MIREHOUSE TO LONG CLOSE FARM, BASSENTHWAITE, KESWICK

RAPID DESK-BASED ASSESSMENT, GEOPHYSICAL SURVEY AND TRIAL TRENCH EVALUATION

CP10316

01/11/2012

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DOCUMENT TITLE:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
DOCUMENT TYPE:	Rapid Desk-Based Assessment, Geophysical Survey and Archaeological Evaluation Report
CLIENT:	Electricity North West
PROJECT REF NUMBER:	CP10316
PRINT DATE:	24/10/2012
GRID REFERENCE:	From NY 228 296 to NY 240 266

Quality Assurance

This report covers works as outlined in the brief for the above-named project as issued by the relevant authority, and as outlined in the agreed programme of works. Any deviation to the programme of works has been agreed by all parties. The works have been carried out according to the guidelines set out in the Institute for Archaeologists (IfA) Standards, Policy Statements and Codes of Conduct. The report has been prepared in keeping with the guidance set out by WA Archaeology Ltd on the preparation of reports.

REVISION SCHEDULE			
	01	**02**	**03**
PREPARED BY: **DATE:**	Fiona Wooler, Don O'Meara, Martin Railton and Damion Churchill 24/10/2012		
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SUMMARY

Wardell Armstrong Archaeology Ltd were commissioned by Electricity North West to undertake a programme of archaeological works along the proposed route of an electricity undergrounding scheme between Mirehouse to Long Close Farm, Bassenthwaite, near Keswick, Cumbria (from NY 228 296 to NY 240 266).

The total length of the proposed route affects approximately 3km of pasture land on the east side of Bassenthwaite Lake, west of the A591 trunk road. The section of the route between Mirehouse in the north and Long Close Farm to the south is of archaeological interest as it lies close to several known archaeological sites including the course of a possible Roman road between Keswick and Caermote Roman fort (LDHER 32746). A number of other cultural heritage sites recorded in the Lake District Historic Environment Record (LDHER) have been identified along the route, including a potash l kiln at Kiln Hill (LDHER 30592), Rose Cottage Quarry (LDHER 11807), Bowness Signal Station (LDHER 4232), and Bassenthwaite Deserted Medieval Village (LDHER 17366), which lies close to St Bega's Church. The proposed route therefore has the potential to adversely affect archaeological remains dating from the Roman, medieval and post-medieval periods.

Due to the archaeological potential of the landscape through which part of the proposed undergrounding scheme will run, the Lake District National Park Authority have requested a programme of archaeological works in advance of the groundworks associated with the scheme, in the form of a rapid desk-based assessment, geophysical survey and archaeological trial trenching.

The rapid desk-based assessment has revealed that there was a potential for later medieval to post medieval remains at the site, as there was possible landscaping activities within Fields 3 and 4 as well as a sub-rounded feature along the western boundary of Field 6. Within Field 10 undulating mounds possibly formed by dumps of mine waste were present along the line of the old field boundary. No visible evidence was noted for the possible Roman road, which could possibly run close to the cable route.

Geophysical anomalies were detected within three areas, which potentially represented soil-filled ditches, which it was thought, may have been associated with the Roman road, due to the similar alignments to the projected course of the Roman road between Keswick and Caermote Roman fort. The curving features detected in Area 5 were considered to be least likely to be Roman in date, and was thought to represent part of a curvilinear enclosure, of possible prehistoric date. The geophysical anomalies detected in these three areas were therefore targeted in the subsequent trial trench evaluation.

The archaeological evaluation was undertaken over 4 days from the 16th October to the 19th October 2012. The evaluation involved the excavation of two 12m and two 13m,

1.6m-wide evaluation trenches, totalling 80m² of excavation on the proposed route of the underground service (Trenches 1 – 4).

The only archaeological feature identified within the 4 trenches was a gully [304] in trench 3. No artefactual remains were present within the exposed length of gully, and therefore the purpose and date of the feature is unclear. Of the other features identified as part of the geophysical investigation, a large possible paleochannel was recorded within Trench 2, and depressions caused by vehicular access and egress from Areas 3 and 9 were observed within Trenches 1 and 4

ACKNOWLEDGEMENTS

Wardell Armstrong Archaeology Ltd would like to thank Joanne Fisher of Electricity North West for commissioning the project. WA Archaeology Ltd would also like to thank Holly Beavitt-Pike, Archaeology and Heritage Assistant, Lake District National Park Authority; Stephen White, Carlisle Library; staff at Carlisle Archives and Lee Ingham, Excalon Ltd.

The rapid desk-based assessment was undertaken by Fiona Wooler. The geophysical survey was undertaken by Angus Clark and Don O'Meara. The trial trench evaluation was undertaken by Damion Churchill and David Jackson. The report was written by Fiona Wooler, Don O'Meara, Martin Railton and Damion Churchill, and the illustrations were completed by Adrian Bailey and Martin Railton. The project was managed by Martin Railton, Project Manager for WA Archaeology Ltd, who also edited the report.

1 INTRODUCTION AND SITE LOCATION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 Wardell Armstrong Archaeology Ltd were commissioned by Electricity North West to undertake a programme of archaeological works along the proposed route of an electricity undergrounding scheme between Mirehouse to Long Close Farm, Bassenthwaite, near Keswick, Cumbria (from NY 228 296 to NY 240 266).

1.1.2 The total length of the proposed route affects approximately 3km of pasture land on the east side of Bassenthwaite Lake, west of the A591. The section of the route between Mirehouse in the north, and Long Close Farm to the south, is of archaeological interest as it lies close to several known archaeological sites including the course of a possible Roman road between Keswick and Caermote Roman fort (LDHER 32746). A number of other cultural heritage sites recorded in the Lake District Historic Environment Record (LDHER) have been identified along the route, including a potash kiln at Kiln Hill (LDHER 30592), Rose Cottage Quarry (LDHER 11807), Bowness Signal Station (LDHER 4232), and Bassenthwaite Deserted Medieval Village (LDHER 17366), which lies close to St Bega's Church. The proposed route therefore has the potential to adversely affect archaeological remains dating from the Roman, medieval and post-medieval periods.

1.1.3 Due to the archaeological potential of the landscape through which part of the proposed undergrounding scheme will run, the Lake District National Park Authority have requested a programme of archaeological works in advance of the groundworks associated with the scheme, in the form of a rapid desk-based assessment (Stage 1), geophysical survey (Stage 2) and archaeological trial trenching (Stage 3). A watching brief may need to be maintained on any identified areas of archaeological sensitivity, based on the results of Stage 2 and 3 (Beavitt-Pike 2012).

1.1.4 The archaeological work undertaken comprised an archaeological desk-based assessment, geophysical survey and trial trench evaluation. All stages of the archaeological work were undertaken following approved guidelines (IfA 2008 & 2011) and generally accepted best practice.

1.1.6 This report outlines the archaeological works and research undertaken on-site and the results of this scheme of archaeological works.

2 SITE LOCATION AND GEOLOGY

2.1 The site is located on the east side of Bassenthwaite Lake, and is bordered by the lake to the west and the A591 road from Carlisle to Keswick to the east with further pasture fields forming the boundaries to the north and south (Figure 2).

2.2 The proposed underground cable route traverses a series of 13 fields initially on a broad north – south alignment from a field north east of Green Hill Farm to the west of Mirehouse. At this point the orientation changes to a north west – south east alignment and the proposed cable route continues south east. The cable stops to the west of Long Close Farm (Figure 2).

2.3 The Countryside Commission places this part of Cumbria in a landscape character area known as the 'Cumbria High Fells', which forms the central core of the Lake District. The area is characterised by a combination of rugged mountains, radiating ridges, steep scarps and glaciated valleys contrasting with the green dales containing lakes, rivers, woods and forests. The lower fells and gently sloping valley sides of this area support semi-improved and improved grasslands, and enclosed farmland located on the floor of the valleys is characterised by a mosaic of meadows and pastures, unimproved and herb-rich, together with woodlands and ornamental parkland (Countryside Commission 1998, 31-35).

2.4 The geology of the area consists of the Skiddaw Group, formerly known as the 'Skiddaw Slates', which comprise a succession of mudstones, siltstones and greywackes of Ordovician age. These rocks occupy a broad east north east – west south west belt through the northern part of the Lake District, between Bassenthwaite, Threlkeld and Troutbeck (*ibid* 1998, 33).

3 METHODOLOGY

3.1 INTRODUCTION

3.1.1 Prior to the commencement of the archaeological works, a Project Design or Written Scheme of Investigation (WSI) was submitted to, and approved by, the Lake District National Park Authority. A copy of this document is included in Appendix 2 of this report. The WSI set out the aims and methodology of the scheme of archaeological works (Giecco 2012a).

3.2 RAPID DESK-BASED ASSESSMENT

3.2.1 The rapid desk-based assessment involved the consultation of the Lake District Historic Environment Record (LDHER), a database of known and potential archaeological sites within the National Park, maintained by the Lake District National Park Authority at Kendal. This consultation involved the collection of information held within the database for 0.5km to either side of the proposed cable route (1km buffer zone), in order to achieve an understanding of the character of the historic landscape in this area of Cumbria, and to identify sites of archaeological interest within close proximity to the line of proposed works.

3.2.2 Following this, historic maps and published and unpublished material relating to area around Bassenthwaite and Underskiddaw were consulted at Carlisle Archive Centre and the local studies section of Carlisle Library. This included an assessment of early cartographic sources such as Tithe and Enclosure maps, and early Ordnance Survey mapping, in order to gain an understanding of the historic landscape along which the proposed route will run. Secondary sources such as the Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society were also consulted.

3.2.3 The results of the rapid desk-based assessment, site walkover and geophysical survey were to be used to determine the presence/absence, nature and extent of any potential archaeological features along the route, and any areas of potential disturbance of the archaeological resource caused by modern intrusions.

3.2.4 The desk-based assessment was undertaken in accordance with the Institute for Archaeologists *Standard and Guidance for Historic Environment Desk-Based Assessment* (IfA 2011a).

3.3 GEOPHYSICAL SURVEY

3.3.1 It is believed that archaeological remains of potential Roman, medieval and post-medieval date may survive along the proposed electricity cable

undergrounding route, possibly in the form of cut features such as ditches and pits, route ways, boundary features and small buildings. As a result, the geophysical survey was undertaken along the 1.5km section of the route between Mirehouse and Long Close Farm, where it passes through agricultural land (see Figure 10).

3.3.2 Geomagnetic survey was considered the most appropriate geophysical technique, given the non-igneous environment, and the expected presence of archaeological features at depths of no more than 1.5m. This technique involves the use of hand-held gradiometers, which measure variations in the vertical component of the earth's magnetic field. These variations can be due to the presence of sub-surface archaeological features. Geomagnetic measurements were determined using a Bartington Grad601-2 dual gradiometer system, with twin sensors set 1m apart.

3.3.3 A 20m grid was established over each portion of the route (Areas 1-9), and tied-in to known Ordnance Survey points using a Trimble 3605DR Geodimeter total station with datalogger. The survey was undertaken using a zig-zag traverse scheme, with data being logged in 20m grid units. A sample interval of 0.25m was used, with a traverse interval of 1m, providing 1,600 sample measurements per grid unit. The data were downloaded onto a laptop computer for data processing and storage in the field using specialist software.

