

# Geophysical Survey Report Edenderry GNI Gas Pipeline to BNM, Co. Meath and Co. Offaly

Detection Device Number: 25R0348

Donald Murphy  
October 2025  
Report Status: Final

ACSU Ref.: 2594




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## PROJECT DETAILS

|                              |  |
|------------------------------|--|
| <b>Project</b>               | Edenderry GNI Gas Pipeline to BNM, Co. Meath and Co. Offaly  |
| <b>Report Type</b>           | Geophysical Survey Report  |
| <b>Licence No.</b>           | 25R0348  |
| <b>Townland(s)</b>           | Phase 1 – Areas of Archaeological Potential: Ardnamullan and Ticroghan, Co. Meath and Mountwilson, Thornwell, Monasteroris, Rathmore, Ballykilleen and Shean, Co. Offaly |
| <b>RMP/SMR No.</b>           | N/A  |
| <b>RPS Id./NIAH Reg. No.</b> | N/A  |
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| <b>Consultant</b>            | Archaeological Consultancy Services Unit,<br>21 Boyne Business Park,<br>Greenhills, Drogheda, County Louth   |
| <b>Archaeologist</b>         | Donald Murphy  |
| <b>Report Author(s)</b>      | Donald Murphy & Jeanne Rochford  |
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### VERSION CONTROL

| Revision | Date       | Description                | Status | Author    | Reviewed | Approved |
|----------|------------|----------------------------|--------|-----------|----------|----------|
| 1.0      | 02.10.2025 | Geophysical survey results | Final  | D.M & J.R | L.C      | D.M      |

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## NON-TECHNICAL SUMMARY

This report details the results of a Geophysical Survey carried out of a site located in the townlands of Ardnamullan and Ticroghan, Co. Meath and Mountwilson, Thornwell, Monasteroris, Rathmore, Ballykilleen and Shean, Co. Offaly (ITM North 662587, 744917 South 660881, 727363; Figures 1-3). The assessment is in relation to the proposed Edenderry GNI Gas Pipeline to BNM Project. The initial assessment focused on surveying five areas of high archaeological potential (AAP1 – AAP5) that were previously identified based on their proximity to existing monuments.

The site contains no known archaeological monuments and does not traverse any zone of archaeological potential. However, there are 30 monuments located within 0.5km of the pipeline route (see Table 2). The areas of high archaeological potential are summarised as follows: Area of Archaeological Potential 1 (AAP1) in the townland of Ardnamullan, Co. Meath is located in close proximity to the Recorded Monument Castle – tower house (ME046-007). Area of Archaeological Potential 2 (AAP2) in the townland of Ticroghan, Co. Meath is located close to Recorded Monument moated site – (ME046-008). Area of Archaeological Potential 3 (AAP3) traverses the following townlands; Mountwilson, Thornwell and Monasteroris, Co. Offaly and is located close to Recorded Monuments; burial mound (OF011-007) and Settlement deserted – medieval (OF011-009006-) which is associated with religious house Franciscan Friars (OF011-009001), a ritual site – holy well (OF011-008) and two castles (OF011-010001, OF011-011). Area of Archaeological Potential (AAP4) in the townland of Rathmore, Co. Offaly is situated close to two enclosures (OF011-024 and OF011-025). Area of Archaeological Potential (AAP5) traverses the townlands of Ballykilleen and Shean, Co. Offaly. There are several monuments in the townland of Ballykilleen which include a ringfort rath (OF011-035001); designated landscape – tea house (OF011-035002), enclosure (OF011-035003) and road – unclassified togher (OF019-009----). Furthermore, to the west and in proximity to the site are other monuments recorded by the Irish Archaeological Wetland Unit with a concentration of peatland structures and road class 2 and 3 toghers recorded in Ballykilleen and Ballynakill.

The geophysical survey was conducted by Donald Murphy, Robert Breen and Jeanne Rochford of Archaeological Consultancy Services Unit Ltd. (ACSU) under licence 25R0348 issued by the Department of Housing, Local Government and Heritage. A complete, detailed gradiometer survey was undertaken throughout the application area using a SENSYS MAGNETO MXV3 8-sensor fluxgate gradiometer cart system.


Potential archaeological features were detected in the southern portion of Field 20 (**AAP1**) that may represent enclosures (**M1 & M2**) and potential spread/pit remains of archaeological significance have been recorded throughout the areas surveyed. An archaeological interpretation for responses in these areas is highly

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tentative, and a natural soil or geological origin or recent land use for these anomalies should also be considered. A sample of these responses should be assessed through test trenching.


Features depicted on the Ordnance Survey 6-inch map, surveyed 1835, and the third edition Ordnance Survey (OS) 25-inch map, surveyed 1910, such as former field boundaries, were also detected. Linear anomalies that are not recorded field boundaries were also detected, which likely represent land drains, paths/access routes and cultivation furrows.

It is recommended that any anomalies identified be targeted during a future test trenching programme. Features exposed should be sufficiently sectioned in order to assess their depth and nature. This must be carried out by a licence-eligible archaeologist prior to any groundworks taking place. Once test trenching is complete, further mitigation might include preservation *in situ* (avoidance), excavation (preservation by record), and/or monitoring. The Department of Housing, Local Government, and Heritage shall be consulted in this regard.

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## 1. INTRODUCTION

The following report outlines the results of a Geophysical Survey carried out in the following townlands: Ardnamullan and Ticroghan, Co. Meath and Mountwilson, Thornwell, Monasteroris, Rathmore, Ballykilleen and Shean, Co. Offaly (ITM North 662587, 744917 South 660881, 727363; Figures 1-3). The survey was carried out at the request of the client and the results will be included in an Environmental Impact Assessment Report.


The geophysical survey was conducted by Donald Murphy, Robert Breen, and Jeanne Rochford of Archaeological Consultancy Services Unit Ltd. (ACSU) under licence 25R0348, issued by the Department of Housing, Local Government, and Heritage.

## 2. METHODOLOGY

The detailed magnetic survey was carried out using a SENSYS MAGNETO® MXV3 modular carrier that is configured to host 8 Sensys FGM650/3 sensors spaced at 0.5m intervals with a total survey width of 4m. The non-magnetic cart system is towed behind a quad bike, and readings are recorded at 200Hz. Data is captured every 20mm with a position accuracy of  $\pm 1$  cm using a Trimble R10 RTK GNSS receiver mounted on the cart at a height of 1.5m. All data is recorded with SENSYS software MonMX v.5.01 on a Panasonic FZ-G1 TOUGH PAD tablet computer in .cfg format.

Data is collected along parallel survey transects using the digital display system in MonMX, which provides a live stream of visual data. This allows for an accurate and systematic survey without the need to establish predetermined grids. Magnetic data is exported from the MonMX software in ASCII format and is imported to DW Consulting's TerraSurveyor64 v4.1.12.1 for processing. The data is initially de-striped (zero median traverse) and then clipped to a range of  $-1.5\text{nT} - +3\text{nT}$ . A TIF file is produced by TerraSurveyor software along with a corresponding world file (.TFW), which allows for automatic geo-referencing when using CAD software. Raster images are geo-referenced in ProgeCAD 2018 before being interpreted in AutoCAD LT 2025. Graphical interpretations that indicate anomalies identified are numbered so that they can be referenced in the survey results section of the geophysical survey report.

All work was carried out in accordance with the *IAI Code of Professional Conduct* (Institute of Archaeologists of Ireland 2006) and in accordance with the *EAC Guidelines for the use of Geophysics in Archaeology* (Schmidt et al. 2016), as well as English Heritage's *Geophysical Survey In Archaeological Field Evaluation* (David et al. 2008).

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### 3. SURVEY OBJECTIVES

The survey aimed to establish the presence of any potentially existing but previously unknown monuments and any other archaeological features within the site and to inform a future programme of test trenching.

### 4. SOILS, GEOLOGY AND TOPOGRAPHY

The initial assessment focused on surveying five areas of high archaeological potential (AAP1 – AAP5) that were previously identified based on their proximity to existing monuments, located in the townlands of Ardnamullan and Ticroghan, Co. Meath and Mountwilson, Thornwell, Monasteroris, Rathmore, Ballykilleen and Shean, Co. Offaly.


#### Ardnamullan & Ticroghan, Co. Meath (AAP1 & AAP2)

The survey area in Ardnamullan consists of pasture and tillage fields with an elevation of 72-81m Ordnance Datum (OD). The survey area within the townland of Ticroghan consisted of pasture fields with some areas of rough ground and has an elevation of 74-79m Ordnance Datum (OD). The underlying geology within the townland of Ardnamullan consists of massive, unbedded lime-mudstone and is part of the Waulsortian Limestones Formation. In the townland of Ticroghan the underlying geology consists of dark limestone and shale (calp) and is part of the Lucan Formation (Geological Survey Ireland). The bedrock geology in both sections of townland is overlaid by till derived chiefly from limestone. The soil groups are mainly grey brown Podzolics and brown earths (medium to high base status) with a section of lithosols and peat in the townland of Ticroghan (Teagasc Soil Guide).

#### Mountwilson, Thornwell & Monasteroris, Co. Offaly (AAP3)

AAP3 traverses three townlands: Mountwilson, Thornwell and Monasteroris, Co. Offaly, with a mixture of pasture and tillage fields. This section has an elevation of 72-78m Ordnance Datum (OD).

The underlying geology within the townlands of Mountwilson, Thornwell & Monasteroris, Co. Offaly consists of Oolitic limestone and is part of the Edenderry Oolite Formation (Geological Survey Ireland). This bedrock geology is overlaid by predominantly peat, with the soil groups mainly consisting of basin peats and blanket peats (Teagasc Soil Guide).

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### **Rathmore, Co. Offaly (AAP4)**

AAP4 consisted of three fields, in pasture, within the townland of Rathmore, Co. Offaly. This section has an elevation of 81-85m Ordnance Datum (OD).

The underlying geology within the townland of Rathmore, Co. Offaly, consists of Oolitic limestone and is part of the Edenderry Oolite Formation (Geological Survey Ireland). The bedrock geology is overlaid by till derived chiefly from limestone. The soil groups consist of grey, brown Podzolics and brown earths (medium to high base status) (Teagasc Soil Guide).

### **Ballykilleen and Shean, Co. Offaly (AAP5)**


AAP5 traverses two townlands, Ballykilleen and Shean, Co. Offaly. This section had an elevation of 68-86m Ordnance Datum (OD). The fields were predominantly in pasture, with some areas unsuitable for survey due to rough ground conditions.

The northwest fields in AAP5 are in the townland of Ballykilleen where the underlying geology consists of Oolitic limestone and is part of the Edenderry Oolite Formation. The remaining fields underlying geology in AAP5 between the townlands of Ballykilleen and Shean consist of dark limestone and shale (calp) and are part of the Lucan Formation (Geological Survey Ireland). The bedrock geology in the northwest fields is overlaid by till derived chiefly from limestone. The soil groups consist of grey, brown Podzolics and brown earths (medium to high base status). The bedrock geology in the remaining fields is overlaid by peat, with the soil groups mainly consisting of basin peats and blanket peats (Teagasc Soil Guide).

## **5. ARCHAEOLOGICAL ASSESSMENT**

### **5.1 Archaeological & Historical Background**

The site is located within two counties, Meath and Offaly. It traverses the townlands of Aghnagilla, Ballyboggan, Ballynakill, Castlejordan, Clongall, Harristown, Kilwarden, Park, Ticroghan in Co. Meath and Ballykilleen, Clonmore, Drumcooly, Lenamarran, Monasteroris, Mountwilson, Rathgreedan, Rathmore, Roosk, Shean, Thornwell, Co. Offaly. The proposed corridor traverses the county boundary in two places and the townland boundary in 21 places. The proposed route crosses water courses in four places, including the Grand Canal at the south end.

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The site contains no known archaeological monuments and does not traverse any zone of archaeological potential. However, there are 30 monuments located within 0.5km of the pipeline route (see Table 2).

Five areas of high archaeological potential have been identified; these are in proximity to existing monuments and include:


#### **Area of Archaeological Potential 1 (AAP1) corridor near Castle – tower house ME046-007.**

The tower house at Ardnamullan townland is depicted on the Down Survey 15656 as two two-story towers, one with a chimney connected by a wing. A rectangular structure, c. 4m high, representing a tower house that survived up until 1985 when it was pulled down.

Castles are the primary reminder of the medieval period in the Irish landscape, as pointed out by O'Connor (1998). The term castle covers a number of types of field monuments, which can date from the late 12th to the 16th century AD., These include: Castle - Anglo-Norman masonry castle; Castle - hall-house; Castle - motte; Castle - motte and bailey; Castle - ringwork; Castle - ringwork and bailey; Castle - tower house.

Prior to the stone-built castles, the majority of castles in Ireland in the 12th and 13th centuries were made of earth and timber; these are classed as earthwork castles. Two types of these can be distinguished – a motte and a ring-work. Mottes consist of a mound of earth with a flat summit where a wooden building and defences were located, sometimes with a bailey, a defended enclosure at the base, with defences of timber or clay; it is suggested that c. 476 mottes were constructed in Ireland. Investigations at Dunsilly, Co. Antrim, and Rathmullen, Co. Down, of mottes suggest that these were constructed on top of pre-existing ringforts. The locations were likely reused due to their native high status or simply because they provided a stable foundation for the mounds, as well as their strategic location. O'Keeffe (1990) estimates that about 30% of motte castles in Ireland had a bailey. These take the form of an enclosure and function as a courtyard, delimited by a bank and ditches, and/or a palisade. In Ireland, these are usually square, rectangular, oval, or triangular in plan and typically enclose the motte. Ringworks are circular or oval areas surrounded by an earthen bank and ditches; the defences would also be built of timber and clay. It is suggested that c. 63 probable and possible structures of this type were constructed in Ireland.

Masonry and earthwork castles in Ireland date to the late 12th to early 14th century, these structures represent the first phase of stone castle-building in Ireland (c. 1180 and 1310-20) and were mostly built by Anglo-Norman lords, and consisted of a wide diversity of defensive and domestic accommodation, like keeps, mural towers, fine twin-tower gatehouses, curtain-walls looped for archery etc. Under 100 of these types of

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structures have been confirmed; however, it is more likely that the number is 150, as suggested by Sweetman (ibid). Between 630 and 700 castles were likely built between the 12th and 14th centuries.

Tower houses are another type of castle; these are tall, rectangular, or square masonry towers with three to five storeys in height. The early 15th-century date was suggested by McNeill (1997) and these were built as late as c.1650s (Cairns 1987). While earlier examples were built by people of Anglo-Norman descent, the Gaelic-built ones came shortly after. Some had a stone-walled enclosure, called a bawn; references suggest bawns were defended by wooden palisades, sod walls or even thick hedges and had angle towers, and gun-loops for defence, however most were not seriously defensive in nature. It was suggested by Barry (1996) that up to 7000 tower houses were built in Ireland between the 14th and 17th centuries.

The final type of Castle is called a fortified house, these were built in the late 16th century to c. 1650. These consist of large rectangular blocks with massive square towers at each corner. Domestic accommodation is the primary purpose, however gun-loops, flanking defence and machicolations suggest that they were also built to repel an attack; often a bawn is attached. It is suggested that up to 200 examples exist in the Irish countryside.

#### **Area of Archaeological Potential 2 (AAP2) corridor near moated site ME046-008.**

The moated site at Ticroghan to the west of the corridor is a rectangular area measuring 40m by 33m defined by a flat-bottomed moat, with a slight dip at the south that might indicate an entrance, and an outer bank. Moated sites are among the most numerous extant earthworks of the medieval period and are usually regarded as Anglo-Norman protected farmsteads that likely emerged in the late 13th century AD (O'Sullivan & Downey 2006b). While many were probably built by the Anglo-Normans as they moved onto marginalised lands, often close to the territories of the Irish, others, particularly those in the west, were probably built by Gaelic kings and lords (O'Connor 1998). They are, however, largely understood as the homesteads of new settlers who were cultivating the land around the Anglo-Norman manors. O'Connor (ibid.), however, also notes that some may be the remnants of monastic granges, located on the scattered estates of medieval monasteries, while others may represent hunting lodges, and O'Keeffe (2004) has postulated that some may have contained gardens and fishponds. Such sites are largely visible on the landscape as a single rectangular or sub-rectangular enclosure, comprising a central platform with surrounding banks and ditches, which may be partly water-filled. A study conducted by Barry (1977) of moated sites in counties Carlow, Kilkenny, Tipperary and Wexford, showed that they generally had central platforms ranging in size from under 500m<sup>2</sup> to over 8,000m<sup>2</sup>,

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although the majority between 500m<sup>2</sup> and 2,500m<sup>2</sup>, and moats varying from 2m to 10m wide, although with most between 2m and 7m.

Of those that have been excavated, a site at Rigsdale, Co. Cork, provided evidence for a large hall-like structure with a garderobe and the plinth of an unfinished gatehouse, while those at Ballyveelish, Co. Tipperary, Kilmagoura, Co. Cork, and Kilferagh, Co. Kilkenny, contained dwelling-houses and farm buildings, with a cereal-drying kiln also recorded at the latter site (O'Connor 1998). At Kilmagoura, a stone pathway and the foundation timbers of a causeway/entrance across the ditch were also identified.

**Area of Archaeological Potential 3 (AAP3) corridor near burial mound OF011-007 and Settlement deserted medieval (OF011-009006-) associated with religious house Franciscan Friars (OF011-009001) with a ritual site – holy well (OF011-008), castles (OF011-010001, OF011-011).**


Extensive earthworks representing a deserted medieval settlement (OF011-009006) survive to the west of the Franciscan Friars' religious house (OF011-009001). These might be the remains of the town of Tethmoy or Totmoy mentioned in the 1550 Survey. This hints at an early medieval activity in the area immediately to the east of the site, with the possibility of further such activity extending within the current site.

**Area of Archaeological Potential 4 (AAP4) corridor near enclosures OF011-024 and OF011-025.**

Both monuments were identified as cropmark anomalies with no surface expression to the south of the Grand Canal. The imagery suggests that OF011-025 is rectangular. These could date from the prehistoric to the medieval period.

**Area of Archaeological Potential 5 (AAP5) corridor near ringfort rath OF011-035001; designated landscape – tea house OF011-035002, enclosure OF011-035003 and road – unclassified togher OF019-009---- in the townland of Ballykilleen. Furthermore, to the west and in proximity to the site are other monuments recorded by the Irish Archaeological Wetland Unit with a concentration of peatland structures, road class 2 and 3 togher recorded in Ballykilleen and Ballynakill.**

Ringfort OF011-035001 at Ballykilleen is a large bi-vallate enclosure with a flat raised area with two large fosses and a bank with some evidence of an outer bank and entrance at the east. Within the monument are the remains of a former tea house (OF011-035002); in the form of a small earthen mound. The teahouse was built

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c. 1825 by the Marquis of Downshire. Enclosure OF011-035003 is visible on aerial imagery as a slight earthwork enclosure measuring c. 40m with a faint indication of an enclosing, roughly oval bank. road – unclassified togher OF019-009---- now within forestry, consisted of split oak timbers discovered during ploughing.

The monuments recorded by the Irish Wetland Unit include monument recorded in Ballykileen bog such as peatland structures, road class 2 and 3 togher mostly of prehistoric date with the area subject to investigations on numerous occasions, with majority carried out in 2003 (99E0050, 03E0926, 03E0999, 03E0869,03E0906, 03E1001, 03E0984,03E1223, 03E1143, 03E1120, 03E1119, 03E1117, 03E0983 and 14E0255).

## 5.2 Previous Archaeological Investigations

The site was not subject to any previous archaeological investigations. The route of the M4 that the site traverses was subject to test trenching, in relation to the M4 Dublin Galway motorway (02E0108; Russell 2002). A charcoal-making site (ME046-027) was identified and subsequently excavated (02E0114 Linnane 2002). The monument was radiocarbon dated to Cal. Ad. 1020-1250. It consisted of two rectangular pits measuring 1.6m by 0.9m and 0.1m in depth, and 2.5m by 1.5m and 0.25m in depth. Investigations under licence 07E0383 (Sullivan 2008), including test trenching and monitoring, identified three small isolated features; two were deemed modern, and the third was a pit with in situ burning measuring 0.69 by 0.6m. Monitoring (02E0868) identified an isolated charcoal-rich feature with iron slag and a bloom of smelted iron. In Harristown, monitoring for ESB did not identify any archaeology (01E0760 O'Carroll). Test trenching in Monasteroris (10E068, Tierney 2010) in an area adjacent to a deserted medieval settlement identified two large ditches (2.5 and 1.5m wide) and three oval/circular pits measuring 1m in diameter, all containing medieval pottery.

Several monuments were recorded by the Irish Wetland Unit in Ballykilleen bog and are now listed as peatland structures, road class 2 and 3 togher mostly of prehistoric date with the area subject to investigations on numerous occasions, with majority carried out in 2003 (99E0050, 03E0926, 03E0999, 03E0869,03E0906, 03E1001, 03E0984,03E1223, 03E1143, 03E1120, 03E1119, 03E1117, 03E0983 and 14E0255).

Listed below (Table 1) are the nearest previous archaeological investigations undertaken in the environs of the site (see Figures 2-4), which further demonstrate the overall archaeological potential of the site and its surrounding townlands. The following information was taken from the *Database of Irish Excavation Reports* ([www.excavations.ie](http://www.excavations.ie)). Where applicable, associated reports were accessed through the National Monuments Service's (NMS) Virtual Reading Room.



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Table 1: Previous archaeological investigations within the environs of the site

| Excavation.ie reference   | Licence No. | Site-Type   | Investigation Type            |
|---|-------------|---|-------------------------------|
| 2002:1482 - KILWARDEN (BGE 1a/47/1), Meath                                  | 02E0868     | Metalworking site Undetermined                        | Monitoring                    |
| 2002:1876 - KINNEGAD–ENFIELD–KILCOCK MOTORWAY SCHEME, Contract 1, Westmeath | 02E0108     | Excavation – miscellaneous. Multi-period              | Test Trenching                |
| 2002:1412 - ARDNAMULLAN (1), Meath  | 02E0114     | Charcoal-making site. Late Medieval (AD 1100-AD 1599) | Excavation                    |
| 2008:1012 - MONASTERORIS, Edenderry, Offaly                                 | 07E0383     | Pit. Undetermined.                                    | Test trenching and monitoring |
| 2001:969 - HARRISTOWN, Meath  | 01E0760     | No archaeology found.                                 | Monitoring                    |
| 2010:554 - MONASTERORIS, Offaly   | 10E0168     | Settlement deserted – medieval (AD 400-AD 1600)       | Test trenching                |
| 2017:803 - Monasteroris, Offaly   | 17E0193     | No archaeology found                                  | Test Trenching                |
| 2017:402 - MONASTERORIS, Offaly   | 17E0031     | Earthwork Medieval (AD 400-AD 1600)                   |                               |

### 5.3 Recorded Monuments

The *Record of Monuments and Places (RMP)* and *Sites and Monuments Record (SMR)* are compiled and updated by the National Monuments Service and the National Historic Properties Service. The RMP comprises manuals that list all known archaeological sites and monuments in a county, accompanied by maps (based on Ordnance Survey (OS) six-inch maps) that locate these sites. All sites included in the RMP are protected under the National Monuments Acts (1930–2004). The SMR comprises all records stored in the Archaeological Survey of Ireland's national database and is presented in the Historic Environment Viewer. The last published RMP for County Meath is dated 1996, and for County Offaly, it is dated 1995. As such, many of the sites listed in the SMR are scheduled for inclusion in the next revision of the RMP.


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The proposed route/site contains no monuments as listed in the *Record of Monuments and Places (RMP)* and/or the *Sites and Monuments Record (SMR)*.

Below (Table 2) is a list of the recorded monuments located within the environs of the site (Figure 2). These descriptions are derived from the National Monuments Service Archaeological Survey Database (<https://heritagedata.maps.arcgis.com/apps/webappviewer/>).

Table 2: Recorded Monuments in the environs of the site

| <b>AAP No.</b>       | <b>SMR No.</b> | <b>Townland</b> | <b>ITM of SMR</b>         | <b>Monument Class</b>               |
|----------------------|----------------|-----------------|---------------------------|-------------------------------------|
| <b>County Meath</b>  |                |                 |                           |                                     |
| 1                    | ME046-007----  | Ardnamullan     | E. 662308m,<br>N. 744750m | Castle - tower house                |
| 2                    | ME046-008----  | Ticroghan       | E. 662288m,<br>N. 743606m | Moated site                         |
| <b>County Offaly</b> |                |                 |                           |                                     |
| 3                    | OF011-008----  | Monasteroris    | E. 660793m,<br>N. 733309m | Ritual site - holy well             |
|                      | OF011-009001-  |                 | E. 660897m,<br>N. 733293m | Religious house - Franciscan friars |
|                      | OF011-009002-  |                 | E. 660902m,<br>N. 733283m | Graveyard                           |
|                      | OF011-009003-  |                 | E. 660897m,<br>N. 733284m | Headstone                           |
|                      | OF011-009004-  |                 | E. 660894m,<br>N. 733282m | Headstone                           |
|                      | OF011-009005-  |                 | E. 660898m,<br>N. 733282m | Headstone                           |
|                      | OF011-009006-  |                 | E. 660790m,<br>N. 733227m | Settlement deserted - medieval      |
|                      | OF011-009007-  |                 | E. 660897m,<br>N. 733293m | Font                                |
|                      | OF011-010001-  |                 | E. 660946m,<br>N. 733449m | Castle - motte                      |
|                      | OF011-010002-  |                 | E. 660997m,<br>N. 733477m | Redundant record                    |
|                      | OF011-010003-  |                 | E. 660944m,<br>N. 733450m | Dovecote                            |
|                      | OF012-001----  |                 | E. 661129m,<br>N. 733229m | Castle - unclassified               |
| 4                    | OF011-024----  | Ballycolgan     | E. 660668m,<br>N. 731507m | Enclosure                           |
|                      | OF011-025----  | Rathmore        | E. 660897m,<br>N. 731307m | Enclosure                           |

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| AAP No.       | SMR No.                   | Townland             | ITM of SMR                | Monument Class                 |
|---------------|---------------------------|----------------------|---------------------------|--------------------------------|
| 5             | OF011-035001-             | Ballykilleen         | E. 660290m,<br>N. 728871m | Ringfort - rath                |
|               | OF011-035002-             |                      | E. 660289m,<br>N. 728877m | Designed landscape - tea house |
|               | OF019-003----             |                      | E. 660278m,<br>N. 728318m | Enclosure                      |
|               | OF019-009----             |                      | E. 660538m,<br>N. 727988m | Road - unclassified togher     |
|               | OF019-045----             |                      | E. 660390m,<br>N. 728019m | Structure - peatland           |
|               | OF019-112----             |                      | E. 660369m,<br>N. 728118m | Structure - peatland           |
|               | OF019-113----             |                      | E. 660375m,<br>N. 728113m | Road - class 3 togher          |
|               | OF019-114----             |                      | E. 660376m,<br>N. 728125m | Structure - peatland           |
|               | OF019-115----             |                      | E. 660334m,<br>N. 728116m | Structure - peatland           |
| OF019-125---- | E. 660399m,<br>N. 728010m | Structure - peatland |                           |                                |

#### 5.4 Record of Protected Structures and National Inventory of Architectural Heritage

The National Inventory of Architectural Heritage (NIAH) identifies, records, and evaluates the post-1700 architecture of Ireland in order to protect and conserve our built heritage. It is under the administration of the Department of Housing, Local Government and Heritage. It also forms the basis of a list for structures that should be included in the Record of Protected Structures (RPS) compiled by local authorities.

