In Parliament – Session 2021 - 2022

HS2

# High Speed Rail (Crewe to Manchester)

## Background information and data

## Historic environment

BID HE-004-0MA02

MA02: Wimboldsley to Lostock Gralam

Historic environment field survey report

HS2

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M201

Department for Transport

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

1.1.2 Baseline data has been collected for the HS2 Phase 2b Proposed Scheme in relation to the Wimboldsley to Lostock Gralam area (MA02).

1.1.3 All identified heritage assets discussed in this report are shown in the Volume 5, Historic environment Map Books, 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-001-0MA02). It sets out Unique gazetteer identifier (UID) codes for the heritage assets considered in the impact assessment; 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-002-0MA02[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-003-0MA02[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:

[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, Wimboldsley to Lostock Gralam, Summary gazetteer, impact assessment table and archaeological character areas, Volume 5: Appendix HE-002-0MA02.* 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, Wimboldsley to Lostock Gralam, Historic landscape character areas, Volume 5: Appendix HE-003-0MA02.* 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 MA02_0001. These have been allocated to all heritage assets within the gazetteer of heritage assets, provided in Volume 5: Appendix HE-002-0MA02 (summary gazetteer) and BID HE-001-0MA02 (detailed gazetteer);
- historic landscape character areas have been given a unique identifier, for example MA02_HLCA02. These have been allocated to all HLCA within the historic landscape character assessment, provided in Volume 5: Appendix HE-003-0MA02;
- archaeological character areas and archaeological sub-zones have been given a unique identifier, for example: archaeological character area MA02_AC01; and archaeological sub zone MA02_AC01.002. These have been allocated to all of the assessed archaeological character areas and archaeological sub-zones, provided in Volume 5: Appendix HE-002-0MA02;
- geophysical survey areas and features identified through the geophysical survey have been allocated a unique identifier, for example: geophysical survey area MA02_GP001, and geophysical survey feature MA02_GP001.001. These have been allocated to all of the identified geophysical survey areas and features, provided in BID HE-004-0MA02; and
- features identified through remote sensing have been allocated a unique identified, for example MA02_RS001. These have been allocated to all of the identified remote sensing features, provided in BID HE-005-0MA02.

# 2 Geophysical survey

## 2.1 Introduction

2.1.1 This report provides the results of geophysical surveys undertaken within the Wimboldsley to Lostock Gralam area.

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

- Generic written scheme of investigation (GWSI) for non-intrusive archaeological survey (HE-006-00000[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-006-00000).

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].

[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 surveys were undertaken between 07 February and 20 February 2019 and during September 2020 by MOLA-Headland using Bartington Grad-01-1000L sensors, variously configured for use on a magnetometer cart (six sensors at 0.8m intervals/eight sensors at 0.5m intervals) or 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 on 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 The magnetic background of the survey area has proven conducive to good results, with a variety of anomalies detected from varying sources, with various strengths across the length of the survey corridor. However, it is dominated in many places by intense magnetic responses from pipelines and spreads of magnetic debris. These have the potential to mask smaller, more subtle anomalies of archaeological interest. They have also hindered the processing of the data, resulting in a small number of unavoidable de-striping artefacts.

2.3.9 A variety of lower intensity anomalies are present away from the pipelines and spreads of debris. They are set against a magnetic background of subtle, low intensity noise, which is likely to be natural in origin.

# 3 Geophysical survey results

## 3.1 Introduction

3.1.1 Geophysical Survey was undertaken at eight locations in the Wimboldsley to Lostock Gralam area, comprising:

- Park Hall Farm, Nantwich Road (MA02_GP001), see Figures 2 to 7;
- Park Farm, Clive Green Lane (MA02_GP003), see Figures 8 to 10;
- Whatcroft Hall, Whatcroft Lane (MA02_GP004), see Figures 11 to 16;
- South of King Street, Pear Tree Farm Cottages (MA02_GP005), see Figures 17 to 19;
- North of King Street, High House (MA02_GP006), see Figures 20 to 22;
- Chester Road South, Lostock (MA02_GP009), see Figures 23 to 25;
- North of Chester Road, Winnington Wood (MA02_GP010), see Figures 26 to 28; and
- North of Chester Road, Peas Wood (MA02_GP011), see Figures 29 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 across the area are discussed 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. MA02_GP001.001 refers to a feature or group of features within survey area MA02_GP001.

## 3.2 Park Hall Farm, Nantwich Road - MA02_GP001

### Survey location

3.2.1 The survey area consisted of six pasture fields with a combined extent of 24.22ha, located to the west of Park Hall Farm and centred on NGR 368850 361810. The survey area extended across both the Hough to Walley's Green area (MA01) and the Wimboldsley to Lostock Gralam area (MA02). It was bounded by the West Coast Mainline (WCML) to the west, A530 Nantwich Road to the north, and extant field boundaries to the south and east. The survey area was situated at 51m Above Ordnance Datum (mAOD) and was topographically flat. The underlying geology was mapped as mudstone with superficial glacial till deposits.

3.2.2 The survey area was located within the Wimboldsley Plain ASZ (MA01_AC003.004). The ASZ is located on predominantly till and glaciofluvial sand and gravel deposits, which cover the large area of flat land between the shallow river valleys of the River Weaver and River Wheelock, to the north and west of Crewe. A thin band of alluvium is present along the course of both rivers. These have the potential for palaeoenvironmental remains that can

provide evidence of past environments dating to the prehistoric to medieval periods. The ASZ is within HLCA MA01_HLCA04: Wimboldsley Plain and the current land use is predominantly rural comprising of enclosed medieval, post-medieval and modern arable and pastoral fields.

3.2.3 Potential prehistoric settlement activity has been identified on the eastern side of the River Weaver where aerial photography has revealed earthworks and cropmarks that suggest two potential settlement sites (MA02_0009 and MA02_0014). Roman activity is recorded on the Cheshire Historic Environment Record (HER), close to the line of the Roman road running from Middlewich to Whitchurch (MA01_0168; MA02_0001), at Occlestone Green, where a ditch that forms right angles has been suggested as the site of a Roman marching camp. Otherwise Roman rural settlement in this part of Cheshire is poorly understood and evidence is restricted to artefacts including three brooches found in Wimboldsley (MA02_0008). Medieval settlement activity within the ASZ consists of dispersed villages including Leighton, Wimboldsley and Minshull Vernon all mentioned in the Domesday survey. A trackway leads to Wimboldsley Grange (MA02_0011), and a square enclosure north of this (MA02_0016) are evidence of an earlier medieval landscape north-west of Occlestone Green. Post-medieval disturbance to earlier archaeological remains is likely to have occurred during the construction and maintenance of the Shropshire Union Canal, Middlewich Branch (MA02_0037), the Grand Junction Railway built in 1837 (MA02_0238) and the A530 Middlewich Road. These cross the ASZ running broadly north to south and will have removed remains in proximity to it.

# Survey results

## Archaeology possible

3.2.4 The survey identified a series of small sub-round magnetic anomalies (see Figures 3 and 4, MA02_GP001.013; MA02_0269) located in the southernmost field. These comprise a row of small pit features on a north to south alignment, to the east of and parallel with anomaly MA02_GP001.007. Although initially interpreted as archaeology possible, their uniform shape and alignment, which follows a former field boundary, suggest a series of old fence posts. Remote sensing analysis (see BID HE-005-0MA01[11]) identified a series of wide linear earthworks (MA01_RS030) running south-west to north-east through the survey area and following the route of Roman Road – Nantwich to Middlewich (Margary No. 700: MA01_0168). They appear to be the remains of the banked central agger. These remains were not identified by the geophysical survey.

[11] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data, Hough to Walley's Green, Historic Environment Remote Sensing Report, BID HE-005-0MA01.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

## Extraction

3.2.5 Five areas of high magnetic disturbance were observed, these are interpreted as marl pits[12] later used as ponds (see Figures 3 and 4, anomalies MA02_GP001.002 and MA02_GP001.003, Figures 6 and 7, MA02_GP001.004 to MA02_GP001.006) depicted on the 1882 Ordnance Survey map[13]. The disturbance was caused by the magnetic properties (brick, tile, iron etc) of the material used to infill the ponds.

## Agricultural historic

3.2.6 Across the survey area several former field boundaries as depicted on the 1882 Ordnance Survey map[13] (see Figures 3, 4, 6 and 7, anomalies MA02_GP001.007 to MA02_GP001.012) were identified. Parallel linear anomalies were identified throughout the survey area. During remote sensing analysis anomalies running at right angles to the current field boundaries have been identified as areas of extant ridge and furrow (MA02_RS020 and MA02_RS021). These appear on the geophysical survey results as modern drains. It is likely that the drains follow the patterns of former ploughing regimes.

## Agricultural modern

3.2.7 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 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 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.

[12] 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.

[13] Ordnance Survey (1882a), *Cheshire County Series, Map Sheet XLIX*, 2nd edition, Scale 1:10,560.

### Modern service

3.2.11 Through the centre of the survey area (see Figures 3, 4, 6 and 7, MA02_GP001.001) a highly magnetic dipolar linear anomaly, aligned north-east to south-west 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 former field boundaries, drains, and four discrete areas of magnetic disturbance that correspond with the sites of former marl pits. A row of circular anomalies (MA02_GP001.013) were identified in the southernmost field of the survey area. Their uniform shape and alignment, which respects a field boundary depicted on Ordnance Survey maps, suggest they likely represent a row of fence posts. Pit alignments are not a common feature in north-west Cheshire. No other archaeological or possible archaeological anomalies including the wide linear earthworks (MA01_RS030) presumed to be the remains of the banked central agger identified during remote sensing analysis were identified during the survey.

## 3.3 Park Farm, Clive Green Lane - MA02_GP003

### Survey location

3.3.1 The survey area consisted of six fields used as a combination of arable and pasture. These had a combined extent of 23.47ha, located to the east of Park Farm and are centred on NGR 368480 365290. The survey area was bounded by the Shropshire Union Canal to the north, Clive Green Lane to the south, Coal Pit Lane to the east and extant field boundaries to the west. The survey area is situated at 53 mAOD and topographically flat.

3.3.2 It is also located within the Wimboldsley Plain ASZ (MA01_AC03.004) as described above in relation to MA02_GP001.

### Survey results

#### Archaeology possible

3.3.3 The survey has identified several irregularly shaped magnetic anomalies of possible archaeological potential (see Figures 9 and 10, MA02_GP003.013 to MA02_GP003.015); these are located in the eastern, central and northern fields. Further linear anomalies were identified (see Figures 9 and 10, MA02_GP003.016, MA02_GP003.017 and MA02_GP003.018; MA02_0328). These were interpreted as being of archaeological origin due to their highly elevated magnetic responses, although their function remains unknown. The group has been identified as a surviving area of ancient fields within MA02_HLCA01 Stanthorne area (HE-003-0MA02).

## Extraction

3.3.4 In the centre of the southernmost field, a large area of magnetic disturbance has been identified (see Figures 9 and 10, MA02_GP003.004). This anomaly represents the site of a former marl pit (see Footnote 9) later used as a pond similar to those observed elsewhere in the study area (e.g. MA02_GP001.002). The disturbance was caused by the magnetic properties (brick, tile, iron etc) of the material used to infill the ponds.

## Agricultural historic

3.3.5 The survey identified several former field boundaries, which are depicted on the 1882 Ordnance Survey map[13]. In the southern field, a former boundary was identified running east to west and interrupted by an area of extraction (see Figures 9 and 10, anomaly MA02_GP003.007). In the central field, two further boundaries were observed (see Figures 9 and 10, anomalies MA02_GP003.008, and MA02_GP003.009). The northern field contained three additional but less regular-shaped former field boundaries (see Figures 9 and 10, anomalies MA02_GPO003.010 to MA02_GP003.012), the form of these being consistent with the practice of assarting[14].

## Agricultural modern

3.3.6 Further linear anomalies represent the course of modern field drains, typically aligned perpendicular to the current field boundaries. During remote sensing analysis anomalies running at right angles to the current field boundaries have been identified as areas of levelled ridge and furrow (MA02_RS015). These appear on the geophysical survey results as modern drains. It is likely that the drains follow the patterns of former ploughing regimes.

## Natural

3.3.7 Numerous low magnitude discrete anomalies were 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 was partly derived.

## Ferrous

3.3.8 Ferrous anomalies, characterised as individual 'spikes', were identified across the survey area. There are two rows of circular ferrous anomalies on north to south alignments in the central field and one on the edge of the field boundary (see Figures 9 and 10, MA02_GP003.001 and MA02_GP003.003). These anomalies share an alignment with the current field boundary and are likely fence posts or similar.

