_GP004.001

MA05_GP004

MA05_GP003

MA05_GP004.006

MA05_GP004.004

MA05_GP004.005

MA05_GP004.007

MA05_GP004.002

MA05_GP004.009

MA05_GP004.008

296+000

ROWAN AVENUE

KINGS AVENUE

BEECH AVENUE

CEDAR AVENUE

EAST LANCASHIRE ROAD

Carr Brook

THE ELMS

NEWTON ROAD

ENTERPRISE WAY

Lowton
St Mary's

WIGAN
DISTRICT

WARRINGTON

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure19

Map Name: Site MA05_GP004 Interpretation

Community Area MA05:
Risley to Bamfurlong

HS2

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Scale at A3: 1:2,500

0 25 50 75 100
Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002498-P01

Date: 22/06/21

WORK IN PROGRESS

GARTON COMMON

SLAG LANE

WIGAN DISTRICT

298+000

MA05_GP006

Laburnum Farm

SLAG LANE

Little Bryan Hall Farm

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number	HE-004_MA05_Figure20
Map Name	Site MA05_GP006 Unprocessed Greyscale
	Community Area MA05: Risley to Bamfurlong

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Date: 22/06/21

WORK IN PROGRESS

SLAG LANE

GARTON COMMON

WIGAN DISTRICT

298+000

MA05_GP006

Laburnum Farm

SLAG LANE

Little Bryan Hall Farm

HS2

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number HE-004_MA05_Figure21

Map Name

Site MA05_GP006
Greyscale

Community Area MA05:
Risley to Bamfurlong

HS2

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Birmingham B4 6GA.

Scale at A3: 1:2,500

0 25 50 75 100
Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002500-P01

Date: 22/06/21

WORK IN PROGRESS

SLAG LANE

GARTON COMMON

WIGAN DISTRICT

298+000

MA05_GP006.001

MA05_GP006.002

MA05_GP006.003

MA05_GP006

Laburnum Farm

Little Bryan Hall Farm

SLAG LANE

HS2

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure22

Map Name: Site MA05_GP006 Interpretation

Community Area MA05: Risley to Bamfurlong

HS2

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

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002501-P01

Date: 22/06/21

WORK IN PROGRESS

WIGAN ROAD

Windy Bank Farm

WIGAN DISTRICT

Windy Bank Brook

Balmer's Farm

300x000

LIGHTSHAW LANE

WIGAN ROAD

MA05_GP009

MA05_GP008

WIGAN ROAD

MA05_GP010

Nan Hole's Brook

Windy Bank Brook

HS2

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number: HE-004_MA05_Figure23

Map Name: Site MA05_GP008/MA05_GP009 Unprocessed Greyscale

Community Area MA05: Risley to Bamfurlong

HS2

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

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002502-P01

Date: 22/06/21

WORK IN PROGRESS

WIGAN DISTRICT

WIGAN ROAD

Windy Bank Farm

Windy Bank Brook

Balmer's Farm

300+000

LIGHTSHAW LANE

MA05_GP008

MA05_GP009

MA05_GP010

Nan Hole's Brook

Windy Bank Brook

HS2

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number: HE-004_MA05_Figure24

Map Name: Site MA05_GP008/MA05_GP009 Greyscale

Community Area MA05: Risley to Bamfurlong

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

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002503-P01

Date: 22/06/21

WORK IN PROGRESS

WIGAN DISTRICT

WIGAN ROAD

Windy Bank Farm

Balmer's Farm

LIGHTSHAW LANE

Windy Bank Brook

300+000

MA05_GP008

MA05_GP008.001

MA05_GP008.002

MA05_GP009

MA05_GP009.001

MA05_GP009.002

MA05_GP009.003

MA05_GP009.004

MA05_GP010

MA05_GP010.001

MA05_GP010.002

MA05_GP010.003

MA05_GP010.004

MA05_GP010.008

MA05_GP010.009

Nan Hole's Brook

HS2

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure25

Map Name: Site MA05_GP008/MA05_GP009 Interpretation

Community Area MA05: Risley to Bamfurlong

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Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002504-P01

Date: 22/06/21

WORK IN PROGRESS

MA05_GP009

MA05_GP010

Nan Holes Brook

Nan Holes Brook

WIGAN ROAD

WIGAN DISTRICT

301+000

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number: HE-004_MA05_Figure26