A Protected Structure is a structure that a planning authority think is of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social, or technical point of view. The structure is recognised as important and is protected from harm under legislation. Every local authority in Ireland must keep an RPS in their development plans.

The site contains no buildings/features that are Protected Structures, as listed in the *Meath County Development Plan 2021–2027* or the *Offaly County Development Plan 2021–2027*, nor are there any sites listed in the NIAH. However, the route of the proposed pipeline crosses a Condemned Line of the Canal (at its north end) and the Grand Canal at its southern extent with a canal bridge (RPS ID 17-061; NIAH Reg. No.14912004)

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just to the east of the route. The pipeline traverses the lands associated with the demesne of Park House and Monasteroris House (RPS ID 17-057; NIAH 14911006) and is within proximity to an Ice House associated with Monasteroris House (RPS ID 17-058; NIAH 14911006), as well as to the east of Harristown House (RPS ID 91460; NIAH Reg. 14404601) and the associated farmyard complex (RPS ID 91461; 14404602).

## 5.5 Finds listed within the Topographical Files of the National Museum of Ireland


The Topographical Files of the National Museum of Ireland list all artefacts in the care of or known to the museum. Such a record can provide evidence for human Settlement or activity in the absence of other physical remains or documentary references.

There are no topographical files listed for the townlands of Aghnagilla, Ballyboggan, Ballynakill, Castlejordan, Clongall, Kilwarden, Park or Ticroghan, Co. Meath or Clonmore, Lenamarran, Monasteroris, Mountwilson, Rathgreedan, Rathmore, Roosk or Thornwell, Co Offaly. In Harristown townland, Co. Meath, a very corroded and damaged iron sword or dagger blade (1989:36:00) was recovered from the River Boyne. A gold lock ring (1953:45:00) was recovered from a nearby ploughed field, along with an Unlooped Bronze Palstave in perfect condition, which was also found in a field after harrowing (1966:148).

In Ballykilleen, Co. Offaly, a small, polished bone point fragment, most likely the broken tip of a pin shaft (1998:68), and a small, L-shaped, corroded iron object (1998:69) were found on Ballykilleen Hill. In Drumcooley townland, Co. Offaly, a polished bone object, possibly a vertebra fragment or patella (1939:509), was found on a mound at Drumcooley Hill. Two leather shoes (1937:2372 & 2011:364) were discovered at an unknown location in the townland and in the bog, respectively. The latter item appears to be a Lucas Type 2 shoe. Another shoe (1989:50:00), with a leather upper of a possible Lucas type 5, was found in the bog at Shean.

## 5.6 Cartographic Evidence

A review of available historic mapping for the area was carried out to include the Ordnance Survey (OS) of Ireland (now Tailte Éireann) 6-inch (1835) and 25-inch (1910) maps (Figures 5–20). Potential archaeological or cultural heritage features are often marked on such maps, providing a helpful resource for identifying sites, particularly when they no longer have any above-ground remains.

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The route of the proposed pipeline is illustrated as agricultural fields, traversing roads and field boundaries, wet ditches, townland boundaries in 21 places, parish and barony boundaries, and the Meath and Offaly County boundary in two places. Furthermore, the route crosses water courses in four places. A section of a finished canal, but not connected, is labelled as the 'Condemned Line of Canal' and depicted on the 1835 map within the northern portion of the site. According to the 1910 map, it is visible as an earthwork in some areas and as a field boundary. Buildings are shown within the site on the 1835 map in New Park Demesne and Harristown townland, but are no longer visible on the 1910 map. Additionally, some other structures are depicted on the 1910 map in the townland of Clongall.


## 5.7 Aerial Photography

A review of available aerial photography for the area was also undertaken as part of this assessment. Aerial photographs taken between 1995 and 2018 from Tailte Éireann were assessed, along with Google Earth imagery from 2008 to 2023. Unrecorded archaeological sites can often be identified in aerial photographs as cropmarks or differential growth in a field, particularly during periods of drought, such as those experienced in the summer of 2018.

The site consists of grassed fields. No cropmarks suggesting archaeological monuments were noted within the site. The buildings illustrated on the examined mapping have no visible surface expression.

## 6. METHOD OF DATA INTERPRETATION

As outlined above, a detailed gradiometer survey was conducted to detect potential archaeological responses. The SENSYS MAGNETO MXV3 8-sensor fluxgate is a specifically designed gradiometer for use in archaeological prospection. Extremely sensitive, these instruments can detect variations in soil magnetism ranging from 0.25nT to 10,000nT, affording diverse applications across various archaeological, soil morphological, and geological conditions. The survey was geo-referenced using the MonMX software with a Trimble R10 RTK GNSS receiver, accurate to within  $\pm 1\text{cm}$ . The results were interpreted by examining the raw data as greyscale images produced in DW Consulting's TerraSurveyor64 software. Greyscale images are exported as TIFF files, along with a corresponding World file (.TFW), which are then imported into progeCAD 2018 for geo-referencing and AutoCAD 2025 for interpretation. Processed raw data in the form of greyscale images are presented in Figures 21-36, and an interpretation is included in Figures 37-50.


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## 7. SURVEY RESULTS

The geophysical survey was conducted in August 2025 by Donald Murphy, Robert Breen and Jeanne Rochford of ACSU under licence 25R0348 (Figures 21-50). The anomalies identified are listed in Table 3 below.

*Table 3: Geophysical survey results*

| Anomaly No. | Form/Nature of Anomaly | Possible Source(s) of Anomaly  | Description   |
|-------------|------------------------|--|---|
| <b>M1</b>   | ?Archaeology           | Possible circular enclosure  | A negative circular anomaly in the southern portion of Field 20 (AAP1), adjacent to M2. The anomaly measures c. 37m east-west by c. 47m north-south. There is a strong geological response in this area (Figures 21 & 37).  |
| <b>M2</b>   | ?Archaeology           | Possible semi-circular enclosure                                     | A negative semi-circular anomaly in the southern portion of Field 20 (AAP1), adjacent to M1 that extends outside the survey limits to the southeast. There is a strong geological response in this area (Figures 21 & 37).  |
| -           | ?Archaeology           | Small to medium anomalies: pits, posts, spreads, kilns, cut features | A series of positive anomalies occurs sporadically across the survey area. These might represent cut features such as pits, postholes, spreads, kilns, or other archaeological features. They may also be natural in origin.                                      |
| -           | Linear features        | Former field boundaries  | Positive linear anomalies that occur in AAP1, AAP2, AAP3 & AAP5 that correspond with former field boundaries depicted on the first edition Ordnance Survey (OS) 6-inch map, surveyed 1835, and the third edition Ordnance Survey (OS) 25-inch map, surveyed 1910. |
| -           | Linear features        | Early field systems?   | Positive linear anomalies across the survey area that may represent former field divisions that are not depicted on OS mapping.   |
| -           | Curvilinear feature    | Trend  | Positive curvilinear trend occurring in Field 118 in AAP4 that may represent agricultural land use, such as drainage.   |


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| Anomaly No. | Form/Nature of Anomaly     | Possible Source(s) of Anomaly             | Description   |
|-------------|----------------------------|---|---|
| -           | Linear feature             | Trend                                     | Negative linear trend occurring in Field 153 in AAP5 that may represent agricultural land use, such as drainage.  |
| -           | Ferrous                    | Magnetic disturbance from modern debris   | Bipolar anomalies sporadically occurring throughout the survey area that are associated with magnetic interference from modern ferrous material, either in the topsoil or the surface of the survey area. |
| -           | Natural/underlying geology | Natural/changes in the underlying geology | Broad band of positive and negative magnetism occurring in the southern portion of Field 20, Fields 100-101, Field 116 & Field 158 that likely depicts a change in the underlying geology.                |
| -           | Magnetic disturbance       | Fencing, boundaries and modern surfaces   | Broad ferrous responses occur occasionally along field boundaries and access points associated with modern fencing/boundaries and surfaces/ground disturbance.  |
| -           | Linear feature             | Buried service                            | Faint negative linear anomaly aligned east-west in Field 98 that likely represents a buried service or land drain.  |
| -           | Cultivation                | Land use/furrows                          | A series of cultivation furrows occurs in the northern portion of AAP2, as well as sections of AAP3 & AAP4.   |

## 8. IMPACT ASSESSMENT

The purpose of this impact assessment was to determine whether the site contained any evidence of previously unrecorded areas or features of historical, built, or archaeological significance, and to determine the potential impacts that the proposed development may have on all archaeological features.

The geophysical survey of the site was carried out under Licence 25R0348. The five Areas of Archaeological Potential (AAP1-AAP5) do not contain any monuments listed in the *Record of Monuments and Places* (RMP) and/or the *Sites and Monuments Record* (SMR). Two potential archaeological features were identified as a result of the geophysical survey within the Archaeological Area of Potential (AAP1) in Field 20. The two

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negative anomalies may represent the remains of a circular enclosure (**M1**) and a semi-circular enclosure (**M2**) that extends outside of the site boundary to the southeast. Scatters of potential spread/pit remains of archaeological significance were recorded across all five areas. An archaeological interpretation for these responses is highly tentative, and a natural soil or geological origin, as well as recent land use, should also be considered for these anomalies.


Features depicted on the Ordnance Survey 6-inch map, surveyed 1835, and the third edition Ordnance Survey (OS) 25-inch map, surveyed 1910, such as former field boundaries, were also detected. Linear anomalies that are not recorded field boundaries were also detected, which likely represent land drains, paths/access routes and cultivation furrows.

## 9. CONCLUSIONS & RECOMMENDATIONS

The geophysical survey in the townlands of Ardnamullan and Ticroghan, Co. Meath and Mountwilson, Thornwell, Monasteroris, Rathmore, Ballykilleen and Shean, Co. Offaly (ITM North 662587, 744917 South 660881, 727363) was carried out to assess the archaeological potential of five designated areas associated with a proposed gas pipeline.


Two potential archaeological features were identified as a result of the geophysical survey within the Archaeological Area of Potential (AAP1) in Field 20. The two negative anomalies may represent the remains of a circular enclosure (**M1**) and a semi-circular enclosure (**M2**) that extends outside of the site boundary to the southeast. Furthermore, potential spread/pit remains of archaeological significance have been recorded throughout the five areas surveyed (AAP1–AAP5). An archaeological interpretation for responses in these areas is highly tentative, and a natural soil or geological origin or recent land use for these anomalies should be considered. A sample of these responses should be assessed through test trenching.

It is recommended that any anomalies identified be targeted during a future test trenching programme. Features exposed should be sufficiently sectioned to assess their depth and nature. This must be carried out by a licence-eligible archaeologist prior to any groundworks taking place. Once test trenching is complete, further mitigation might include preservation *in situ* (avoidance), excavation (preservation by record), and/or monitoring. The Department of Housing, Local Government, and Heritage shall be consulted in this regard.

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|  | No:    | PM-SF-114   | Version: | 02 | Effective Date: | 04.03.25      |
|   | Title: | Geophysical Survey: Edenderry GNI Gas Pipeline to BNM, Co. Meath and Co. Offaly |          |    |                 | Page 26 of 29 |

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|  | No:    | PM-SF-114   | Version: | 02 | Effective Date: | 04.03.25      |
|   | Title: | Geophysical Survey: Edenderry GNI Gas Pipeline to BNM, Co. Meath and Co. Offaly |          |    |                 | Page 27 of 29 |

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|  | No:    | PM-SF-114   | Version: | 02 | Effective Date: | 04.03.25      |
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## 11. APPENDIX 1 – SUMMARY TECHNICAL INFORMATION & GLOSSARY OF TERMS


Detailed magnetometer Surveys offer an effective and efficient way of surveying large areas for anomalies associated with past human activity by mapping and visualising spatial variations in the local magnetic field. Anomalies of archaeological interest can be identified as they exhibit contrasting magnetic properties compared to the surrounding soil. This allows for the identification of various archaeological features, such as kilns, hearths, and burnt mounds, as they result in strong magnetic responses. Magnetometer surveys also help identify ditches and pits that typically contain a multitude of deposits with varying magnetic properties, which stand out in contrast to the consistency of the surrounding undisturbed soil. This allows for the identification of sites, such as enclosures, ring-ditches, and field systems, that have been ploughed out of the visible landscape over time.

Survey results are presented in the form of processed greyscale images and interpretation figures that can be geo-referenced over satellite imagery or development plans, providing a comprehensive assessment of the archaeological impact of any given project.

A consistently high quality of data is assured by experienced field staff operating in accordance with the EAC Guidelines for the Use of Geophysics in Archaeology (Schmidt et al. 2015) and English Heritage's Geophysical Survey in *Archaeological Field Evaluation* (David et al. 2008).

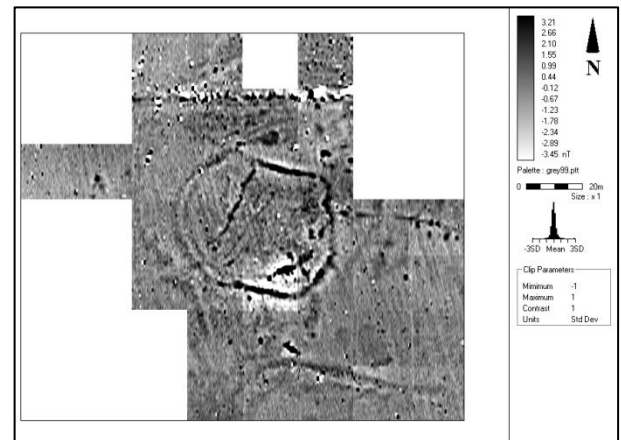


**SENSYS MAGNETO® MXV3 modular carrier with 8 SENSYS FGM650/3 sensors spaced at 0.5m intervals**

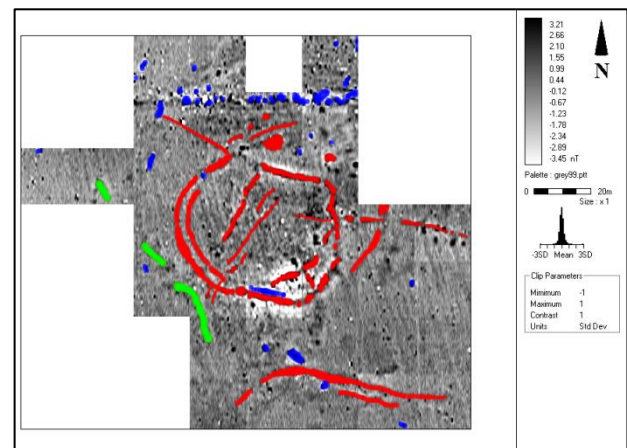
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|   | Title: | Geophysical Survey: Edenderry GNI Gas Pipeline to BNM, Co. Meath and Co. Offaly |          |    |                 | Page 29 of 29 |

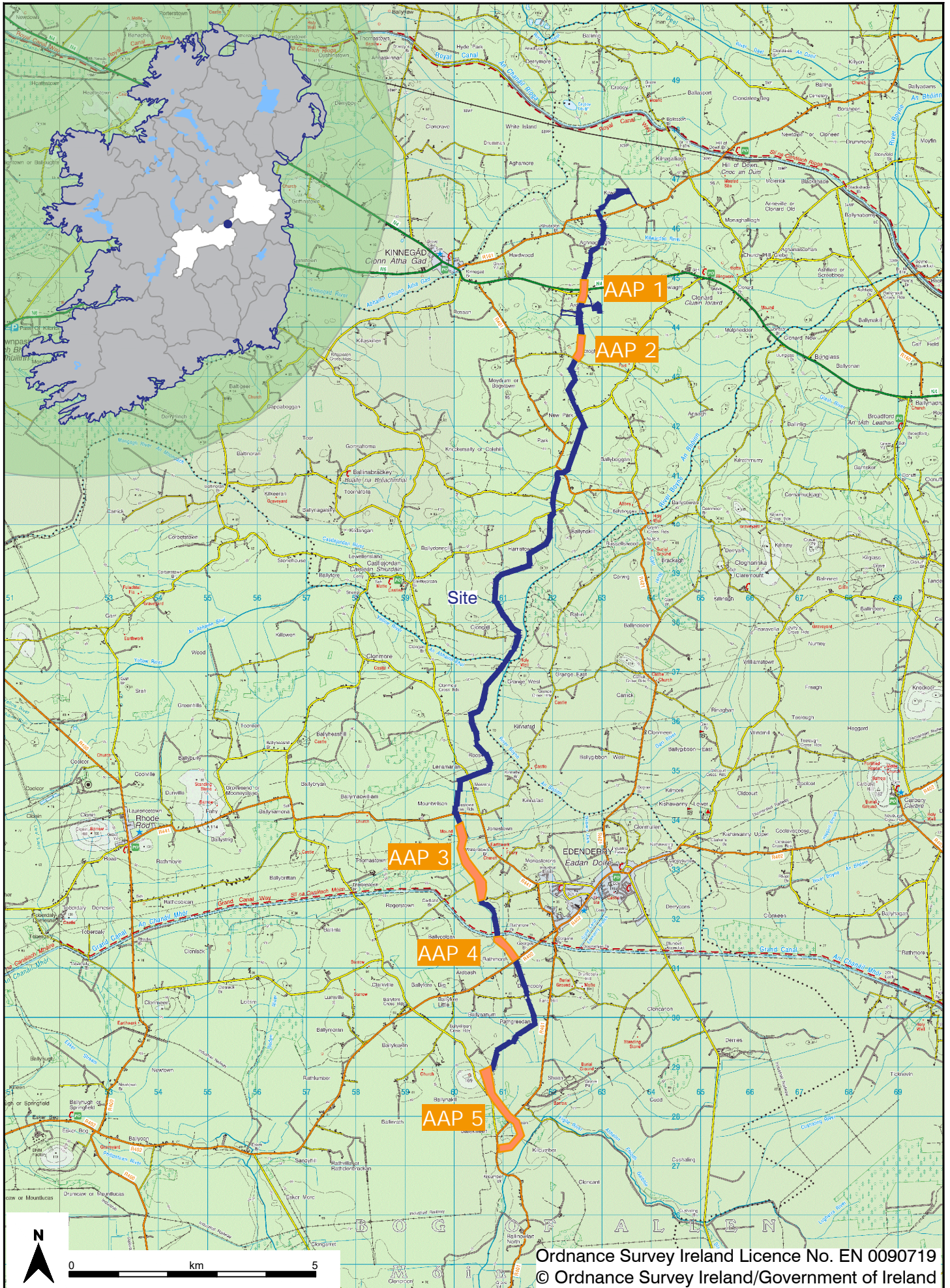
### Data Display Formats

**Greyscale:** The greyscale format assigns a cell to each datum according to its location on the grid. The display of each data point is conducted at very fine increments, allowing the full range of values to be displayed within the given data set. This display method also enables the identification of discrete responses that may be at the limits of the instrument's detection.



**Interpretation:** The greyscale images are used to create interpretation drawings of the various anomalies that represent features of archaeological potential, early field systems, trends, cultivation, modern ferrous interferences and underlying geological changes.





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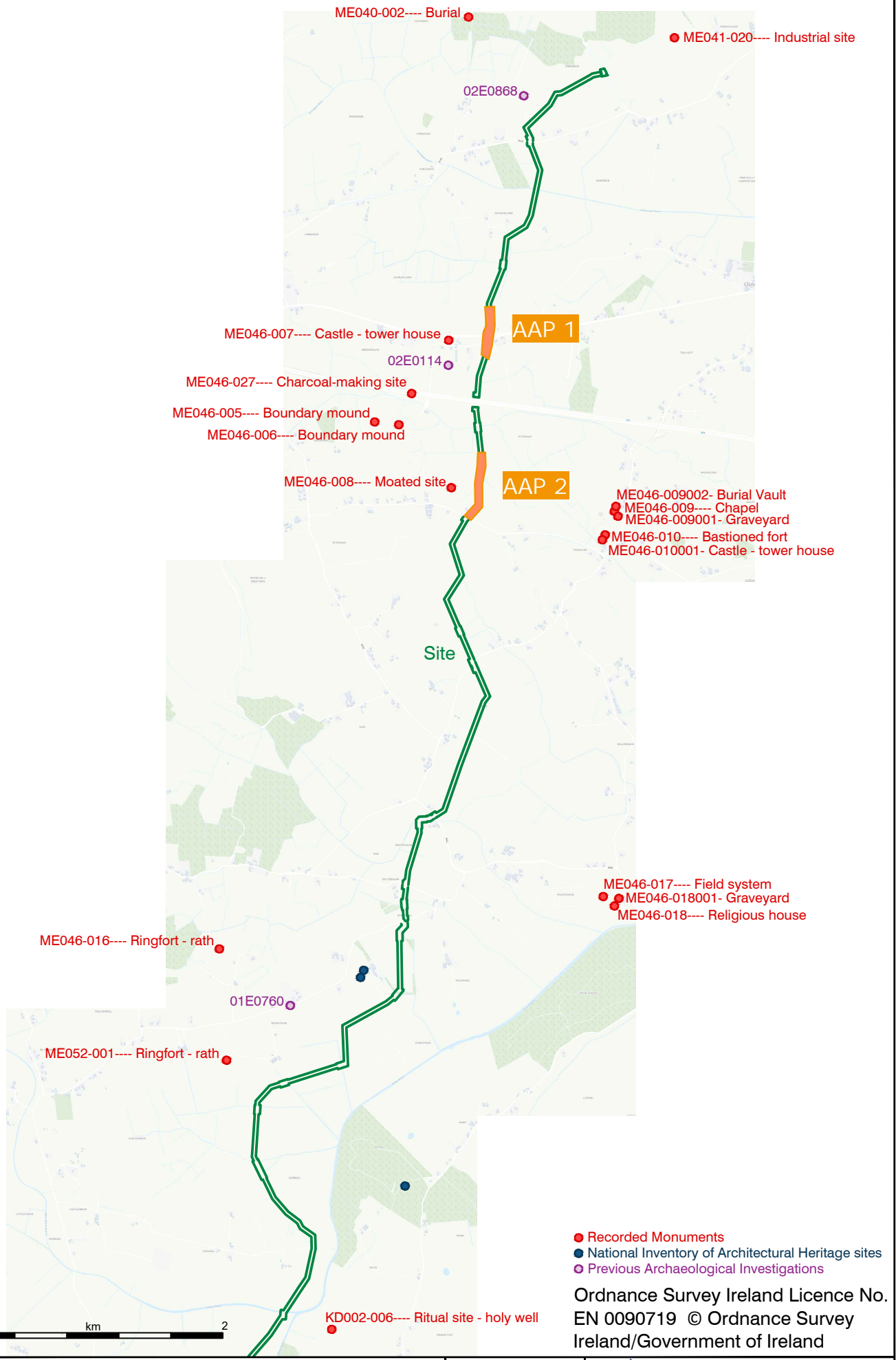
Date September 2025

Figure 1 Location of site and AAP

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Scale 1:100,000 @ A4 Drawing No. 2594\_C1001