[14] Clearance of woodland for agricultural purposes.

## Magnetic disturbance

3.3.9 The north-east of the survey area also displays large areas of magnetic disturbance manifesting as a very 'noisy' background (see Figures 9 and 10, anomalies MA02_GP003.005 and MA02_GP003.006). These differ from that observed in the southernmost field (see anomaly MA02_GP003.004) and are most likely caused by the spreading of green waste[15] as part of the recent agricultural regime. Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundaries.

## Conclusions

3.3.10 The survey identified anomalies which reflect the historical agricultural landscape in the form of former field boundaries and drains. A large area of magnetic disturbance corresponds with the site of a former marl pit (see Footnote 9), later used as a pond. A large spread of magnetic disturbance (MA02_GP003.005 and MA02_GP003.006), which differs from the results in other study areas, is most likely caused by the spreading of green waste as part of the agricultural regime. Potential archaeological remains (MA02_GP003.012 to MA02_GP003.018) were identified as small circular anomalies and some linear anomalies, which are not depicted on Ordnance Survey maps. The group has been identified as a surviving area of ancient fields within the MA02_HLCA01 Stanthorne area (HE-003-0MA02).

# 3.4 Whatcroft Hall, Whatcroft Lane - MA02_GP004

## Survey location

3.4.1 The survey area consisted of six fields used for arable and pasture. These had a combined extent of 14.12ha, located to the south of Whatcroft Hall and Bridge Farm centred on NGR 368320 369560. It was bounded by Whatcroft Lane to the north, an extant field boundary to the south, and open fields to the east and west. The survey area was situated between 29m and 31 mAOD on gently undulating land.

3.4.2 The survey area was located on the eastern slope of the River Dane valley within the Stublach Plain ASZ (MA02_AC01.001). The ASZ comprises the Stublach Plain, bounded by the River Dane valley to the south and west, the M6 to the east and Lach Dennis to the north. The Trent and Mersey Canal lies adjacent to the valley of the River Dane. The ASZ is located on till and alluvial deposits of the flat plain intersected by several streams and brooks which flow towards the Dane valley. These have the potential for palaeoenvironmental remains that can provide evidence of past environments dating to the prehistoric to medieval periods. The majority of the ASZ is contained within MA02_HLCA03: Stublach Plain. MA02_HLCA02: Bostock, Whatcroft and Davenham, extends into the west of the ASZ. The

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

plain is comprised of fields of arable and pasture, divided by hedgerows. Settlement consists of isolated post-medieval farmhouses and small villages.

3.4.3 King Street Roman Road (MA02_0154) bisects the plain, running from Middlewich to Northwich. Although no roadside settlement associated with the road has been identified there remains the potential for settlement activity. A moated site is present at Whatcroft Hall (MA02_0120), with a possible abandoned medieval village nearby (MA02_0123), and another at Drakelow Hall (MA02_0127). There are several post-medieval farms in the ASZ, but there is no evidence for post-medieval industry or settlement that might have disturbed earlier archaeological remains. The ASZ also contains the former RAF Cranage airfield, in the east (MA02_0214 and MA02_0218). There is low potential for any archaeological remains along the A556 King Street, which bisects the ASZ on a north to south alignment.

## Archaeology possible

3.4.4 The survey has identified a single anomaly of possible archaeological potential (see Figures 12, 13, 15 and 16, MA02_GP004.005; MA02_0329) which comprises a small highly magnetic linear feature. This was located at the north-east corner of a field and close to marl pit (see Footnote 9) MA02_GP004.003. The linear was fragmented and therefore it is uncertain whether the feature was geological or not.

## Extraction

3.4.5 Three areas of high magnetic disturbance were observed, these correspond with former marl pits (see Footnote 9; see Figures 12 and 13, anomaly MA02_GP004.002; see Figures 15 and 16 anomalies MA02_GP004.003, MA02_GP004.004), depicted on the 1882 Ordnance Survey map[16]. The disturbance was caused by the magnetic properties (brick, tile, iron etc) of the material used to infill the pit later used as a pond.

## Agricultural historic

3.4.6 A group of parallel linear anomalies at the northern end of the survey area are likely to be trends from former ploughing regimes. These were either parallel or at right angles to the current field boundaries. These features were not identified during remote sensing analysis. The field adjacent, however, did identify levelled ridge and furrow (MA02_RS032) on a similar alignment and these features may be a continuation of that.

## Agricultural modern

3.4.7 Throughout the survey area anomalies running perpendicular to current field boundaries were identified as modern field drains.

[16] Ordnance Survey (1882b), *Cheshire County Series, Map Sheet XLI*, 2nd edition, Scale: 1:10,560.

### Natural

3.4.8 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 was partly derived.

### Ferrous

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

### Magnetic disturbance

3.4.10 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to, the boundaries. A large area of magnetic disturbance immediately south of Dairy Farm is likely to be from material dumped at the field entrance.

### Modern service

3.4.11 At the northern end of the survey area (see Figures 15 and 16, MA02_GP004.001), a highly magnetic dipolar linear anomaly, aligned north-east to south-west, was detected. This response was interpreted as a buried service pipe.

### Conclusions

3.4.12 The survey has identified a buried service pipe and anomalies which reflect the historical agricultural landscape in the form of drains, levelled ridge and furrow, as well as three discrete areas of magnetic disturbance which correspond with the sites of former marl pits (see Footnote 9), later used as ponds. A single linear anomaly was identified as possible archaeology (MA02_GP004.005). This was located close to a marl pit and likely to be a drainage ditch.

## 3.5 South of King Street, Pear Tree Farm Cottages - MA02_GP005

### Survey location

3.5.1 The survey area consisted of three fields under pasture, with a combined extent of 6.22ha, located to the south-east of Higher Shurlach and centred on NGR 368658 371777. The survey area was bound by the Gadbrook distribution centre to the north, Pear Tree Farm Cottages to the south, A530 King Street to the east and extant field boundaries to the west. The site was at 29 mAOD and was gently sloping towards the Gad Brook.

3.5.2 The survey area was located on the south-western side of the Stublach Plain ASZ (MA02_AC01.001), where the Roman Road crossed Gad Brook as described above in relation to MA02_GP004.

# Survey results

## Agricultural historic

3.5.3 A former field boundary depicted on the 1882 Ordnance Survey map (see Figures 18 and 19, anomaly MA002_GP005.001) was identified[17].

## Agricultural modern

3.5.4 Parallel linear anomalies were identified throughout the survey area. These were perpendicular to the current field boundaries, and have been attributed as modern field drains. Areas of levelled ridge and furrow (MA02_RS042) identified during remote sensing analysis correspond with these field drains and it is likely the drains naturally followed former ploughing patterns.

## Natural

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

## Ferrous

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

## Magnetic disturbance

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

# Conclusions

3.5.8 The survey identified a single linear anomaly which corresponds to a former field boundary depicted on Ordnance Survey maps. Trends running parallel or at right angles to the current field boundaries have been identified as levelled ridge and furrow. No other anomalies of archaeological or possible archaeological origin were identified during the survey.

[17] Ordnance Survey (1882c), *Cheshire County Series, Map Sheet XXXIV*, 2nd edition, Scale: 1:10,560.

# 3.6 North of King Street, High House - MA02_GP006

## Survey location

3.6.1 The survey area consisted of five fields used for arable, pasture and meadow, with a combined extent of 12.3ha. These were located to the north and west of High House in the parish of Lach Dennis centred on NGR 368723 372435. The survey area was bordered by the A559 Manchester Road to the north, A530 King Street to the west, Penny's Lane to the east and extant field boundaries to the south. The survey area was relatively flat at around 30 mAOD.

3.6.2 The survey area was located on the north-eastern side of the Stublach Plain ASZ (MA02_AC01.001) where metal detecting has recovered Roman coins as described above in relation to MA02_GP004.

3.6.3 The Rudheath Tithe Map[18] shows that there was a farm on the site of High House by 1842 and names the field between the house and King Street as 'Brick Kiln Field'. It also shows that the southern field of the survey area to have contained a cluster of small land parcels occupied by an orchard, a small plantation and two ponds.

## Survey results

### Archaeology possible

3.6.4 A small group of anomalies (see Figures 21 and 22, MA02_GP006.001; MA02_0158) in the north-western field may be of archaeological interest. Two elongated positive anomalies, which are perhaps of industrial origin, are partially surrounded by a weaker, curving anomaly, approximately 8m across, which may represent an enclosure ditch. The date of these putative features is unknown.

3.6.5 An irregular square anomaly (see Figures 21 and 22, MA02_GP006.002; MA02_321), approximately 20m across, lies at the southern end of the survey area, where the Rudheath tithe map[18] depicts the plantation, orchard and ponds. The exact cause of the anomaly is unclear but, given the map evidence, an association with post-medieval activity is likely.

3.6.6 A few isolated linear anomalies might represent ditches of unknown date. However, the evidence is equivocal and alternative interpretations such as drains could apply in some cases.

3.6.7 Alongside one of the possible ditches, to the west of High House, there is a pair of small but moderately intense anomalies (see Figures 21 and 22, MA02_GP006.003; MA02_0158), which

[18] Unknown (1842), *Tithe Map of the Township of Rudheath in the Parish of Davenham in the County of Chester,* Cheshire Archives and Local Studies, Ref: EDT 345/2.

might represent pits or patches of burnt soil. However, they are not particularly diagnostic, and their lack of a regular shape argues against a specific interpretation as kilns.

## Extraction

3.6.8 Four former ponds or groups of ponds (see Figures 21 and 22, anomalies MA02_GP006.004 and MA02_GP006.007), have been detected, all of which are known from historic Ordnance Survey maps. Each is represented by an intense, 'noisy' magnetic anomaly caused by ferrous objects (some probably quite substantial) within the backfill of the pond.

## Agricultural historic

3.6.9 Two linear anomalies (see Figures 21 and 22, MA02_GP006.008 and MA02_GP006.009), aligned north-west to south-east across the north-eastern field, correspond to former field boundaries known from historic mapping[17]. Other anomalies lying in between these two boundaries have the typical herringbone arrangement of a system of field drains.

3.6.10 One short linear anomaly (see Figures 21 and 22, MA02_GP006.010) in the south of the survey area corresponds to part of a boundary depicted on the Rudheath tithe map[18]. Levelled ridge and furrow identified during remote sensing analysis (MA02_RS044) were not identified during geophysical survey.

## Agricultural modern

3.6.11 In addition to the system of field drains noted above, a small number of other drains are represented by weak linear anomalies with a 'speckled' appearance (i.e. their magnetic polarity fluctuates repeatedly from positive to negative along their length). The weak striping apparent in the data from the southern fields is probably a consequence of modern ploughing.

## Ferrous

3.6.12 'Ferrous anomalies' are small but intense magnetic anomalies, typically of dipolar form, caused by ferrous (iron or steel) material. They are widespread and abundant throughout the survey data. Most will relate to small pieces of buried rubbish and scrap metal, of no archaeological interest.

3.6.13 Two large but weak magnetic dipoles (see Figures 21 and 22, anomalies MA02_GP006.016 and MA02_GP006.017) in the north-eastern field were caused by metal brackets on top of telegraph poles.

## Magnetic disturbance

3.6.14 Ferrous anomalies are abundant in the fields west and south of High House, where they coalesce into several zones of magnetic noise. One of these covers a swathe of ground extending south from the farm and probably indicates hardcore and debris along a farm

track. The remainder might relate to various causes, for instance, 'green waste' manure or debris from pipe-laying operations.

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

### Uncertain

3.6.16 A group of small positive and dipolar anomalies (see Figures 21 and 22, MA02_GP006.018) in the north-west of the southern field has a semi-regular arrangement which suggests they relate to some deliberately created feature. However, no specific interpretation can be confidently offered.

### Modern service

3.6.17 Two large pipelines (see Figures 21 and 22, MA02_GP006.011 and MA02_GP006.012) run north then north-eastwards through the survey area on almost parallel courses; each is marked by an intense linear anomaly with broad positive and negative halos. Much smaller but similarly intense anomalies indicate other pipes, one crossing the northern tip of the survey area and two others (see Figures 21 and 22, MA02_GP006.014 and MA02_GP006.015) lying close together near its western boundary.