3.3.4 Geophysical survey data was processed using ArchaeoSurveyor II software, to produce 'grey-scale' images of the raw data. Positive magnetic anomalies are displayed as dark grey, and negative magnetic anomalies are displayed as light grey. A palette shows the relationship between the grey shades and geomagnetic values in nT for each area.

3.3.5 Raw data were processed in order to further define and highlight the archaeological features detected. The resulting grey-scale images were combined with site survey data and Ordnance Survey data to produce geophysical survey plans. Colour-coded geophysical interpretation diagrams are provided, showing the locations and extent of positive, negative and dipolar magnetic anomalies.

3.3.6 Archaeological interpretation diagrams are also provided, based on the interpretation of the geophysical survey results, in light of the archaeological and historical background of the area.

3.3.7 The geophysical survey and reporting was conducted in accordance with English Heritage guidelines (English Heritage 2008), and in accordance with the standard and guidance of the Institute for Archaeologists (IfA 2011b).

3.4 TRIAL TRENCH EVALUATION

3.4.1 The trial trench evaluation comprised of 50m of trenching, increased from 25m as specified in the Project Brief (Beavitt-Pike 2012), following discussions with the LDNPA as a result of anomalies identified within the geophysical survey. The locations and dimensions of the trenches were determined following the completion of the rapid desk-based assessment and geophysical survey of the undergrounding route. The trenches were used to target potential archaeological features indentified along the route, including the possible Roman road between Keswick and Caermote Roman fort, avoiding areas of known modern disturbance. A trench location plan was submitted to the LDNPA for approval prior to the start of the trial trench evaluation.

3.4.2 The trench positions were surveyed using known Ordnance Survey points, through the use of a Trimble 3605DR Geodimeter total station using datalogger. All trenches were excavated by a tracked mechanical excavator using a toothless ditching bucket to either the top of archaeological deposits, or the natural substrate, whichever was encountered first under continuous archaeological supervision. The trenches were subsequently cleaned by hand and all features were investigated and recorded according to the Wardell Armstrong Archaeology (WAA) Ltd standard procedure as set out in the Excavation Manual (Giecco 2012b).

3.4.3 In summary, the main objectives of the evaluation were:

- To establish the presence/absence, nature, extent and state of preservation of archaeological remains and to record those where they were observed;
- To establish the character of those remains in terms of cuts, soil matrices and interfaces;
- To recover artefactual material, especially that which is useful for dating purposes;
- To recover palaeoenvironmental material where it survives in order to understand site and landscape formation processes.

3.4.4 All finds encountered were retained, including those from excavated topsoil, and were cleaned and packaged according to standard guidelines, and recorded under the supervision of Megan Stoakley, Finds Officer at Wardell Armstrong Archaeology Ltd.

3.4.5 The evaluation trenches were backfilled with the excavated material following excavation and recording.

3.4.6 The fieldwork programme was followed by an assessment of the data as set out in the *Management of Archaeological Projects* (2nd Edition, 1991).

3.5 ARCHIVE

3.5.1 A copy of the final report will be deposited with the Lake District National Park Authority, on the understanding that it will be made available as a public document after an appropriate period.

3.5.2 WA Archaeology Ltd and the Lake District Historic Environment Record (LDHER) support the Online Access to Index of Archaeological Investigations (OASIS) project (http://www.oasis.ac.uk/). The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large-scale developer funded fieldwork. Details of this project have been included on the OASIS database under the identifier wardella2-136206.

4 RAPID DESK-BASED ASSESSMENT

4.1 INTRODUCTION

4.1.1 Information regarding known and potential archaeological sites along the section of the route between Mirehouse and Long Close Farm was obtained from the Historic Environment Record (HER) database for the Lake District National Park, from historical mapping, and published and unpublished sources housed at Carlisle Archive Centre and Carlisle Library. This information has been combined to provide a brief historical background of the area around the proposed undergrounding route.

4.1.2 The locations of the HER sites which are situated within a 1km buffer zone along the proposed pipeline route are shown on Figure 3.

4.2 HISTORICAL BACKGROUND

4.2.1 *Place Name Evidence:* the first documented reference to 'Bassenthwaite' is in *c.*1160AD when it is referred to as '*Bistunthweit*', with varying spellings such as '*Bastunthwait*' in *c.*1175, '*Bastenthwyt'* in 1212 and *'Bastyntwhat'* in 1562. The first element of the name is believed to have derived from the Old French *'bastun'* meaning 'stick', but may have been used as a personal name. Place names along the proposed underground route included sites such as Bowness which is recorded as the same spelling in 1784; Broadness is *Bradness* in 1784; Mire House is *Myrehouse* in 1736; Scarness is *Scareness* in 1784 and *Scarnhouse* in 1787, with *'scarn'* noted to be a Cumberland dialect word for dung, from the Old English '*scearn*' (Armstrong *et al* 1943-44, 263-264).

4.2.2 *Prehistoric (up to c.70AD):* at present there are no sites recorded within the LDHER dating to this period known to exist within the 1km buffer zone along the proposed undergrounding route between Mirehouse and Long Close Farm, although this does not indicate a lack of land use or settlement at this time within the area.

4.2.3 Writing with regards to archaeological remains in the Keswick area in 1874, J Clifton Ward referred to a stone circle, separate from the example at Castlerigg, located *'at the further end of Bassenthwaite Lake, upon a hill summit, smaller than the Keswick one'* (Clifton Ward 1874, 219).

4.2.4 In his *Inventory of Cumberland*, Collingwood does not refer to any sites relating to the prehistoric period in the Bassenthwaite area (Collingwood 1923, 252).

4.2.5 *Romano-British (c.70-410AD):* the LDHER contains one entry located within the 1km buffer zone which relates to this period. The entry records the

suggested course of a Roman road which runs between Keswick to the south and *Caermote* Fort, located to the north near Bothel (LDHER 32746). This Roman road is referred to by Ferguson in his History of Cumberland, when he noted: *'the Roman traveler could take a Roman road, which conducted hem to the Roman station on whose site Keswick not stands, and thence by the east side of Bassenthwaite Lake to the Roman camp at Old Carlisle near Wigton'* (Ferguson 1890, 41). There is, as yet, no archaeological evidence for a Roman road along the east side of Bassenthwaite.

4.2.6 Although located just outside the 1km search area along the proposed undergrounding route, a possible site of a Roman Signal Station is recorded in the LDHER, at Bowness (NGR NY 224 291, LDHER No. 4232). This grid reference places this site at or in close proximity to Bowness Farm. There is, as yet, no archaeological evidence to confirm that this site exists, or indeed that it could be interpreted as a signal station site

4.2.7 *Early Medieval (c.410-1066AD):* at present there are no sites recorded in the LDHER within the 1km buffer zone along the proposed undergrounding route which relate to this period.

4.2.8 The only slight evidence for land use or settlement in the area along the proposed undergrounding route is the presence of place names which are derived from Old English words, for example Scarness, which includes *'scarn'*, noted to be a Cumberland dialect word for dung, but derived from the Old English '*scearn*' (see 4.2.1 above). It has also been suggested that *'the ancient parish church at Bassenthwaite'*, which stands '*in a secluded position near the east side of the lake'* (located just to the south-west of Green Hill), may have been a pre-Norman foundation, possibly in the 9th or 10th century, due to its dedication to St Bega (Swift 1966, 276). There is, as yet, no evidence on the site for any early medieval stonework which may have hinted at a pre-Norman structure.

4.2.9 *Medieval (c.1066-1540AD):* the Church of St Bega, sometimes known as St Bridget's, at Bassenthwaite is a Grade II* listed building, and its listing description refers to it being of 12th and 13th century date, but restored in 1874 (EH No. 72100). The church contains a Norman chancel arch (Swift 1966, 277), and there are two cross slab grave covers, one possibly of 15th century date, and the other of late 15th or early 16th century date (Ryder 2005, 115-116).

4.2.10 At present, the Church of St Bega stands in isolation close to the east edge of Bassenthwaite Lake, and accessed down a track from the road which leads to Scarness. The LDHER contains an entry relating to a possible 'Deserted Medieval Village' at Bassenthwaite, recorded in close proximity to the site of the church. The entry notes that a settlement was mentioned in Lay Subsidy

Rolls in 1334/36AD (LDHER No. 17366), however no evidence of such a village now survives. It is interesting to note that in 1471AD , the parishioners of Bassenthwaite parish petitioned for permission to build a chapel-of-ease, *'owing to the distance of the parish church from their homes'* (Swift 1966, 277); this may infer that by this date an earlier village around the church may have declined. Writing in 1787, however, James Clarke noted that *'the churches in these parts (or most of them) were built in the remotest and most obscure part of the parishes; this was done to the end that their enemies might not so easily find them, as they were often most sought for, being generally the richest prizes, containing the reliques and plates'* (Clarke 1787, 99). This may suggest that the church had always stood alone without any closely related settlement.

4.2.11 There are other documented references to a settlement of some form at Bassenthwaite, for example reference to an *'Adam de Bastunthuait'* in a 12th century charter of St Bees, and an *'Elena de Bastenthwaite'* occurs in the Pipe Roll of 1235-36AD (Collingwood 1921, 164).

4.2.12 In his '*Inventory of Cumberland'*, Collingwood lists the site of a *'beacon on Skiddaw'* with the date '1468'. Although he notes that it was likely that *'more than one fire would have been needed*' (Collingwood 1923, 252). An annotated version of the First Edition Ordnance Survey map of 1867, housed at Carlisle Library, suggests that this beacon may have been situated at the top of Dodd Wood which overlooks the south end of Bassenthwaite Lake. It includes the comment: *'it was found during the Jubilee year that one beacon on Skiddaw could not show all round'*. This may suggest that if a beacon site did exist on Skiddaw, that it may not have been clearly visible from all directions, with more than one fire needed for it to have been effective. What is also interesting is the lack of reason for the beacon, and whether it was utilised as a warning sign, or had some other function.

4.2.13 *Post Medieval (c.1540-1900):* there is some evidence for settlement in the area along the proposed undergrounding route in the late 17th century as suggested by listed building descriptions. Bowness Farmhouse, a Grade II listed building, is noted to have a date stone 'I & A P 1689' on a reused lintel (EH No. 72099), although it must be noted that date stones should be considered with caution as they are often reused and incorporated into later builds, and may have not necessarily have originated from the site on which they are now located. Mirehouse is recorded as a late 17th century house with 18th and 19th century alterations (EH No. 72102), and Mire Side is noted to be of late 17th century date (EH No. 72112).

4.2.14 Writing at the end of the 17th century, Thomas Denton provides some information on the topography near the proposed undergrounding route.

He noted that the former demesne of the Earl of Derby, lord of High Bassenthwaite, was held by Joseph Gregg, who had a *'very ordinary seat, being ill built by the side of a myre, whence it is so called Myreside'* located near the church. Denton referred to sheep forming a large part of the agricultural economy, and that the land was fertile and well-wooded (Winchester 2003, 139).