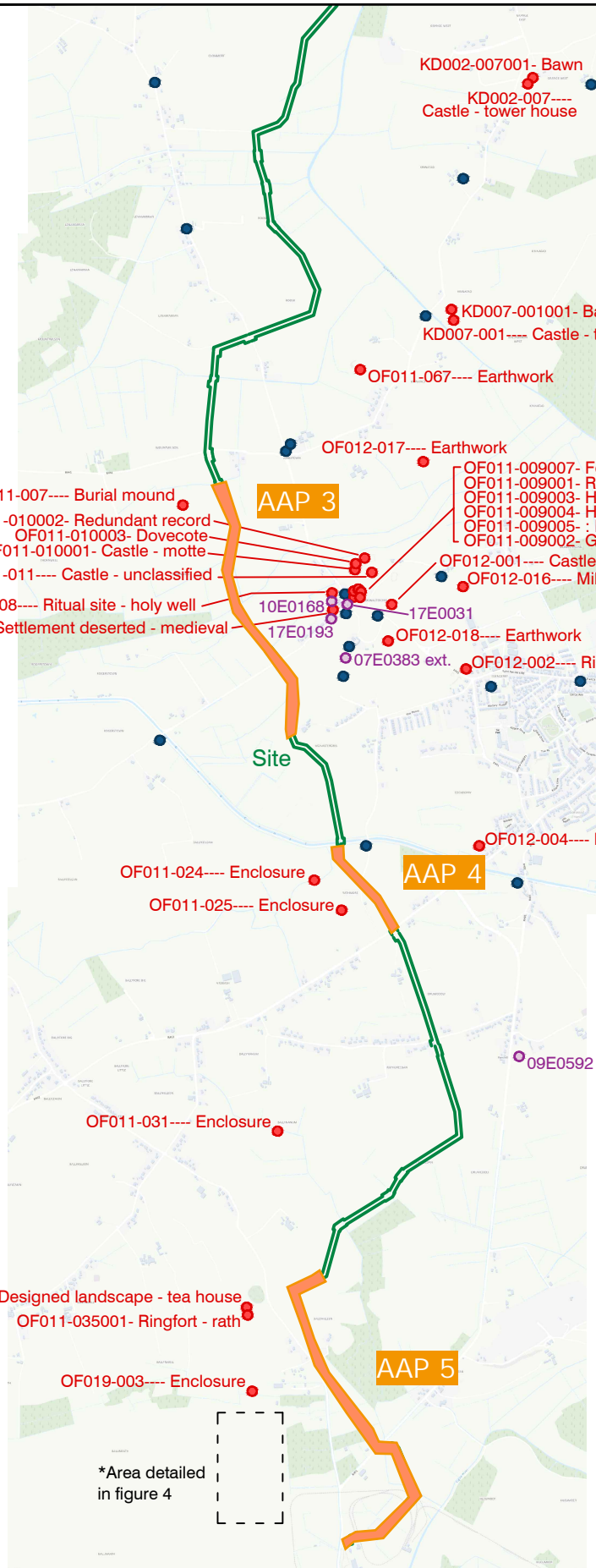


● Recorded Monuments  
 ● National Inventory of Architectural Heritage sites  
 ● Previous Archaeological Investigations  
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**Figure 2** Location of site, previous archaeological investigations, nearby Sites and Monuments Record sites and AAP

Scale 1:40,000 @ A4  
 Drawing No. 2594\_C1002



0 km 2

- Recorded Monuments
- National Inventory of Architectural Heritage sites
- Previous Archaeological Investigations

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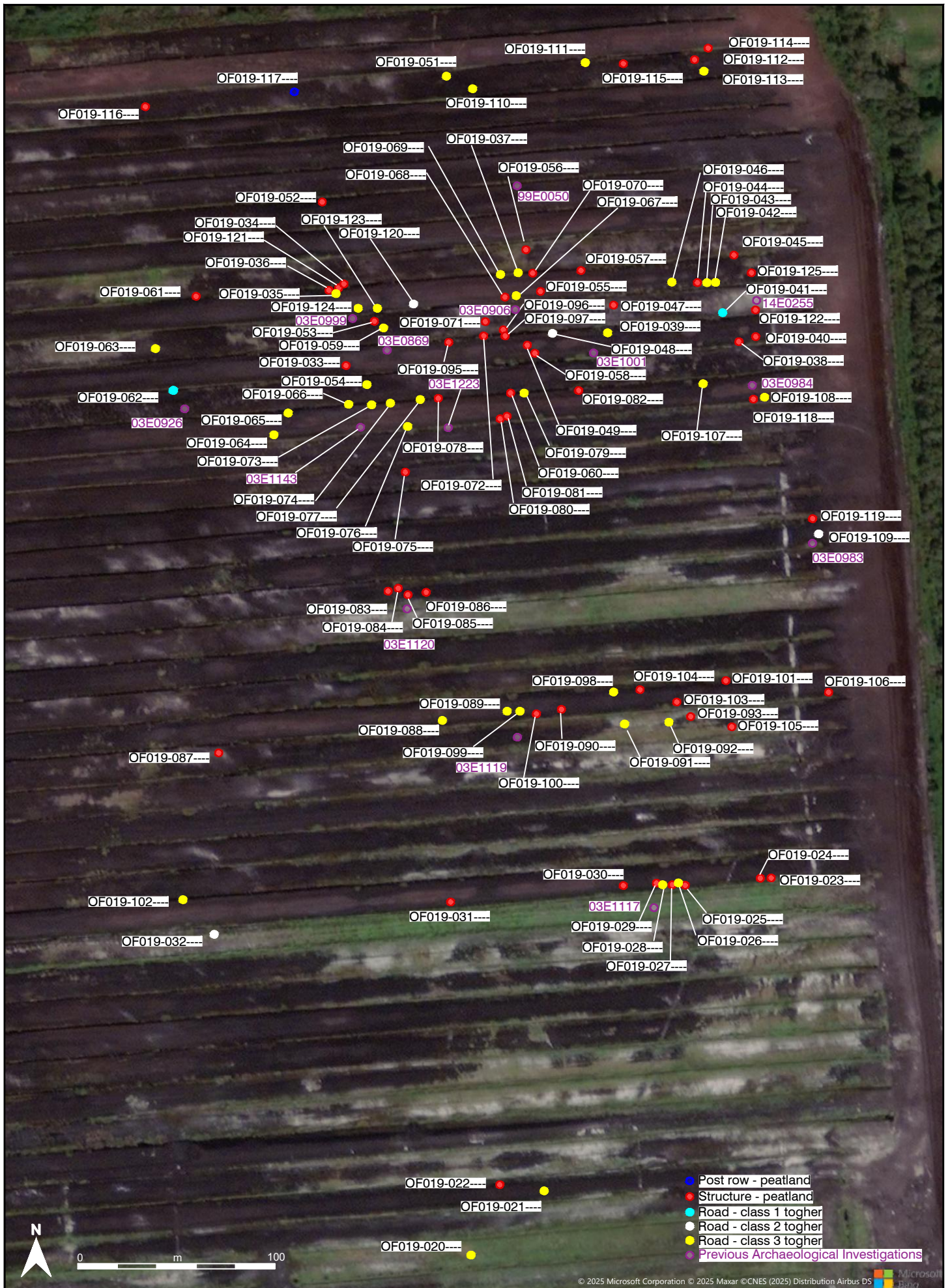
Date September 2025

Figure 3 Location of site, previous archaeological investigations, nearby Sites and Monuments Record sites and AAP



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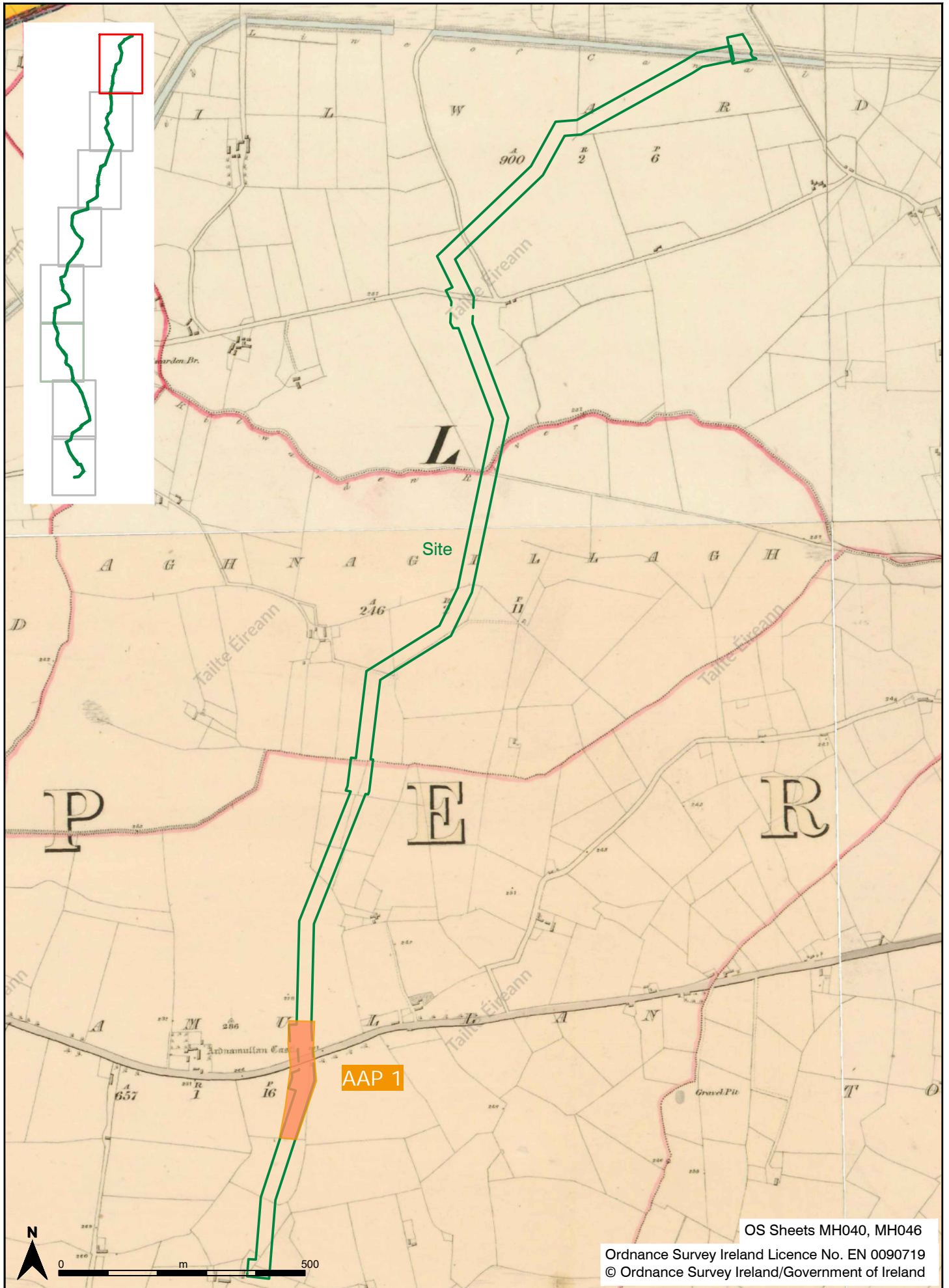
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Figure 4 Area indicated in figure 3, showing SMR categories and previous archaeological investigation

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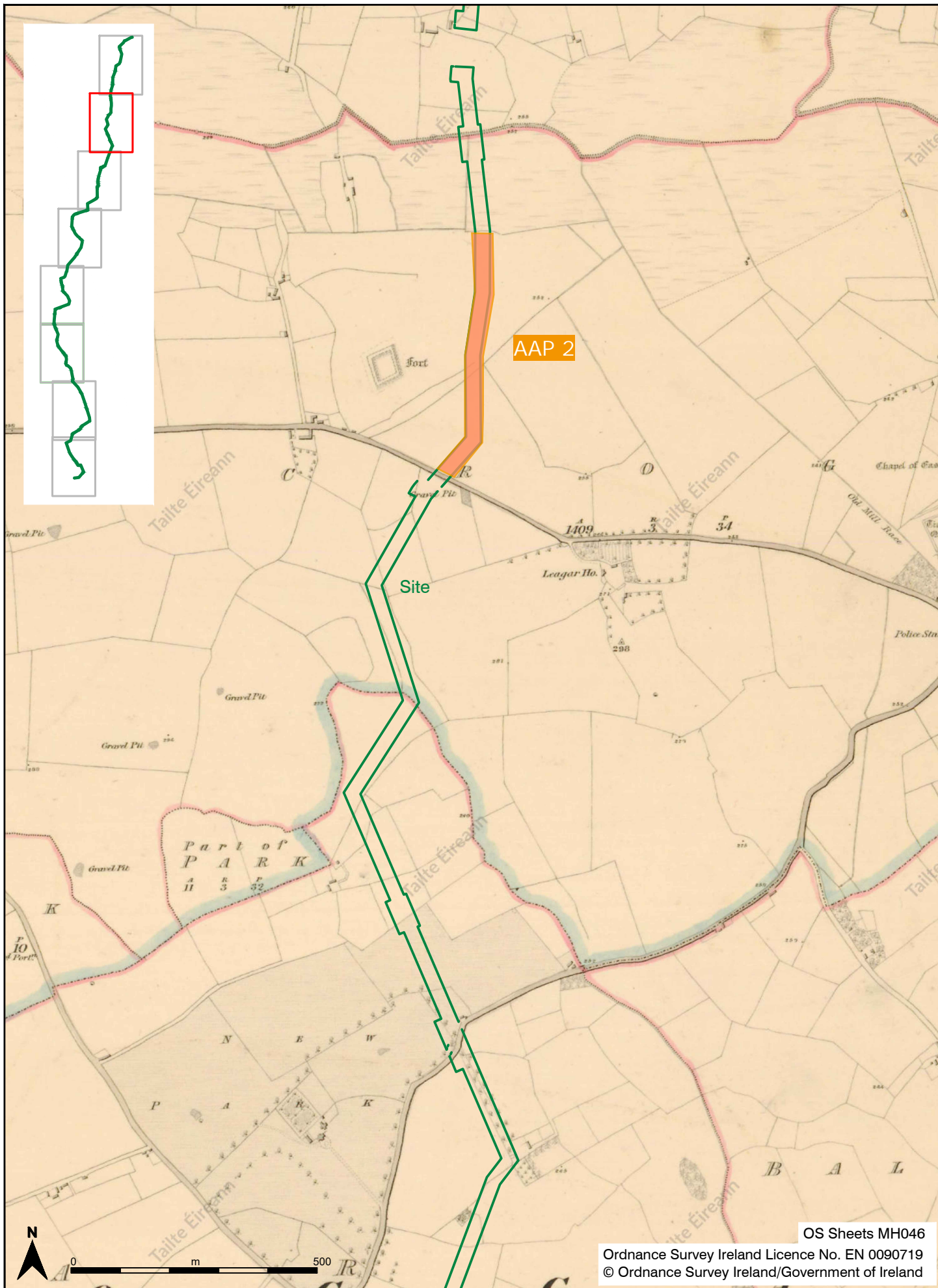
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Figure 5 Extract from 1st edition Ordnance Survey (OS) 6-inch map (surveyed 1835 - published 1837), showing location of site and AAP



Scale 1:10,000 @ A4

Drawing No. 2594\_C1005



OS Sheets MH046

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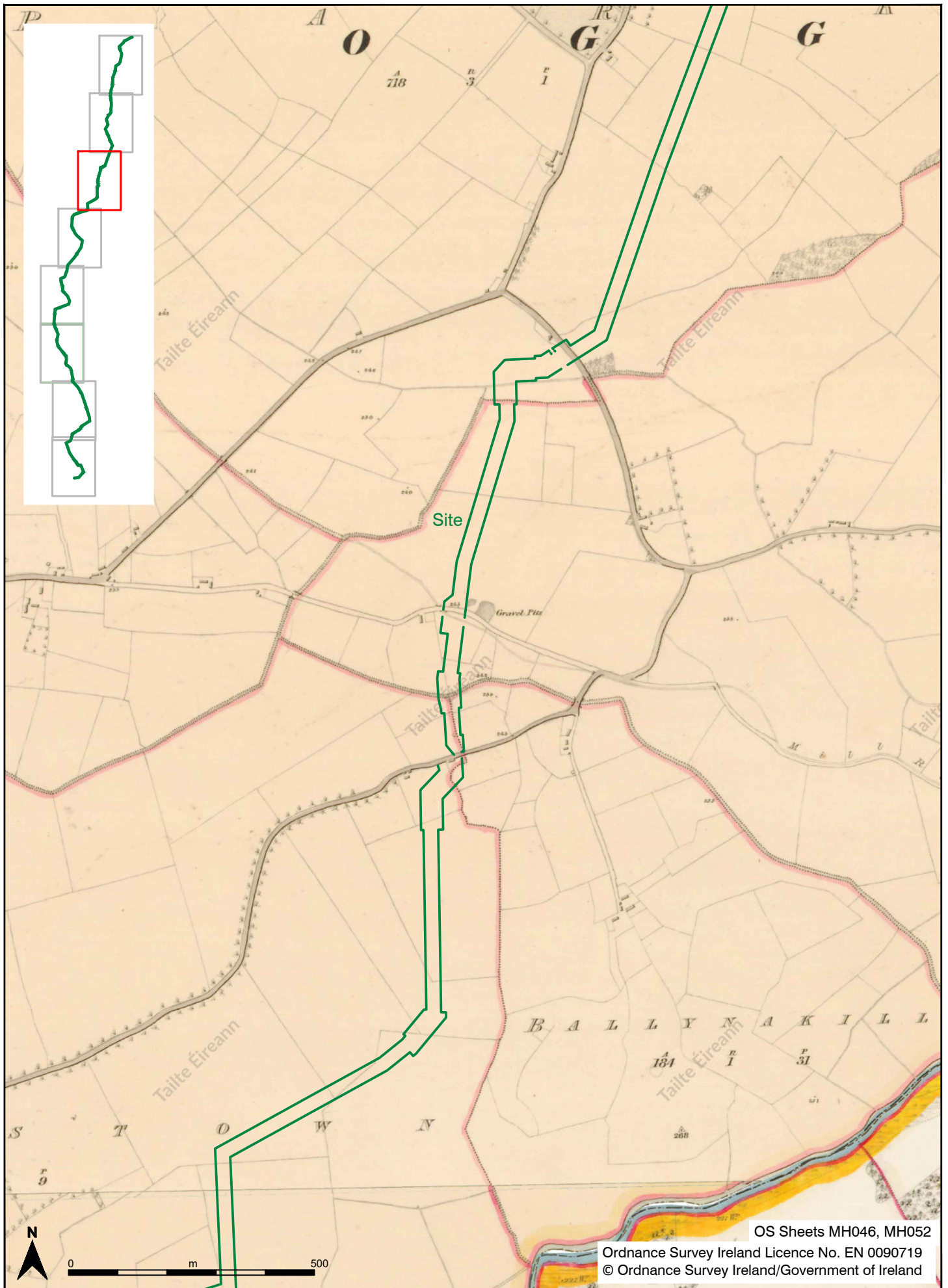
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Figure 6 Extract from 1st edition Ordnance Survey (OS) 6-inch map (surveyed 1835 - published 1837), showing location of site and AAP



Scale 1:10,000 @ A4

Drawing No. 2594\_C1006



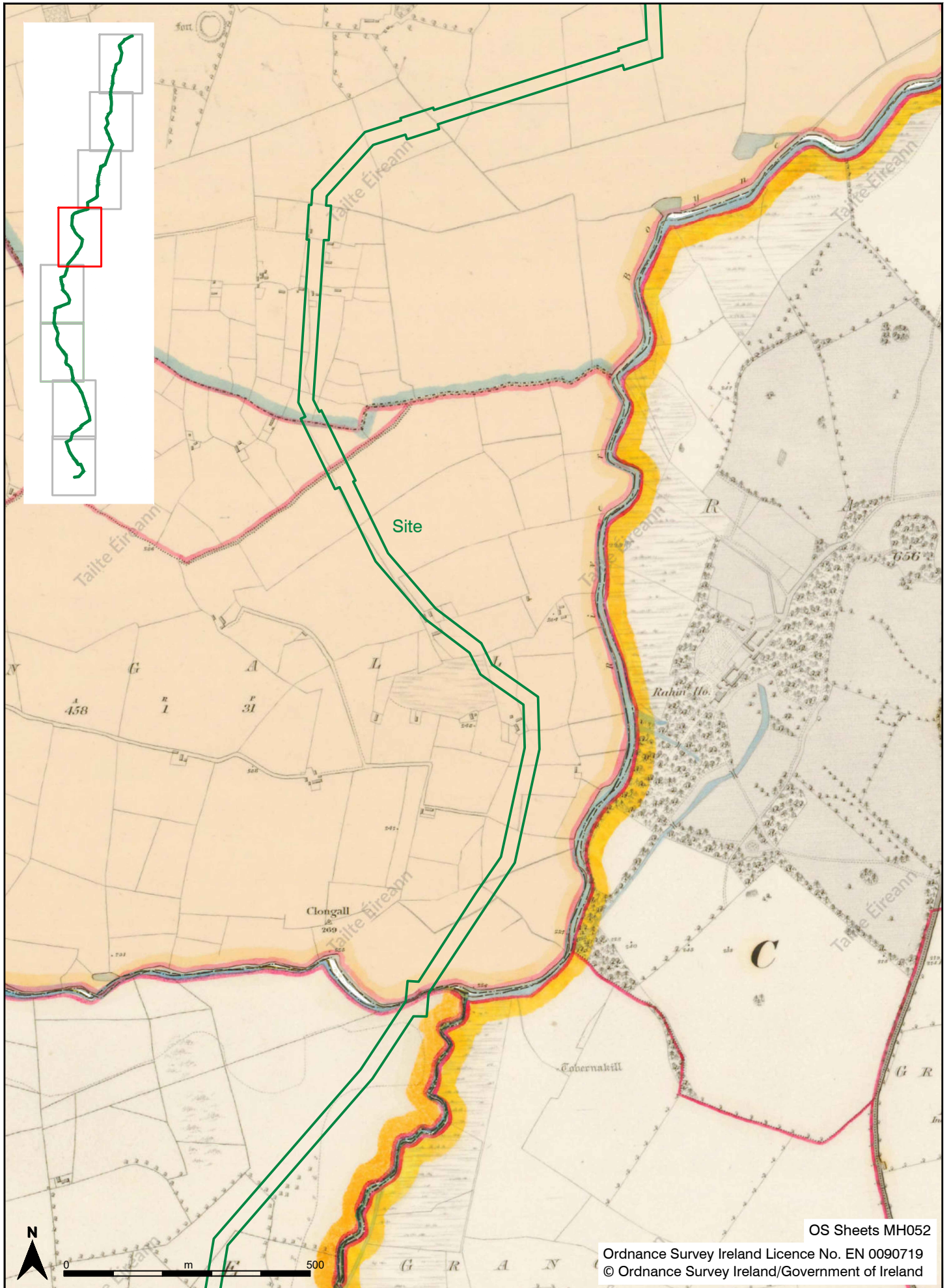
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Figure 7 Extract from 1st edition Ordnance Survey (OS) 6-inch map (surveyed 1835 - published 1837), showing location of site

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OS Sheets MH052

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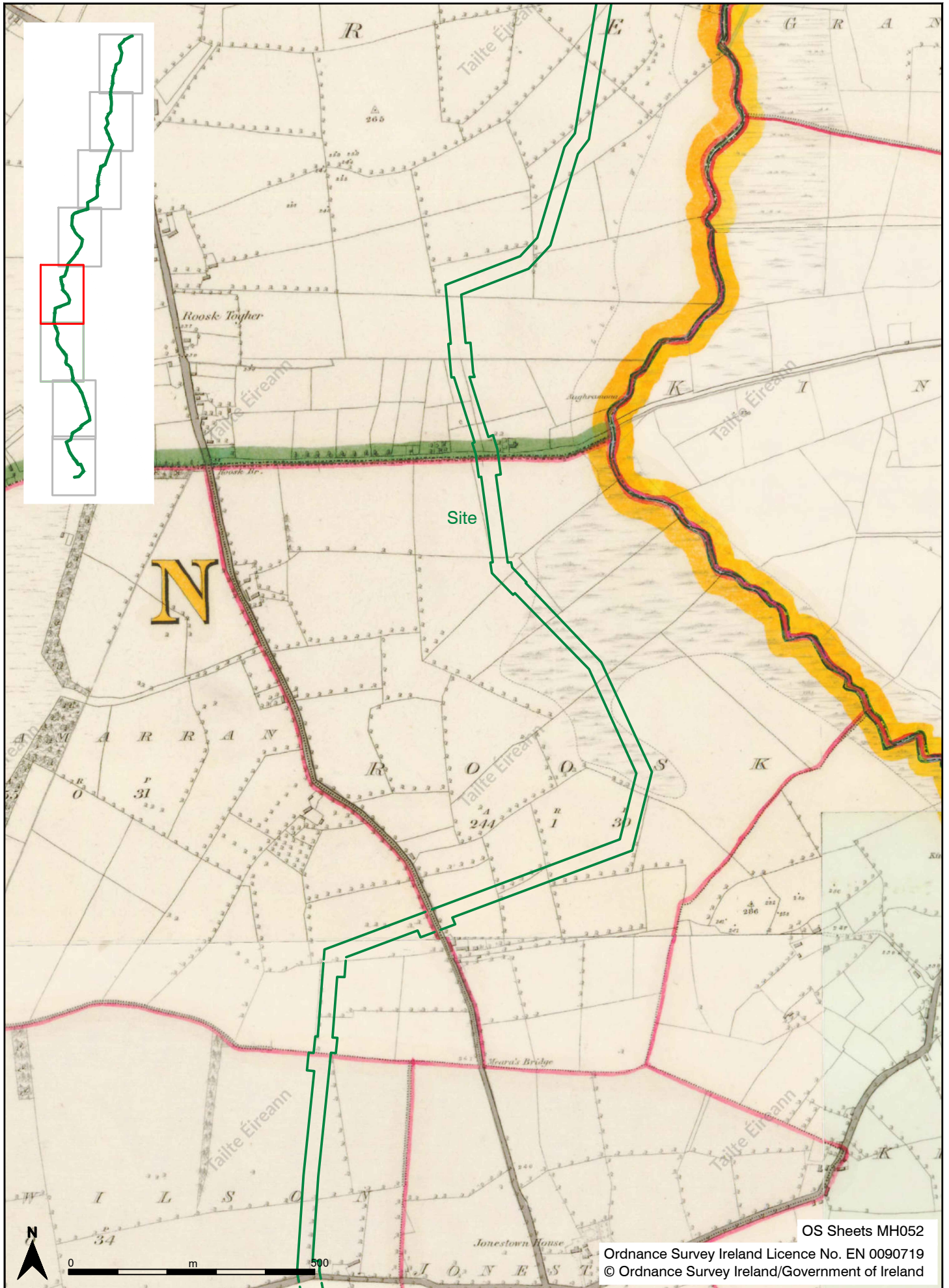
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Figure 8 Extract from 1st edition Ordnance Survey (OS) 6-inch map (surveyed 1835 - published 1837), showing location of site