Map Name: Site MA05_GP010 Unprocessed Greyscale

Community Area MA05: Risley to Bamfurlong

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

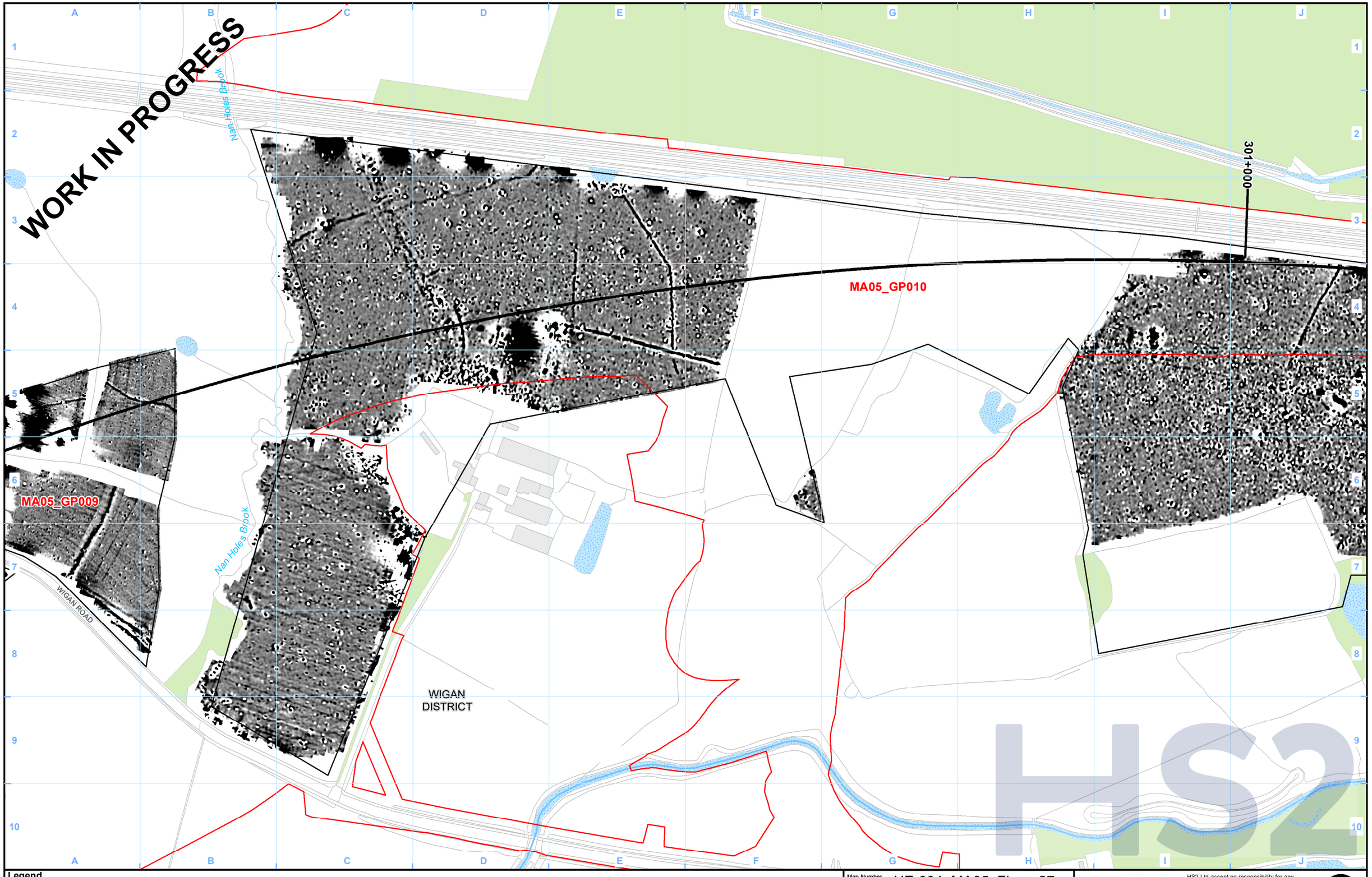
Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002508-P01

Date: 22/06/21

WORK IN PROGRESS



Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number	HE-004_MA05_Figure27
Map Name	Site MA05_GP010 Greyscale
	Community Area MA05: Risley to Bamfurlong

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

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002509-P01

Date: 22/06/21

WORK IN PROGRESS

MA05_GP010.009
MA05_GP010.010
MA05_GP010.008
MA05_GP010.011
MA05_GP010.004
MA05_GP010.012
MA05_GP010.005
MA05_GP010.003
MA05_GP010.002
MA05_GP010.001
MA05_GP009.002
MA05_GP009.003
MA05_GP009.004
MA05_GP009
MA05_GP010
301+000
Nan Holes Brook
WIGAN ROAD
WIGAN DISTRICT