### Conclusions

3.6.18 The survey has detected some small and localised features of possible archaeological interest. There is a poorly characterised feature in the south of the area, where map evidence suggests a minor focus of post-medieval activity (MA02_0321). In the north of the area, there are two possible small industrial features of unknown date (MA02_0158), apparently surrounded by a ditch. The date of the latter features is unknown but their proximity to King Street Roman road should be noted. Elsewhere, there are a few possible ditches and pits, but these appear to be minor features.

3.6.19 No clear evidence of brick kilns was detected in the former brick kiln field, but the data from this area is dominated by large pipeline anomalies and spreads of magnetic noise which could have obscured smaller and weaker archaeological anomalies.

## 3.7 Chester Road South, Lostock - MA02_GP009

### Survey location

3.7.1 The survey area consisted of a single field in arable use, 12.3ha in size. It was located to the east of Lostock Gralam and centred on NGR 370126 375226. It was bounded by the A559 Chester Road and the A556 Shurlach Road.

3.7.2 The survey was located within the Lostock Plain ASZ (MA03_AC01.001). The ASZ comprises the Lostock Plain, bounded by the Stublach Plain to the south and the M6 to the east, Northwich to the west and the A556 Chester Road to the north. The ASZ is located on till deposits of the flat plain and is bisected by alluvial deposits in the east to west from the flowing watercourses of Crow Brook and Peover Eye. These have the potential for palaeoenvironmental remains that can provide evidence of past environments dating to the prehistoric to medieval periods. The ASZ contains three HLCA; MA02_HLCA04, MA02_HLCA05, and MA02_HLCA06 and includes the settlements of Lostock Gralam and Lach Dennis. The medieval, irregular, field patterns are located around Lostock Green and Hulme Hall (MA02_0255). To the north and west fields are more regular and post-medieval in date.

3.7.3 The line of the Chester to Manchester Roman road (MA02_0191) crosses the plain. Although no roadside settlement associated with the road has been identified there remains the potential for settlement activity. A possible second Roman road in Lostock Gralam is suggested by the name Street Field (MA02_0182). Medieval and post-medieval settlement appears to have been confined to Lach Dennis, Lostock Green, Lostock Gralam and the scheduled moated site (MA02_0188) and watermill (MA02_0193) at Holford Hall. The area is currently used for solution salt mining and gas storage, but this will not generally have impacted on surface archaeological remains. There is low potential for any archaeological remains along the A559 Manchester Road, A556 Chester Road and the rail corridor of the Cheshire Midland Railway (MA02_0183), which bisect the ASZ on various alignments.

# Survey results

## Archaeology possible

3.7.4 The survey has identified two linear magnetic anomalies of possible archaeological potential (see Figures 24 and 25, MA02_GP009.006, and MA02_GP009.007). MA02_GP009.006 is located immediately west of two extant marl pits so may relate to drainage. MA02_GP009.007, curves around the edge of a copse of trees and close to Winnington Belt which historically was larger than its current extent. It is not shown on the 1845 Lostock Gralam Tithe Map[19] and is therefore likely to be an earlier parish boundary between Cheshire East and Chester West.

## Agricultural historic

3.7.5 A former field boundary (see Figures 24 and 25, anomaly MA02_GP009.005) was identified and is depicted on the 1882 Ordnance Survey map[17].

[19] Unknown (1845), *Tithe Map of the Township of Lostock Gralam in the Parish of Great Budworth in the County of Chester*, Cheshire Archives and Local Studies, Ref: EDT 247/2.

## Agricultural modern

3.7.6 A series of linear anomalies identified were interpreted as modern field drains. These occurred throughout the survey area and are arranged in a 'herringbone' pattern.

## Natural

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

## Ferrous

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

## Magnetic disturbance

3.7.9 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to, the boundaries. A large area in the centre of the survey area to the south-west of a buried pipe (see Figures 24 and 25, anomaly MA02_GP009.004) is likely to be disturbance caused by the pipe.

## Modern service

3.7.10 Two dipolar linear anomalies were identified in the west of the survey area, running on broadly south-west to north-east alignments, before turning at a right-angles and heading north-west out of the survey area (see Figures 24 and 25, MA02_GP009.001, and MA02_GP009.002). These anomalies are interpreted as buried service pipes. A third anomaly displaying high ferrous composition was identified at the eastern end of the survey area (see Figures 24 and 25, MA02_GP009.003), on an east to west alignment, and this has also been identified as a buried service. Aligned north-west to south-east through the centre of the survey area was a diffuse spread displaying an enhanced magnetic response area (see Figures 24 and 25, anomaly MA02_GP009.004). Although the 1875 Ordnance Survey map[16] shows this to be the location of a former trackway, the enhanced magnetic susceptibility likely relates to a buried service pipe.

# Conclusions

3.7.11 The survey has identified buried services and anomalies which reflect the historical agricultural landscape, including a former field boundary. A curvilinear anomaly (MA02_GP009.007) located close to Winnington Belt has been identified. The curvilinear is likely to define a former boundary of Winnington Belt, which was historically larger than its current extent. The township boundary between Cheshire East and Cheshire West lies close

to the linear anomaly with Winnington Belt and, therefore, may represent an earlier parish boundary (MA02_0320).

# 3.8 North of Chester Road, Winnington Wood - MA02_GP010

## Survey location

3.8.1 The survey area consisted of a single field in arable use, with an extent of 4.9ha. This was located to the east of Lostock Gralam and centred on NGR 370126 375216. The survey area was bounded by A559 Chester Road to the south, Winnington Woods to the north and east and large open fields to the west. The survey area was situated at 34 mAOD and gently sloping to the north.

3.8.2 The survey area was located within the Lostock Plain ASZ (MA03_AC01.001), as described above in relation to MA02_GP009.

## Survey results

### Agricultural modern

3.8.3 A series of linear anomalies identified within the survey, were interpreted as modern field drains. These occurred throughout the survey area and were arranged in the classic 'herringbone' pattern to the east and as parallel anomalies in the west.

### Natural

3.8.4 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 was partly derived.

### Ferrous

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

### Magnetic disturbance

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

### Modern service

3.8.7 A dipolar linear anomaly has been identified in the west of the survey area, running on a broadly east to west alignment (see Figures 27 and 28, MA02_GP010.001). This anomaly was interpreted as a buried service pipe and continues into MA02_GP009 as MA02_GP009.003.

### Conclusions

3.8.8 The survey identified a single buried service pipe and a series of anomalies representing modern field drains. No anomalies of archaeological or possible archaeological origin were identified during the survey.

## 3.9 North of Chester Road, Peas Wood - MA02_GP011

### Survey location

3.9.1 The survey area consisted of two arable fields, with a combined extent of 7.1ha. These were located 1km to the north-east of Lostock Gralam and centred on NGR 370333 375773. The survey area was bounded by the A556 Chester Road to the south, Linnards Lane to the east, Peover Eye to the west and Smokers Brook to the north. The survey area was relatively flat, rising from 28 mAOD in the north to 31 mAOD in the south.

3.9.2 The survey area was located within the Smokers Brook and Wincham Brook ASZ (MA03_AC01.002). The ASZ covers the shallow stream valley of Smokers Brook and Wincham Brook. It is bounded by the M6 to the west, Tabley Mere and farmland surrounding Providence Farm to the north and Lostock Gralam and Northwich to the south and east. This ASZ is located on predominantly glacial till with alluvial deposits along the courses of the brooks. The topography is generally the flat plains of Stublach and Providence Farm which slopes gradually away towards the shallow courses. It comprises the southern extent of the MA03_HLCA03: Mere Halls. The ASZ broadly has a medieval field pattern, interspersed with post-medieval and modern farmhouses. The stream courses are surrounded by Ancient Woodland and post-medieval plantations.

3.9.3 There is a potential Roman river crossing where the Chester to Manchester Roman road (MA02_0191; MA03_0119) crosses Smokers Brook. There is geoarchaeological potential for preserved environmental remains associated with alluvial deposits located on the watercourses. Otherwise, the archaeological potential of the ASZ is not well understood and research has been limited. There is low potential for any archaeological remains along the A559 Manchester Road, A556 Chester Road and the rail corridor of the Cheshire Midland Railway (MA02_0183), which bisect the ASZ on various alignments.

## Survey results

### Extraction

3.9.4 An area of high magnetic disturbance located in the centre of the southern field corresponds with a former marl pit (see Footnote 9), later used as a pond (see Figures 30 and 31, anomaly MA02_GP011.002), depicted on the 1882 Ordnance Survey map[17]. The disturbance was caused by the magnetic properties (brick, tile, iron etc.) of the material used to infill the former pond.

### Agricultural historic

3.9.5 A former field boundary (see Figures 30 and 31, anomaly MA002_GP011.003) depicted on the 1882 Ordnance Survey map[17] was identified running through the centre of the survey area on a broadly north to south alignment.

### Ferrous

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

### Magnetic disturbance

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

### Modern service

3.9.8 At the eastern side of the survey area (see Figures 30 and 31, MA02_GP011.001) a highly magnetic dipolar linear anomaly, aligned south-east to north-west initially before turning to follow a south-west to north-easterly direction was identified as a buried service pipe.

## Conclusions

3.9.9 The survey identified a former field boundary and marl pit, which are depicted on 19th century mapping and reflect the historical agricultural landscape. A highly magnetic dipolar linear was identified at the northern end of the survey area and represents a buried service. No other anomalies of archaeological or possible archaeological origin were identified during the survey.

# 3.10 Geophysical survey conclusions

3.10.1 The geophysical surveys undertaken at the eight locations have provided an overview of the archaeological character of the Wimboldsley to Lostock Gralam area. The ground conditions and overall data quality were good throughout. The survey areas were dominated by former

field boundaries, as depicted on 19th century Tithe and Ordnance Survey mapping, and marl pits, a common agricultural phenomenon across Cheshire. Modern features include buried services, ferrous debris and a large area of magnetic disturbance caused by manure spreading.

3.10.2 The surveys have detected possible archaeological features within the Park Hall Farm, Nantwich Road (MA02_GP001), Park Farm, Clive Green Lane (MA02_GP003), Whatcroft Hall, Whatcroft Lane (MA02_GP004), North of King Street, High House (MA02_GP006) and Chester Road South, Lostock (MA02_GP009):

- within MA02_GP001, a row of small circular anomalies was identified (MA02_GP001.013; MA02_0269). Their alignment following a post-medieval field boundary, their uniform shape and equally spaced positions suggest a row of fence posts. Similar features elsewhere in Cheshire, have been recorded as modern features. Pit alignments are not a common phenomenon in north-west Cheshire;
- within MA02_GP003, the survey identified several irregular and linear anomalies (MA02_GP003.012 to MA02_GP003.018; MA02_0329) not depicted on Ordnance Survey maps. The survey area corresponds to an area of ancient field systems on the MA02_HLCA03 and the linear anomalies are consistent with the practice of medieval assarting (see Footnote 14). The group of irregular anomalies identified have an unknown function and may be geological;
- in the survey area MA02_GP004, a fragmented linear anomaly was identified (MA02_GP004.005; MA02_0329). Although located close to a former marl pit, it is uncertain whether the feature is geological or not;
- the surveys at MA02_GP006 detected some small and localised features of possible archaeological interest. There is a poorly characterised feature in the south of the area, where map evidence suggests a former plantation, orchard and pond (anomaly MA02_GP006.002; MA02_0321), which form a minor focus of post-medieval activity, and in the north of the area there are two possible small industrial features of unknown date, apparently surrounded by a ditch (anomalies MA02_GP006.001; MA02_0158). The date of the latter features is unknown, but their proximity to King Street Roman road should be noted. A few possible ditches and pits are present elsewhere (anomalies MA02_GP006.003; MA02_0158); and
- on the edge of MA02_GP009, a single curvilinear anomaly was identified (MA02_GP009.006). The curvilinear is likely to define a former boundary of Winnington Belt, which was historically larger than its current extent. The township boundary between Cheshire East and Cheshire West lies closes to the linear anomaly with Winnington Belt and therefore may represent an earlier parish boundary (MA02_0320).