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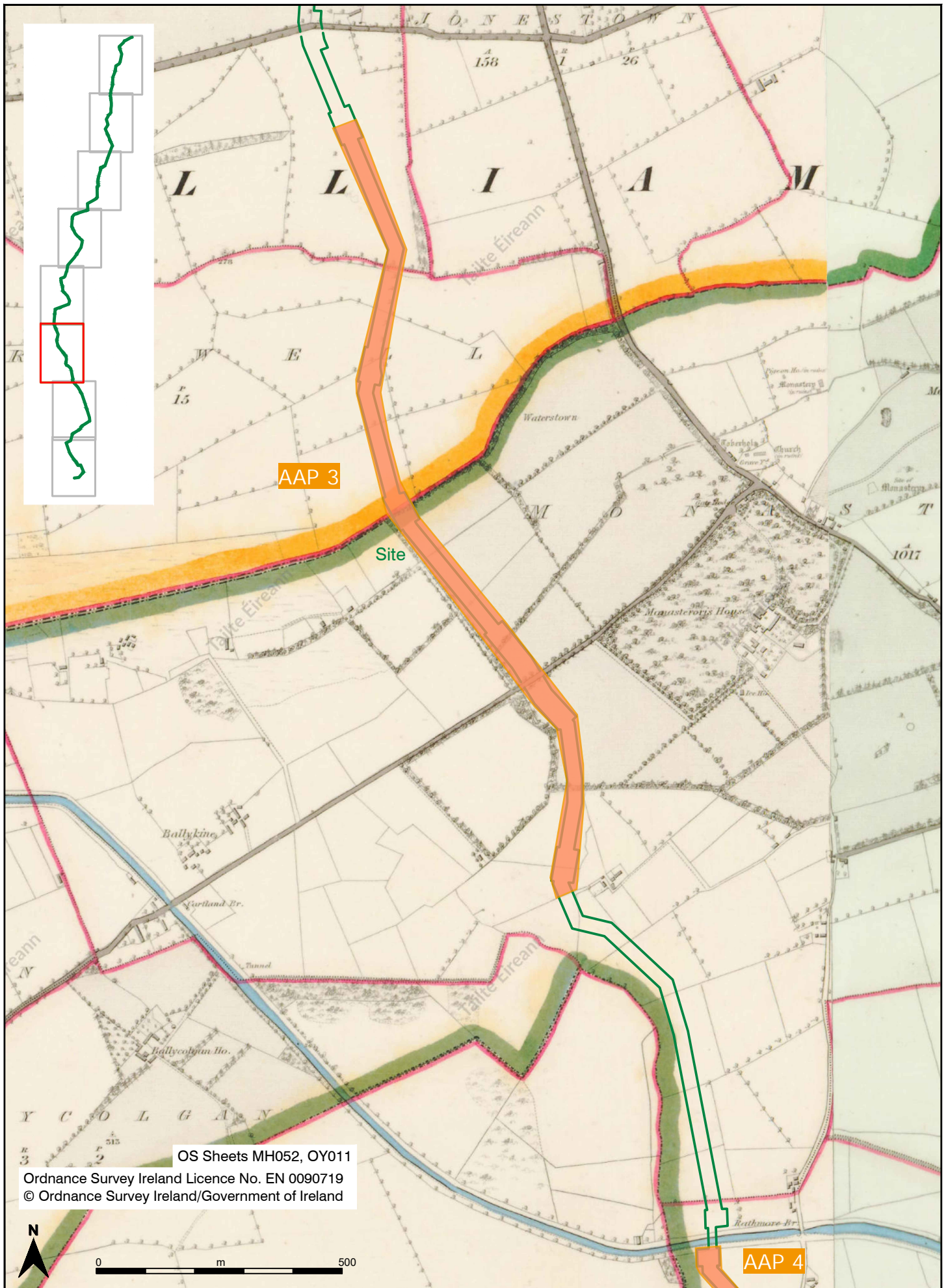
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Figure 9 Extract from 1st edition Ordnance Survey (OS) 6-inch map (surveyed 1835 - published 1837), showing location of site



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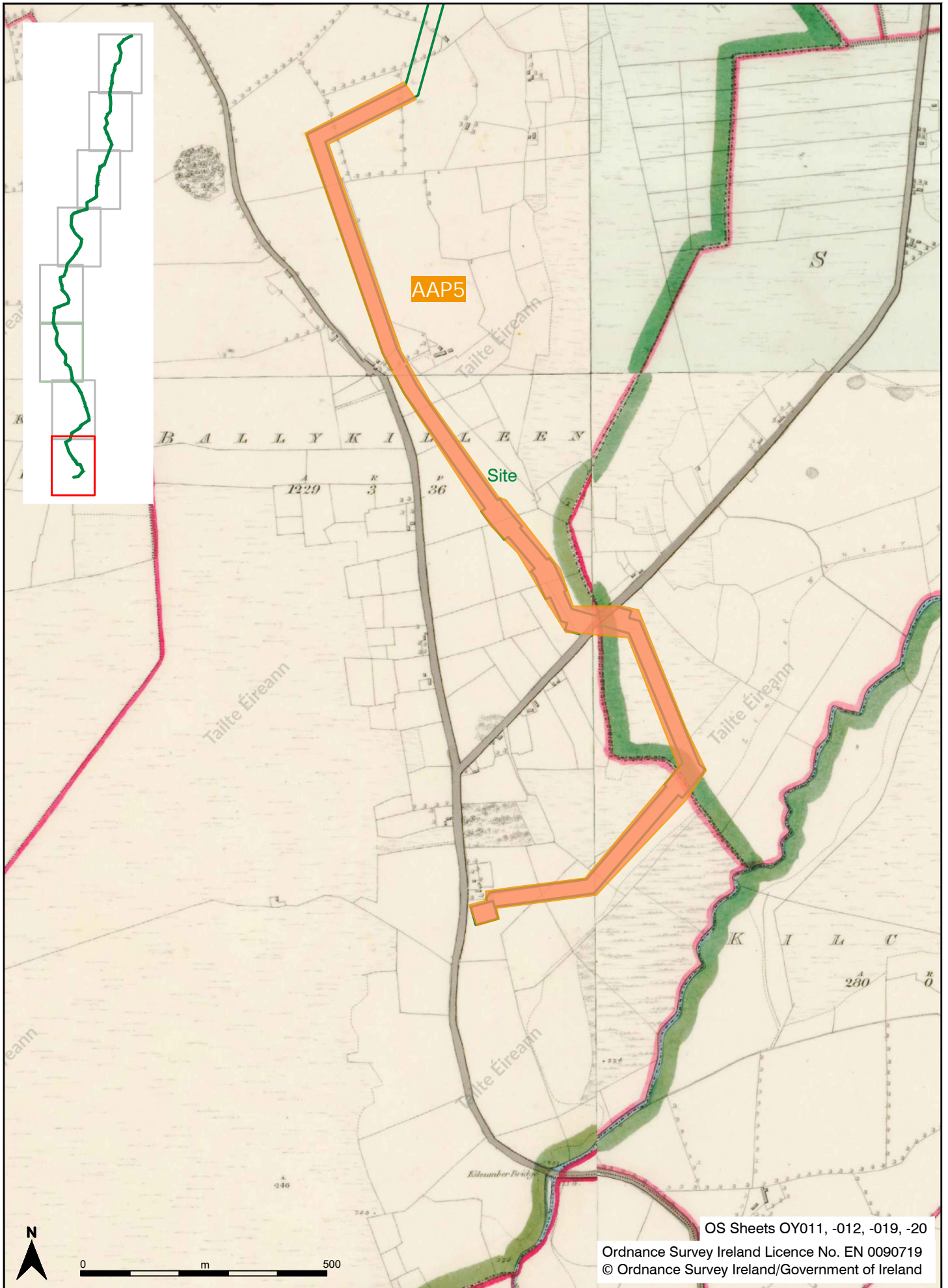
Figure 10 Extract from 1st edition Ordnance Survey (OS) 6-inch map (surveyed 1835/37 - published 1837/40), showing location of site and AAP



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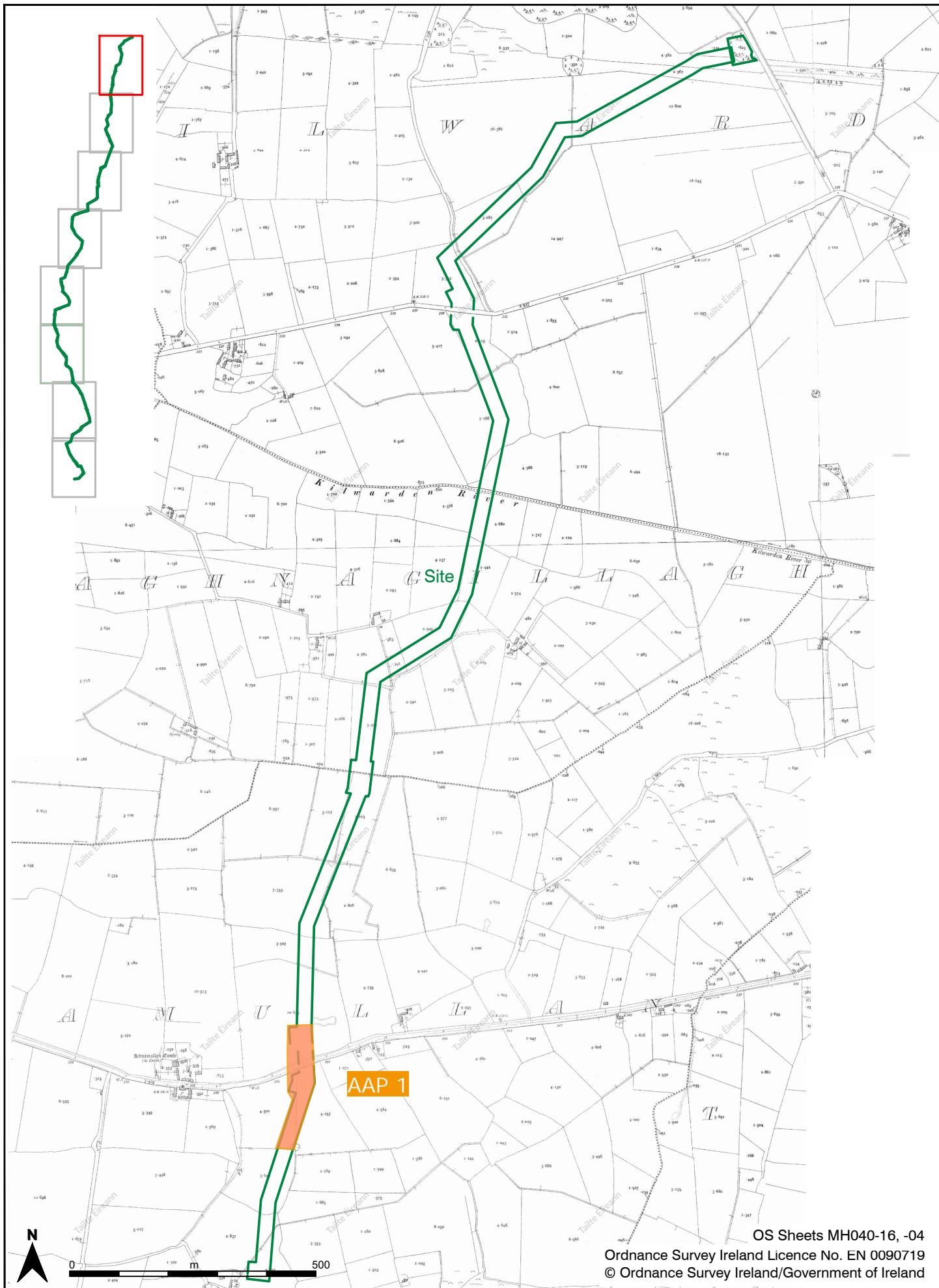
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Figure 12 Extract from 1st edition Ordnance Survey (OS) 6-inch map (surveyed 1837 - published 1840), showing location of site and AAP



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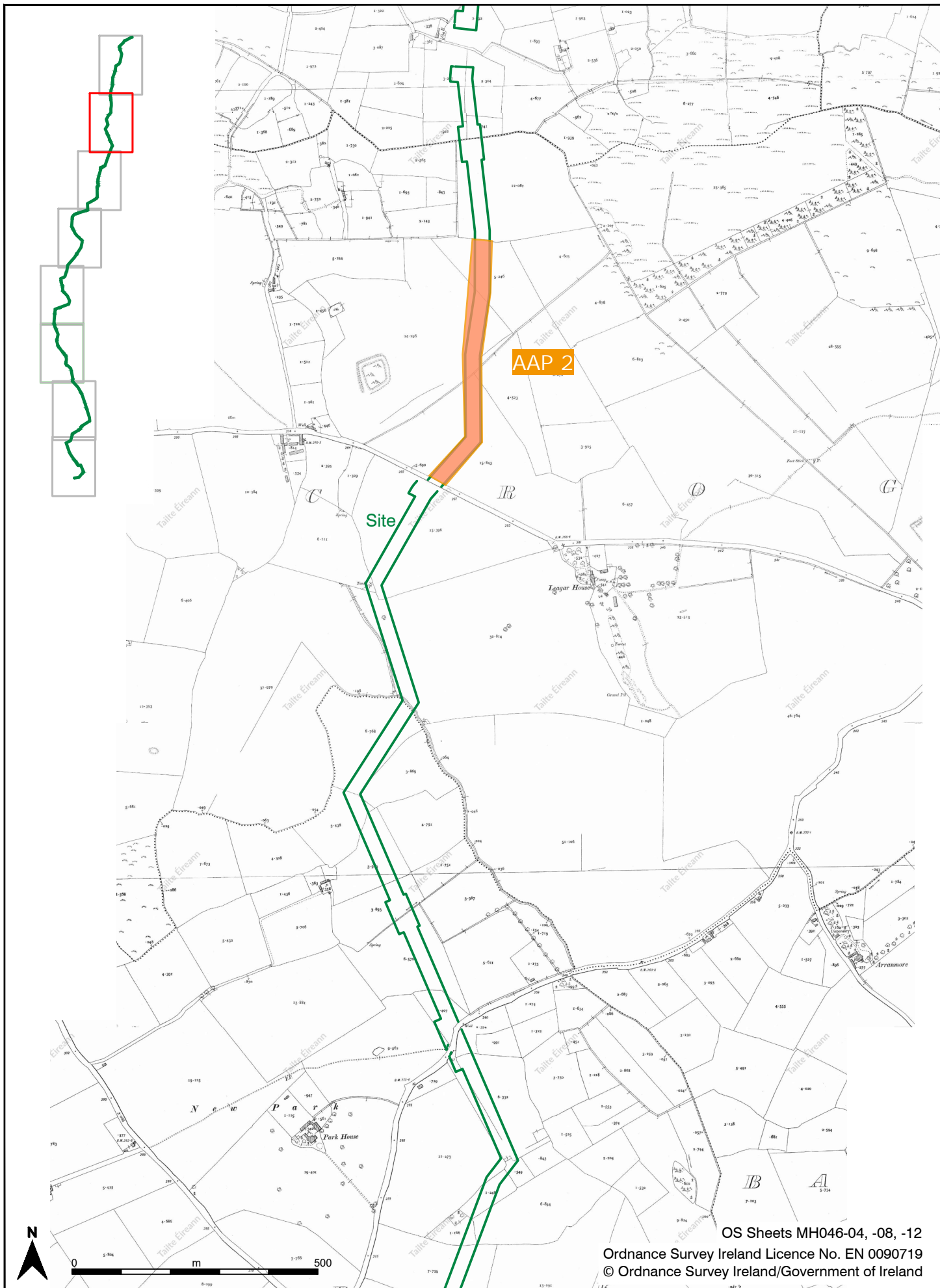
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Figure 13 Extract from 3rd edition Ordnance Survey (OS) 25-inch map (surveyed 1910- published 1912), showing location of site and AAP



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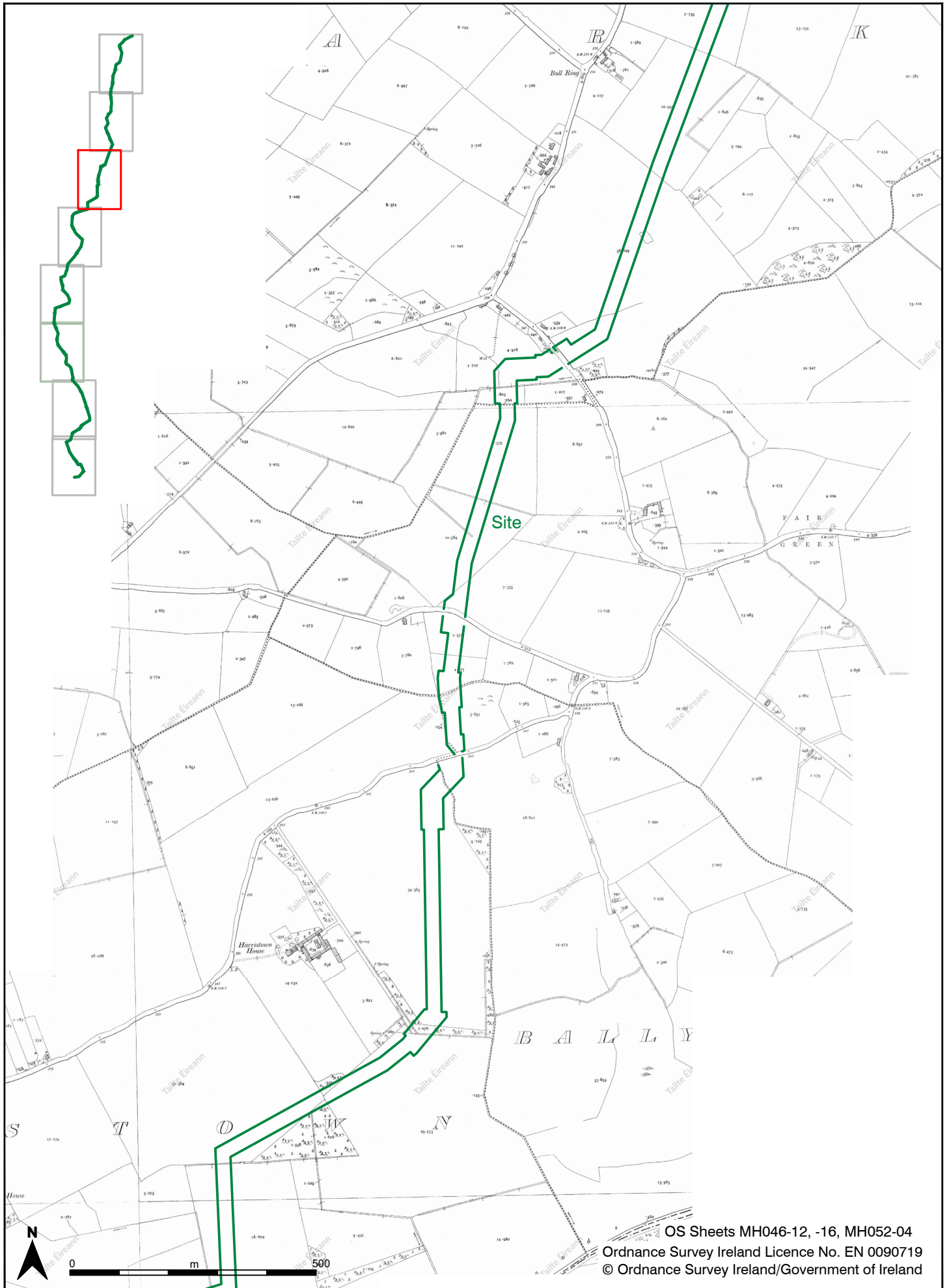
Date September 2025

Figure 14 Extract from 3rd edition Ordnance Survey (OS) 25-inch map (surveyed 1910 - published 1912), showing location of site and AAP



Scale 1:10,000 @ A4

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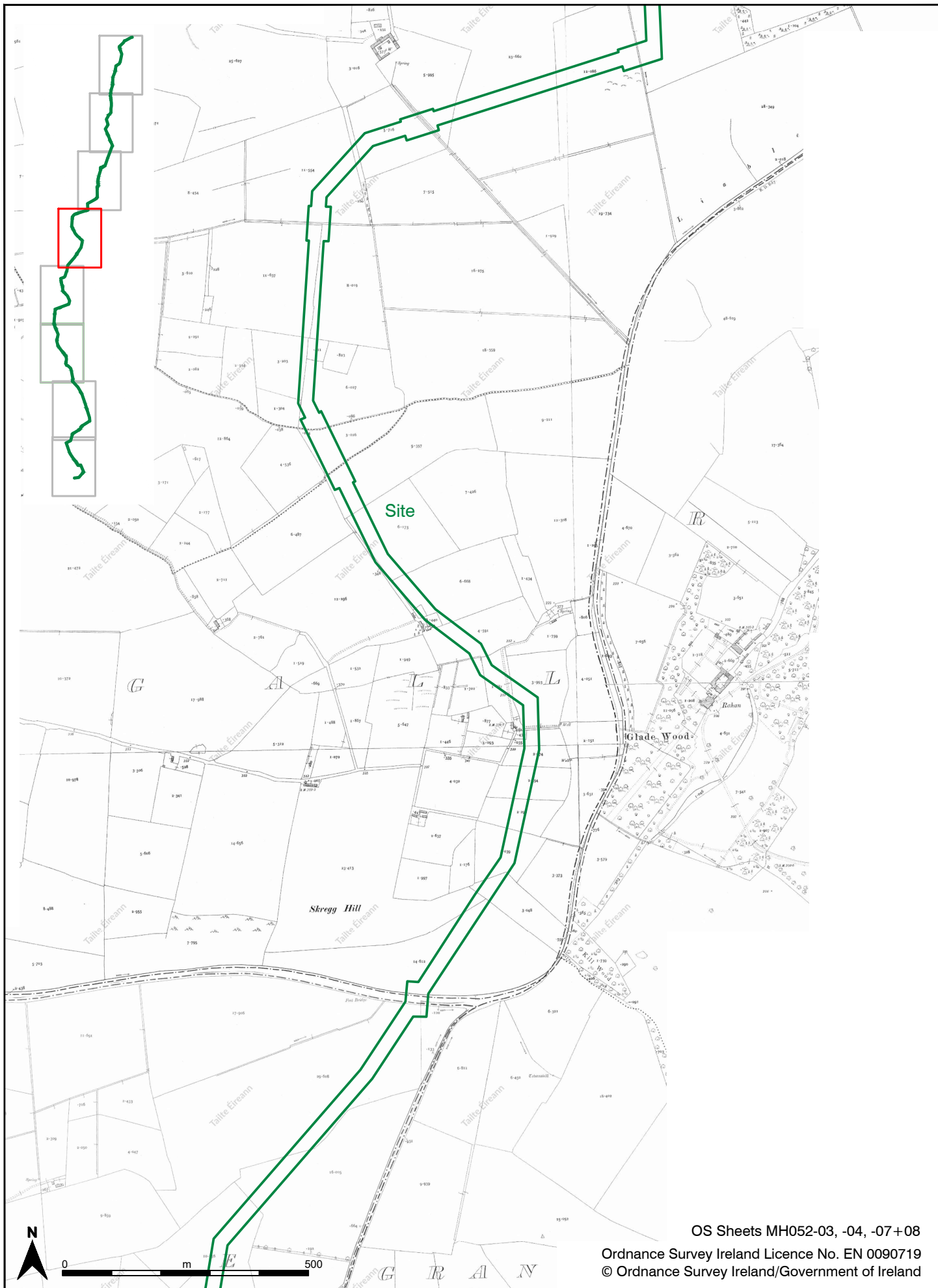
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Figure 15 Extract from 3rd edition Ordnance Survey (OS) 25-inch map (surveyed 1910 - published 1912), showing location of site

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Scale 1:10,000 @ A4

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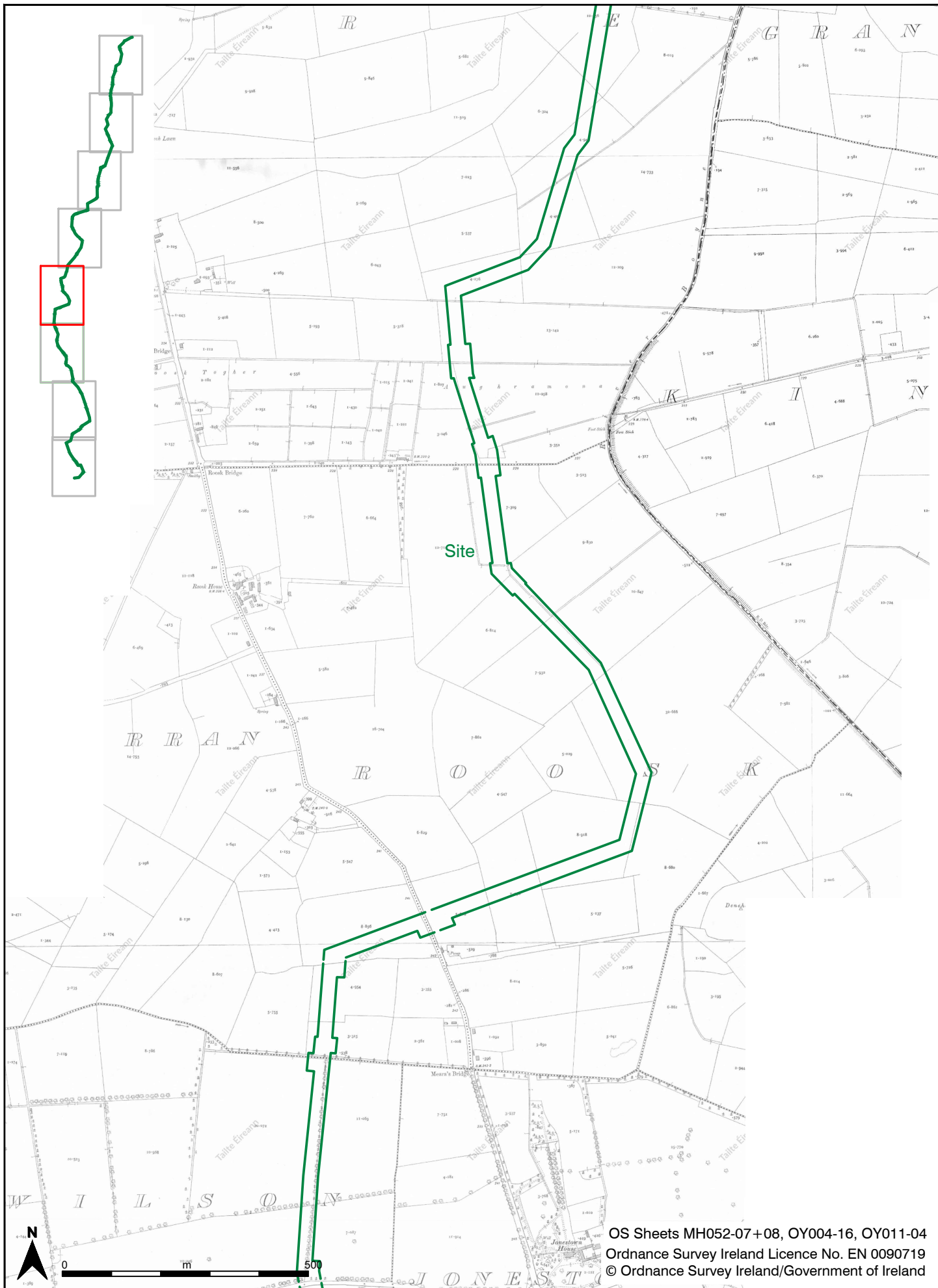
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Figure 16 Extract from 3rd edition Ordnance Survey (OS) 25-inch map (surveyed 1910 - published 1912), showing location of site