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure28

Map Name: Site MA05_GP010 Interpretation

Community Area MA05: Risley to Bamfurlong

HS2

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

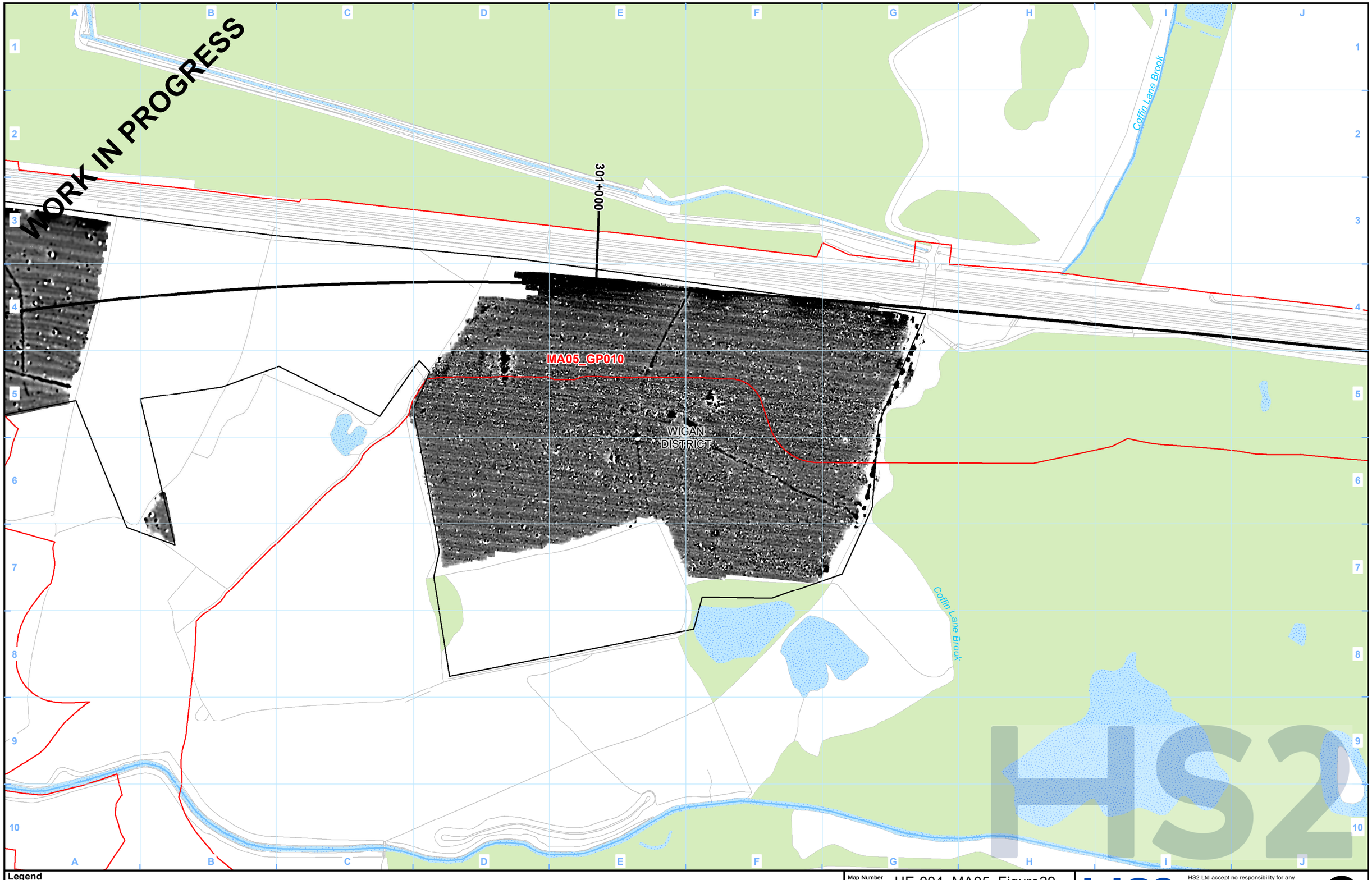
Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002510-P01