# 4 Gazetteer of identified features in MA02

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 MA02**

| Reference | Asset UID | Anomaly category | Feature type | Period | Comment | Figure | NGR |
|---|---|---|---|---|---|---|---|
| MA02_GP001.001 | | Modern service | | Modern | A buried service. | Figures 3, 4, 6 and 7 | 368871 361893<br>368769 361823 |
| MA02_GP001.002 | | Extraction | Marl pit | Post-medieval | Highly magnetic material within a former pond, shown on 1882a Ordnance Survey map. Extraction for marling. | Figures 3 and 4 | 368928 361428 |
| MA02_GP001.003 | | Extraction | Marl pit | Post-medieval | Highly magnetic material within a former pond, shown on 1882a Ordnance Survey map. Extraction for marling. | Figures 3 and 4 | 368915 361506 |
| MA02_GP001.004 | | Extraction | Marl pit | Post-medieval | Highly magnetic material within a former pond, shown on 1882a Ordnance Survey map. Extraction for marling. | Figures 3, 4, 6 and 7 | 368855 361984 |
| MA02_GP001.005 | | Extraction | Marl pit | Post-medieval | Highly magnetic material within a former pond, shown on 1882a Ordnance Survey map. Extraction for marling. | Figures 6 and 7 | 368748 362033 |
| MA02_GP001.006 | | Extraction | Marl pit | Post-medieval | Highly magnetic material within a former pond, shown on 1882a Ordnance Survey map. Extraction for marling. | Figures 6 and 7 | 368890 362291 |

| Reference | Asset UID | Anomaly category | Feature type | Period | Comment | Figure | NGR |
|---|---|---|---|---|---|---|---|
| MA02_GP001.007 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on the 1882a Ordnance Survey map. | Figures 3 and 4 | 369110 361308 |
| MA02_GP001.008 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on the 1882a Ordnance Survey map. | Figures 3, 4, 6 and 7 | 368850 361628 |
| MA02_GP001.009 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on the 1882a Ordnance Survey map. | Figures 3, 4, 6 and 7 | 368911 361695 |
| MA02_GP001.010 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on the 1882a Ordnance Survey map. | Figures 3, 4, 6 and 7 | 368881 361961 |
| MA02_GP001.011 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on the 1882a Ordnance Survey map. | Figures 6 and 7 | 368747 362003<br>368789 362103 |
| MA02_GP001.012 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on the 1882a Ordnance Survey map. | Figures 6 and 7 | 368877 362335<br>368827 362375 |
| MA02_GP001.013 | MA02_0269 | Archaeology possible | Pits | Modern | A row of small pit features on a north to south alignment, to the east of and parallel with MA02_GP001.007. The uniformity of the pits suggests a line of fence posts rather than a pit alignment. | Figures 3 and 4 | 369114 361314 |
| MA02_GP003.001 | | Ferrous | Posts | Modern | A line of posts from an earlier fence line, likely modern in date. | Figures 9 and 10 | 368546 365152<br>368503 365298 |
| MA02_GP003.002 | | Ferrous | Posts | Modern | A line of posts from an earlier fence line, likely modern in date. | Figures 9 and 10 | 368642 365204<br>368607 365262 |
| MA02_GP003.003 | | Ferrous | Posts | Modern | A line of posts from an earlier fence line, likely modern in date. | Figures 9 and 10 | 368504 365345<br>368486 365392 |
| MA02_GP003.004 | | Extraction | Marl pit | Post-medieval | Highly magnetic material within a former pond, shown on 1882a Ordnance Survey map. Extraction for marling. | Figures 9 and 10 | 368581 365036 |

| Reference | Asset UID | Anomaly category | Feature type | Period | Comment | Figure | NGR |
|---|---|---|---|---|---|---|---|
| MA02_GP003.005 | | Magnetic disturbance | | Modern | Large area of magnetic disturbance caused by manure spreading. | Figures 9 and 10 | 368584 365423 |
| MA02_GP003.006 | | Magnetic disturbance | | Modern | Large area of magnetic disturbance caused by manure spreading. | Figures 9 and 10 | 368575 365519 |
| MA02_GP003.007 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on the 1882a Ordnance Survey map. | Figures 9 and 10 | 368626 365044<br>368515 365013 |
| MA02_GP003.008 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on the 1882a Ordnance Survey map. | Figures and 10 | 368525 365194<br>368491 365293 |
| MA02_GP003.009 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on the 1882a Ordnance Survey map. | Figures 9 and 10 | 368474 365242 |
| MA02_GP003.010 | | Agricultural historic | Field boundary | Medieval | Field boundary possibly associated with assarting. | Figures 9 and 10 | 368495 365429 |
| MA02_GP003.011 | | Agricultural historic | Field boundary | Medieval | Field boundary possibly associated with assarting. | Figures 9 and 10 | 368517 365476 |
| MA02_GP003.012 | | Agricultural historic | Field boundary | Medieval | Field boundary possibly associated with assarting. | Figures 9 and 10 | 368459 365362 |
| MA02_GP003.013 | | Archaeology possible | | Undated | Irregular shaped anomalies of possible archaeological potential. Function unknown. May be the nature of the drift geology in the area. | Figures 9 and 10 | 368349 365083 |
| MA02_GP003.014 | MA02_0328 | Archaeology possible | | Undated | Irregular shaped anomalies of possible archaeological potential. Function unknown. May be the nature of the drift geology in the area. | Figures 9 and 10 | 368515 365239<br>368530 365246 |
| MA02_GP003.015 | MA02_0328 | Archaeology possible | | Undated | Irregular shaped anomalies of possible archaeological potential Function unknown. May be the nature of the drift geology in the area. | Figures 9 and 10 | 368502 365339<br>368496 365339 |

| Reference | Asset UID | Anomaly category | Feature type | Period | Comment | Figure | NGR |
|---|---|---|---|---|---|---|---|
| MA02_GP003.016 | MA02_0328 | Archaeology possible | | Undated | Irregular shaped anomalies of possible archaeological potential. Function unknown. May be the nature of the drift geology in the area. | Figure 9 | 368681 365006 |
| MA02_GP003.017 | MA02_0328 | Archaeology possible | | Undated | Irregular shaped anomalies of possible archaeological potential. May be the nature of the drift geology in the area. | Figure 9 | 368686 365054 |
| MA02_GP003.018 | MA02_0328 | Archaeology possible | | Undated | Irregular shaped anomalies of possible archaeological potential. May be the nature of the drift geology in the area. | Figures 9 and 10 | 368450 365191<br>368452 365167 |
| MA02_GP004.001 | | Modern Service | | Modern | A buried service. | Figures 15 and 16 | 368380 369814<br>368288 369744 |
| MA02_GP004.002 | | Extraction | Marl pit | Post-medieval | Highly magnetic material within a former pond, shown on 1882b Ordnance Survey map. Extraction for marling. | Figures 12 and 13 | 368313 369203 |
| MA02_GP004.003 | | Extraction | Marl pit | Post-medieval | Highly magnetic material within a former pond, shown on 1882b Ordnance Survey map. Extraction for marling. | Figures 12, 13, 15 and 16 | 368309 369485 |
| MA02_GP004.004 | | Extraction | Marl pit | Post-medieval | Highly magnetic material adjacent to a former pond, shown on 1882b Ordnance Survey map. Extraction for marling. | Figures 12, 13, 15 and 16 | 368383 369718 |
| MA02_GP004.005 | MA02_0329 | Archaeology possible | Ditch | Undated | Undated feature within central area of the survey. May be drainage ditch. | Figures 12, 13, 15 and 16 | 368286 369531<br>368288 369533 |
| MA02_GP005.001 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on 1882c Ordnance Survey map. | Figures 18 and 19 | 368554 371742 |

| Reference | Asset UID | Anomaly category | Feature type | Period | Comment | Figure | NGR |
|---|---|---|---|---|---|---|---|
| MA02_GP006.001 | MA02_0158 | Archaeology possible | Kiln | Roman | Two elongated positive anomalies of industrial origin partially surrounded by a weaker curving anomaly representing an enclosure ditch. | Figures 21 and 22 | 368605 372639 |
| MA02_GP006.002 | MA02_0321 | Archaeology possible | Plantation, orchard and ponds | Post-medieval | An irregular square anomaly at the known location of a former plantation, orchard and ponds. | Figures 21 and 22 | 368761 372097 |
| MA02_GP006.003 | MA02_0158 | Archaeology possible | Pit | Undated | A pair of small anomalies representing pits or patches of burnt soil. Lack of regular shape argues against a kiln interpretation. | Figures 21 and 22 | 368730 372440 |
| MA02_GP006.004 | | Extraction | Pond | Post-medieval | Part of a group of four ponds known from historic maps. | Figures 21 and 22 | 368793 372677 |
| MA02_GP006.005 | | Extraction | Pond | Post-medieval | Part of a group of four ponds known from historic maps. | Figures 21 and 22 | 368654 372593 |
| MA02_GP006.006 | | Extraction | Pond | Post-medieval | Part of a group of four ponds known from historic maps. | Figures 21 and 22 | 368839 372330 |
| MA02_GP006.007 | | Extraction | Pond | Post-medieval | Part of a group of four ponds known from historic maps. | Figures 21 and 22 | 368785 372081 |
| MA02_GP006.008 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on historic Ordnance Survey maps. | Figures 21 and 22 | 368720 372742 |
| MA02_GP006.009 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary depicted on historic Ordnance Survey maps. | Figures 21 and 22 | 368679 372644 |
| MA02_GP006.010 | | Agricultural historic | Field boundary | Post-medieval | A short linear anomaly corresponding to part of a boundary on the Rudheath Tithe Map. | Figures 21 and 22 | 368729 372092 |
| MA02_GP006.011 | | Modern services | | Modern | A large pipeline running parallel to MA02_GP06.012. | Figures 21 and 22 | 368733 372121<br>368673 372553 |

| Reference | Asset UID | Anomaly category | Feature type | Period | Comment | Figure | NGR |
|---|---|---|---|---|---|---|---|
| MA02_GP006.012 | | Modern services | | Modern | A large pipeline running parallel to MA02_GP06.011. | Figures 21 and 22 | 368776 372175<br>368870 372699 |
| MA02_GP006.013 | | Modern services | | Modern | A buried service pipe crossing the northern tip of the survey area. | Figures 21 and 22 | 368739 372754 |
| MA02_GP006.014 | | Modern services | | Modern | A buried service pipe near the western boundary of the survey area. | Figures 21 and 22 | 368614 372525<br>368580 372685 |
| MA02_GP006.015 | | Modern service | | Modern | A buried service pipe near the western boundary of the survey area. | Figures 21 and 22 | 368610 372534 |
| MA02_GP006.016 | | Ferrous | | Modern | A large magnetic dipole caused by metal brackets on top of telegraph poles. | Figures 21 and 22 | 368639 372667 |
| MA02_GP006.017 | | Ferrous | | Modern | A large magnetic dipole caused by metal brackets on top of telegraph poles. | Figures 21 and 22 | 368666 372620 |
| MA02_GP006.018 | | Uncertain | | Undated | A group of small positive and dipolar anomalies which appear artificial. no specific interpretation. | Figures 21 and 22 | 368737 372209 |
| MA02_GP009.001 | | Modern service | | Modern | A buried service. | Figures 24, 25, 27 and 28 | 369923 375056<br>369977 375188 |
| MA02_GP009.002 | | Modern service | | Modern | A buried service. | Figures 24, 25, 27 and 28 | 369938 375065<br>369982 375193 |
| MA02_GP009.003 | | Modern service | | Modern | A buried service. | Figures 24, 25, 27 and 28 | 370142 375365<br>370257 375333 |
| MA02_GP009.004 | | Modern service | | Modern | A buried service. | Figures 24, 25, 27 and 28 | 370098 375292<br>370080 375336 |
| MA02_GP009.005 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary shown on the 1882c Ordnance Survey map. | Figures 24, 25 and 27 | 370159 375101 |

| Reference | Asset UID | Anomaly category | Feature type | Period | Comment | Figure | NGR |
|---|---|---|---|---|---|---|---|
| MA02_GP009.006 | MA02_0320 | Archaeology possible | Ditch | Post-medieval | A former field boundary shown on the 1882c Ordnance Survey map. | Figures 24, 25, 27 and 28 | 370071 375275 |
| MA02_GP009.007 | MA02_0320 | Archaeology possible | Parish boundary | Medieval | Linear anomaly following the current extent of Winnington Belt which historically was much larger than its current form. | Figures 24, 25, 27 and 28 | 370230 375354 |
| MA02_GP010.001 | | Modern service | | Modern | A buried service. | Figures 24, 25, 27 and 28 | 369931 375422 |
| MA02_GP011.001 | | Modern service | | Modern | A buried service. | Figures 30 and 31 | 370482 375738 |
| MA02_GP011.0022 | | Extraction | Marl pit | Post-medieval | Highly magnetic material adjacent to a former pond, shown on 1882 Ordnance Survey map. Extraction for marling. | Figures 27, 28, 30 and 31 | 370378 375807 |
| MA02_GP011.003 | | Agricultural historic | Field boundary | Post-medieval | A former field boundary shown on the 1882c Ordnance Survey map. | Figures 27, 28, 30 and 31 | 370352 375730<br>370400 375841 |

# 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 |
| CALS | Cheshire Archives and Local Studies |
| CIfA | Chartered Institute of 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 |
| NHLE | National Heritage List for England |
| UID | Unique gazetteer identifier |
| WCML | West Coast Mainline |

# 6 References

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

David, A., Linford, N. and Linford, P. (2008), *Geophysical Survey in Archaeological Field Evaluation: Research and Professional Services Guidelines, English Heritage*, Swindon.