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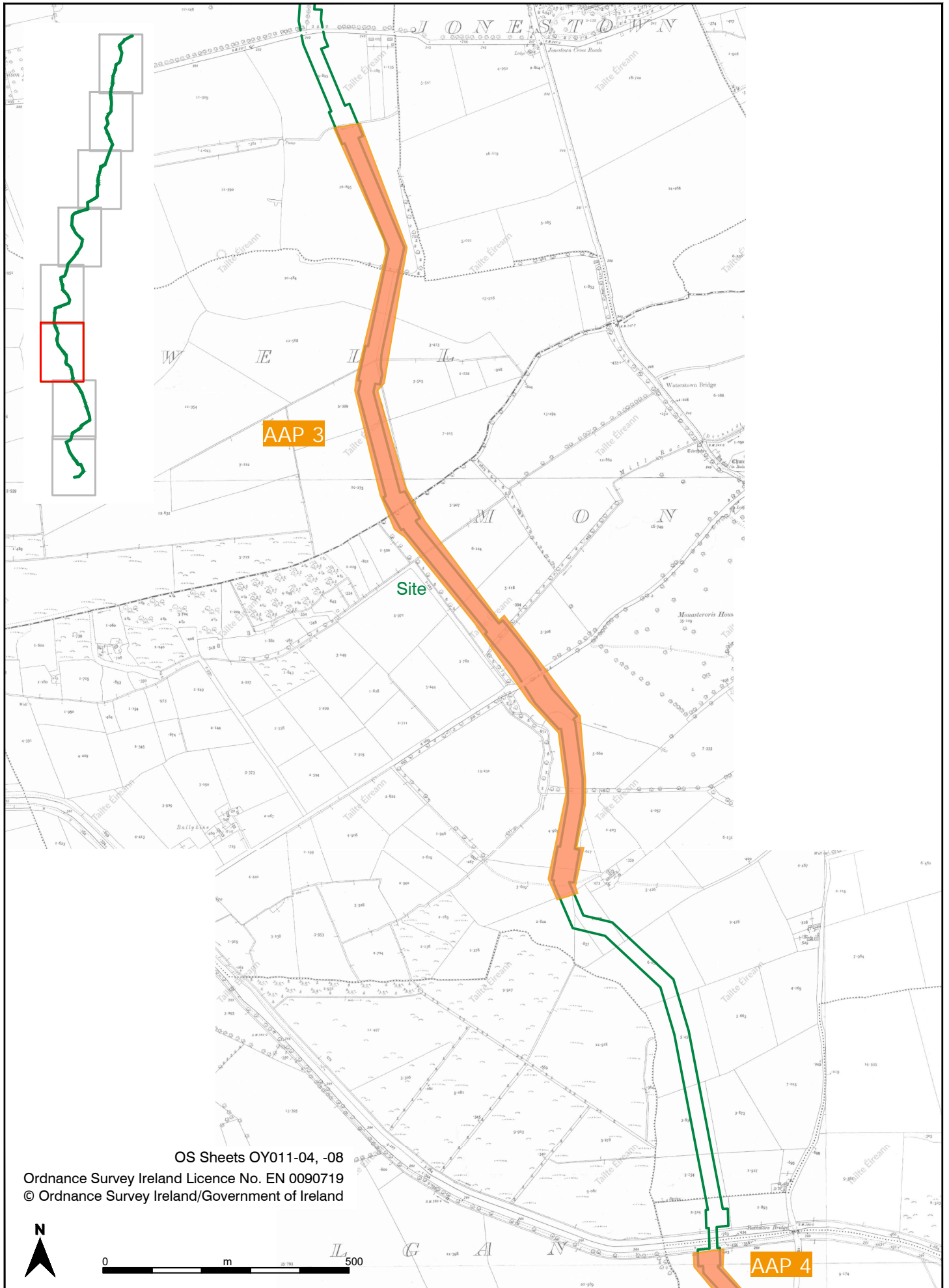
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Figure 17 Extract from 3rd edition Ordnance Survey (OS) 25-inch map (surveyed 1909/10 - published 1912), showing location of site



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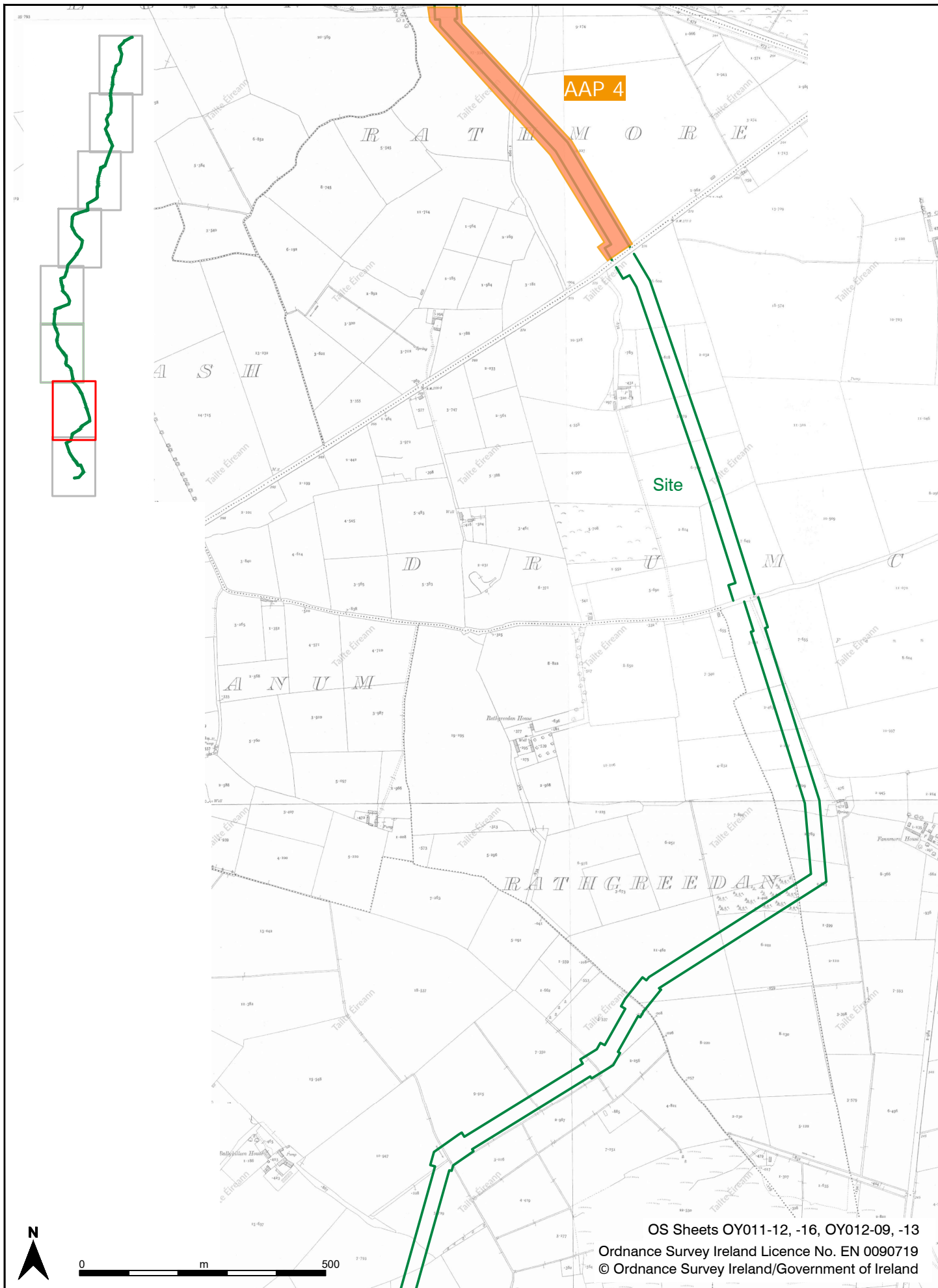
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Figure 18 Extract from 3rd edition Ordnance Survey (OS) 25-inch map (surveyed 1909 - published 1912), showing location of site and AAP


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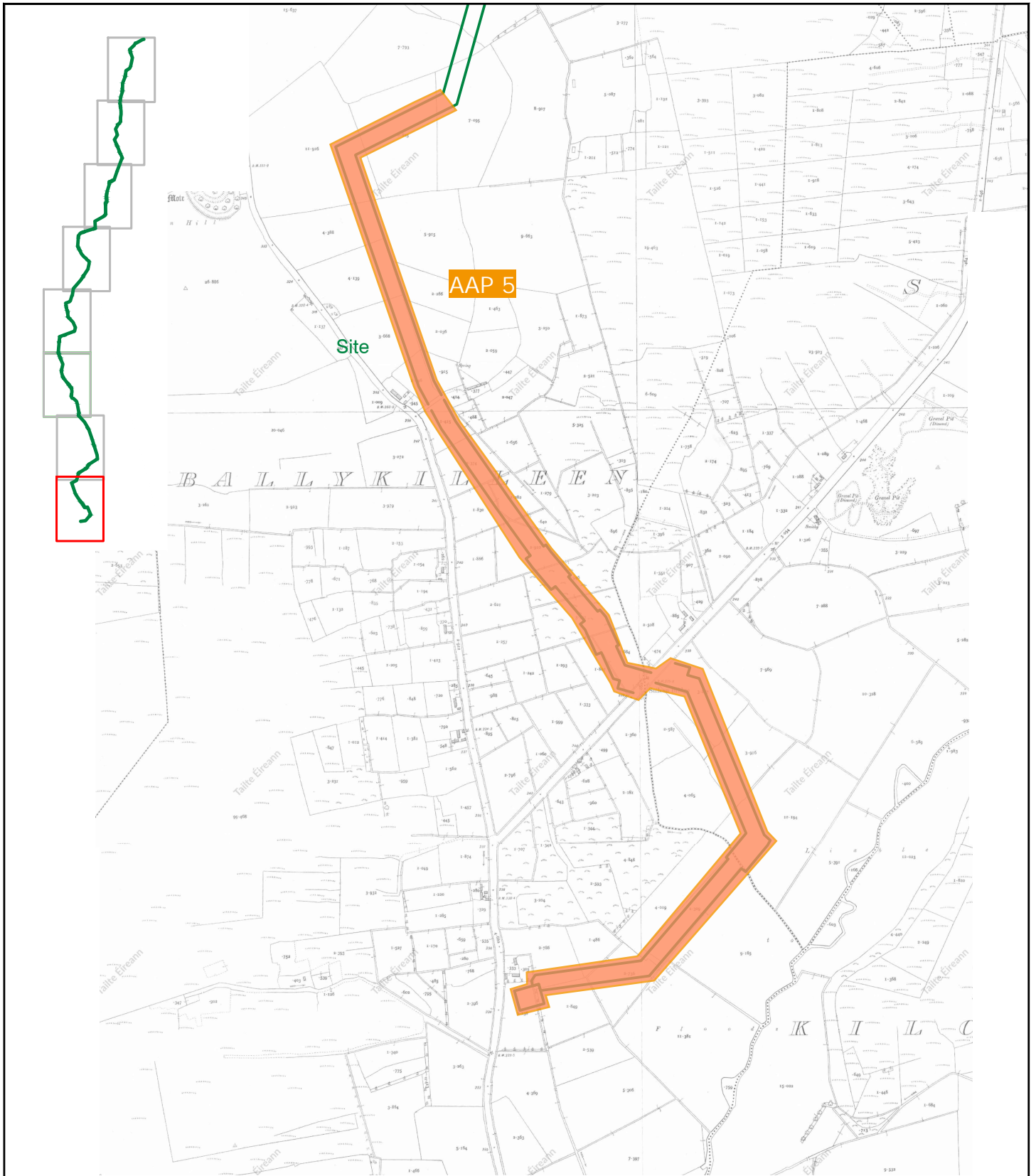
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Figure 19 Extract from 3rd edition Ordnance Survey (OS) 25-inch map (surveyed 1909/10 - published 1912), showing location of site and AAP



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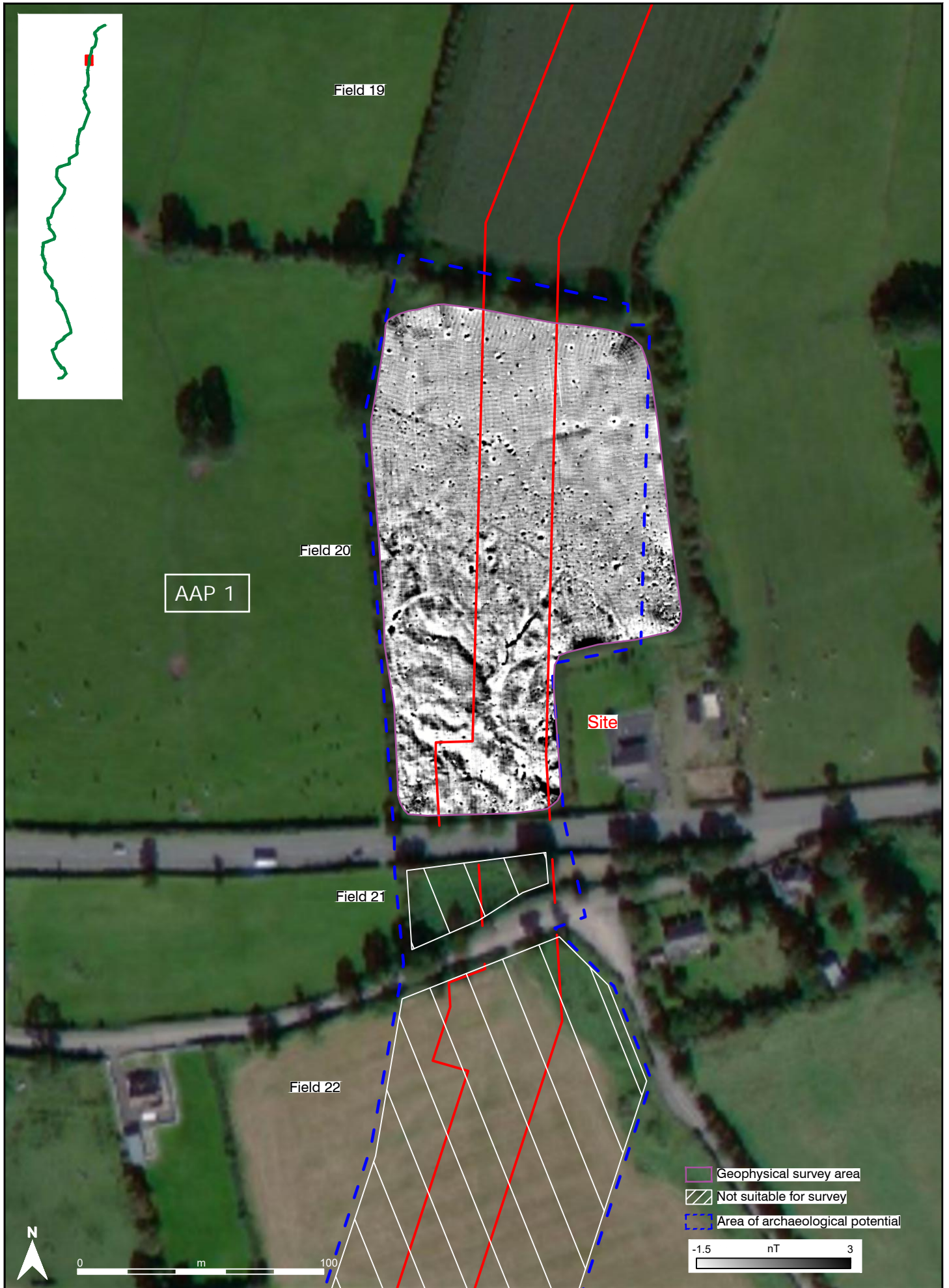
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Figure 20 Extract from 3rd edition Ordnance Survey (OS) 25-inch map (surveyed 1909/10 - published 1912), showing location of site and AAP



Scale 1:10,000 @ A4

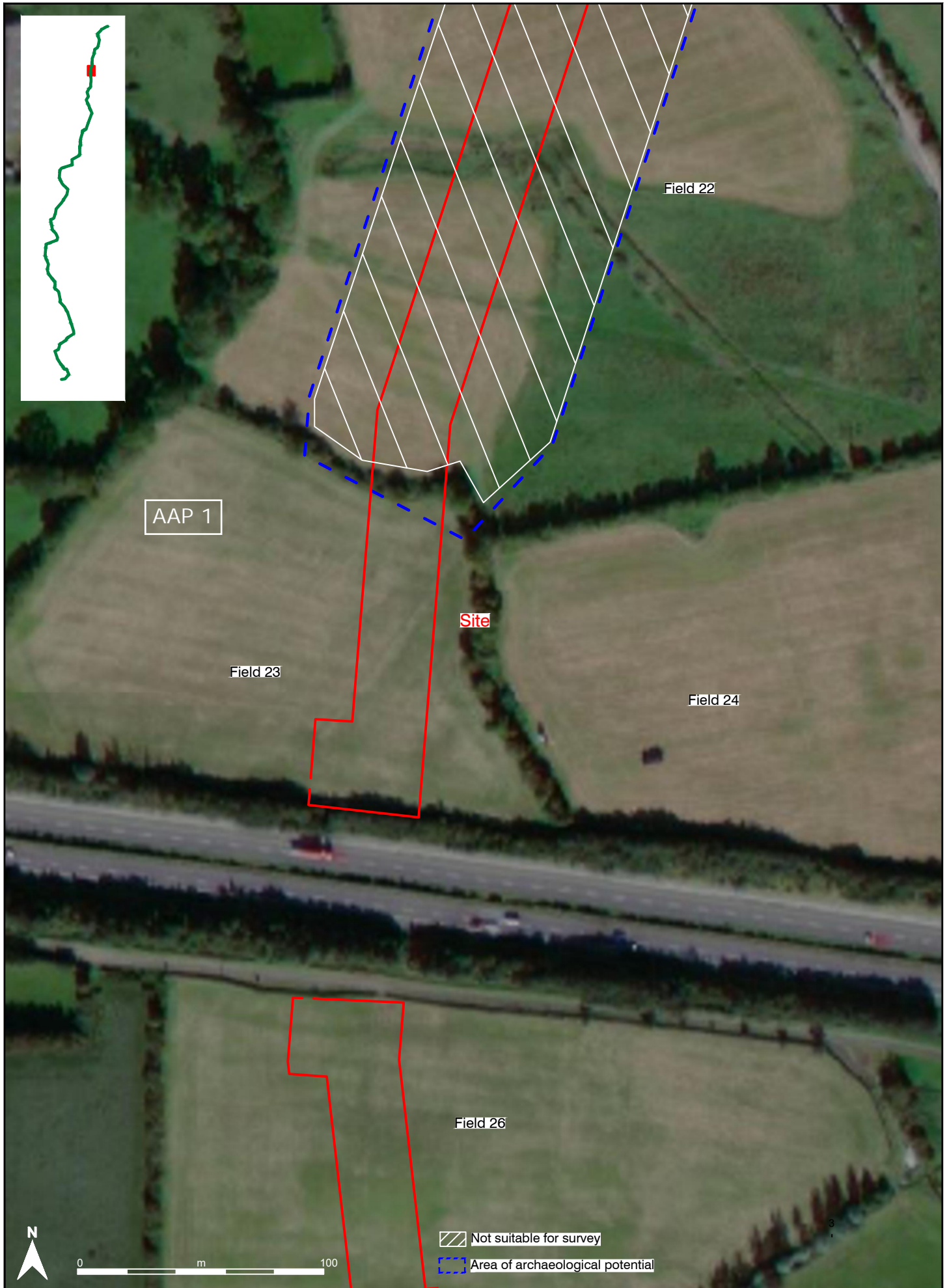
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Date September 2025

Figure 21 Aerial view of site, showing geophysical survey results (greyscale images) for field 20 and area of archaeological potential 1



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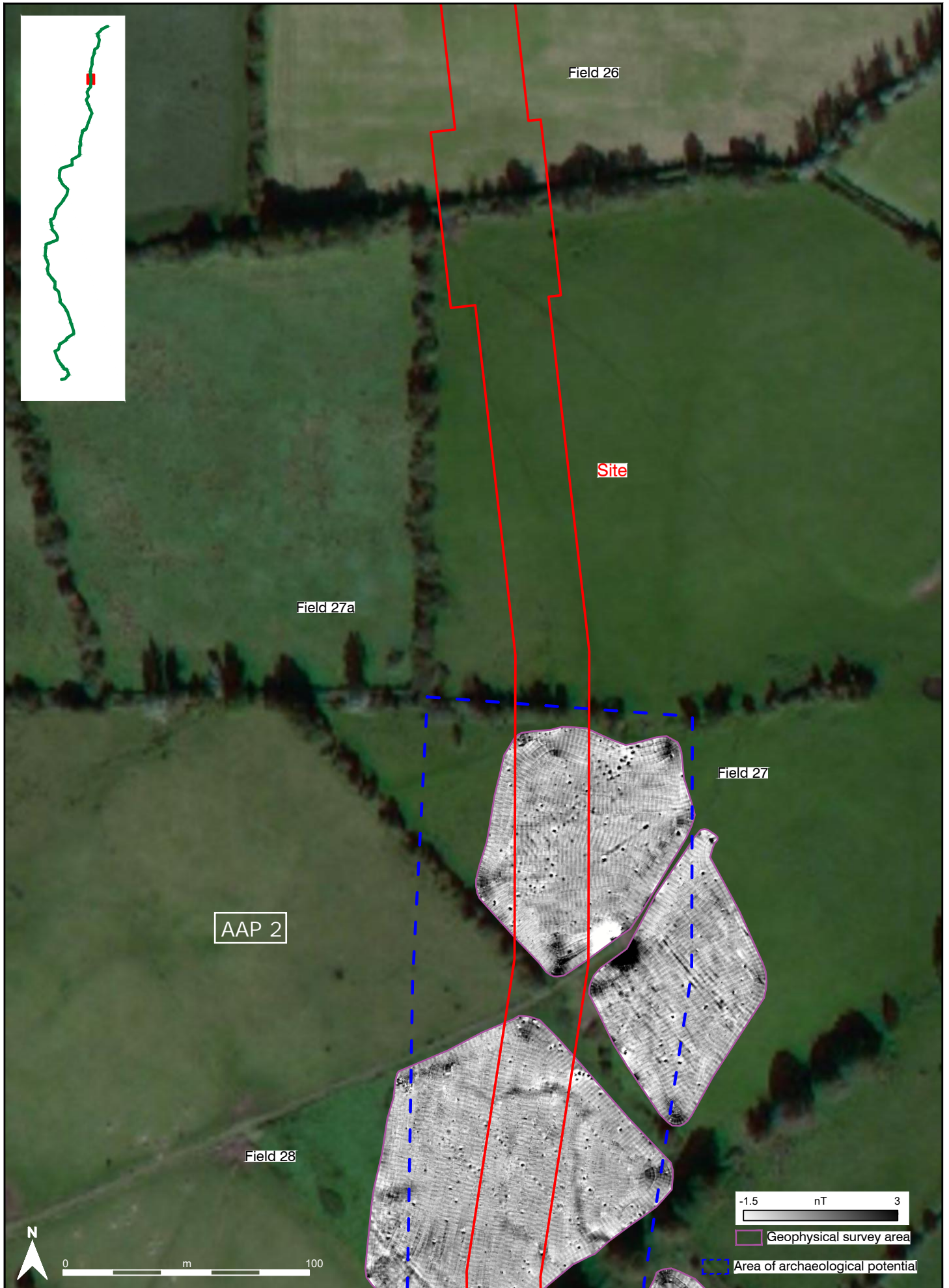
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Figure 22 Aerial view of site, showing area of archaeological potential 1