4.2.15 James Clarke's *'Survey of the Lakes of Cumberland, Westmorland and Lancashire'*, published in 1787 provides some interesting information on the study area along the east side of Bassenthwaite Lake. Clarke noted that Mire House was so called *'from its being situated behind a bog or mire. This bog, along with other lands at the division of the common was allotted to Thomas Storey, Esq. who hath drained and planned it with oak, ash, fir etc'.* This description indicates that enclosure of former common land and waste had occurred by 1787. In a later section Clarke noted that an act had been obtained in 1773 for *'dividing and inclosing the common and waste grounds within this parish'.* (Clarke 1787, 97). Plate 1 is an illustration showing the view looking south down Bassenthwaite Lake, with the flat seemingly enclosed land on the east side of the lake shown bounded by hedgerows below the steep sides of Skiddaw.

4.2.16 Writing with regard to the property known as 'Scarness', Clarke provided the following interesting comments regarding the origins of its name: *'A little below this is Scarnhouse, a very beautiful promontory, whose end juts into the Lake; on it are two or three good houses, the principle of which belongs to Mr Wane. In the parish register it is called Scarnhause, and the inhabitants say it received its name thus: all the ground below the road to the Lake was a stinted cow pasture, and upon this hill the cows were always milked, the owners of them kept a person called the Cowherd who collected them at this place twice a day, for which he had one shilling a head for the year, and in time the cows were taught to come by the sounding of a horn. The herd built himself a little hut where he slept, and at a certain hour every morning and evening blew his horn, at which signal both the milk maids and cows used to come'* (Clarke 1787, 97-98). The relevance of this description is the reference to possible temporary shelters which may have existed on the flat land between the base of Skiddaw and the lake.

4.2.17 In his 'History of Cumberland' published at the end of the 18th century, William Hutchinson also refers to the recent enclosure of the common land, although he noted that in the north-east part of Bassenthwaite parish that it was mostly of a *'wet, barren nature. Near the mountains and the lake the soil is light and gravelly, and in some parts loamy and in general infertile'.* He did note, however, that in the south-east part of the parish, oats and barley were cultivated along with other arable crops such as wheat, potatoes and a few turnips (Hutchinson 1794-97, 237). This reference to arable production in the parish may indicate that some of the fields through which the proposed

underground route will run were subject to ploughing historically. This agricultural process may have had an effect on any potential above ground and sub-surface archaeological remains.

4.2.18 Mire House was noted in 1816 to be the '*seat of John Spedding Esq.*', who obtained the property in 1802 from Thomas Storey Esq. The site is referred to as having been *'formerly the demesne of the manor of High Bassenthwaite, and was purchased of the Earl of Derby by Roger Gregg, grandfather of Joseph Gregg, who possessed it in 1688'*. The same source indicates that Mr. Spedding had been responsible for the extensive plantations around Mire House, including those on surrounding mountains (Lysons 1816, 18-19).

4.2.19 In 1829, reference was made to some of the land on the west side of Skiddaw still being open pasture. Parson and White noted: *'On the division of the commons 2000 acres were allotted to the respective freeholders, who mostly occupy their own farms. On the west side of Skiddaw is an open pasture of 3000 acres, "stinted by grasses or gates, commonly called Cattle-Gates".* This same source refers to some degree of mining which was undertaken in the parish of Bassenthwaite in the early 19th century, for example a *'very promising mine of antimony has lately been opened at a place called Robin Hood, and many other valuable minerals are found in the bowels of Skiddaw'* (Parson and White 1829, 301) [there is a site called Robin Hood located to the north side of Bassenthwaite village]. There is evidence for quarrying of stone in close proximity to the proposed undergrounding route, as recorded in the LDHER and shown on Second Edition Ordnance Survey mapping of 1900. A quarry of unknown date at Long Close Farm is recorded as LDHER No. 11809, and a further quarry of unknown origin is recorded at Rose Cottage (LDHER No. 11807).

4.2.20 There is some evidence for other small-scale industrial sites in close proximity to the proposed underground route, for example at Kiln How (as the place name suggests) a potash kiln of unknown date is recorded, used for the slow burning of vegetable matter to produce potassium carbonate (LDHER No. 30592), and a Saw Mill of unknown origin is recorded in Dodd Wood, the buildings of which are now converted to a café and entrance for Dodd Wood and Mirehouse (LDHER No. 30610).

4.2.21 St Bega's Church at Bassenthwaite was restored and *'almost entirely rebuilt'* in 1874 at the expense of the Spedding family of Mirehouse (Bulmer 1901, 334). Plate 2 below provides an illustration of the church prior to this date, showing the simple nature of the structure as it appeared in an artist's impression in *c.*1830.

4.3 CARTOGRAPHIC SOURCES

4.3.1 Historical mapping dating from the late 17th to the early 20th century was consulted at Carlisle Library and Carlisle Archive Centre. The earliest mapping, up until the mid-19th century, is at a small-scale and therefore does not provide accurate information on the form of the land on which the proposed undergrounding route is located; however they have been referred to here as they provide interesting information on features in close proximity.

4.3.2 *Speed's Map of Cumberland 1610 (Figure 4):* this map is at a small scale, and therefore does not provide clear information on ground conditions in the early 17th century. It does, however, show that there was a church in the approximate location of the present Church of St Bega, as well as another to the south at Crosthwaite, located to the north side of Keswick. The presence of these churches on the east and south sides of Bassenthwaite Lake indicates that there was some degree of settlement in the area at that time, although the extent and density is unclear.

4.3.3 *Hodskinson and Donald's Map of Cumberland 1774 (Figure 5):* this map is also at a small scale, however it does provide further information on the landscape along the east side of Bassenthwaite Lake. Properties are shown to have existed at Bowness, Parker Gate, Mire House (property of Storey Esq), several buildings are shown at Little Crosthwaite, and buildings in the location of Long Close Farm. The site of the Church of St Bega is represented with a small vignette of a building. The modern 'Highfield Wood' appears to have existed to some degree at this date as suggested by the cluster of trees drawn to the east of the church. The road shown on this map along the base of Skiddaw appears to follow the same route as the modern A591, and the course of the Skill Beck is visible flowing into Bassenthwaite from the west side of Mirehouse. The modern properties of Green Hill and Sand Hill are not seemingly represented on this map, although this does not necessarily indicate that they weren't in existence at this date.

4.3.4 *James Clarke's Map of Broadwater and its Environs 1787 (Figure 6):* this was the earliest consulted map which provides some information on individual properties and field divisions along the route of the proposed undergrounding scheme, as it was in the late 18th century. The extent of the route extends over two maps produced by Clarke, which have been combined on Figure 6. The properties of Mire House, Bowness (labelled as '*Bonas*' on this map), Broadness, and '*Scarnhouse*' are clearly annotated, as well as the site of the church. It is interesting to note that between the church and Broadness, several unlabelled buildings appear to be shown, one of which could be Green Hill, whilst to the south of the church the property

'*Bonas*' is represented although if this relates to the modern 'Bowness' then it is not shown in the correct location, which may highlight some degree of inaccuracy with regards to the sites of individual properties, or that the '*Bonas*' shown on this map may have been a building which has since disappeared. Several buildings are shown at Little Crosthwaite, and a single structure is shown at Long Close under the ownership or occupancy of Mr Williamson. The field divisions shown on Clarke's maps suggest that there has been a programme of enclosure, as indicated by the regular spacing of the field boundaries along the west side of the road; it has been considered, however, that these boundaries may be more representative than actually what existed on the ground at that date. Nevertheless, the presence of such boundaries suggests that the land along the east side of Bassenthwaite Lake had been taken in for arable or pasture by the end of the 18th century.

4.3.5 *'An Accurate Map of Broadwater or Bassenthwaite Lake' by P Crosthwaite, Revision of 1819 (Figure 7):* Crosthwaite's map, which was first published in 1785, shows the locations of 'viewing stations' along the edges of 'Broadwater', the alternative name for Bassenthwaite Lake. These post-medieval viewing stations were locations where the landscape could be seen at its most pictorial, and were popular with tourists and artists. Crosthwaite's map shows the location of a viewing station near 'Bradness' or Broadness, annotated as 'West's 3rd Station', with another close to Sand Hill Farm (indicating that the property was in existence in the late 18th century), and another example present on the east side of the road close to '*Langclose*', which was under the occupancy of M J Williamson at that date. Whilst the viewing station near Broadness is recorded in the LDHER (No. 32068) the other two sites are presently not included.

4.3.6 *Greenwood's Map of Cumberland 1823 (Figure 8):* Greenwood's map was the earliest consulted which labels the sites of Green Hill and Sand Hill, both located in close proximity to the proposed undergrounding route. Tracks between the properties such as Green Hill and Bowness are clearly shown, as well as a possible footpath between the church (simply marked with a '+') and Mire House, which is shown to be located within woodland. A track is also shown to the north of Long Close, leading towards a bridge over the River Derwent at the south end of Bassenthwaite Lake, presumably the site of the modern Low Stock Bridge.

4.3.7 *First Edition Ordnance Survey Map 1867, 6" to 1 mile scale (Figure 9):* this map clearly shows the topography of the land through which the proposed undergrounding route will pass as it was in the second half of the 19th century. The land is shown to be divided into fields, with areas of woodland such as Highfield Wood, Catstock Wood, Maltdub Wood and the landscaping around Mire House. A comparison between this map and

modern Ordnance Survey mapping indicates that some field boundaries may have been removed, evidence of which may be revealed during any groundworks. In the field immediately to the west of Mire House, the route will pass in close proximity to the location of two 'Posts' which are labelled on this map; the function of original date of these posts is unclear. It is also shown that the proposed route will also pass through the locations of tracks and footpaths, for example the path between Mire House and 'St Bridget's Church'.

4.3.8 *Second Edition Ordnance Survey Map 1900, 6" to 1 mile scale (not reproduced here):* the Second Edition Ordnance Survey mapping of 1900 was also consulted to assess if there had been any changes on the ground since the publication of the 1867 edition referred to above. The only changes noted was the site of three quarries located along the east side of the road, one to the north-east of Sandhill, which is marked as 'Old Quarry'; one to the east of Kiln How, and another to the east of Long Close marked as 'Quarries' on the road side. None of these quarry sites will be affected by the proposed undergrounding route.

4.4 MODERN SATELLITE PHOTOGRAPHY

4.4.1 Modern readily-available satellite photography was consulted for any information regarding the proposed route and its immediate environs. It must be noted, however, that this source is not provided for purely archaeological reasons and as such the conditions in which buried or slight archaeological features may show, were not taking into consideration when this data was captured.

4.4.2 This satellite photography shows the route will pass through an agricultural landscape of enclosed fields bounded by apparent stone walls lined in some cases with hedges. There is some evidence that these fields may have been ploughed, indicating a past arable economy, as suggested by parallel linear lines in some, but no clear evidence for ridge and furrow. Some linear features visible, for example in the field to the south of the church, appear to represent former field boundaries.

4.4.3 Although not clear, this source does appear to show some possible curvilinear cropmarks in the large field immediately to the west of Mire House, in the location of the proposed undergrounding route. It has been considered that these cropmarks may be geological, however it is hoped that the geophysical survey of this section of the route may provide clearer information on these possible archaeological features.