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.

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Ordnance Survey (1882b), *Cheshire County Series, Map Sheet XLI*, 2nd edition, Scale: 1:10,560.

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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.

Unknown (1842), *Tithe Map of the Township of Rudheath in the Parish of Davenham in the County of Chester,* Cheshire Archives and Local Studies, Ref: EDT 345/2.

Unknown (1845), *Tithe Map of the Township of Lostock Gralam in the Parish of Great Budworth in the County of Chester,* Cheshire Archives and Local Studies, Ref: EDT 247/2.

WORK IN PROGRESS

PICKMERE TO AGDEN AND HULSEHEATH

WIMBOLDSLEY TO LOSTOCK GRALAM

HOUGH TO WALLEY'S GREEN

HE-004_MA02_Figure28

HE-004_MA02_Figure31

HE-004_MA02_Figure25

HE-004_MA02_Figure22

HE-004_MA02_Figure19

HE-004_MA02_Figure16

HE-004_MA02_Figure13

HE-004_MA02_Figure10

HE-004_MA02_Figure7

HE-004_MA02_Figure4

Lostock Gralam Viaduct

Smoker Brook Viaduct

Wade Brook Viaduct

Trent And Mersey Canal Viaduct

Gad Brook Viaduct

Puddinglake Brook Viaduct

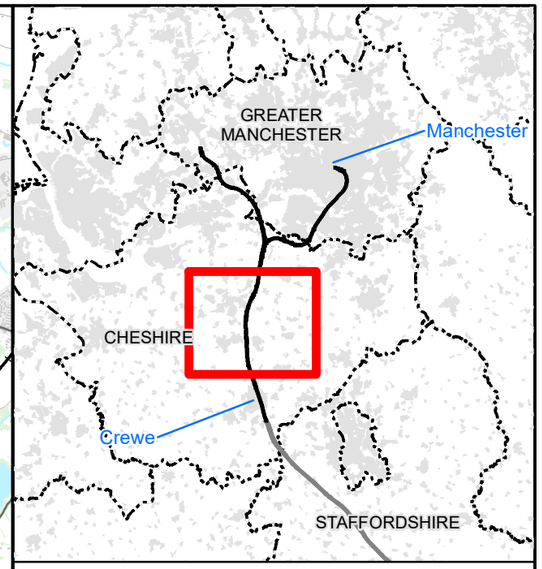
River Dane Viaduct

Shropshire Union Canal Viaduct

A54 Middlewich Road Viaduct

Crewe North Rolling Stock Depot

Pickmere
Comberbach
Acton Bridge
Weaverham
NORTHWICH
Northwich
Greenbank
Cuddington
Hartford
Moulton
Whitegate
Byley
Knutsford
KNUTSFORD
Ollerton
Chelford
Plumley
Lower Peover
Over Peover
Lach Dennis
Goostrey
CHESHIRE
WINSFORD
Winsford
Over
Little Budworth
Hebden Green
CHESHIRE WEST AND CHESTER
Wettenhall
Church Minshull
Alpraham
MIDDLEWICH
Holmes Chapel
Swettenham
CHESHIRE EAST
Brereton Green
Warmingham
Sandbach
SANDBACH
Arclid




## 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_MA02_Figure1

Map Name: Geophysical Survey Index map

Community Area MA02: Wimboldsley to Lostock Gralam

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-M000-002420-P01

**Date:** 22/06/21

WORK IN PROGRESS

256+000

MA02_GP001

CHESHIRE EAST

CHESHIRE WEST AND CHESTER

Park Hall Farm

Park House Farm

WIMBOLDSLEY TO LOSTOCK GRALAM

HOUGH TO WALLEY'S GREEN

**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_MA02_Figure2

Map Name: Site MA02_GP001 Unprocessed Greyscale

Community Area MA02: Wimboldsley to Lostock Gralam



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-M000-002421-P01

**Date:** 22/06/21

WORK IN PROGRESS

256+000

MA02_GP001

CHESHIRE EAST

CHESHIRE WEST AND CHESTER

Park Hall Farm

Park House Farm

WIMBOLDSLEY TO LOSTOCK GRALAM

HOUGH TO WALLEY'S GREEN

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_MA02_Figure3 |
| Map Name | Site MA02_GP001 Greyscale |
| | Community Area MA02: Wimboldsley to Lostock Gralam |



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-M000-002422-P01

**Date:** 22/06/21

WORK IN PROGRESS

256+000

MA02_GP001.002

MA02_GP001.003

MA02_GP001

MA02_GP001.008

MA02_GP001.009

MA02_GP001.004

MA02_GP001.001

MA02_GP001.010

MA02_GP001.013

MA02_GP001.007

CHESHIRE EAST

CHESHIRE WEST AND CHESTER

Park Hall Farm

Park House Farm

WIMBOLDSLEY TO LOSTOCK GRALAM

HOUGH TO WALLEY'S GREEN

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_MA02_Figure4

Map Name: Site MA02_GP001 Interpretation

Community Area MA02: Wimboldsley to Lostock Gralam



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-M000-002423-P01

Date: 22/06/21

WORK IN PROGRESS

HOUGHTON WALLEY'S GREEN

CHESHIRE EAST

A5300 NANTWICH ROAD

257+000

MA02_GP001

CHESHIRE WEST AND CHESTER

Park Hall Farm

WIMBOLDSLEY TO LOSTOCK GRALAM

A5300 NANTWICH ROAD

**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_MA02_Figure5

Map Name: Site MA02_GP001 Unprocessed Greyscale

Community Area MA02: Wimboldsley to Lostock Gralam



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-M000-002424-P01

Date: 22/06/21

WORK IN PROGRESS

HOUGHTON WALLEY'S GREEN

CHESHIRE EAST

A5300 NANTWICH ROAD

257+000

MA02_GP001

CHESHIRE WEST AND CHESTER

Park Hall Farm

WIMBOLDSLEY TO LOSTOCK GRALAM

A5300 NANTWICH ROAD

**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_MA02_Figure6

Map Name: Site MA02_GP001 Greyscale

Community Area MA02: Wimboldsley to Lostock Gralam



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-M000-002425-P01

**Date:** 22/06/21

WORK IN PROGRESS

HOUGHTO WALLEY'S GREEN

CHESHIRE EAST

A5300 NANTWICH ROAD

257+000

MA02_GP001.001

MA02_GP001.005

MA02_GP001

MA02_GP001.011

MA02_GP001.008

MA02_GP001.004

MA02_GP001.010

MA02_GP001.012

MA02_GP001.006

CHESHIRE WEST AND CHESTER

A5300 NANTWICH ROAD

Park Hall Farm

WIMBOLDSLEY TO LOSTOCK GRALAM

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_MA02_Figure7

**Map Name**

Site MA02_GP001 Interpretation

Community Area MA02: Wimboldsley to Lostock Gralam

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-M000-002426-P01

**Date:** 22/06/21

WORK IN PROGRESS

STANTHRONE PARK

CLIVE GREEN LANE

Shropshire Union Canal (Middlewhich Branch)

Park Farm

260+000

MA02_GP003

Yew Tree Farm

CLIVEGREEN LANE

CHESHIRE WEST AND CHESTER

COAL PIT LANE

A530 NANTWICH ROAD

**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_MA02_Figure8 |
| Map Name | Site MA02_GP003 Unprocessed Greyscale |
| | Community Area MA02: Wimboldsley to Lostock Gralam |

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-M000-002427-P01

**Date:** 22/06/21

WORK IN PROGRESS

STANTHRONE PARK

CLIVE GREEN LANE

Shropshire Union Canal (Middlewhich Branch)

Park Farm

260+000

MA02_GP003

Yew Tree Farm

CLIVEGREEN LANE

CHESHIRE WEST AND CHESTER

COAL PIT LANE

A530 NANTWICH ROAD



**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_MA02_Figure9

Map Name: Site MA02_GP003 Greyscale

Community Area MA02: Wimboldsley to Lostock Gralam



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



Scale at A3: 1:2,500

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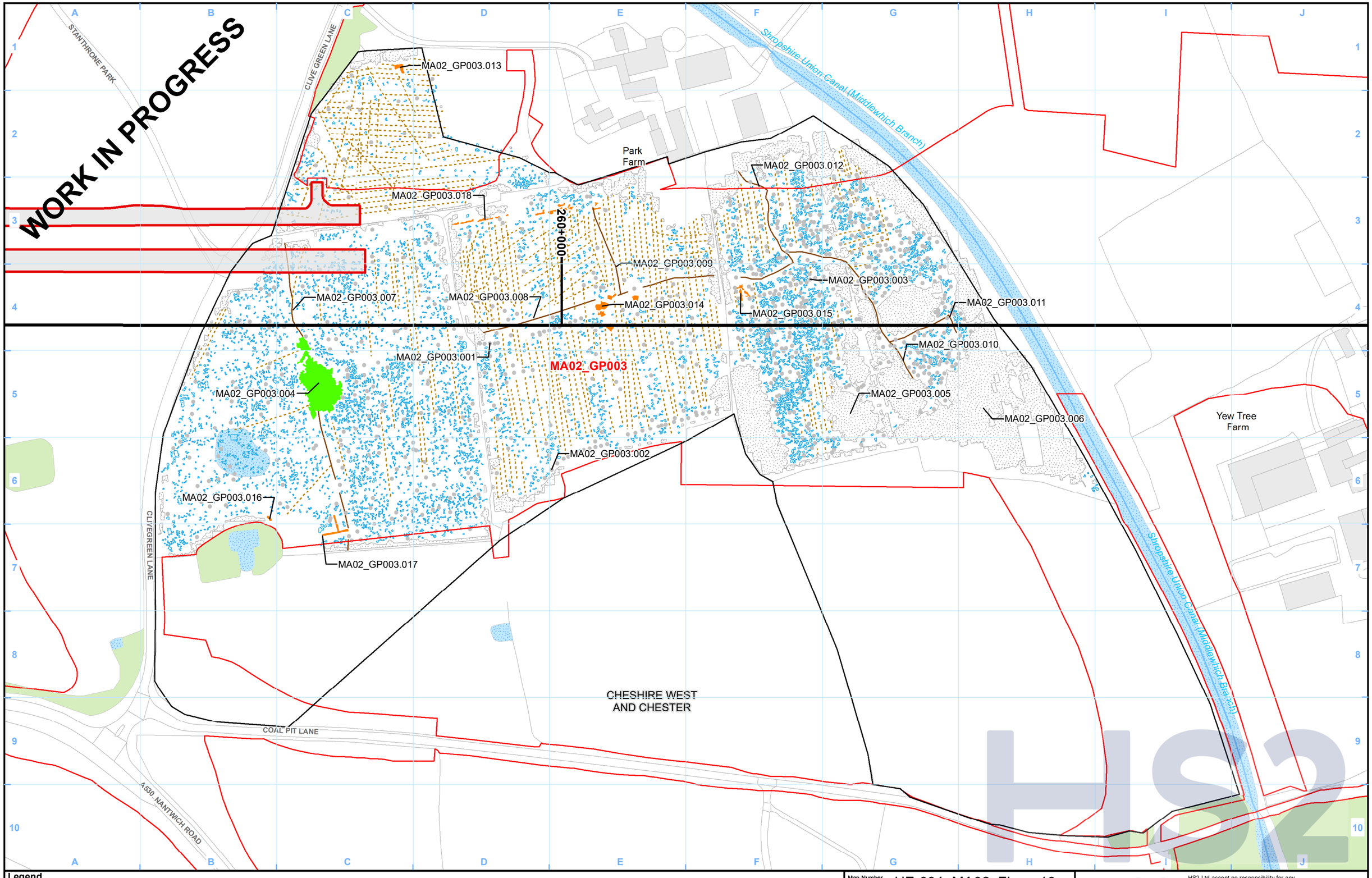
Date: 22/06/21