Scale 1:2,000 @ A4

Drawing No. 2594\_C1022



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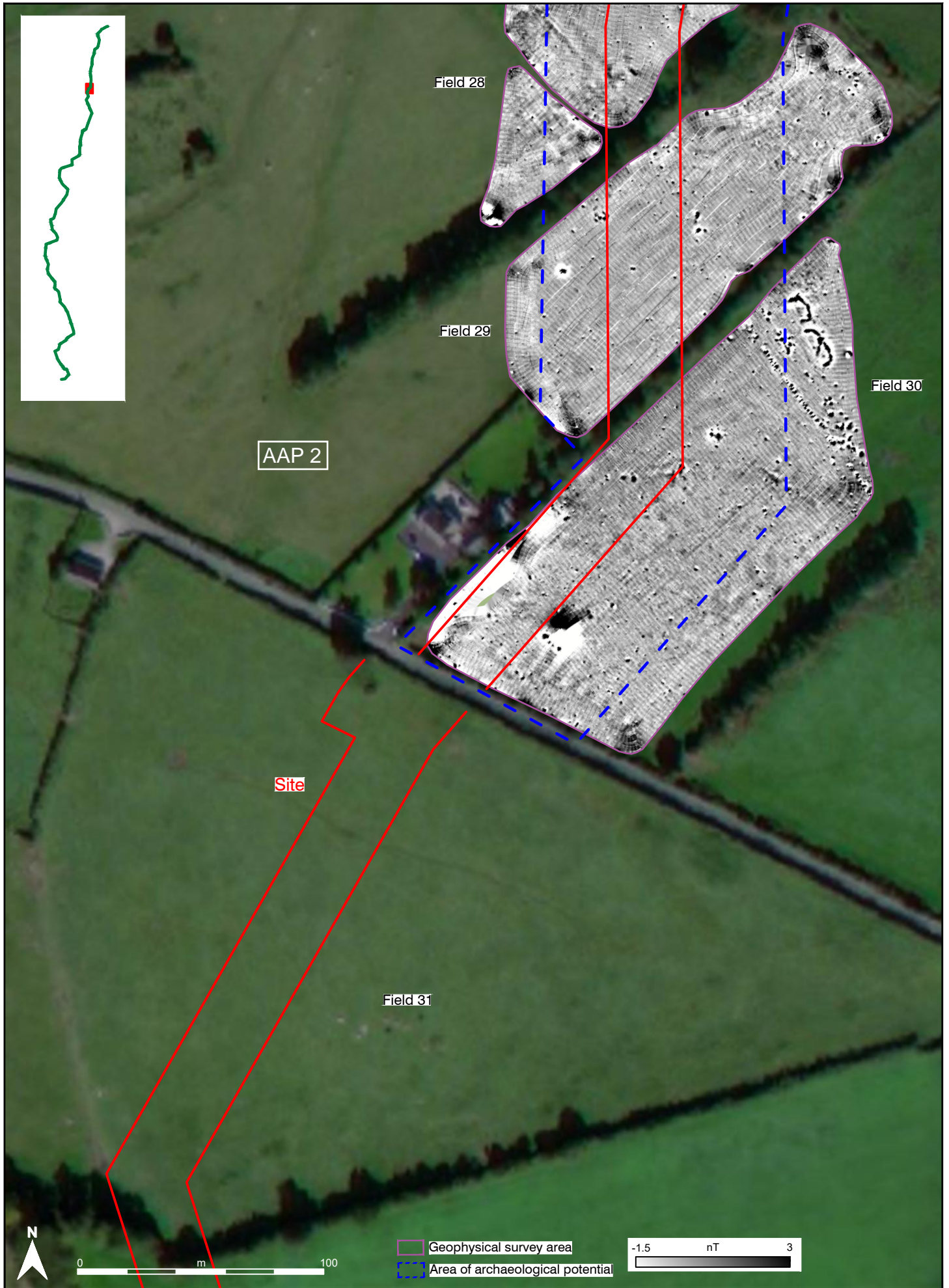
Date September 2025


Figure 23 Aerial view of site, showing geophysical survey results (greyscale images) for fields 27 and 28 and area of archaeological potential 2

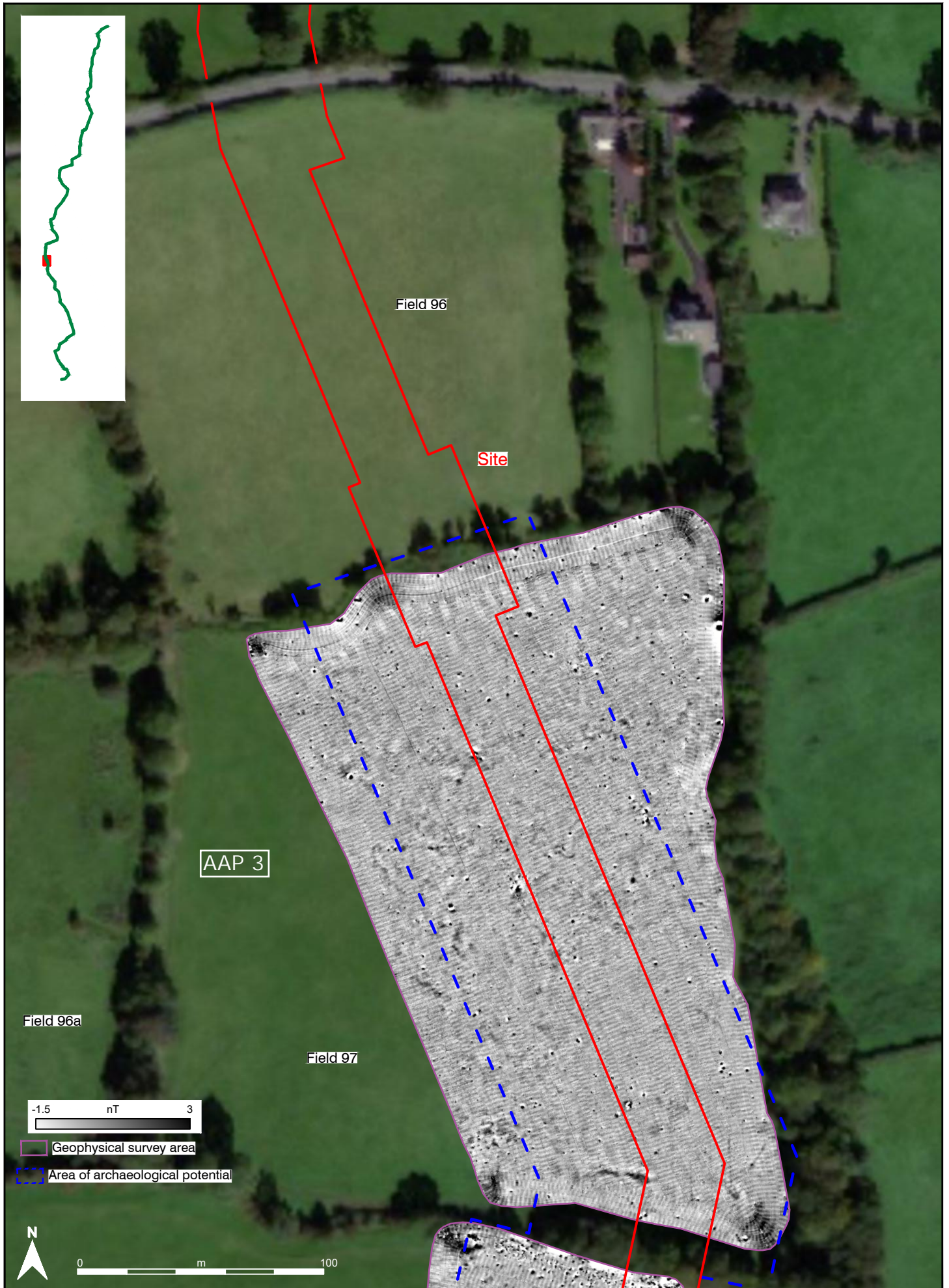



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| <b>Project</b> Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly   | <b>Date</b> September 2025 |  |
| <b>Figure 24</b> Aerial view of site, showing geophysical survey results (greyscale images) for fields 28 to 30 and area of archaeological potential 2 |                            |   |
| <b>Scale</b> 1:2,000 @ A4  |                            | <b>Drawing No.</b> 2594_C1024   |



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| Project Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly  | Date September 2025 |  |
| Figure 25 Aerial view of site, showing geophysical survey results (greyscale images) for field 97 and area of archaeological potential 3 |                     |   |



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Date September 2025

Figure 26 Aerial view of site, showing geophysical survey results (greyscale images) for fields 98 to 100 and area of archaeological potential 3



Scale 1:2,000 @ A4

Drawing No. 2594\_C1026



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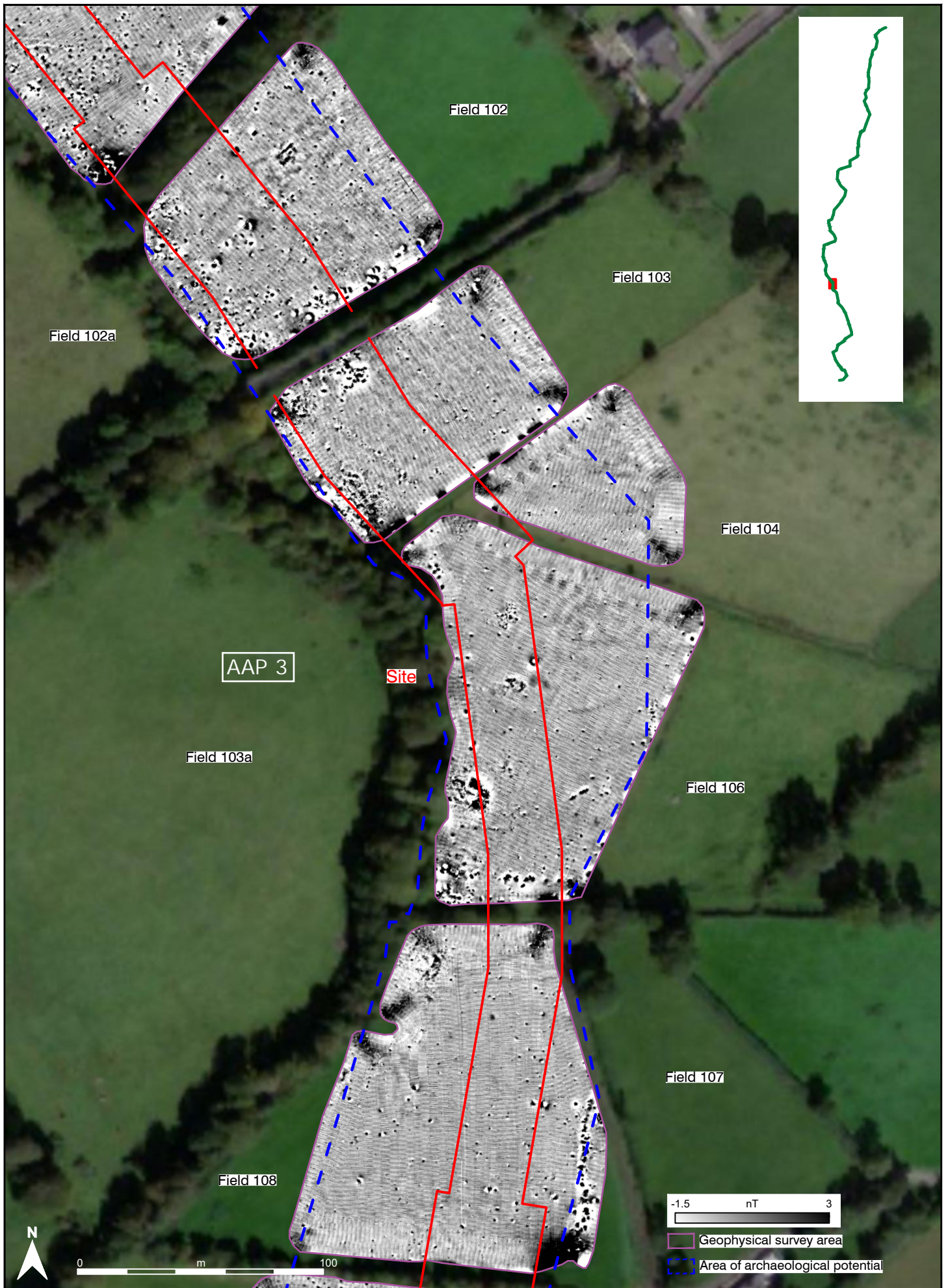
Date September 2025

Figure 27 Aerial view of site, showing geophysical survey results (greyscale images) for fields 100 to 102 and area of archaeological potential 3



Scale 1:2,000 @ A4

Drawing No. 2594\_C1027



Project Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly

Date September 2025

Figure 28 Aerial view of site, showing geophysical survey results (greyscale images) for fields 102 to 108 and area of archaeological potential 3



Scale 1:2,000 @ A4

Drawing No. 2594\_C1028



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**Date** September 2025

**Drawing No.** 2594\_C1029

**Figure 29** Aerial view of site, showing geophysical survey results (greyscale images) for field 109 and area of archaeological potential 3

**Scale** 1:2,000 @ A4





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**Date** September 2025

**Drawing No.** 2594\_C1030

**Figure 30** Aerial view of site, showing geophysical survey results (greyscale images) for fields 116, 118 and 119 and area of archaeological potential 4

**Scale** 1:2,000 @ A4



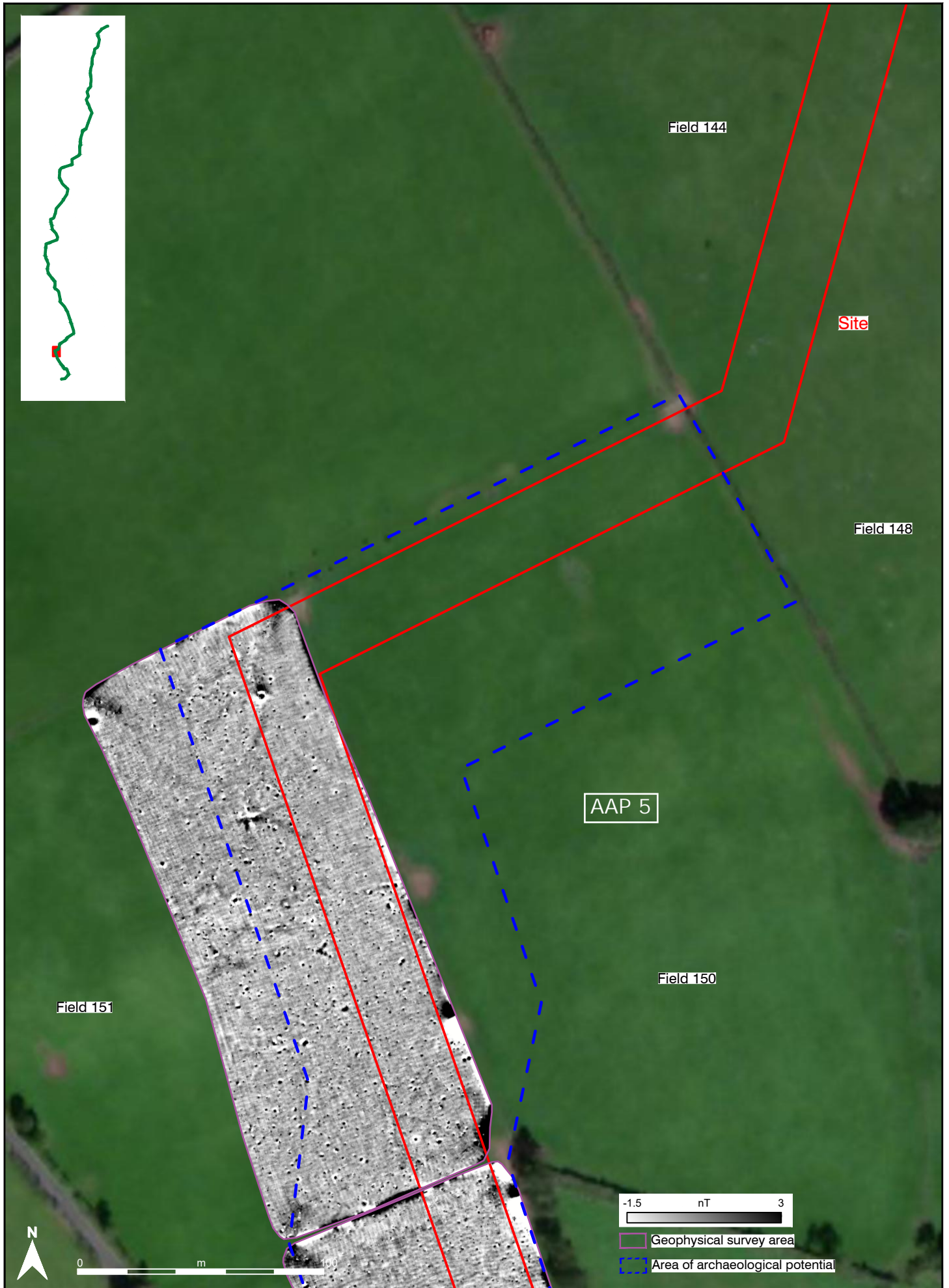
**Project** Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly

**Date** September 2025

**Drawing No.** 2594\_C1031

**Figure 31** Aerial view of site, showing geophysical survey results (greyscale images) for fields 118 to 121 and area of archaeological potential 4

**Scale** 1:2,000 @ A4



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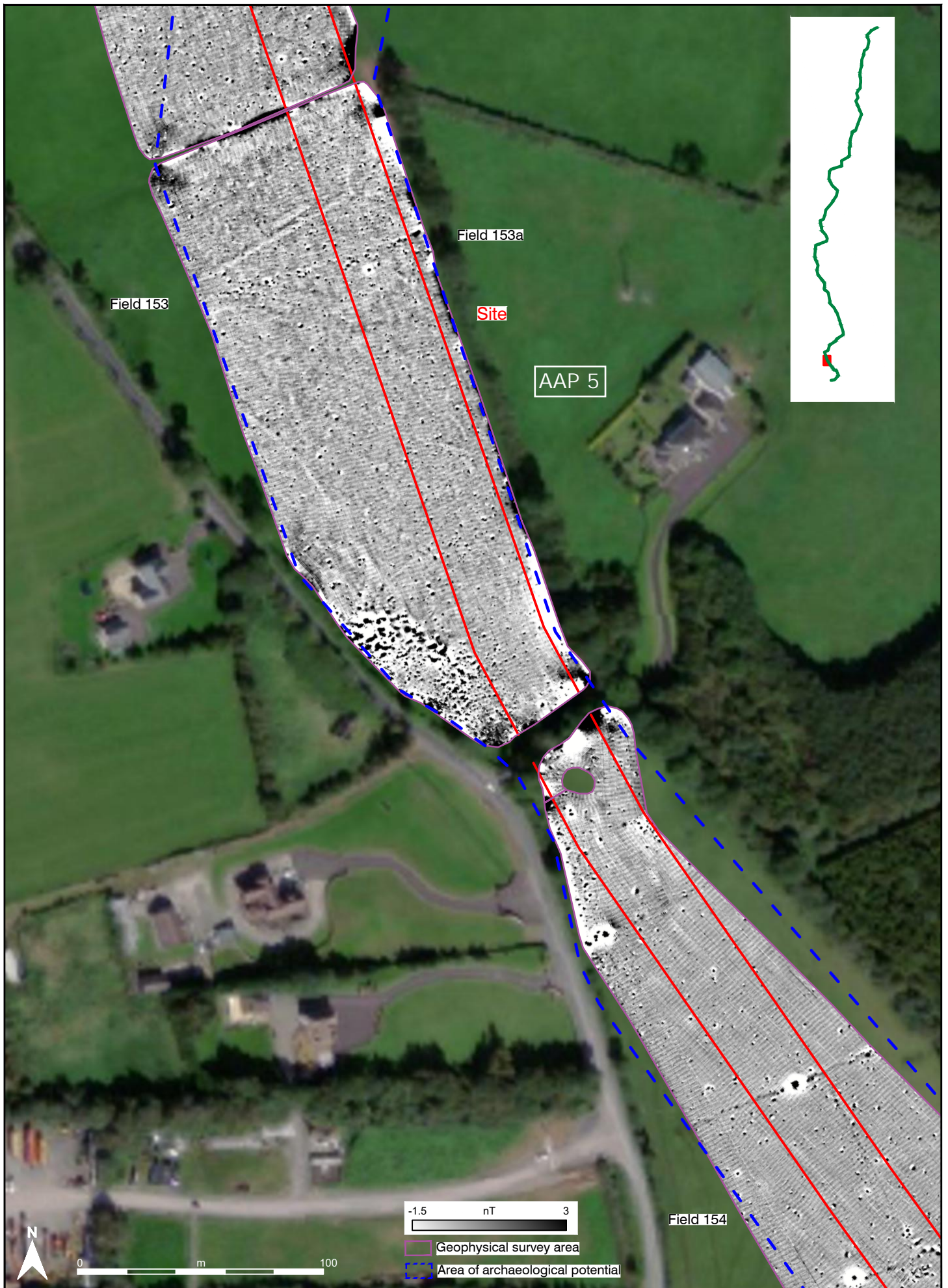
Date September 2025

Figure 32 Aerial view of site, showing geophysical survey results (greyscale images) for field 151 and area of archaeological potential 5



Scale 1:2,000 @ A4

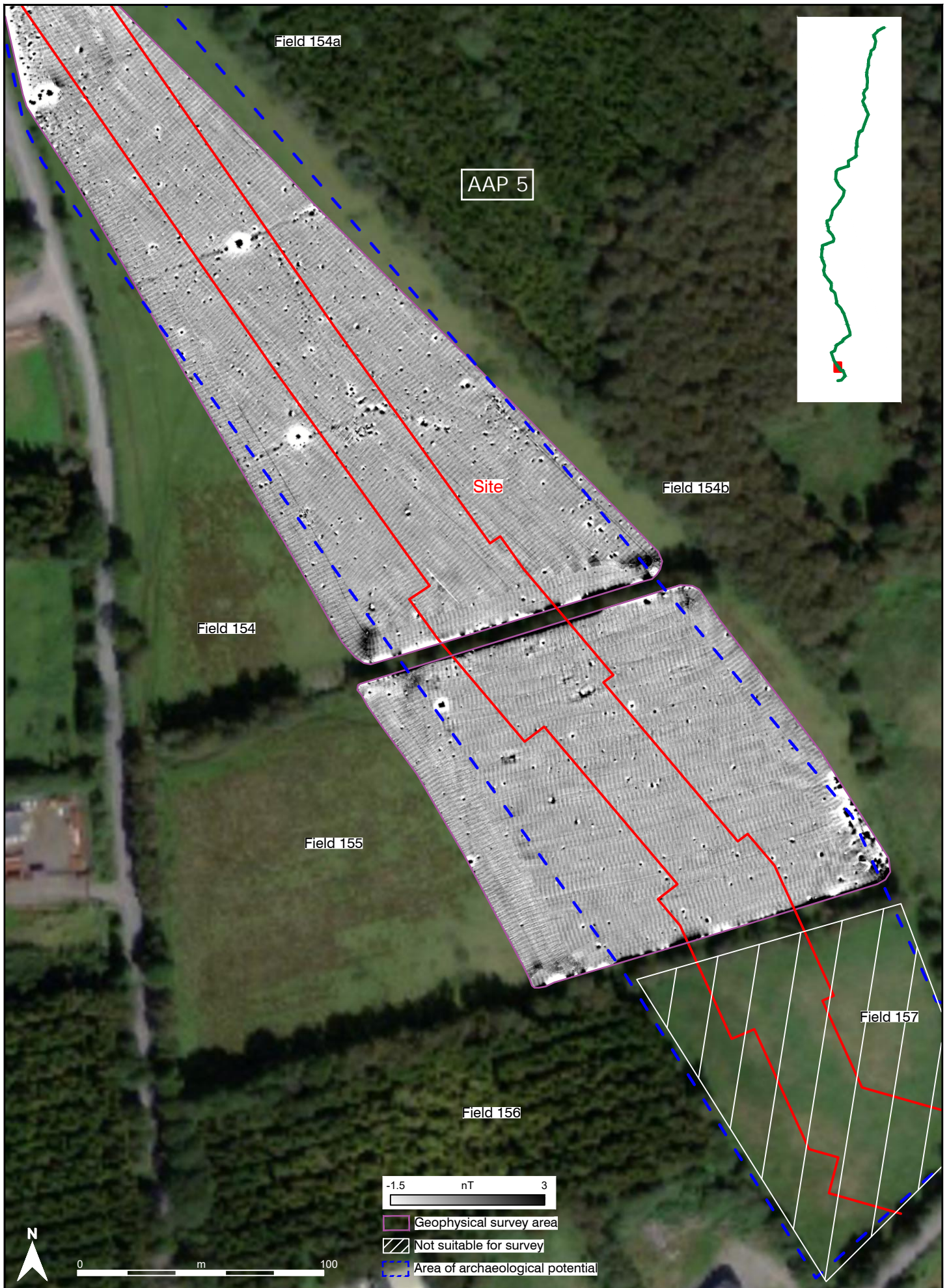
Drawing No. 2594\_C1032



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Date September 2025

Figure 33 Aerial view of site, showing geophysical survey results (greyscale images) for fields 153 and 154 and area of archaeological potential 5



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Date September 2025

Figure 34 Aerial view of site, showing geophysical survey results (greyscale images) for fields 154 and 155 and area of archaeological potential 5



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Date September 2025

Figure 35 Aerial view of site, showing geophysical survey results (greyscale images) for fields 158 to 159 and area of archaeological potential 5