Plate 1: *View looking south down Bassenthwaite Lake showing the flat land to the east below the steep sides of Skiddaw (Courtesy of Carlisle Library)*

Plate 2: *St Bega's Church at Bassenthwaite, c.1830 (Courtesy of Carlisle Library)*

5 VISUAL SURVEY

5.1 INTRODUCTION

5.1.1 A walkover survey was conducted along the route of the proposed cable route on the 27th of September 2012. This involved walking from the north end of the route (Field 1) to the southern end (Field 13) and visually assessing landscape and nature features, which may reflect the remains of human activity in this area. This walkover survey covered a distance of approximately 2.4km (Figure 2).

5.1.2 Digital photographs were taken of all the fields, with one photo being taken from the northern end of the field and another from the southern end. In addition to this any features or points of interest along the route were also photographed and notes made as to their location, size and extent. In Section 5.2, below, the results of the survey of each field is discussed individually

5.2 SURVEY RESULTS

5.2.1 *Field 1:* This Field consisted of a single large pasture field. The field had been recently harvested for silage, but the landowner said in other years when the weather was dryer hay was also harvested. The field slopes gently to the north and the even topography shows no obvious signs of earthworks or ridge and furrow cultivation. Areas to the north-west and southern corner of the field appear to be perennially wet with developed areas of rush (*Juncus effuses*).

5.2.2 *Field 2:* Crossing the road between Field 1 and Field 2 the proposed route of the pipeline runs parallel to a footpath which eventually leads down towards St Bega's Church. The only notable feature within Field 2 is the remains of a drain. Earlier Ordnance Survey maps show a stream bisecting this area. This is no longer present, however, a notably wet patch of ground at the point where this stream used to flow suggests it has been infilled, but water still drains through this area. A low mound of stones marks the point where the water drains under the track (Plate 3). Of possible note in this area is the presence of a line of Scots Pine trees running parallel to the northwestern wall of Field 2, outside the boundary of this field. As has been noted elsewhere in England and Wales the presence of lines of Scots Pines can often be associated with medieval and later-medieval drove roads, where the pines marks areas where cattle drovers could corral their cattle for the night and find a place to stay (Maybe 1996, 21-24).

Plate 3: *View of Field 2 looking northwest; the infilled stream can be seen by the presence of a dark band running towards the track. The row of Scots Pines is visible on the left*

5.2.3 *Field 3:* This area contains a number of interesting landscape features which may relate to the activities of Thomas Storey, Esq, discussed above in paragraph 4.2.15. At the northern end of this field is a ruined building. The walls are present, but only to *c.*0.3m (Plate 4). Occasional bricks present in the rubble suggest that the construction of this building may be quite late (i.e. post-medieval). The building material is reminiscent of other vernacular architecture in the area, with its rough stone construction and stone flag roofing.

5.2.4 South of this building a long tree lined avenue seems to have been laid out. This consists of evenly spaced oak trees occupying this whole length of this area. The view is very clear from Field 2 to the north and Field 4 to the south (Plate 5). This view may have been planted to be appreciated by those walking from Mire House to the lake. When taken as a whole the landscape between Mire House and the lake strongly suggests the informal landscaping arrangements made popular in the 18th century by landscape architects such as Lancelot Brown and William Kent, and again, is supported in the historical record by the works of Thomas Storey referred to above, though the formality of a tree-lined avenue is somewhat at odds with a strict adherence to the works of popular 18th century landscaping fashions. The suggestion that this is a deliberate tree-lined avenue is somewhat confirmed by its appearance on the First Edition Ordnance Survey map (1867).

Plate 4: *The ruins of a small building at the northern end of Field 3, facing northeast; the remains of the foundation can be seen, as well as the remains of a stone flagged roof*

Plate 5: *View of the possible tree-lined avenue taken from Field 5 looking north into Field 3*

5.2.5 *Field 4:* This field contains a number of features which may relate to human activity. In the context of the position of Mire House it is suggested these relate to 18th century landscaping activity. The boundary between Field 3 and Field 4 is now marked by a stream and a relic field boundary. A low

(*c*.0.3-0.4m) mound of earth is supplemented to the east by the growth of ash, silver birch and hawthorn trees. As the presence of a high field boundary would have spoiled the view up the avenue in Field 3 it is likely that if this boundary was once a more substantial upstanding structure then it was knocked after the layout of this avenue. Two earthworks were noted within Field 4. To the north a low earthen feature crossed the field from east to west, before turning south near the confluence of two steams. As can be seen in Plate 6 this is a broad (*c*.5-6m) and low (*c*.0.3-0.4m) mound of earth. Approximately 20m south of this earthwork a line of stones can be seen just at the turf-line (Plate 7). This may be the remains of an old field-boundary. The second, southern, earthwork appears to be shorter than the first, but is of similar dimensions.

Plate 6: *Most northerly of the two earthen ridges in Field 4, the photo is taken looking north*

Plate 7: *View looking east; section of stone alignment between the two earthen mounds within Field 4*

5.2.6 *Field 5:* This field consists of an area of open pasture with little to suggest the types of landscape modification seen in the preceding field.

5.2.7 *Field 6:* this field effectively forms part of the same area as Field 6, being separated by a wire fence. Earlier OS maps do not show this division, though it is clearly marked on current maps. This suggests this is a more recent division, and not one present in the 19th century. A notable feature within Field 6 is the sub-rounded feature along the western boundary. This consists of a ring of large stones with a number of mature oak trees growing within the feature. This was not present on the First Edition Ordnance Survey map of 1867 (See Figure 9) and may be a later landscaping feature to break the view of between Mire House and the lake. As with Field 5, this area shows a very even, flat topography.

Plate 8: *View looking southwest in Field 6; the feature consisting of a rough mound of large sub-rounded stones intermittently planted with oak trees*

5.2.8 *Field 7:* this is a relatively short section of the cable route and little can be said of this area. The topography is generally flat and even like the fields preceding it.

5.2.9 *Field 8:* in contrast to most of the preceding field (particularly Fields 5, 6 and 7) Field 8 has an uneven, undulating topography, with two possible glacial drumlins in the centre of the field. The northeastern area of the field is much lower and more even, but also quite wet, possibly due to the impeded drainage caused by the uneven topography to the centre of the field.

5.2.10 *Field 9:* little of note was present in this area with the topography sloping gently to the south.

5.2.11 *Field 10:* a number of notable features were present within this area that may be of archaeological interest. In the northern corner of the field a small area of cultivation evidence can be seen (Plate 9). This consists of a number of cultivation ridges covering an area of *c*.30m x 40m. This area is apparently enclosed by a further ridge to the south-west which runs perpendicular to the northern field boundary in this area. After running south for *c.*40m this ridge turns at a right angle, reaching the eastern wall boundary. This possible enclosing element suggests that this was a small cottage garden for vegetables, rather than an area for cereal cultivation, or one that was ploughed by a team of oxen drawn plough. This area is reminiscent of 'lazy-

bed' cultivation, popular in Britain until the post-medieval period, but possibly utilised in the Lake District up until the late 19th century, as it was in Scotland and Ireland.

5.2.12 Another feature of interest in this area is the presence of a relic field boundary, which is still marked on the most recent OS mapping. This boundary is marked by a narrow (less than 0.4m), low (less than 0.1m) ridge of earth near the western end of the area. The boundary is most clearly seen by the presence of a number of trees (Plate 10). As can be seen in Plate 10 the northeastern end of the boundary is marked by a mature oak tree. Further to the south-west a number of hawthorn trees mark the route, with the felled remains of another oak tree marking the end of the boundary to the south-west.

5.2.13 To the north-east of the mature oak tree the ground becomes quite uneven. This may be the remains of material extracted from the quarry, which was known to exist to the north-east of Field 10 in the 19th century.

Plate 9: *View looking north in northern corner of Field 10; a small area of cultivation evidence enclosed by a possible low mound can be seen in a small area of this field*

5.2.14 *Field 11:* This area is dominated by a rock outcrop. There is little else of note along the proposed cable route in this area, though a cattle byre in the vernacular style is present along the boundary with the road. This building may have had a previous use as the southeastern wall has been blocked up in a number of areas, though is currently in a state of disrepair.

Plate 10: *View of Field 10 looking northwest; a field boundary is clearly marked on modern mapping, but on the ground it is marked only by a mature oak tree, a number of hawthorn trees growing along a low ridge of earth, and a now fallen oak tree visible to the left of the photograph*

5.2.15 *Field 12:* This field slopes steeply to the west, although the ground is generally very even with no evidence of earthworks, or other evidence of human landscaping.

5.2.16 *Field 13:* The cable route follows an existing trackway for some distance, before crossing the final field at the south end of the route. Field 13 comprised a small field of pasture with little of archaeological interest visible.

5.3 DISCUSSION

5.3.1 The proposed route crosses a number of features that are of archaeological interest, though it is suggested that these features relate to later medieval or post-medieval activities. Of particular interest was the possible landscaping activities seen in Field 3 and Field 4, as well as the feature in Field 6 (though it is unlikely this will be crossed by the proposed cable).

5.3.2 Also of interest was the area of cultivation present in Field 10, as well as the undulating mounds present along the line of the old field boundary. Should the cable cross this feature it would be interesting to note if this does indeed include mine waste.

5.3.3 No visible evidence was noted for the possible Roman road, which is believed to run close to the cable route.

6 GEOPHYSICAL SURVEY

6.1 INTRODUCTION

6.1.1 The geophysical surveys were undertaken between 21st and 27th September 2012. By necessity the study area was subdivided into nine separate areas (Areas 1-9) covering *c*.1.5km of the cable route, where it passed through agricultural land close to the presumed route of the Roman road between Keswick and Caermote Roman fort (Figure 10).

6.1.2 Each area was subdivided by field boundaries, comprising walls and mature hedgerows, some of which incorporated post and wire fences. These fences produced strong dipolar anomalies around the periphery of the survey areas, so were avoided where possible.

6.1.3 Small discrete dipolar magnetic anomalies were detected across the whole of the study area. These are almost certainly caused by fired/ferrous litter in the topsoil, which is typical for modern agricultural land. These anomalies are indicated on the geophysical interpretation drawings, but not referred to again in the subsequent interpretations.

6.2 AREA 1 (FIELD 5)

6.2.1 Area 1 was situated within a field of pasture at the north end of the study area, west of Mirehouse (Figures 11-13). The survey area was bounded by a farm track to the northwest and ran diagonally across the field.

6.2.2 A concentration of discrete dipolar magnetic anomalies was detected towards the centre of the survey area, which are attributed to modern fired/ferrous debris.

6.2.3 A parallel series of very weak positive linear magnetic anomalies were detected on the east side of the survey area, aligned approximately east to west, which are interpreted as evidence for modern plough regimes.

6.2.4 A very strong dipolar magnetic anomaly was detected at the south end of the survey area which is believed to be due to the presence of a modern service pipe (see Section 4.3 below).

4.2.5 No definite evidence was detected for the Roman road in Area 1.

6.3 AREA 2 (FIELD 5)

6.3.1 Area 2 was situated within the same field of pasture, immediately to the south of Area 1, covering the section of the cable route as it turns southeast (Figures 11-13). The survey area was bounded a post and wire fence to the

south. This fence produced strong dipolar magnetic anomalies on the southern edge of the survey area.