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_MA02_Figure10

Map Name: Site MA02_GP003 Interpretation

Community Area MA02: Wimboldsley to Lostock Gralam

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-M000-002429-P01

Date: 22/06/21

WORK IN PROGRESS

River Dane

River Dane

Trent and Mersey Canal

264+000

CHESHIRE WEST
AND CHESTER

MA02_GP004

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_MA02_Figure11

Map Name:

Site MA02_GP004
Unprocessed Greyscale

Community Area MA02:
Wimboldsley to Lostock Gralam



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-M000-002430-P01

**Date:** 22/06/21

WORK IN PROGRESS

River Dane

River Dane

Trent and Mersey Canal

264+000

CHESHIRE WEST AND CHESTER

MA02_GP004

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_MA02_Figure12

Map Name: Site MA02_GP004 Greyscale

Community Area MA02: Wimboldsley to Lostock Gralam



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-M000-002431-P01

**Date:** 22/06/21

WORK IN PROGRESS

River Dane

River Dane

Trent and Mersey Canal

CHESHIRE WEST
AND CHESTER

264+000

MA02_GP004.002

MA02_GP004.003

MA02_GP004.005

MA02_GP004

MA02_GP004.004

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_MA02_Figure13

Map Name: Site MA02_GP004 Interpretation

Community Area MA02:
Wimboldsley to Lostock Gralam

HS2



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



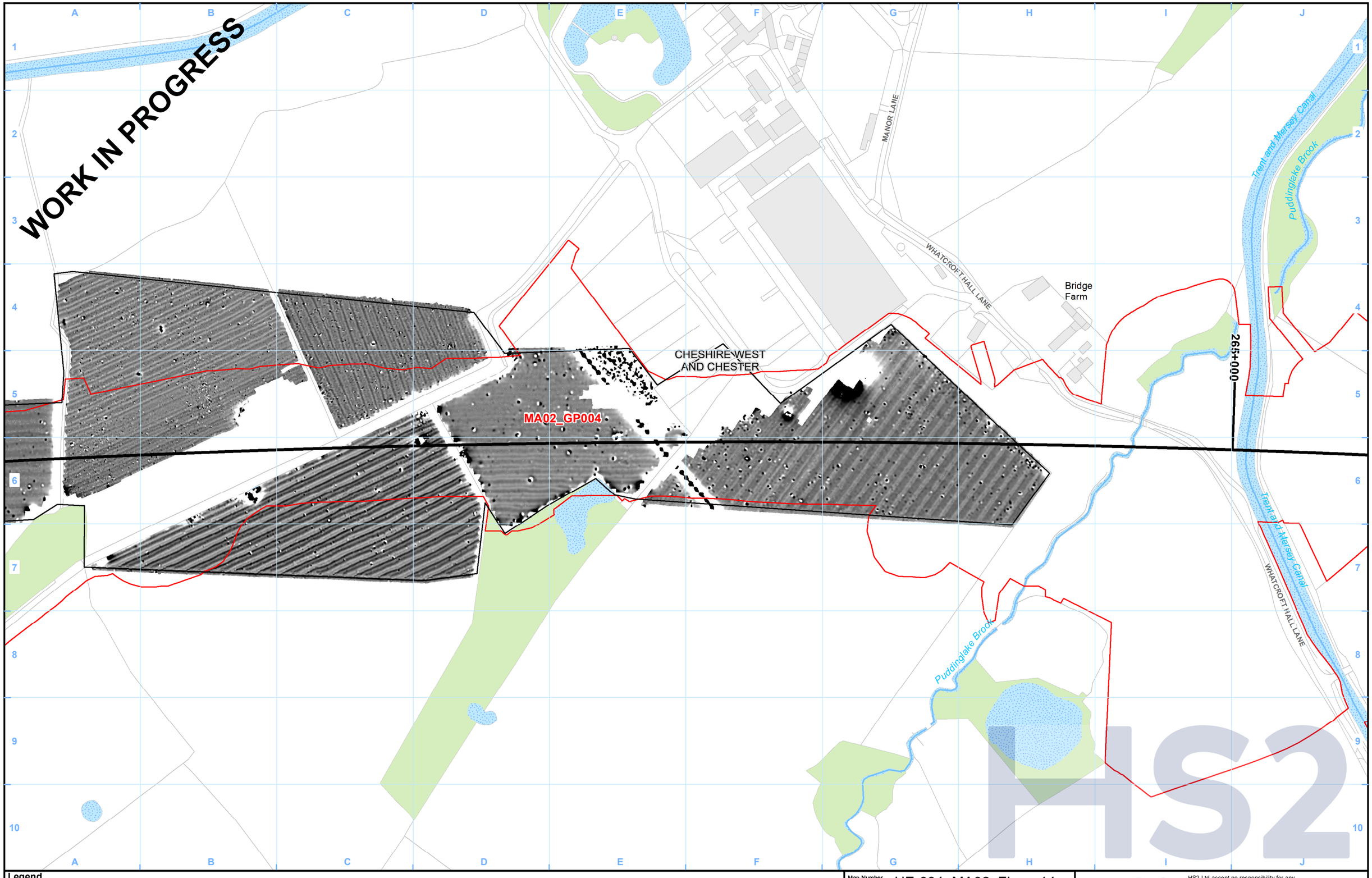
Scale at A3: 1:2,500

0 25 50 75 100
Metres

**Doc Number:** 2DE01-MWJ-EV-MAP-M000-002432-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_MA02_Figure14

Map Name

Site MA02_GP004
Unprocessed Greyscale

Community Area MA02:
Wimboldsley to Lostock Gralam



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



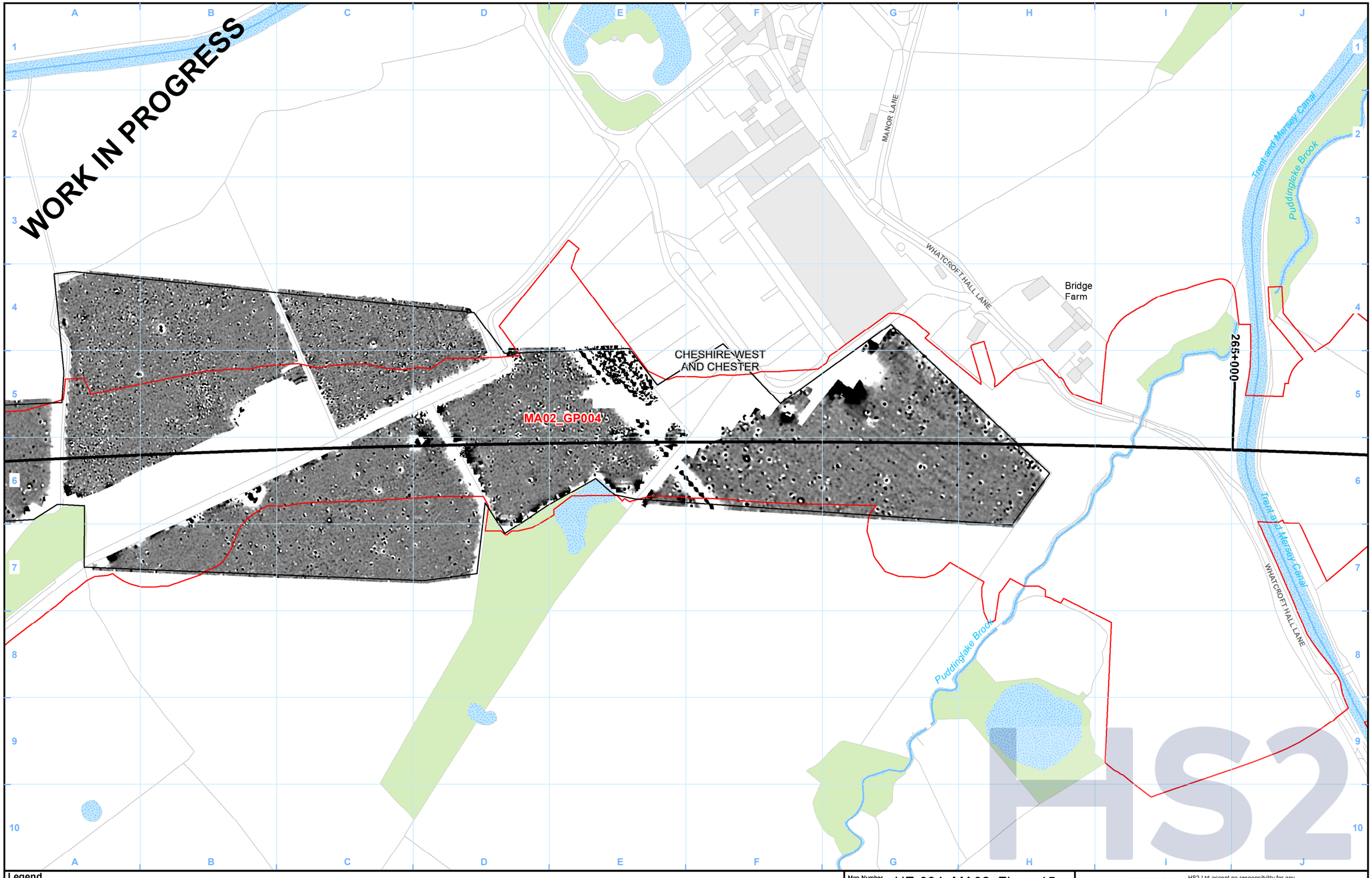
Scale at A3: 1:2,500

0 25 50 75 100 Metres

**Doc Number:** 2DE01-MWJ-EV-MAP-M000-002433-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_MA02_Figure15 |
| Map Name | Site MA02_GP004 Greyscale |
| | Community Area MA02: Wimboldsley to Lostock Gralam |