Date: 22/06/21

WORK IN PROGRESS



Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number HE-004_MA05_Figure29

Map Name

Site MA05_GP010
Unprocessed Greyscale

Community Area MA05:
Risley to Bamfurlong

HS2

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

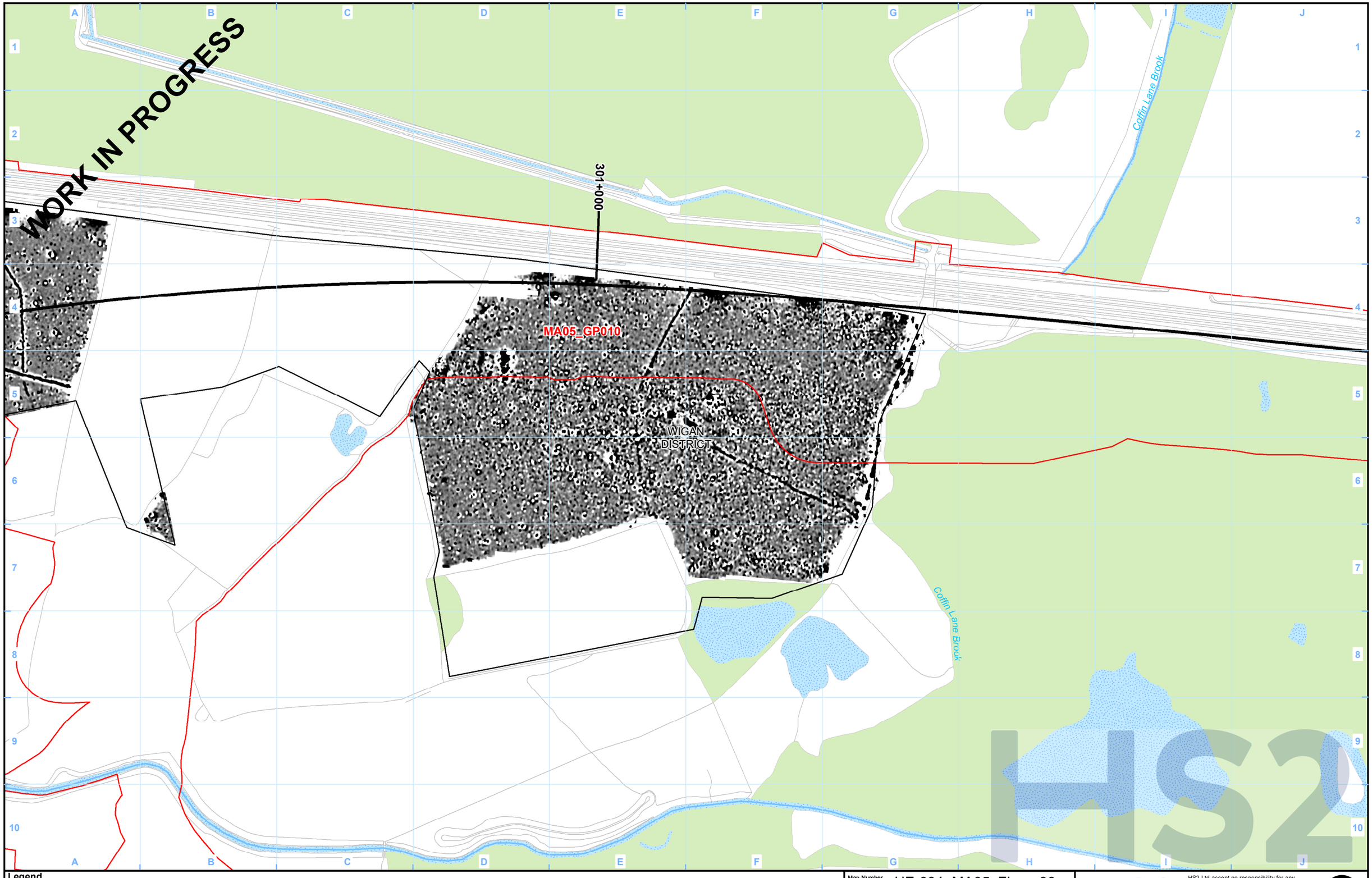
Scale at A3: 1:2,500

0 25 50 75 100
Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002511-P01

Date: 22/06/21

WORK IN PROGRESS



Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number: HE-004_MA05_Figure30

Map Name: Site MA05_GP010 Greyscale

Community Area MA05: Risley to Bamfurlong

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

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002512-P01

Date: 22/06/21

WORK IN PROGRESS

WIGAN DISTRICT

301+000

MA05_GP010

MA05_GP010.012

MA05_GP010.006

MA05_GP010.007

Coffin Lane Brook

Coffin Lane Brook

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA05_Figure31

Map Name: Site MA05_GP010 Interpretation

Community Area MA05: Risley to Bamfurlong

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002513-P01

Date: 22/06/21