6.3.2 A very strong dipolar magnetic anomaly was detected along the western side of the survey area which is believed to be due to the presence of a modern service pipe. This service pipe is believed to be a gas pipe, which appears to follow closely the proposed underground cable route as it was detected in several of the survey areas.

6.4 AREA 3 (FIELD 6)

6.4.1 Area 3 was situated within another field of pasture, immediately to the south of Area 2 (Figures 14-16). The survey area was bounded by stone walls and a post and wire fences, which produced strong dipolar magnetic anomalies on the southern edge of the survey area.

6.4.2 A very strong dipolar magnetic anomaly was detected along the northwest side of the survey area which is believed to be due to the presence of the same service pipe.

6.4.3 A series of very irregular positive magnetic anomalies was detected on the north side of the survey area with a possible northwest to southeast alignment, the nature of which is uncertain. It is possible that these relate to a soil-filled feature, which has been disturbed by ploughing, or they may be geological features.

6.4.4 Two parallel linear positive magnetic anomalies were detected crossing the southern half of Area 3, aligned northwest to southeast, spaced *c*.4m apart. These features became indistinct to the north, where the ground appeared to be disturbed. These features were interpreted as possible soil-filled ditches, which could define a road or trackway. However, it was also possible that they represent agricultural features such as plough-furrows or a former field boundary.

6.5 AREA 4 (FIELD 7)

6.5.1 Area 4 was situated within another field of pasture, immediately to the south of Area 3 (Figures 17-19). The survey area was bounded by stone walls and a post and wire fences, which produced strong dipolar magnetic anomalies on the eastern edge of the survey area.

6.5.2 A parallel series of weak positive linear magnetic anomalies were detected on the west side of the survey area, aligned approximately east to west, which are interpreted as evidence for former plough regimes.

6.6 AREA 5 (FIELD 8)

6.6.1 Area 5 was situated within another field of pasture, immediately to the southeast of Area 4 (Figures 20-22). The survey area was bounded by stone walls and a post and wire fences, which produced strong dipolar magnetic anomalies on the southern edge of the survey area.

6.6.2 Two parallel curving positive magnetic anomalies were detected crossing the northern part of Area 5, spaced *c*.9m apart. These were interpreted as possible soil-filled ditches and appeared to continue outside of the survey area to the north and east. These features enclosed a curving negative magnetic anomaly, which was interpreted as a bank or other compact surface.

6.7 AREA 6 (FIELD 9)

6.7.1 Area 6 was situated within another field of pasture, immediately to the southeast of Area 5 and west of Little Crosthwaite Cottages (Figures 23-25). The survey area was bounded by stone walls and a post and wire fences, which produced strong dipolar magnetic anomalies on the edges of the survey area.

6.7.2 A very strong dipolar magnetic anomaly was detected along the eastern edge the survey area which is believed to be due to the presence of a modern service pipe.

6.7.3 No potential archaeological features were detected in this area.

6.8 AREA 7 (FIELD 10)

6.8.1 Area 7 was situated within another field of pasture, immediately to the south of Area 6 and west of the Calvert Trust Centre (Figures 26-28). A stream bound the south side of this survey area.

6.8.2 A very strong dipolar magnetic anomaly was detected along the eastern edge the survey area. This is believed to be due to the presence of the same modern service pipe, which was also detected in Area 6.

6.8.3 No potential archaeological features were detected in this area.

6.9 AREA 8 (FIELD 11)

6.9.1 Area 8 was situated within another field of pasture, immediately to the south of Area 7 (Figures 29-31). This field contained a rock outcrop, which bisected Area 8 and could not be surveyed.

6.9.2 A very strong dipolar magnetic anomaly was also detected in Area 8, which is almost certainly due to to the presence of the same modern service pipe, which was also detected in Area 6 and Area 7.

6.9.3 No potential archaeological features were detected in this area.

6.10 AREA 9 (FIELD 12)

6.10.1 Area 9 was situated within another larger field of pasture, immediately to the south of Area 8 (Figures 32-37).

6.10.2 A very strong dipolar magnetic anomaly was also detected on the east side of Area 9, which is almost certainly due to the presence of the same modern service pipe, which was also detected in Area 6, Area 7 and Area 8.

6.10.3 Two parallel linear positive magnetic anomalies were detected at the southern end of Area 9, aligned northwest to southeast. These were spaced *c*.14m apart and were thought to possibly represent soil-filled ditches or plough furrows.

6.10.4 A linear negative magnetic anomaly was also detected at the southern end of Area 9, with the same alignment. This was interpreted as another soil-filled feature or possibly a land drain.

6.11 DISCUSSION

6.10.1 Geophysical anomalies were detected within three areas (Area 3, Area 5 and Area 9), which could potentially represent soil-filled ditches, and may be associated with the Roman road. All had similar alignments to the projected course of the Roman road between Keswick and Caermote Roman fort, and were therefore possibly associated.

6.10.2 The curving features detected in Area 5 were considered to be least likely to be Roman in date, and interpreted as part of a curvilinear enclosure, of possible prehistoric date.

6.10.3 The geophysical anomalies detected in these three areas were therefore targeted in the subsequent trial trench evaluation (Trenches 1-4).

7 EVALUATION RESULTS

7.1 INTRODUCTION

7.1.1 The evaluation was undertaken in one phase which started on the 16th October 2012, and finished on 19th October 2012 and consisted of four trenches (Figure 38). Topsoil and subsoil were removed by a JCB 3CX using a 1.6m wide ditching bucket to the level of the natural substrate. The areas under investigation were subsequently cleaned by hand and investigated and recorded fully. Trenches 1 and 4 measured 13m in length whilst Trenches 2 and 3 were 12m long. All four trenches were 1.6m in width.

7.2 RESULTS

7.2.1 ***Trench 1:*** Trench 1 was located within Area 3 toward the northern extent of the study area and was aligned broadly north east – south west (Figure 38). The trench was excavated to a maximum height of 89.32m A.O.D and a minimum of 89.01m A.O.D. revealing mixed brown and grey, loose limestone fragments **(102)** below *c*.0.20m of moderately soft mid brown clayey silt subsoil **(101)**, and *c*.0.20m of moderately compact dark brown clayey silt topsoil (**100**) (Plate 11).

Plate 11*: Trench 1, looking north east*

7.2.2 Modern ruts possibly caused by vehicles traversing Area 3 were observed within the topsoil and subsoil and were heading roughly southwards towards the entrance of the field. These were identified within the geophysical survey (see Section 6.4.4), No archaeological remains were observed within Trench 1.

7.2.3 ***Trench 2:*** Trench 2 was located within Area 5 of the study area, south of Area 3 in a north east – south west orientation (Figure 38). The trench was excavated to a maximum height of 95.00m A.O.D and minimum of 93.88m A.O.D. This revealed soft orange sandy silt **(202)** below *c*.0.20m of soft mid grey - brown silty clay subsoil **(201)**, and *c*.0.35m of soft mid brown clayey silt topsoil (**200**) (Plate 12).

Plate 12*: Trench 2, looking north east*

7.2.4 The geophysical survey detected two curving anomalies (see Section 6.6.2) and upon inspection a large possible paleochannel **[203]** was identified spanning the width of Trench 2, up to 6.25m in width and up to 1m deep (Figure 39). It contained two fills, the earlier of which **(204)** was up to 1 meter thick consisted of large rounded sandstone boulders, the largest of which measured at up to 0.50m in diameter, with clean grey – brown clayey silt inclusions. This was overlain by similar material a 0.66m thick deposit **(205)** of mid grey – brown clayey silt, with moderate sandstone boulder inclusions. The horizon between the two deposits was diffuse, and it is supposed that the two contexts could have been deposited concurrently, with the sandstone sinking to the bottom of the channel (Plate 13). No archaeological material was recovered from either fill.

7.2.5 The paleochannel **[203]** had poorly defined edges, with fairly steep edges and a sharp break of slope leading to a flat base. The possible waterway had incised through a naturally deposited orange sandy silt **(202)** glacial till which itself was observed to overlie loose mid to light grey gravels **(206)** (Figure 39).

Plate 13: *A machined section part of the way through the possible paleochannel, looking south east*

7.2.6 ***Trench 3***: Trench 3 was located in Area 9 at the southern extent of the study area and was aligned broadly north east – south west (Figure 38). The trench was excavated to a maximum height of 77.15m A.O.D and minimum of 76.32m A.O.D. This revealed moderately compact orangey – grey gravelly clay **(302)** below c.0.22m of soft mid yellow – brown silty clay subsoil **(301)**, and c.0.24m of soft greyish – brown silty clay topsoil **(300)** (Plate 14).

Plate 14: *Trench 3, looking north*

7.2.7 Evidence of possible land slippage was observed towards the south – western end of the trench with a deposit **(303)** of moderately compact greyish brown silty clay with moderate pebble inclusions recorded in the south east facing section. The deposit extended from the south west extent of the trench towards the north east up to 5.64m to a maximum thickness of 0.35m whereupon it was truncated by a small gully **[304]** (Figure 40) which was identified in the geophysical survey (see Section 6.10.3). The gully spanned the width of the trench, measured up to 0.70m wide and had a maximum depth of 0.45m (Plate 15). With a rounded base and steep edges, the gully **[304]** was filled entirely with brown silty clay **(305)** which contained no observable archaeological artefacts.

Plate 15: *Section of gully [304] within Trench 3, looking north west*

7.2.8 A single modern land drain orientated north west – south east was recorded 1m from the south east extent of Trench 3 (Figure 40).

7.2.9 ***Trench 4:*** Trench 4 was located south of Trench 3, at the southern extent of Area 9. and was aligned north east – south west (Figure 38). The trench was excavated to a maximum height of 76.27m A.O.D and minimum of 74.95m A.O.D. This revealed soft mid orange – grey clay **(402)** below *c*.0.25m of soft mid brown silty clay subsoil **(401)**, and *c*.0.15m of moderately compact mid grey – brown silty clay (**400**) topsoil (Plate 16).

Plate 16: *Trench 4, looking south west*

7.2.10 Similar to Trench 1, gravelly depressions were observed towards the south eastern end of the trench, which were identified within the geophysical survey (see section 6.10.3). These depressions led towards the southern entrance of Area 9, and are therefore probably a result of modern vehicle use. No archaeological remains were observed.

7.3 DISCUSSION

7.3.1 The geophysical anomalies as identified within Section 6 of this document have been investigated fully. Of the possible features identified as part of the geophysical survey, gully **[304]** within Trench 3 has been identified as the only archaeological feature within the 4 trenches. Despite this, no artefactual remains were present within the exposed length of gully, and therefore the purpose and date of the feature is unclear.

7.3.2 Of the other features identified as part of the geophysical investigation, a large possible paleochannel was recorded within Trench 2, and depressions caused by vehicular entrance and egress from Areas 3 and 9 were observed within Trenches 1 and 4.

7.4 FINDS AND ARCHIVE

7.4.1 No artefacts were recovered from the investigation within the proposed development area. The total archive consists of 4 trench sheets, 19 context sheets, 2 section drawings, 3 trench plans, 52 black and white and 65 digital photographs.