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



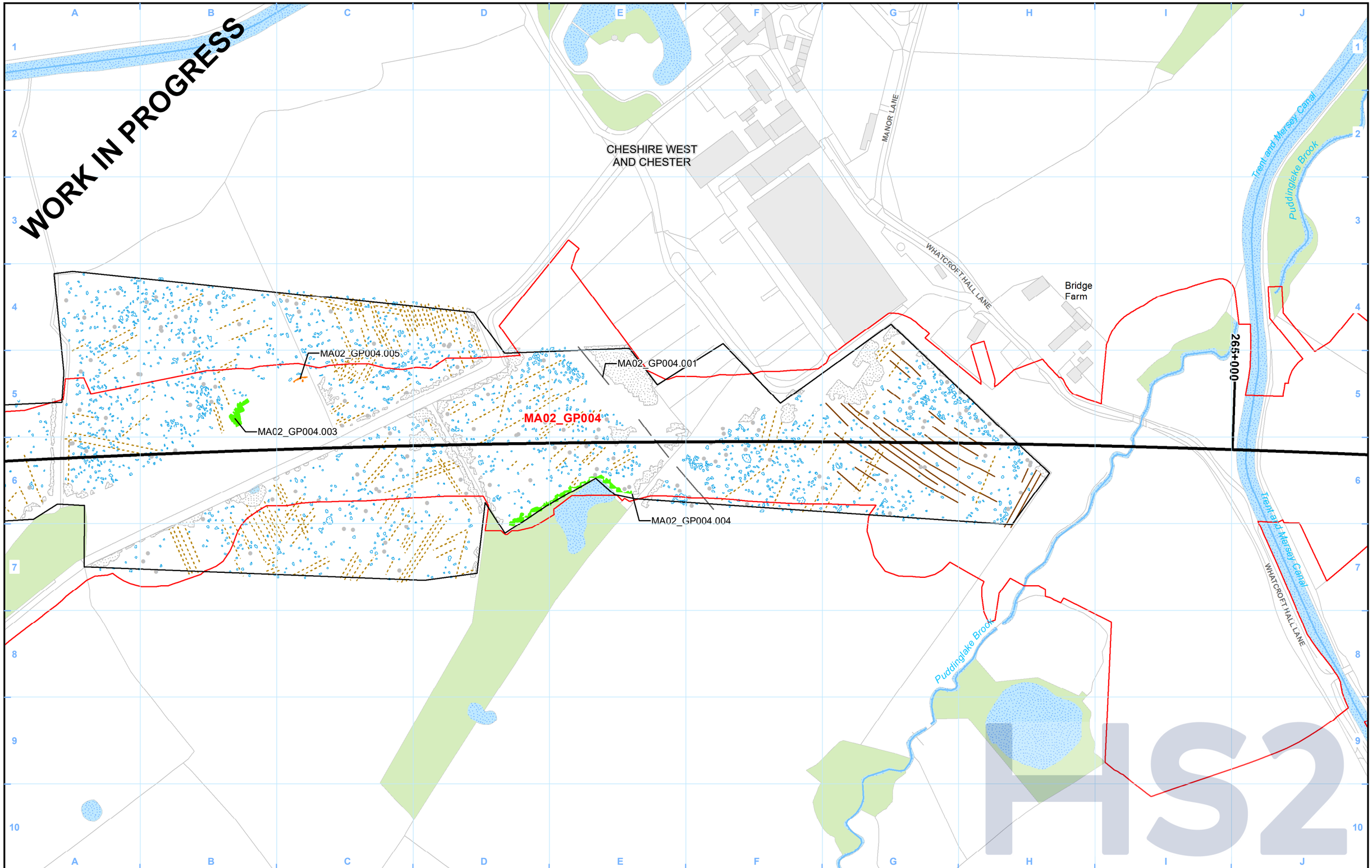
Scale at A3: 1:2,500

0 25 50 75 100 Metres

**Doc Number:** 2DE01-MWJ-EV-MAP-M000-002434-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_MA02_Figure16

**Map Name**

Site MA02_GP004
Interpretation

Community Area MA02:
Wimboldsley to Lostock Gralam



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



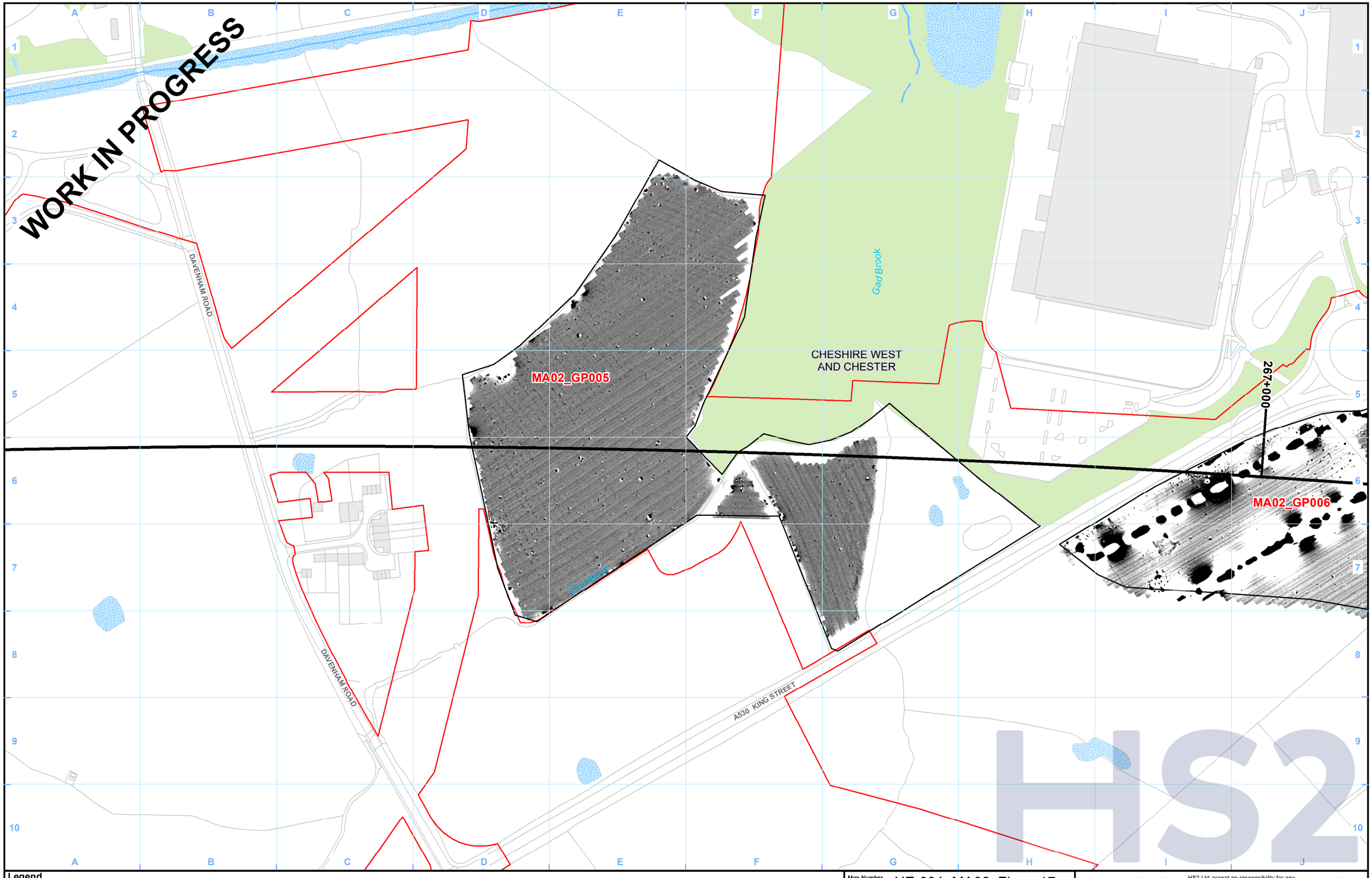
Scale at A3: 1:2,500

0 25 50 75 100 Metres

**Doc Number:** 2DE01-MWJ-EV-MAP-M000-002435-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_MA02_Figure17

Map Name

Site MA02_GP005
Unprocessed Greyscale

Community Area MA02:
Wimboldsley to Lostock Gralam

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-M000-002436-P01

**Date:** 22/06/21

WORK IN PROGRESS

DAVENHAM ROAD

MA02_GP005

Gad Brook

CHESHIRE WEST
AND CHESTER

267+000

MA02_GP006

DAVENHAM ROAD

A530 KING STREET

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_MA02_Figure18

Map Name: Site MA02_GP005 Greyscale

Community Area MA02:
Wimboldsley to Lostock Gralam



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-M000-002437-P01

**Date:** 22/06/21

WORK IN PROGRESS

DAVENHAM ROAD

Gad Brook

CHESHIRE WEST AND CHESTER

MA02_GP005

MA02_GP005.001

MA02_GP006.018

267+000

MA02_GP006.010

MA02_GP006.001

MA02_GP006

MA02_GP006.006

MA02_GP006.002

A530 KING STREET

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_MA02_Figure19

Map Name: Site MA02_GP005 Interpretation

Community Area MA02: Wimboldsley to Lostock Gralam



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-M000-002438-P01

Date: 22/06/21

WORK IN PROGRESS

CHESHIRE WEST AND CHESTER

A530 KING STREET

A556 SHURLACH ROAD

FOXGLOVE WAY

COOKES LANE

PENNYS LANE

B6082 PENNYS LANE

MA02_GP006

MA02_GP005

High House Farm

267+000

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_MA02_Figure20

Map Name: Site MA02_GP006 Unprocessed Greyscale

Community Area MA02: Wimboldsley to Lostock Gralam



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-M000-002439-P01

**Date:** 22/06/21

WORK IN PROGRESS

CHESHIRE WEST AND CHESTER

A530 KING STREET

A556 SHURLACH ROAD

FOXGLOVE WAY

COOKES LANE

PENNYS LANE

MA02_GP006

High House Farm

267+000

MA02_GP005

B6082_PENNYS 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_MA02_Figure21

**Map Name**

Site MA02_GP006 Greyscale

Community Area MA02: Wimboldsley to Lostock Gralam

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-M000-002440-P01

**Date:** 22/06/21

WORK IN PROGRESS

CHESHIRE WEST AND CHESTER

MA02_GP006.001
MA02_GP006.014
MA02_GP006.016
MA02_GP006.015
MA02_GP006.017
MA02_GP006.005
MA02_GP006.009
MA02_GP006.008
MA02_GP006
MA02_GP006.011
MA02_GP006.013
MA02_GP006.012
MA02_GP006.004
High House Farm
MA02_GP006.003
MA02_GP006.018
MA02_GP006.010
MA02_GP006.002
MA02_GP005
MA02_GP006.006
MA02_GP006.007

A556 SHURLACH ROAD
FOXGLOVE WAY
COOKES LANE
PENNYS LANE
A530 KING STREET
B5082 PENNYS LANE
267+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

**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_MA02_Figure22

Map Name: Site MA02_GP006 Interpretation

Community Area MA02: Wimboldsley to Lostock Gralam



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-M000-002441-P01

Date: 22/06/21

WORK IN PROGRESS

A556 SHURLACH ROAD

270+000

MA02_GP009

MA02_GP010

CHESHIRE WEST AND CHESTER

A559 MANCHESTER ROAD

A556 SHURLACH ROAD

A556 CHESTER ROAD

ASCOL DRIVE

CHESHIRE 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_MA02_Figure23

**Map Name**

Site MA02_GP009
Unprocessed Greyscale

Community Area MA02:
Wimboldsley to Lostock Gralam

HS2



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

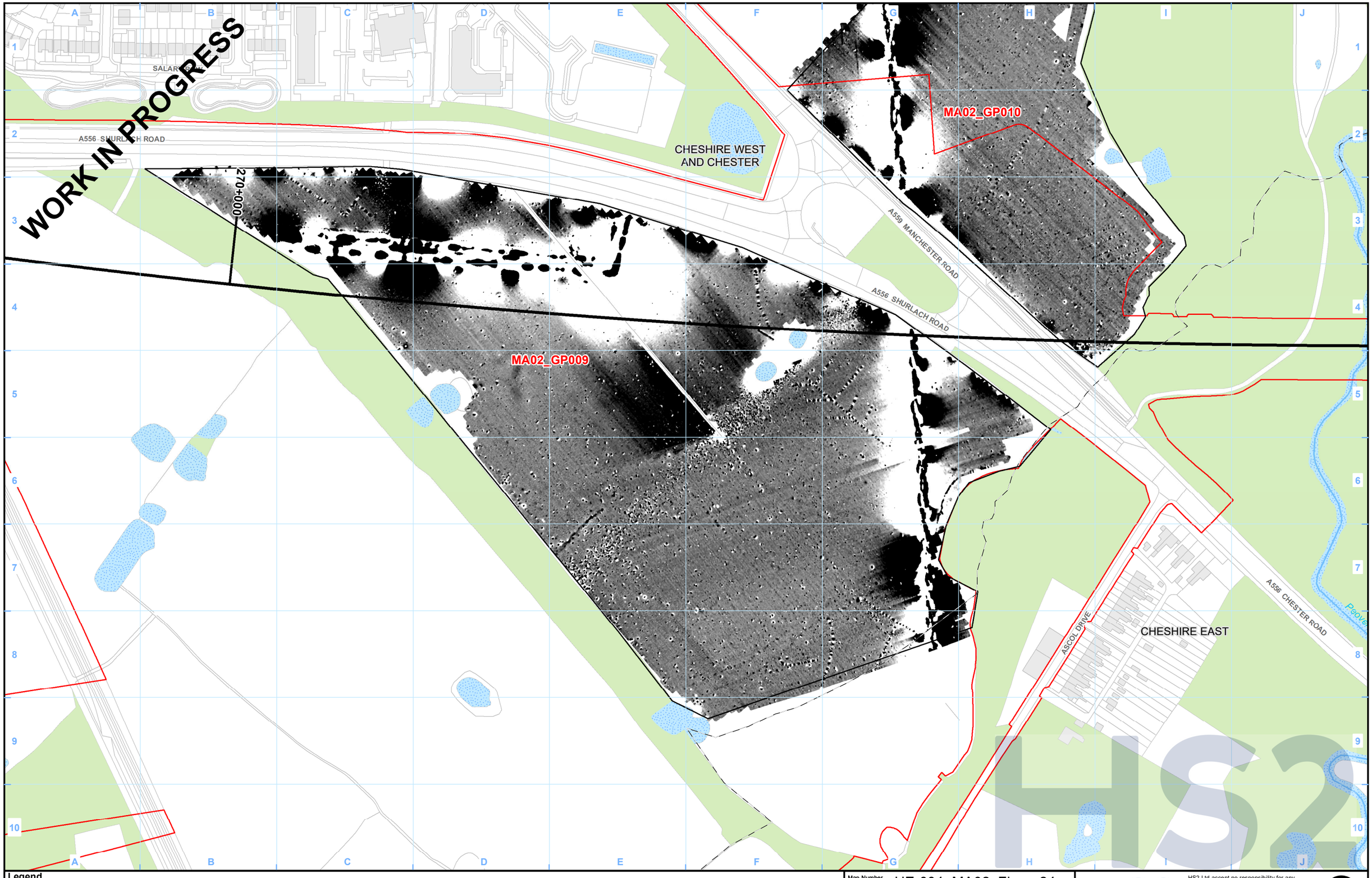


Scale at A3: 1:2,500

0 25 50 75 100
Metres

**Doc Number:** 2DE01-MWJ-EV-MAP-M000-002442-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
- Survey area

**Processed Greyscale (nT)**

Value

High : 3

Low : -3

| | |
|---|---|
| Map Number | HE-004_MA02_Figure24 |
| Map Name | Site MA02_GP009 Greyscale |
| | Community Area MA02: Wimboldsley to Lostock Gralam |