Scale 1:2,000 @ A4

Drawing No. 2594\_C1035



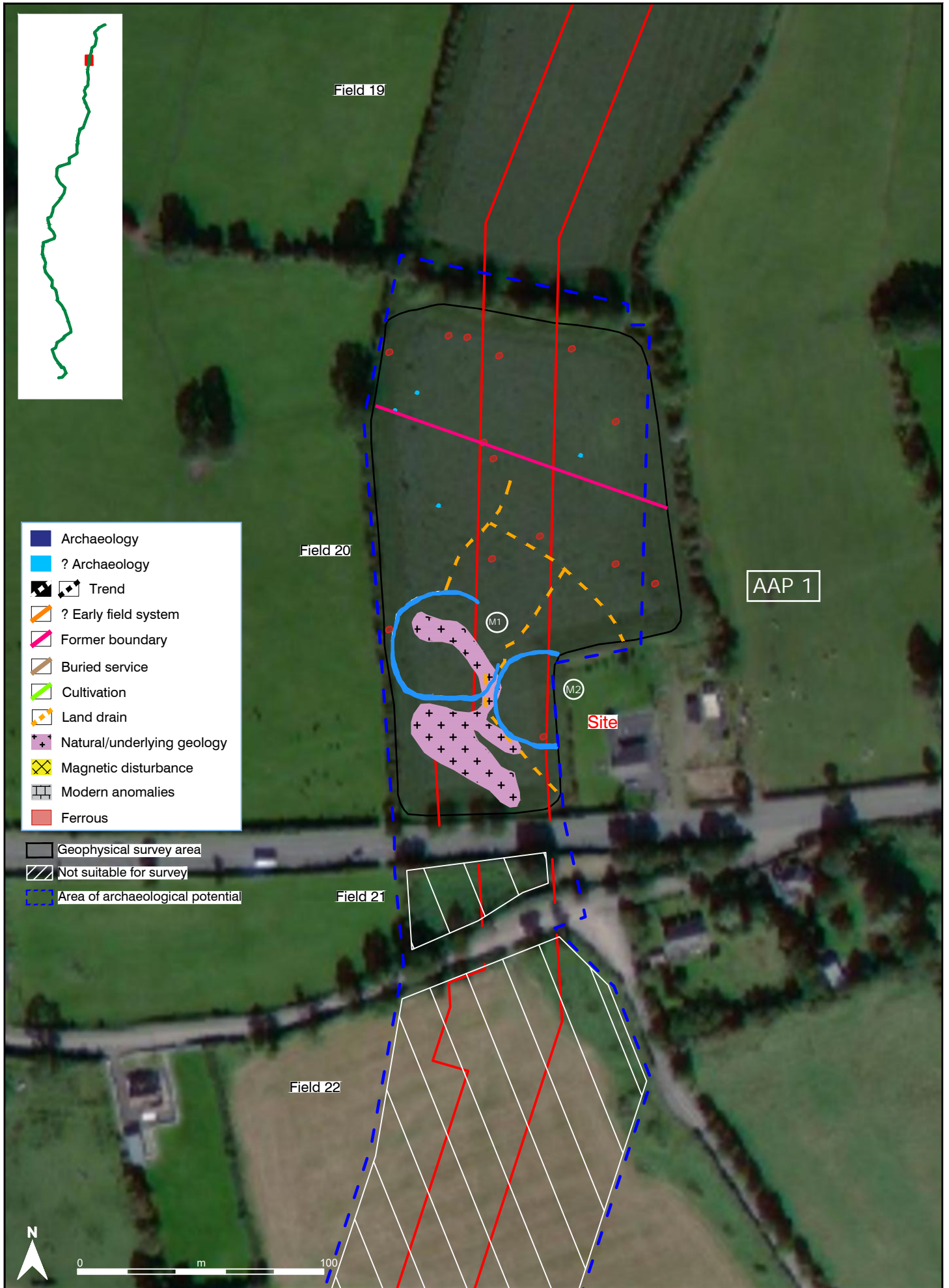
**Project** Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly

**Date** September 2025

**Drawing No.** 2594\_C1036

**Figure 36** Aerial view of site, showing area of archaeological potential 5

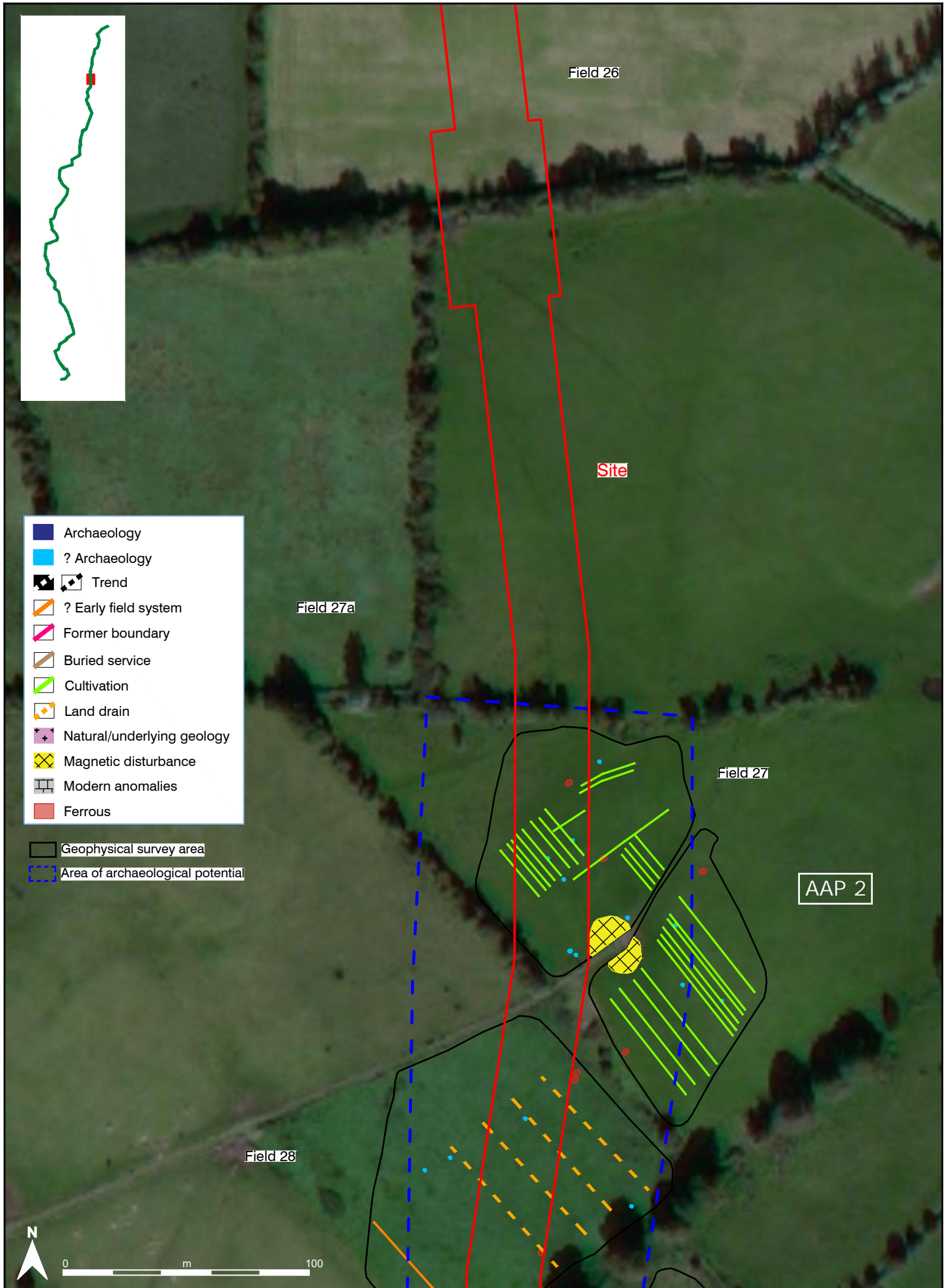
**Scale** 1:2,000 @ A4



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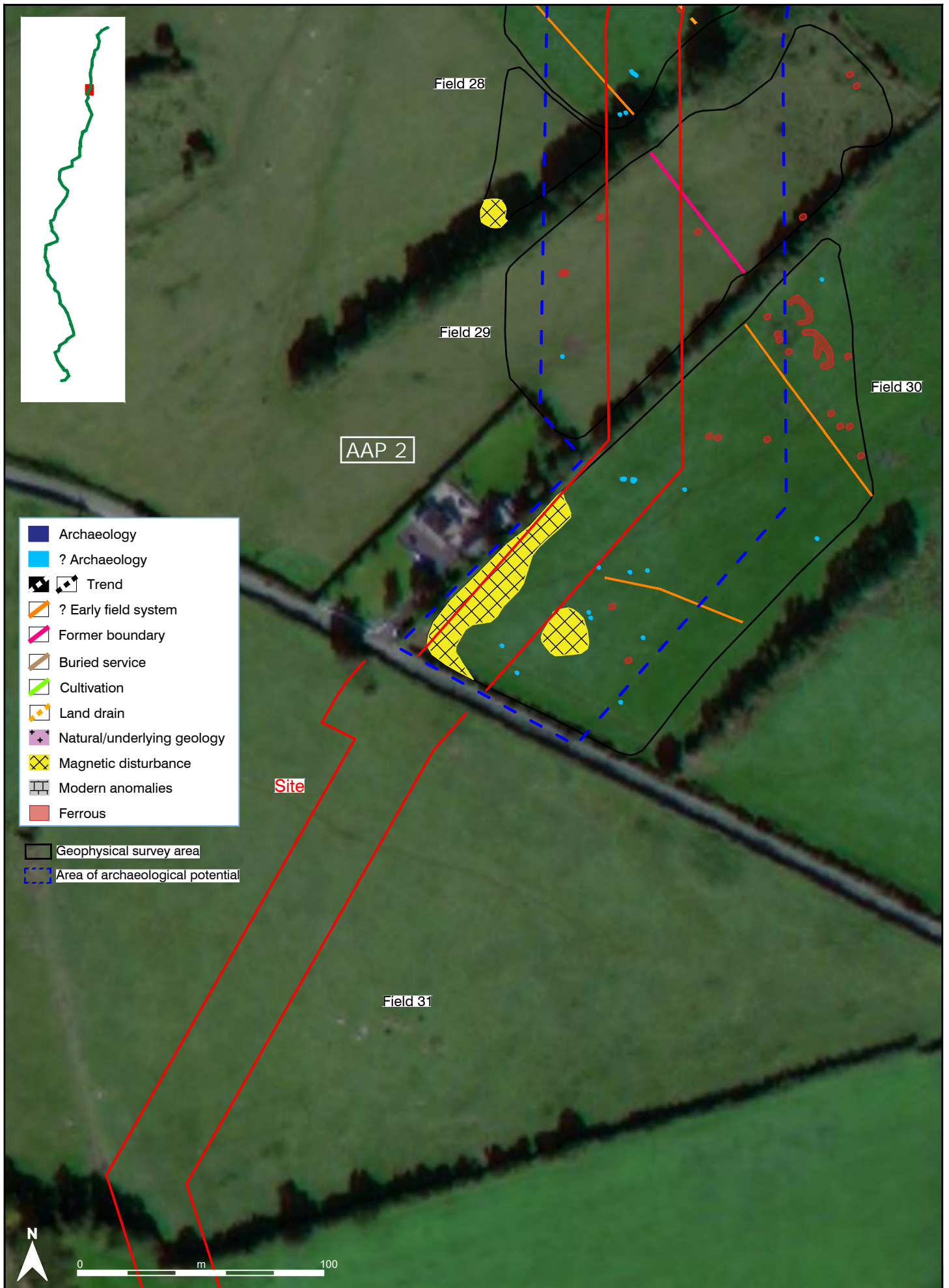
Figure 37 Aerial view of site, showing geophysical survey interpretation for field 20 and area of archaeological potential 1

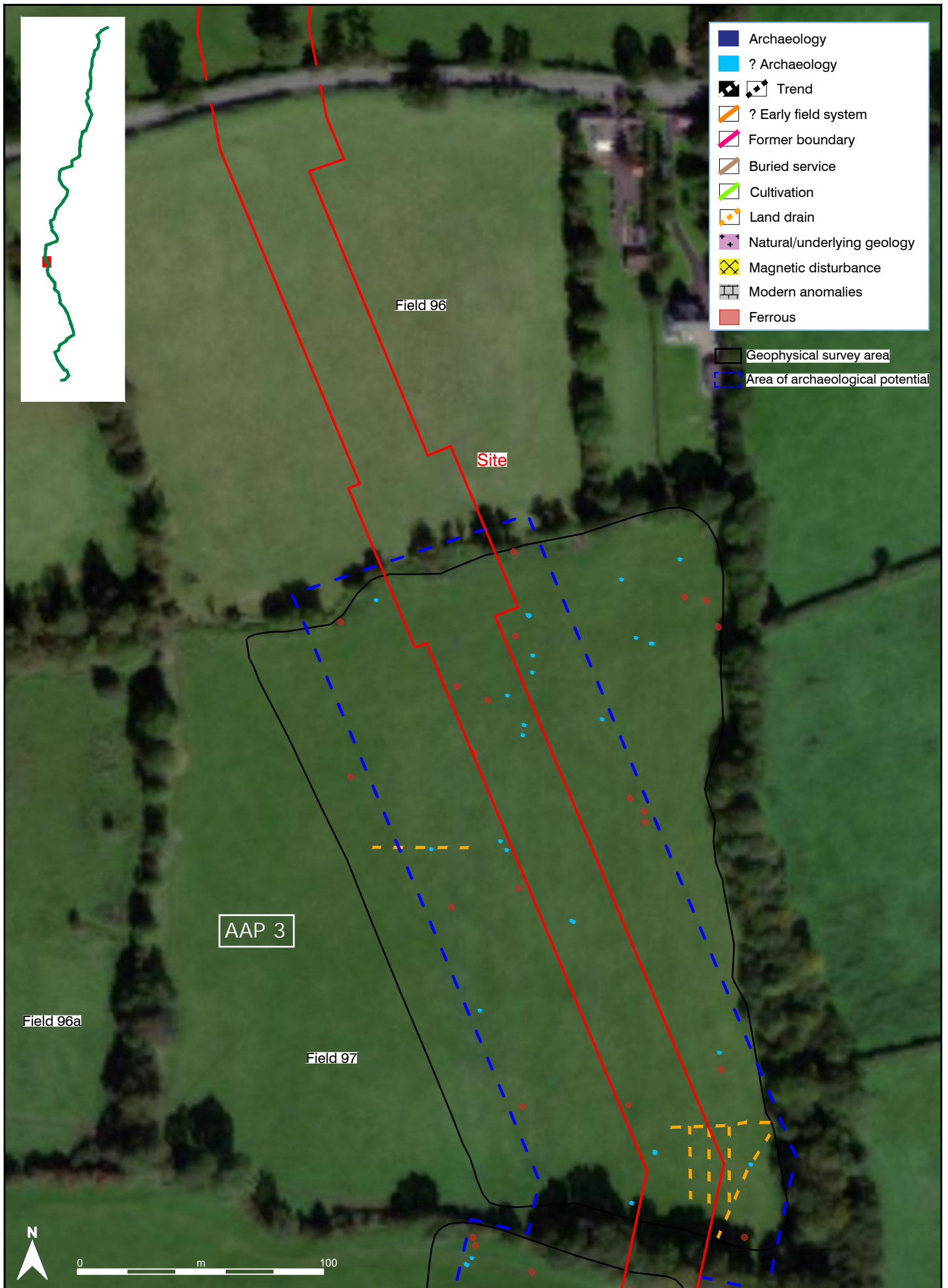


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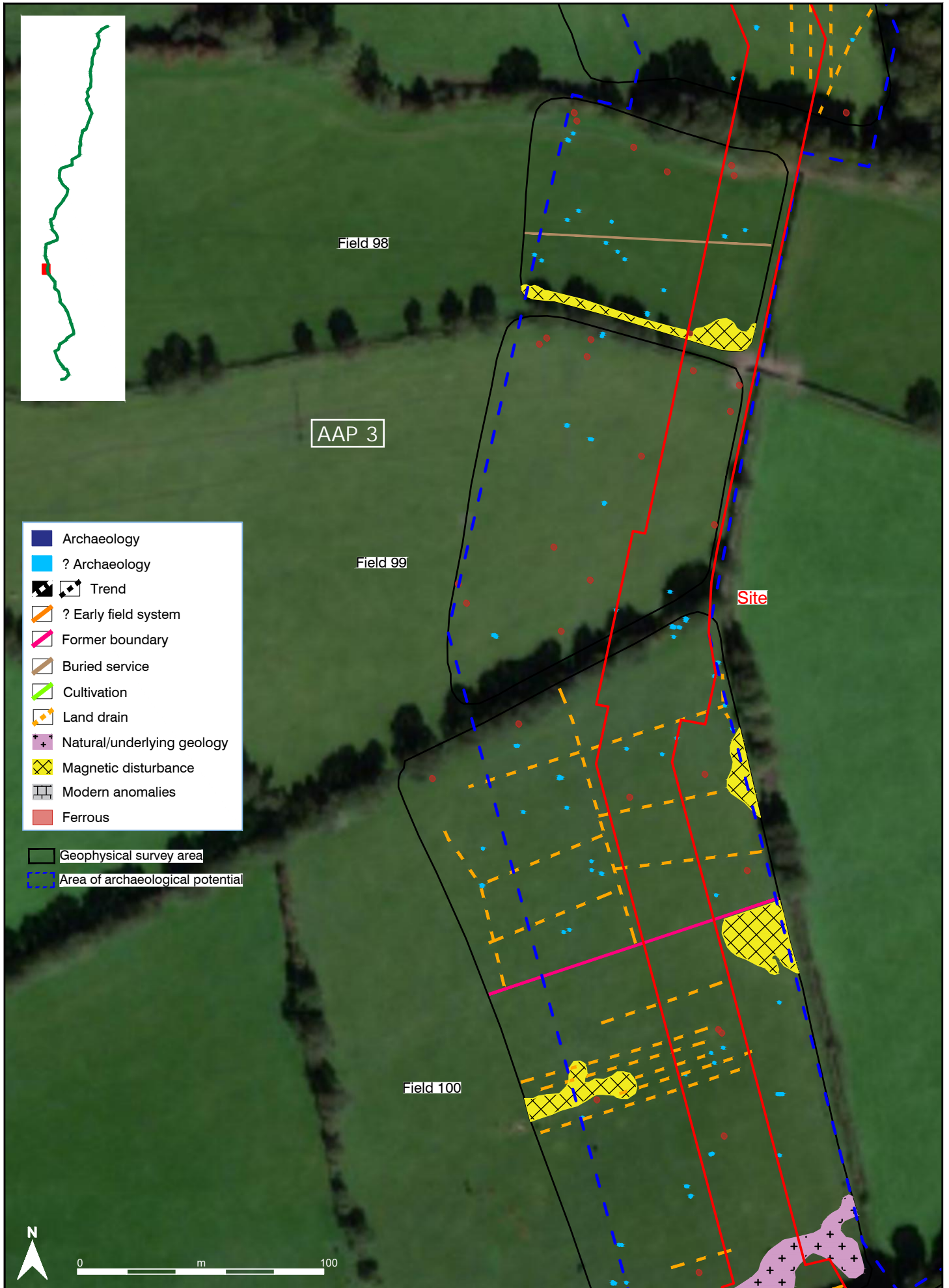
Figure 38 Aerial view of site, showing geophysical survey interpretation for fields 27 and 28 and area of archaeological potential 2





- Archaeology
- ? Archaeology
- Trend
- ? Early field system
- Former boundary
- Buried service
- Cultivation
- Land drain
- Natural/underlying geology
- Magnetic disturbance
- Modern anomalies
- Ferrous

- Geophysical survey area
- Area of archaeological potential



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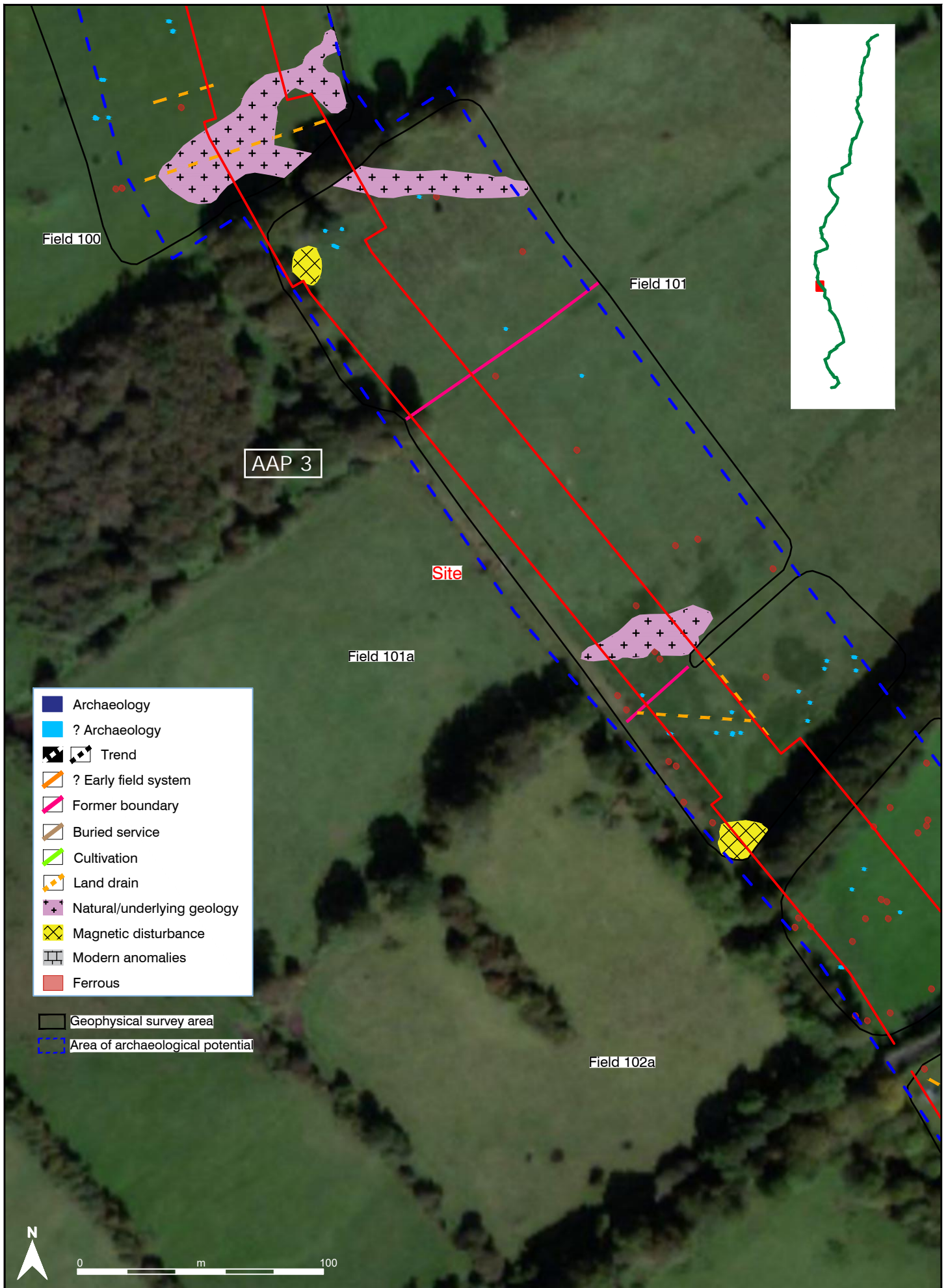
Date September 2025

Figure 41 Aerial view of site, showing geophysical survey interpretation for fields 98 to 100 and area of archaeological potential 3



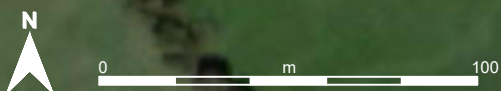
Scale 1:2,000 @ A4

Drawing No. 2594\_C1041



- Archaeology
- ? Archaeology
- Trend
- ? Early field system
- Former boundary
- Buried service
- Cultivation
- Land drain
- Natural/underlying geology
- Magnetic disturbance
- Modern anomalies
- Ferrous

- Geophysical survey area
- Area of archaeological potential

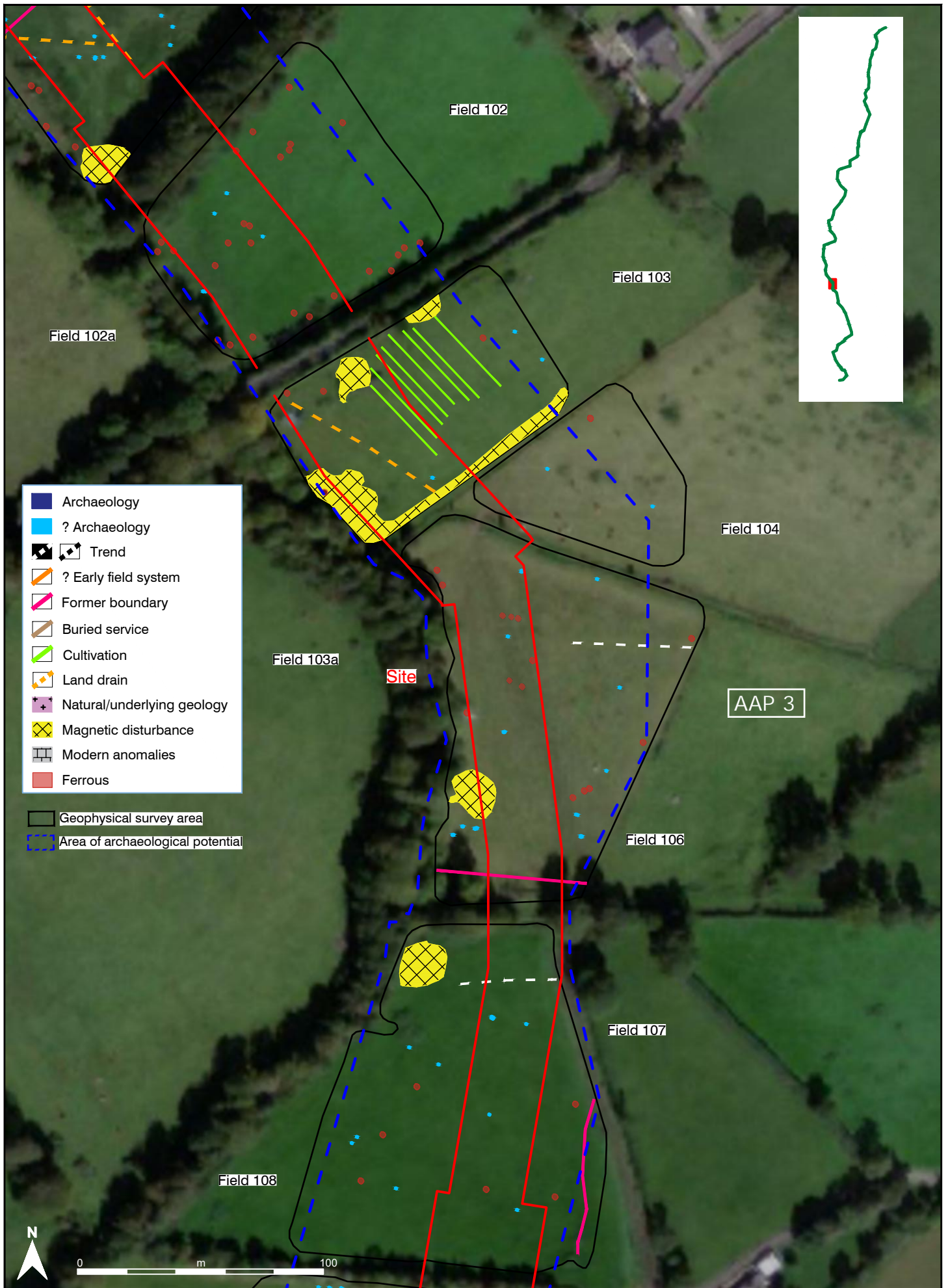


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Figure 42 Aerial view of site, showing geophysical survey interpretation for fields 100 to 102 and area of archaeological potential 3