8 CONCLUSION

8.1 CONCLUSIONS

8.1.1 During the archaeological field evaluation of land at Mirehouse to Long Farm, four trenches were excavated along the route of the proposed underground cable route providing a targeted sample of the proposed development area. The purpose of the evaluation was to establish the nature and extent of below ground archaeological remains within the vicinity and targeting possible features identified from the geophysical survey. All trenches were excavated down to the top of the natural substrate.

8.1.2 The results obtained during the desk-based assessment suggested that there was a potential for later medieval to post medieval remains at the site, as there was possible landscaping activities within Fields 3 and 4 as well as the sub-rounded feature along the western boundary of Field 6 (see Section 5.2.7). Within Field 10 undulating mounds possibly formed by dumps of mine waste were present along the line of the old field boundary. No visible evidence was noted for the possible Roman road, which could possibly run close to the cable route.

8.1.3 Geophysical anomalies were detected within three areas (Area 3, Area 5 and Area 9), which potentially represented soil-filled ditches, and may have been associated with the Roman road, due to the similar alignments to the projected course of the Roman road between Keswick and Caermote Roman fort. The curving features detected in Area 5 were considered to be least likely to be Roman in date, and was thought to represent part of a curvilinear enclosure, of possible prehistoric date. The geophysical anomalies detected in these three areas were therefore targeted in the subsequent trial trench evaluation (Trenches 1-4).

8.1.4 Of the possible features located as part of the geophysical survey, gully **[304]** within Trench 3 was identified as the only archaeological feature within the 4 trenches. Despite this, no artefactual remains were present within the exposed length of gully, and therefore the purpose and date of the feature is unclear. Of the other features identified as part of the geophysical investigation, a large possible paleochannel was recorded within Trench 2, and depressions caused by vehicular access and egress from Areas 3 and 9 were observed within Trenches 1 and 4.

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APPENDIX 1: PROJECT BRIEF

BRIEF FOR ARCHAEOLOGICAL EVALUATION ALONG MIREHOUSE TO GREENHILLS, KESWICK

18 July 2012

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Brief for Archaeological Evaluation

Location: Mirehouse to Greenhills, Keswick

Proposed: 33kw Undergrounding cables between Mirehouse and Greenhills, Keswick

Summary

The Lake District National Park Authority has been consulted by Electricity North West prior to the construction of an underground electricity cable between Mirehouse and Greenhills, Keswick. Part of the route of the proposed undergrounding cables runs directly along the course of a Roman road (HER No: 32746). It is possible that the development may affect remains from this period.

There is reason to believe that archaeological remains may exist on the site but little is known as to their extent and state of preservation. The National Park Archaeology and Heritage Assistant has advised that the archaeological implications of the proposal cannot be adequately assessed on the basis of the available information. The applicant has therefore been advised that an archaeological evaluation should be carried out before any work is undertaken, in order to obtain and supply to the Lake District National Park Authority further information.

This recommendation is in line with government advice as set out in the National Planning Policy Framework (NPPF) Para. 128 and Policy NE 16 of the Lake District National Park Local Plan.

Detailed proposals and tenders are invited from appropriately resourced, qualified and experienced archaeological contractors to undertake the archaeological project outlined by this Brief and to produce a report on that work. The work should be under the direct management of either an Associate or Member of the Institute of Archaeologists, or equivalent. No fieldwork may commence until approval of a specification has been issued by the Lake District National Park Authority.

1. Location

1.1 The site is centred around national grid reference NY 2337 2765, in the parishes of Underskiddaw and Bassenthwaite. The total length of the undergrounding cabling affects some 3 KM, which is presently in use as pasture land. The area of archaeological potential, which will need evaluating, is c.1.5km in length.

1.2 The underlying geology of the site is Argillaceious Rocks

2. Archaeological Background

2.1. The site of the proposed undergrounding runs directly along the course of a possible Roman road running from Keswick to Caermote Fort (HER No. 32746).

There are number of other sites or finds in the immediate area include:

LDHER No:	Name of site:	NGR:
30592	Potash Kiln, Kiln How, Little Crosthwaite	NY23432745
11807	Rose Cottage Quarry	NY23552745
17366	Bassenthwaite Deserted Medieval Village, Bassenthwaite	NY22602870
4232	Bowness Signal Station, Bassenthwaite	NY22402910

Further details of this site can be obtained from the Lake District National Park Authority, Murley Moss, Oxenholme Road, Kendal, LA9 7RL. Tel. 01539 792615/Fax. 01539 740822/Email archaeology@lake-district.gov.uk

3. Requirement for an Evaluation

3.1 The proposed development would severely damage or destroy any archaeological remains which may be present on the site. It has therefore been recommended that an archaeological evaluation should take place to obtain further information on the presence and preservation of any archaeological deposits before any decision is reached as to whether planning consent should be granted.

3.2 The objectives of the evaluation should be to gather sufficient information to establish presence/absence, character, extent, state of preservation, date, condition and significance of any archaeological deposits within the areas of proposed development.

3.3 An adequate representative sample of all areas where archaeological remains are potentially threatened should be studied.

3.4 The preferred option is the preservation *in situ*, wherever possible, of significant archaeological features and deposits, whether through design modification or other mitigation measures. Only where preservation *in situ* proves impracticable should the option of full excavation be considered.

4. Evaluation Techniques

Land use at the time fieldwork is carried out will influence the methods used. The techniques chosen should be selected to cause the minimum amount of destruction and should comply with all relevant health and safety regulations. It is envisaged that the following work would be required:

Stage One

4.1 A rapid review of the published and unpublished information relevant to the site and its immediate surroundings will be undertaken. This will aim to review the currently available archaeological information for the site and its locality, with particular reference to recent archaeological work in the vicinity. It will also investigate the past use of the site through an examination of the historic mapping of the area. Sources consulted should include: data held by the Lake District Historic Environment Record; maps (printed and manuscript); aerial photographs and other illustrative evidence; place and field name evidence; published and unpublished documentary sources and other relevant background material.

4.2 Visual inspection of the entire site. This should include examination of any available exposures (eg. recently-cut field ditches and geological test pits).

Stage Two

4.3 A geophysical survey of the area should be carried along the area of archaeological potential, in order to clarify the extent of any surviving subsurface archaeological remains. All geophysical work must be undertaken by a suitably qualified organisation or individual.

Stage three

4.4 A programme of trial trenching, excavated across the site, in order to establish the extent, date, nature and preservation of archaeological deposits.

The total amount of trench should amount to a minimum of c 2% sample of the 1.5km site, giving a total length of 25m of machine-cut trench. The locations and proportions of trenches should be established upon completion of the desk based work and geophysics and may need to take into account any live services on site, but should not neglect areas of no known archaeology. The distribution will seek to

achieve a comprehensive coverage across the site. The strategy for the positioning of trenches must be agreed with the National Park Archaeology and Heritage Adviser, prior to the start of work. Initial topsoil removal can be undertaken by machine, but subsequent cleaning and investigation must be by hand.

4.5 A sufficient sample of features and deposits should be investigated to understand the full stratigraphic sequence in each trench, down to natural deposits. All deposits should be fully recorded on appropriate context sheets, photographs, scale plans and sections.

4.6 An assessment of the artefact content of the topsoil. Techniques might include measured surface artefact collection, a series of topsoil test pits, or sampling of the topsoil from trial trenching. The proposed strategy should be agreed with the National Park Archaeology and Heritage Assistant and will be expected to take account of the prevailing ground conditions on the site.

4.7 The evaluation should include a programme of sampling of appropriate materials for environmental and/or other scientific analysis and a basic analysis of suitable deposits (restricted at this stage to establishing the presence or absence of significant material). Special attention should be paid to sampling securely dated deposits and features and specifically any waterlogged and/or burnt deposits encountered.

4.8 The following analyses should form part of the evaluation, as appropriate. If any of these areas of analysis are not considered viable or appropriate, their exclusion should be justified in the subsequent report.

- Advice is to be sought from a suitably qualified specialist in faunal remains on the potential of sites for producing bones of fish and small mammals. If there is potential, a sieving programme should be undertaken. Faunal remains, collected by hand and sieved, are to be assessed and analysed, if appropriate.

- Advice from a suitably qualified soil scientist should be sought on whether a soil micromorphological study or any other analytical techniques will enhance understanding site formation processes of the site, including the amount of truncation to buried deposits and the preservation of deposits within negative features. If so, analysis should be undertaken.

Stage four

4.9 A watching brief, if deemed necessary, on the bases of the results from stages two and three.

5. Evaluation Proposal

A **detailed** evaluation proposal, including the following, should be prepared by potential contractors in accordance with the recommendations of MoRPHE (http://www.english-heritage.org.uk/professional/training-and-skills/training-schemes/short-courses/project-management-using-morphe) and submitted to the National Park Archaeology and Heritage Assistant:

5.1 A consideration of the whole range of investigative techniques and a statement justifying the proposed omission of any technique.

5.2 An explanation of the sampling strategies to be used.

5.3 A description of the proposed methods of survey and excavation, and recording system.

5.4 A projected timetable for work on site, including machine hire time and staff structure and numbers.

5.5 A projected timetable for all post excavation work, including staff numbers and specialist sub-contractors.

5.6 The names of the project director, supervisors, specialists and any sub-contractors to be employed

on the project (including details of qualifications and experience of the key project personnel).

5.7 A separate itemised estimate of costs (core/project staff, specialist fees, travel/subsistence, site works, equipment/materials, archive preparation and copying, report preparation, finds storage fees, overheads, contingency, specified other costs).

5.8 Any significant variations to the proposal must be agreed by the National Park Archaeology and Heritage Assistant in advance.

6. Site Monitoring

6.1 The National Park Archaeology and Heritage Assistant will be responsible for monitoring the evaluation. A minimum of one week's notice of the commencement of fieldwork must be given by the archaeological contractor to the Lake District National Park Authority so that arrangements for monitoring can be made.

6.2 Site inspections will be arranged so that the general site stratigraphy can be assessed in the initial stages of trial trenching, and/or so that the site can be inspected when fieldwork is near to completion but before any trenches have been backfilled.

7. Reporting Requirements

7.1 The evaluation should result in a report including:

- a concise non-technical summary of the results;
- a description of the methodology employed;
- a location plan at an appropriate scale;
- a summary of the historical and archaeological background;
- excavation plan(s) and section(s) at an appropriate scale showing location and position of trenches dug and features located;
- section drawings should include heights OD;
- excavation plan(s) should include OD spot heights for all principal strata and features;
- a list of and date for any significant finds recovered;
- photographs where appropriate;
- a description of archaeological features and deposits identified;
- an interpretation of the results and of their potential archaeological significance;
- a statement of the likely archaeological implications of the proposed development;
- a full bibliography of sources consulted and a list of any further sources identified but not consulted;
- an index to the project archive;
- a copy of the brief and agreed project design and an indication of any variations.

7.2 The objective account of the archaeological evidence recovered should be clearly distinguished from the interpretation of those features. The methodology used should be critically reviewed.

7.3 Any recommendations for mitigating measures should be presented in the form of a separate annexe to the main report.

7.4 Two hard copies of the evaluation report and a full digital version should be deposited with the National Park Authority, on the understanding that it will be made available as a public document after an appropriate period (not exceeding 6 months from the completion of fieldwork).