Scale at A3: 1:2,500

0 25 50 75 100 Metres

**Doc Number:** 2DE01-MWJ-EV-MAP-M000-002443-P01

**Date:** 22/06/21

WORK IN PROGRESS

A556 SHURLACH ROAD

270+000

CHESHIRE WEST AND CHESTER

MA02_GP010.001

MA02_GP010

A559 MANCHESTER ROAD

A556 SHURLACH ROAD

MA02_GP009.001

MA02_GP009.002

MA02_GP009.006

MA02_GP009

MA02_GP009.004

MA02_GP009.007

MA02_GP009.005

MA02_GP009.003

ASCOL DRIVE

A556 CHESTER ROAD

CHESHIRE EAST

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_MA02_Figure25

Map Name: Site MA02_GP009 Interpretation

Community Area MA02: Wimboldsley to Lostock Gralam

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-M000-002444-P01

Date: 22/06/21

WORK IN PROGRESS

A559 MANCHESTER ROAD

CHESHIRE WEST AND CHESTER

MA02_GP010

A559 MANCHESTER ROAD

A556 SHURLACH ROAD

MA02_GP009

Smoker Brook

271+000

CHESHIRE EAST

MA02_GP011

**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_MA02_Figure26

Map Name

Site MA02_GP010
Unprocessed Greyscale

Community Area MA02:
Wimboldsley to Lostock Gralam

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-M000-002445-P01

**Date:** 22/06/21

WORK IN PROGRESS

A559 MANCHESTER ROAD

CHESHIRE WEST AND CHESTER

MA02_GP010

A559 MANCHESTER ROAD

A556 SHURLACH ROAD

MA02_GP009

Smoker Brook

271+000

CHESHIRE EAST

MA02_GP011

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_MA02_Figure27

Map Name: Site MA02_GP010 Greyscale

Community Area MA02: Wimboldsley to Lostock Gralam



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-M000-002446-P01

Date: 22/06/21

WORK IN PROGRESS

A559 MANCHESTER ROAD

CHESHIRE WEST AND CHESTER

MA02_GP010.001

MA02_GP010

Smoker Brook

271+000

A559 MANCHESTER ROAD

A556 SHURLACH ROAD

MA02_GP009.001

MA02_GP009.002

MA02_GP009

MA02_GP009.006

MA02_GP009.003

MA02_GP009.004

MA02_GP009.007

CHESHIRE EAST

MA02_GP011

MA02_GP011.002

MA02_GP011.003

**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_MA02_Figure28

Map Name: Site MA02_GP010 Interpretation

Community Area MA02: Wimboldsley to Lostock Gralam

HS2



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

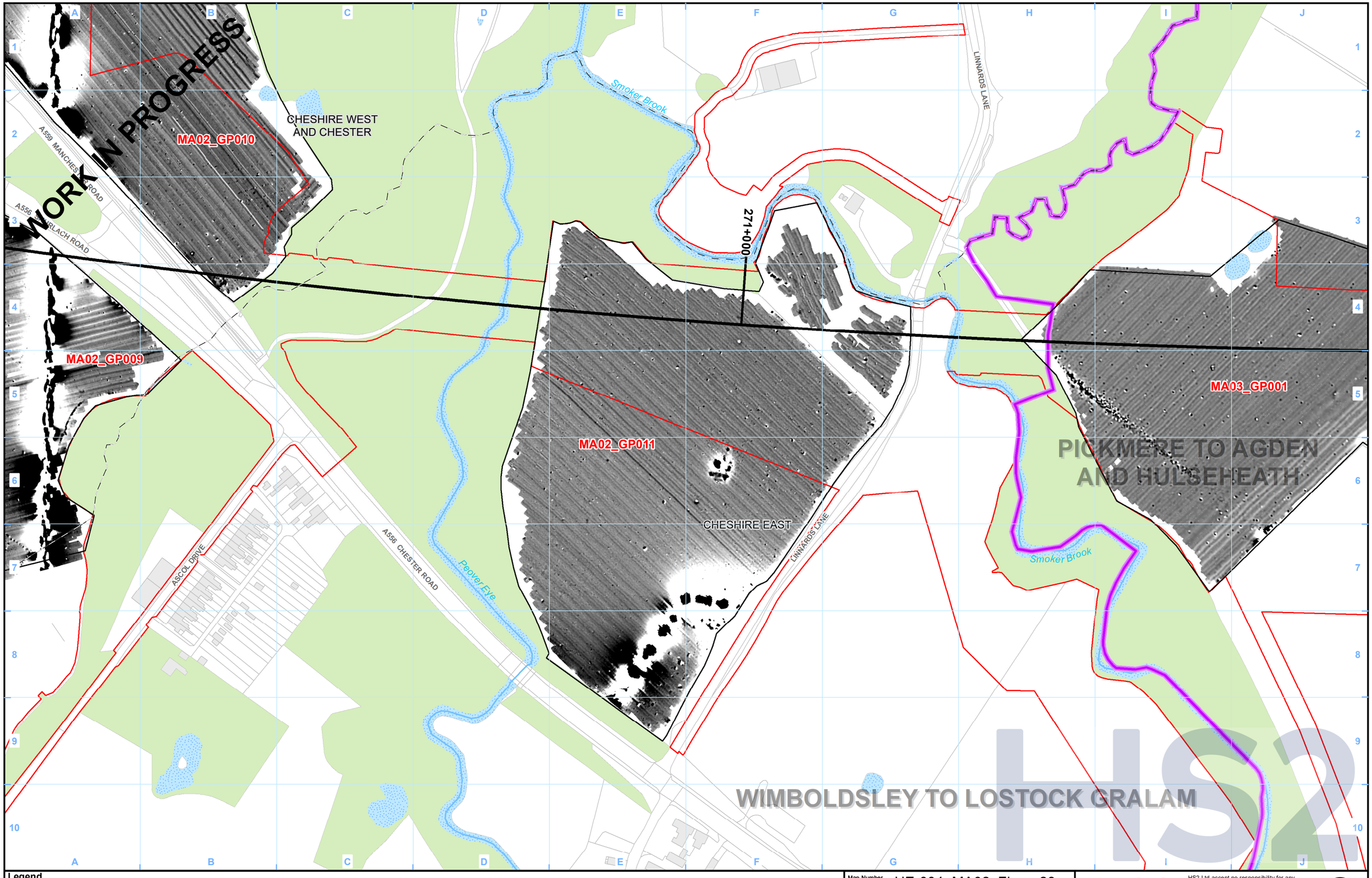


Scale at A3: 1:2,500

0 25 50 75 100 Metres

**Doc Number:** 2DE01-MWJ-EV-MAP-M000-002447-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
- Survey area

**Unprocessed Greyscale (nT)**

Value

High : 8

Low : -8

Map Number: HE-004_MA02_Figure29

Map Name:

Site MA02_GP011
Unprocessed Greyscale

Community Area MA02:
Wimboldsley to Lostock Gralam



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

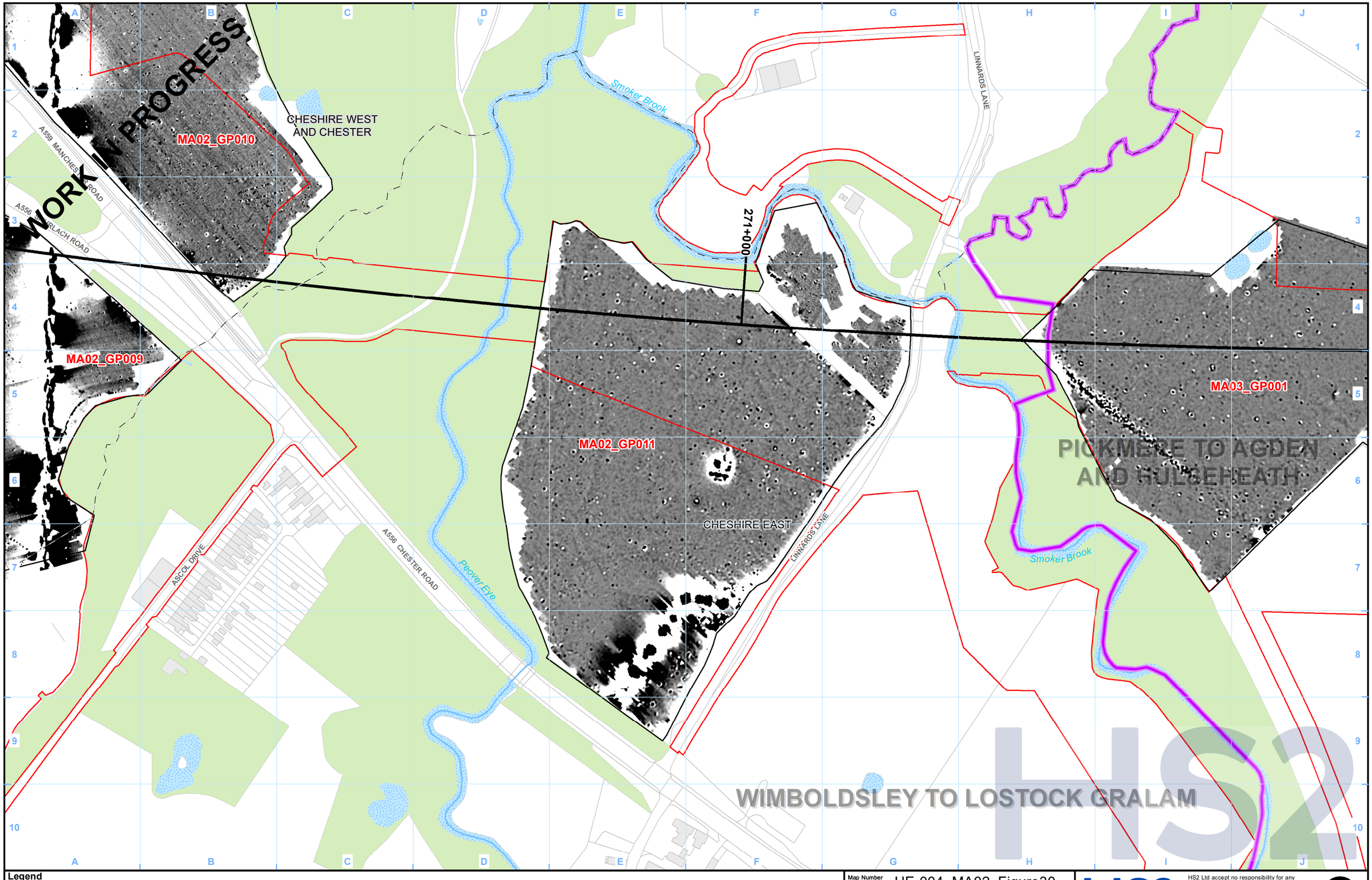


Scale at A3: 1:2,500

0 25 50 75 100 Metres

**Doc Number:** 2DE01-MWJ-EV-MAP-M000-002448-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
- Survey area

**Processed Greyscale (nT)**

Value

High : 3

Low : -3

| | |
|---|---|
| Map Number | HE-004_MA02_Figure30 |
| Map Name | Site MA02_GP011 Greyscale |
| | Community Area MA02: Wimboldsley to Lostock Gralam |

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-M000-002449-P01

**Date:** 22/06/21

WORK IN PROGRESS

MA02_GP010.001

MA02_GP010

MA02_GP009

MA02_GP009.007

MA02_GP009.003

MA02_GP011

MA02_GP011.002

MA02_GP011.003

MA02_GP011.001

MA03_GP001

MA03_GP001.003

CHESHIRE WEST AND CHESTER

CHESHIRE EAST

271+000

Smoker Brook

Peover Eye

A559 MANCHESTER ROAD

A556 MANCHESTER ROAD

A556 CHESTER ROAD

ASCOL DRIVE

LINNARDS LANE

PICKMERE TO AGDEN AND HULSEHEATH

WIMBOLDSLEY TO LOSTOCK GRALAM

**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_MA02_Figure31

Map Name: Site MA02_GP011 Interpretation

Community Area MA02: Wimboldsley to Lostock Gralam



Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002450-P01

Date: 22/06/21