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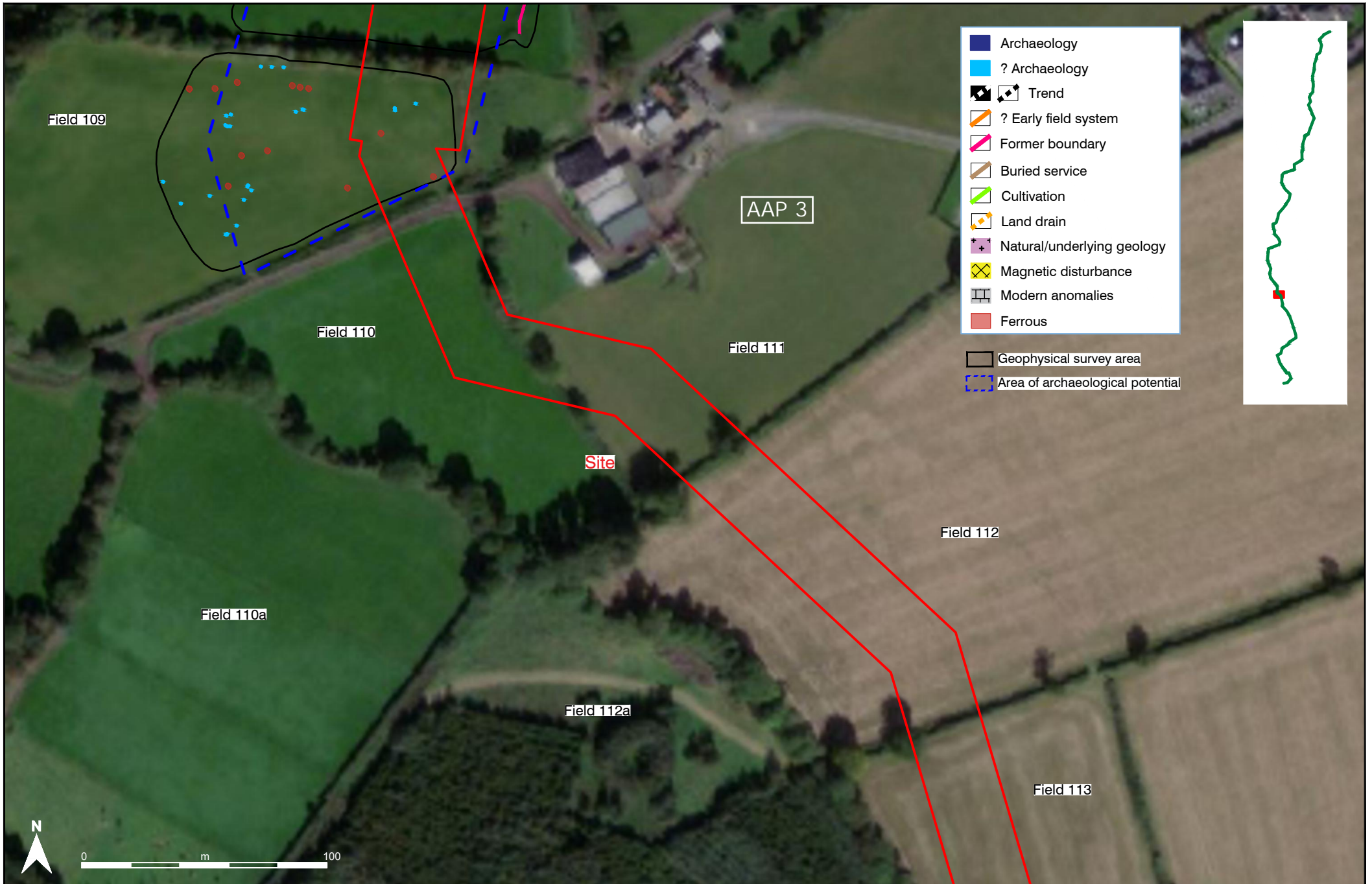
Scale 1:2,000 @ A4 Drawing No. 2594\_C1042



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Date September 2025

Figure 43 Aerial view of site, showing geophysical survey interpretation for fields 102 to 108 and area of archaeological potential 3



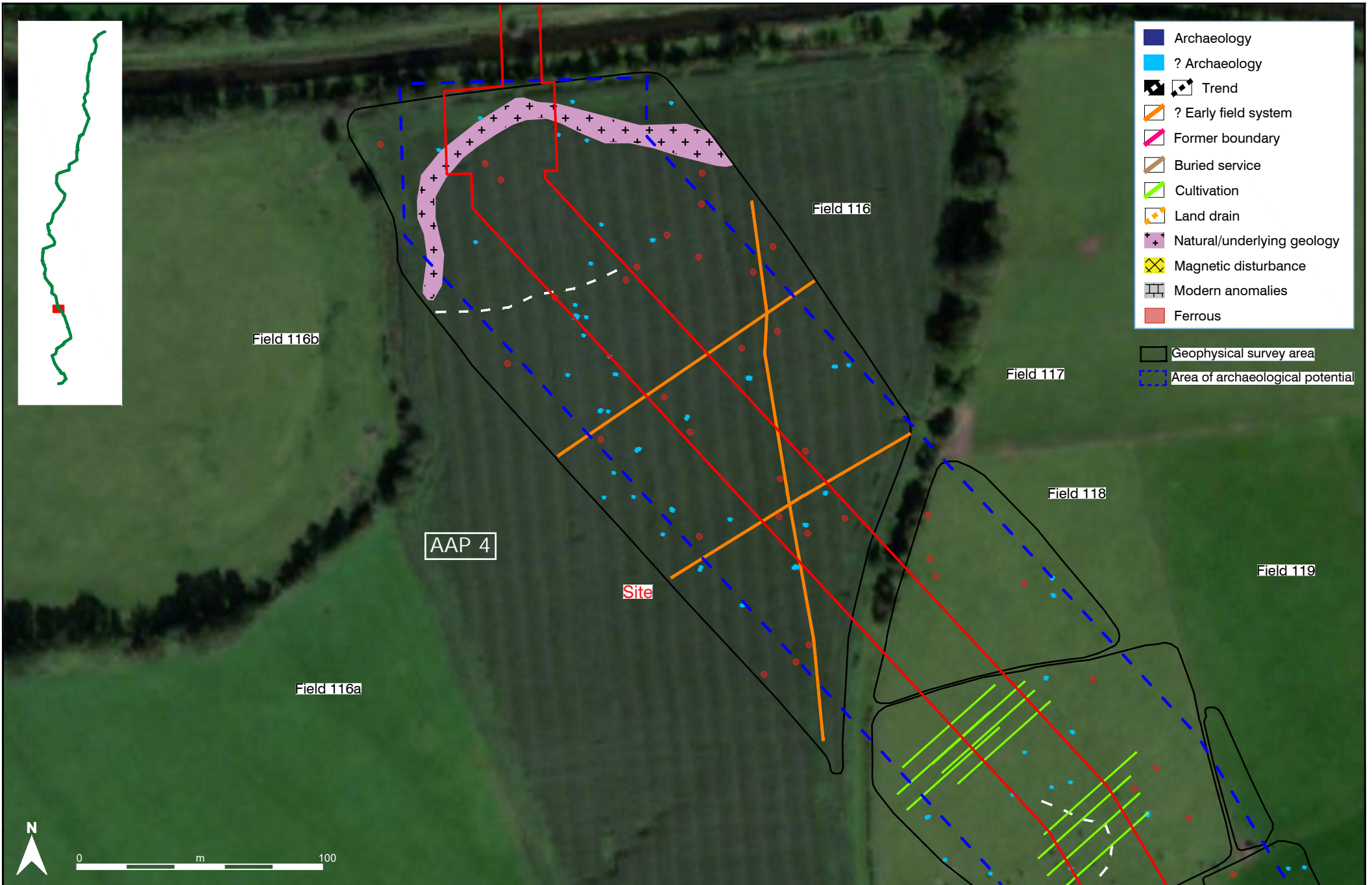
**Project** Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly

**Date** September 2025

**Drawing No.** 2594\_C1044

**Figure 44** Aerial view of site, showing geophysical survey interpretation for field 109 and area of archaeological potential 3

**Scale** 1:2,000 @ A4



**Project** Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly

**Date** September 2025

**Drawing No.** 2594\_C1045

**Figure 45** Aerial view of site, showing geophysical survey interpretation for fields 116, 118 and 119 and area of archaeological potential 4

**Scale** 1:2,000 @ A4





**Project** Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly

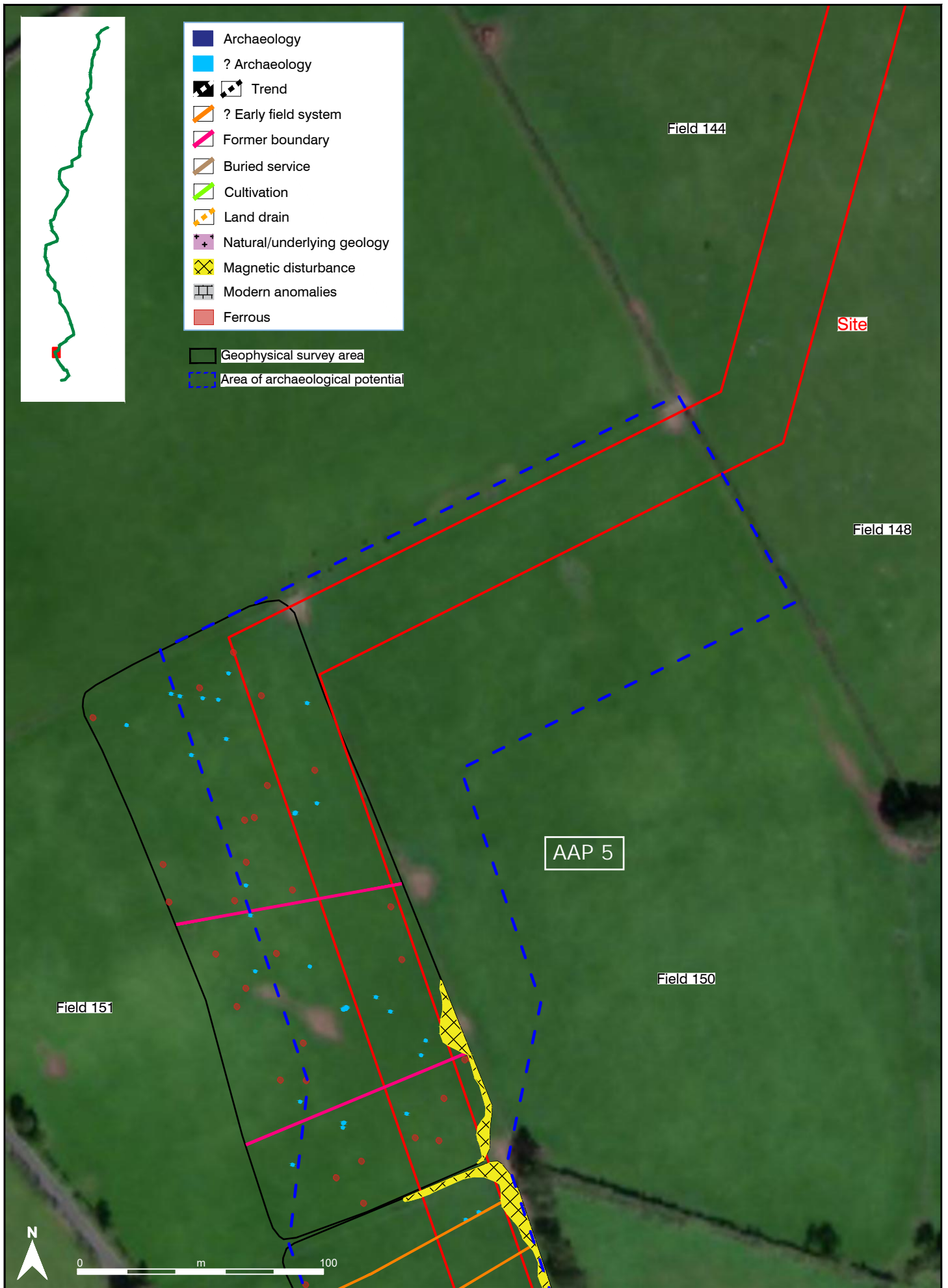
**Date** September 2025

**Drawing No.** 2594\_C1046

**Figure 46** Aerial view of site, showing geophysical survey interpretation for fields 118 to 121 and area of archaeological potential 4

**Scale** 1:2,000 @ A4





- Archaeology
- ? Archaeology
- Trend
- ? Early field system
- Former boundary
- Buried service
- Cultivation
- Land drain
- Natural/underlying geology
- Magnetic disturbance
- Modern anomalies
- Ferrous

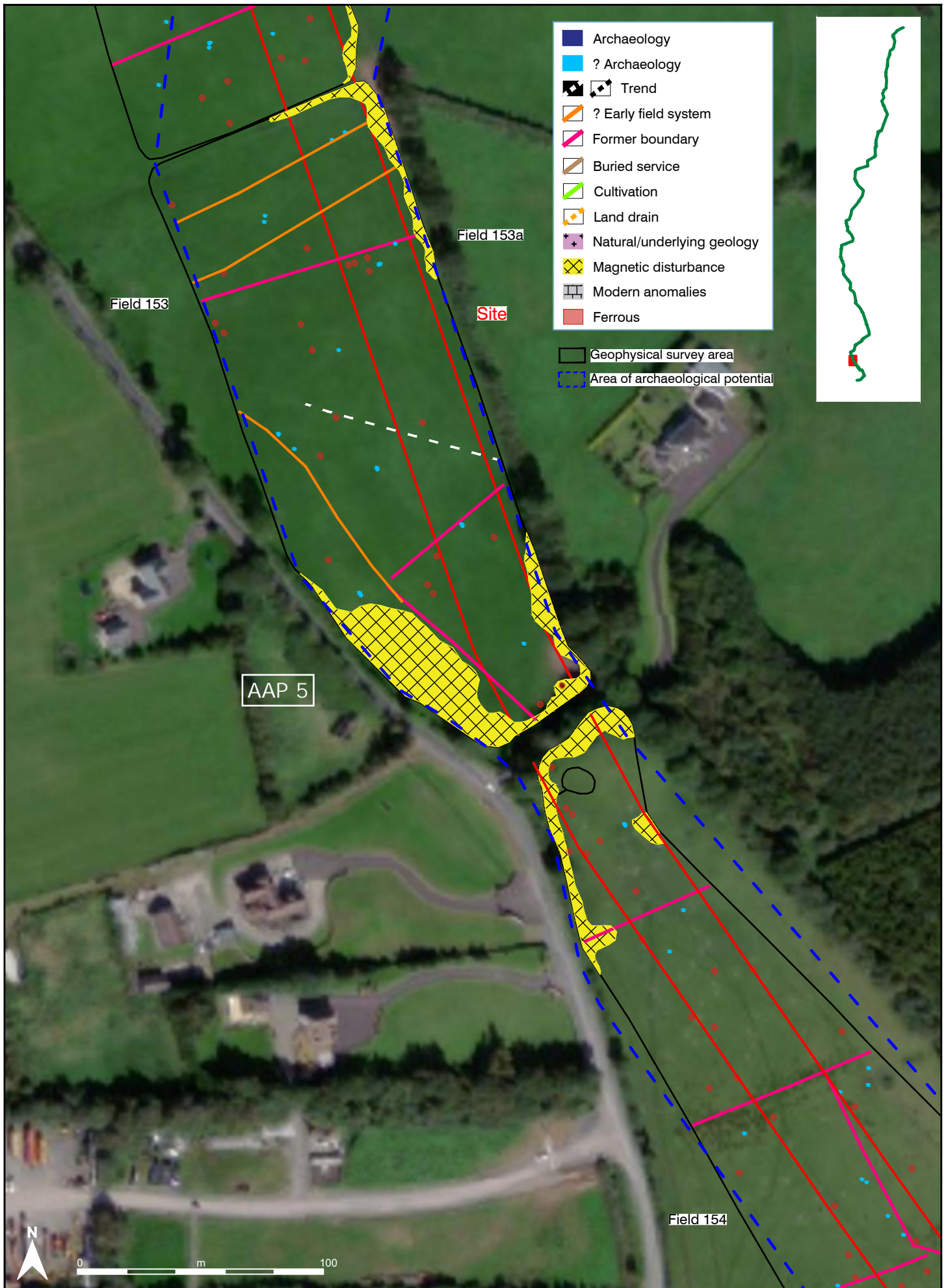
- Geophysical survey area
- Area of archaeological potential

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Figure 47 Aerial view of site, showing geophysical survey interpretation for field 151 and area of archaeological potential 5



Scale 1:2,000 @ A4 Drawing No. 2594\_C1047



- Archaeology
- ? Archaeology
- Trend
- ? Early field system
- Former boundary
- Buried service
- Cultivation
- Land drain
- Natural/underlying geology
- Magnetic disturbance
- Modern anomalies
- Ferrous

- Geophysical survey area
- Area of archaeological potential

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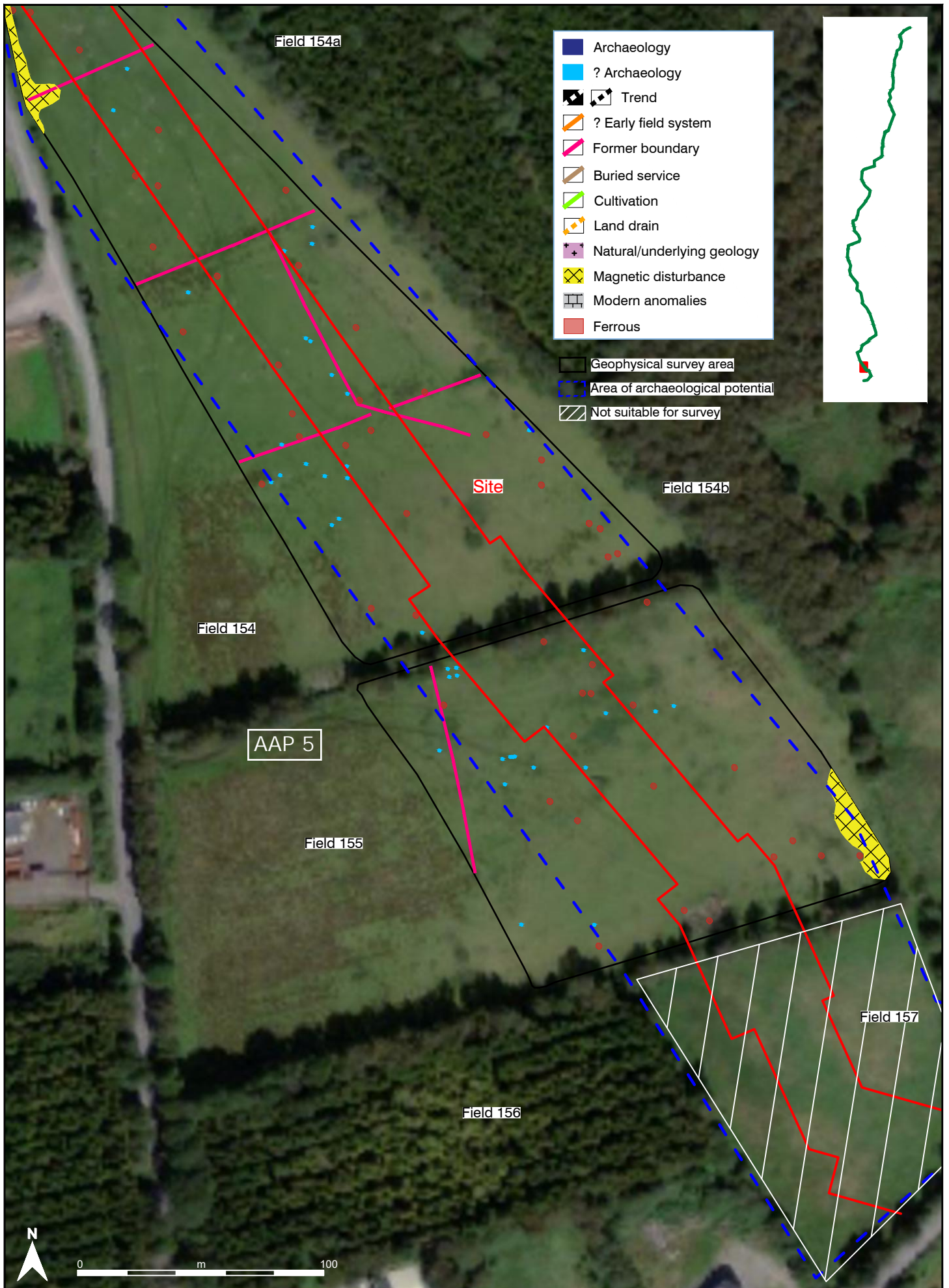
Date September 2025

Figure 48 Aerial view of site, showing geophysical survey interpretation for fields 153 and 154 and area of archaeological potential 5



Scale 1:2,000 @ A4

Drawing No. 2594\_C1048



Project Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly

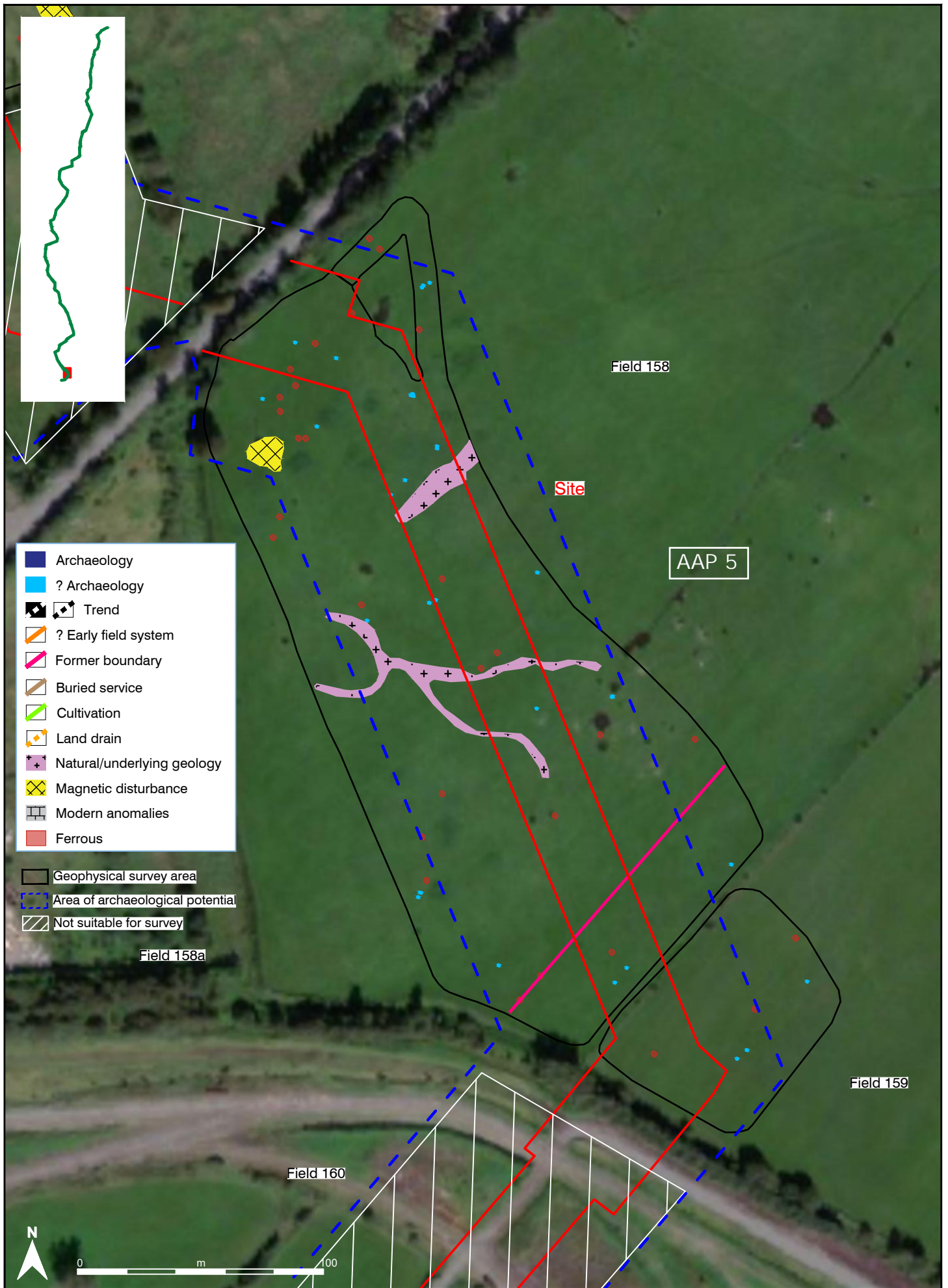
Date September 2025

Figure 49 Aerial view of site, showing geophysical survey interpretation for fields 154 and 155 and area of archaeological potential 5



Scale 1:2,000 @ A4

Drawing No. 2594\_C1049



Project Edenderry GNI Gas Pipeline to BNM, Co. Meath and Offaly

Date September 2025

Figure 50 Aerial view of site, showing geophysical survey interpretation for fields 158 to 159 and area of archaeological potential 5



Scale 1:2,000 @ A4

Drawing No. 2594\_C1050