7.5 The results of the work should be published in an appropriate journal or other publication and should include an account of any structures located and full details of significant finds, illustrated as appropriate. Details of the place and date of publication must be notified to the National Park Authority. **Developers and archaeological contractors should be aware that fulfilment of this part of the brief is**

mandatory and that the Lake District National Park Authority will not issue approval for a specification that does not include details for its implementation.

7.6 The Lake District Historic Environment Record (LDHER) supports the Online Access to Index of Archaeological Investigations (OASIS) project. The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large-scale developer funded fieldwork. The archaeological contractor must therefore complete the online OASIS form at http://ads.ahds.ac.uk/project/oasis/. Contractors are advised to contact the LDHER prior to completing the form. Once a report has become a public document by submission to or incorporation into the HER, the LDHER may place the information on a web-site. Please ensure that you and your client agree to this procedure in writing as part of the process of submitting the report to the archaeological officer at the LDHER.

8. Deposition of Archive and Finds

8.1 The archive must be prepared in accordance with the recommendations of MoRPHE (http://www.english-heritage.org.uk/professional/training-and-skills/training-schemes/short-courses/project-management-using-morphe and should be deposited in an appropriate local institution, in a format to be agreed with that institution. The National Park Authority must be notified of the arrangements made. Any finds of archaeological interest should be appropriately conserved and deposited in an appropriate institution: any finds which cannot be so deposited should be fully analysed and published.

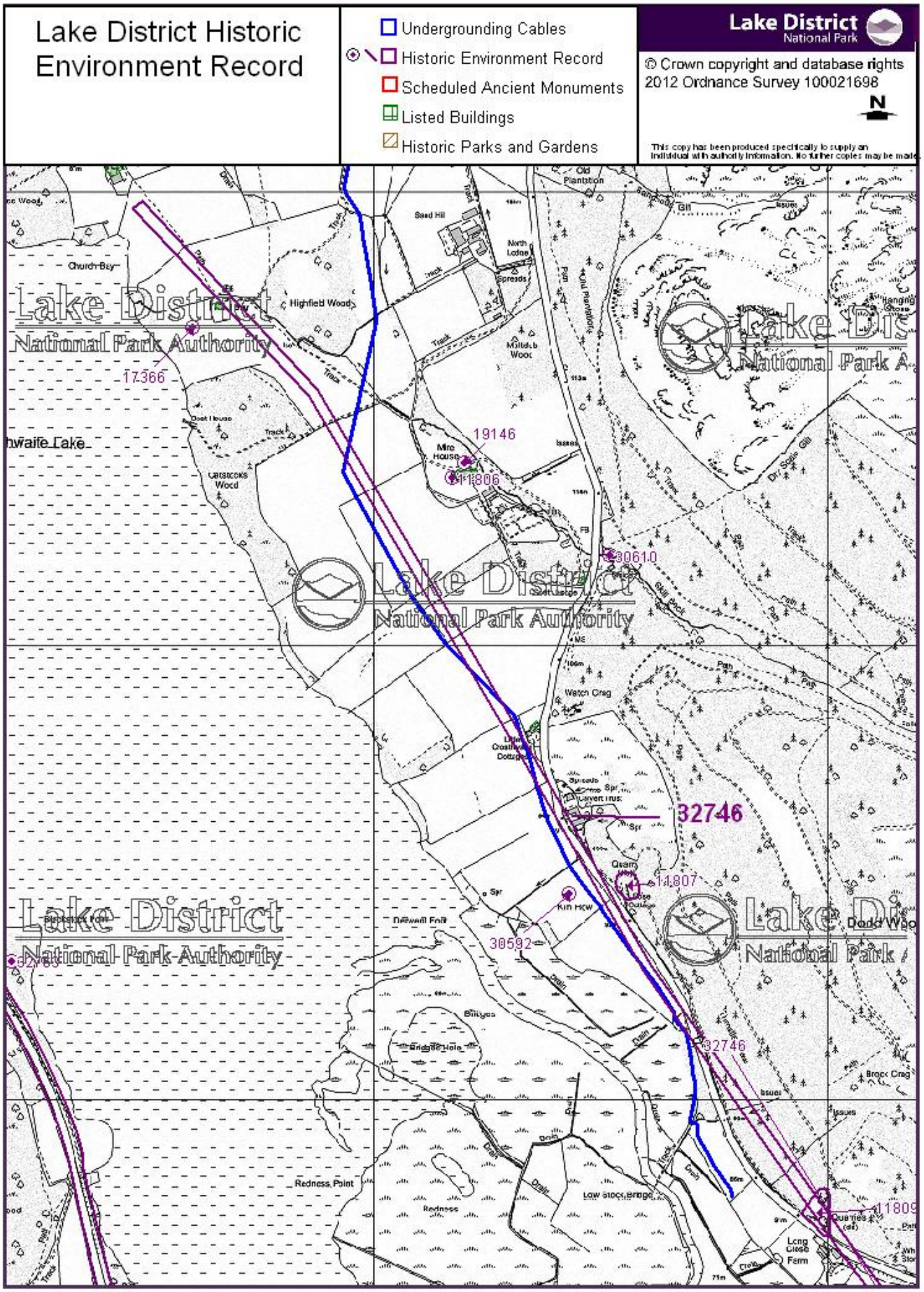
9. Further Requirements

9.1 The Code of Conduct of the Institute of Archaeologists must be followed.

9.2 It is the archaeological contractor's responsibility to establish safe working practices in terms of current health and safety legislation, to ensure site access and to obtain notification of hazards (eg. services, contaminated ground).

9.3 The involvement of the Lake District National Park Authority should be acknowledged in any report or publication generated by this project.

Appendix one:
Location route of proposed 33kw undergrounding cables between Mirehouse and Greenhills, Keswick



APPENDIX 2 PROJECT DESIGN

Wardell Armstrong Archaeology Ltd.

Project Design No.CP10316 September 2012

WRITTEN SCHEME OF INVESTIGATION FOR AN ARCHAEOLOGICAL EVALUATION AT MIREHOUSE AND GREENHILLS, KESWICK, CUMBRIA

FOR

ELECTRICITY NORTH WEST

NGR NY 2337 2765

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CONTENTS

1. INTRODUCTION

1.1 Background

1.1.1 The following document outlines a Written Scheme of Investigation (WSI) for an archaeological evaluation of the route of a proposed underground electricity cable between Mirehouse and Greenhills, near Keswick, Cumbria. The WSI discussed below was produced for Electricity North West, in response to a request from the Lake District National Park Authority (LDNPA).

1.1.2 The proposed electricity undergrounding scheme lies within the parishes of Underskiddaw and Bassenthwaite in the Lake District National Park, Cumbria. The total length of the proposed underground electricity cable affects approximately 3km of pasture land on the east side of Bassenthwaite Lake, west of the A591. The portion of the route requiring archaeological evaluation runs from Greenhill Farm in the north, passing to the west of Mire House, towards Long Close Farm in the south, centred on Ordnance Survey grid reference NY 2337 2765 (Figure 1).

1.1.3 The solid geology of the area comprises Kirk Stile Formation (mudstone and siltstone), a sedimentary bedrock formed approximately 458 to 485 million years ago in the Ordovician Period, overlain by lesser deposits of alluvium (clay, silt, sand and gravel) and some peat (BGS 2001). The overlying soils comprise, stony well-drained loamy soils known as Ellerbeck (SSEW 1890).

1.1.4 The proposed undergrounding route requiring archaeological evaluation measures 1.27km in total. The route is of archaeological interest, as it lies close to several known archaeological sites, including the course of a possible Roman road between Keswick and Caermote Roman fort (LDHER 32746). A number of other cultural heritage sites recorded in the Lake District Historic Environment Record (LDHER) have been identified along the route (LDNPA 2012), including a potash kiln at Kiln Hill (LDHER 30592), Rose Cottage Quqrry (LDHER 11807), Bowness Signal Station (LDHER 4232) and Bassenthwaite Deserted Medieval Village (LDHER 17366), which lies close to St Bega's Church (Figure 1). The proposed development therefore has the potential to adversely affect archaeological remains dating from the Roman, medieval and post-medieval periods.

1.1.5 This WSI was prepared in accordance with the recommendations of English Heritage as set out in *The Management of Archaeological Projects*, 2nd ed. 1991, and in *Management of Research Projects in the Historic Environment* (English Heritage 1st Edition 2006), which now replaces it, and in response to a brief prepared by Lake District National Park Authority (LDNPA 2012).

2. METHODOLOGY

2.1 Scope of the work

2.1.1 The initial phase of work will comprise a rapid desk-based assessment. The rapid desk-based assessment will involve the consultation of a number of existing datasets, in order to achieve an understanding of the nature of the existing resource regarding the geographical, topographical, archaeological and historical context of the site.

2.1.2 This will be followed by a geophysical survey of the proposed 1.27km underground electricity cable route. The objective of the geophysical survey is to determine the presence/absence, nature and extent of any potential archaeological features along thr route, and any areas of potential disturbance of the archaeological resource caused by modern intrusions.

2.1.3 The results of the rapid desk-based assessment and geophysical survey will be used to inform the locations of a number of evaluation trenches, which will be used to investigate any potentially significant archaeological remains identified. This will help inform the need for any further archaeological investigation and/or mitigation that may be required.

2.1.4 If necessary, an archaeological watching brief will be conducted during the excavation work for the underground electricity cable over archaeologically-sensitive portions of the route.

2.2 Rapid Desk Based Assessment

2.2.1 The desk-based assessment will involve the consultation of the Lake District Historic Environment Record in the first instance. This will include the collection of all available information held within the LDHER database within 0.5km of the route, in order to achieve an understanding of the nature of the existing resource regarding the geographical, topographical, archaeological and historical context of the site. Aerial photographs for the area will be examined in order to gain an adequate understanding of the context of the archaeological work.

2.2.2 Following this the Cumbria Records Office in Kendal will also be consulted in order to study maps and documents relevant to the study area. This will include the collection of historic maps, including Tithe or Enclosure maps and early Ordnance Survey maps. Early cartographic evidence, such as surveys and terriers, will be consulted in order to achieve an understanding of the medieval and early post medieval landscape. 18th and 19th century mapping will also be consulted. Several secondary sources and journals, such as the Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society, will also be consulted.

2.2.3 The desk-based assessment will be undertaken in accordance with the Institute for Archaeologists *Standards and Guidance for Historic Environment Desk-Based Assessments* (IfA 2011a).

2.2.4 As part of this stage of work, a visual inspection will undertaken of the proposed electricity cable undergrounding route, noting surface features of potential archaeological interest and areas of potential significant disturbance. The principal aim

of the inspection is to identify previously unrecorded sites and record information on the location, extent, character, and condition and significance of each site, including any surface artefact scatters.

2.2.5 The visit will also note any hazards and constraints to undertaking further archaeological work on site (including the positions of any live services, Tree Preservation Orders and public footpaths).

2.3 Geomagnetic survey

2.3.1 It is believed that subsurface archaeological remains of potential Roman, medieval and post-medieval date could survive along the proposed electricity cable undergrounding route. These are likely to comprise cut features, such as ditches and pits, route ways, boundary features and small buildings. Geophysical survey is to be undertaken over the whole of the 1.27km route between Green Hill Farm and Long Close Farm, where it passes through agricultural land (Figure 1).

2.3.2 Geomagnetic survey is considered to be the most appropriate geophysical technique, given the non-igneous environment, and the expected presence of archaeological features at depths of no more than 1.5m. This technique involves the use of hand-held gradiometers, which measure variations in the vertical component of the earth's magnetic field. These variations can be due to the presence of sub-surface archaeological features. Geomagnetic measurements will be determined using a Bartington Grad601-2 dual gradiometer system, with twin sensors set 1m apart.

2.3.3 A 20m grid will be established over each portion of the route, and tied-in to known Ordnance Survey points using a Trimble 3605DR Geodimeter total station with datalogger. The survey will be undertaken using a zig-zag traverse scheme, with data being logged in 20m grid units. A sample interval of 0.25m will be used, with a traverse interval of 1m, providing 1,600 sample measurements per grid unit. The data will be downloaded onto a laptop computer for data processing and storage in the field using specialist software.

2.3.4 Geophysical survey data will be processed using ArchaeoSurveyor II software, to produce 'grey-scale' images of the raw data. Positive magnetic anomalies will be displayed as dark grey, and negative magnetic anomalies are displayed as light grey. A palette will show the relationship between the grey shades and geomagnetic values in nT for each area.

2.3.5 Raw data will be processed in order to further define and highlight the archaeological features detected. The resulting grey-scale images will be combined with site survey data and Ordnance Survey data to produce geophysical survey plans. Colour-coded geophysical interpretation diagrams will be provided, showing the locations and extent of positive, negative, dipolar, and diffuse magnetic anomalies.

2.3.6 Archaeological interpretation diagrams will also be provided, which will be based on the interpretation of the geophysical survey results, in light of the archaeological and historical background of the site.

2.3.7 The geophysical survey and reporting will be conducted in accordance with English Heritage guidelines (English Heritage 2008), and in accordance with the standard and guidance of the Institute for Archaeologists (IfA 2011b).

2.4 Trial Trench Evaluation

2.4.1 The trial trench evaluation will comprise 25m of trenching in total as specified in the project brief (LDNPA 2012). The exact locations and dimensions of the trenches will determined following the completion of the rapid desk-based assessment and geophysical survey of the undergrounding route. Trenches will be used to target potential archaeological features identified along the route, including the possible Roman road between Keswick and Caermote Roman fort, avoiding areas of known modern disturbance. A trench location plan will be submitted to LDNPA for approval, prior to the start of the trial trench evaluation.

2.4.2 The trench positions will be surveyed using known Ordnance Survey points, through the use of a Trimble 3605DR Geodimeter total station with datalogger. All trenches will be excavated by a tracked mechanical excavator using a toothless ditching bucket to either the top of archaeological deposits, or the natural substrate, whichever is observed first under continuous archaeological supervision.

2.4.3 In summary, the main objectives of the evaluation will be:

- to establish the presence/absence, nature, extent and state of preservation of archaeological remains and to record these where they are observed;
- to establish the character of those features in terms of cuts, soil matrices and interfaces;
- to recover artefactual material, especially that useful for dating purposes;
- to recover palaeoenvironmental material where it survives in order to understand site and landscape formation processes.

2.4.4 If trenches become waterlogged and pumps are utilised, care will be taken to avoid any contamination of the nearby watercourses. The total depth of trench will not exceed 1.2m below ground level for health and safety reasons. Excavation to greater depths may require shoring or stepping, which will necessitate an increase in costing.

2.4.5 The trenches will be subsequently cleaned by hand and all features will be investigated and recorded according to the Wardell Armstrong Archaeology (WAA) Ltd standard procedure as set out in the Excavation manual (Giecco 2012). All archaeological features exposed will be sample excavated; which will typically involve the 50% sampling of discrete features, 25% of linear features with a non uniform fill and 10% of linear features with a uniform fill.

2.4.6 All fieldwork will be carried out in accordance with codes and practices outlined by the Institute of Field Archaeologists regarding archaeological evaluations (IfA 2008a, *Standards and Guidance: Archaeological Evaluation*). A Harris matrix will be compiled for stratified deposits to provide a detailed record of the stratigraphic sequence, according to the conventions written in the WAA Excavation Manual and in

accordance with the Institute of Field Archaeologist (IfA) and English Heritage guidelines.

2.4.7 All non-modern finds will be collected and retained for processing. Ceramics and animal bone will be collected in bulk and recorded by context. Significant *in situ* finds will be recorded in three dimensions prior to collection. A metal detector will be utilised to maximise the collection of metal artefacts from the excavated spoil, in accordance with the Tresure Act 1996 Code of Practice.

2.4.8 Any environmental evidence found during the work will be sampled as recommended by Sue Stallibrass, English Heritage Regional Scientific Adviser, North-West Region, and undertaken according to the Wardell Armstrong Archaeology Ltd standard environmental sampling procedure and nationally agreed procedures (English Heritage 2002 *Environmental Archaeology: A Guide to the Theory and Practice of Methods from Sampling and Recording to Post-Excavation*). The sampling will typically take the form of bulk samples of 40 litre volume, taken from the full range of context types encountered. This is in order to assess the environmental potential of deposits across the site, including the fills of ditches, gullies, pits and postholes, buried soils and occupation layers.

2.4.9 Should any human remains be encountered, LDNPA, the client, the police and the Coroner's office will be informed immediately upon the discovery of the remains. The removal of any human remains will be done under a Section 25 Licence obtained from the Ministry of Justice. The relevant English Heritage guidelines, in particular the recently published '*Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England*' (English Heritage 2005), will be adhered at all times.

2.4.10 All written records will utilise the WAA pro-forma record sheets. Plans and sections will be drawn on water resistant permatrace. Plans will be drawn to a scale of 1:20 and sections at 1:10. A full photographic record in monochrome and digital formats will be maintained. A combination of multi and single context planning will be utilised. All electronic survey work will be undertaken using a Trimble 3605DR Geodimeter total station with datalogger and will be transferred into a CAD environment. The site will be levelled with respect to the Ordnance Datum, and the trenches will be tied into the National Grid.

2.4.11 The opportunity will be given for John Hodgson, Senior Archaeology and Heritage Advisor, LDNPA to inspect the trenches prior to backfilling. It is proposed that no trench will be left open for over five working days without good reason. Following completion of the on-site works the trenches will be back-filled with the excavated material but not otherwise reinstated; no liability can be claimed for trenches which settle following backfilling.

2.5 Watching Brief

2.5.1 A watching brief consists of a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. Reasonable access to the site for the purposes of monitoring the watching brief will be afforded to the watching archaeologist (Institute for Archaeologists 2008b).

2.5.2 The watching brief will be undertaken, if required, during the excavation work for the underground electricity cable over archaeologically-sensitive portions of the route, in agreement with the LDNPA.

2.5.3 The watching brief will conform to the following standard: all topsoil stripping, ground reduction, and excavation of the electricity cable trench shall be subject to observation by the archaeologist. This observation shall involve the systematic examination and accurate recording of all archaeological features, horizons and artefacts identified. Should intact archaeological remains be uncovered during the project, the archaeologist on site will be given a reasonable period of uninterrupted access, ensuring he/she is enabled to carry out further excavation and recording. All work will be carried out in accordance with the codes and practices outlined by the Institute for Archaeologists regarding archaeological watching briefs (IfA 2008b).

2.5.4 The aims and principal methodology of the watching brief can be summarised as follows:

- to determine the presence/absence, nature, extent and state of preservation of archaeological remains;
- to produce a photographic record of all contexts using colour digital and monochrome formats as applicable, each photograph including a graduated metric scale;
- to recover artefactual material, especially that useful for dating purposes;
- to sample any environmental deposits encountered according to the WA Archaeology standard sampling procedure and in consultation with appropriate specialists.
- to prepare a site archive in accordance with MoRPHE standards (English Heritage 2006);

2.6 Finds

2.6.1 Finds analysis will be under the direction of Megan Stoakley, WAA Finds and Archives Officer. WAA Ltd will undertake first aid conservation, but if further conservation is required following the production of an assessment report, there will be extensive consultation with appropriate specialists, LDNPA and representatives of the client.

2.6.2 Specialist services to be provided by:

Illustration	Adrian Bailey, WAA Ltd
Prehistoric Pottery	Blaise Byner, Archaeological Consultant
Roman Pottery	Louise Hird, Archaeological Consultant
Medieval Pottery	Cathy Brooks, Archaeological Consultant
Post Medieval Pottery	Jo Dawson, Greenlane Archaeology
Lithics	David Jackson, WAA Ltd

Glass	Hugh Wilmott, University of Sheffield
Wood	Ian Tyers, Archaeological Consultant
Leather	Tim Padley, Tullie House Museum
Textiles	Eleanor Palmer (Cumbria Museums Service).
Conservation	Archaeological Services, University of Durham

2.7 Environmental Samples

2.7.1 Detailed work on environmental samples will take place at the unit's premises at Carlisle. Further specialist services will be utilised at the University of Durham, if required. Environmental samples will be processed under the direction of Don O'Meara, WAA Environmental Officer, in consultation with Sue Stallibrass, English Heritage Regional Scientific Adviser, North-West Region. Don O'Meara will also assess any animal bone recovered during the evaluation. Human remains will be assessed by Megan Stoakely, who is a qualified osteoarchaeologist.

2.7.2 Recommendations will also be made regarding the suitability of recovered organic deposits and ecofacts for radiocarbon dating. A contingency for the dating of samples has been included within the project. This will only be undertaken in consultation with the client and LDNPA.

2.8 Report

2.8.1 A detailed report will be provided, and will include the following:

- A location plan showing the location of the study area, related to the national grid, and an eight figure Ordnance Survey grid reference
- The dates on which the project was undertaken
- A concise, non-technical summary of the results
- A summary of the historical and archaeological background of the site
- A description of the methodology employed, work undertaken and results obtained
- Digital photographs where appropriate
- A description of any geophysical anomalies detected within the study area
- Greyscale plans at an appropriate scale showing the location and extent of any geophysical anomalies
- Interpretation of the geophysical survey results in light of the archaeological and historical background of the site
- Geophysical and archaeological interpretation diagrams
- Trace plots of the unprocessed geophysical data as appropriate
- The associated OASIS reference

2.4.2 The report will identify areas of defined archaeology, and an assessment and statement of the actual and potential significance of the archaeology will be made within the broader context of regional and national archaeological priorities. The research questions will take into account the themes of the North West Regional Research Framework (Brennand, M, 2007 *North-West Regional Research Framework*).

2.9 Archive and Publication

2.9.1 Copies of the final report will be sent to the client and LDNPA. A digital copy of the report (in pdf format) will also be provided.

2.9.2 The data archive for the project will be prepared in accordance with the recommendations of the Archaeology Data Service (ADS 2001) and stored at the company headquarters at Carlisle. The project will also be registered with the **O**nline **A**cces**S** to the **I**ndex of archaeological investigation**S** (**OASIS**), and the **OASIS** project identifier will be included in the report.

2.9.3 Depending on the results of the project, a brief publication report on the fieldwork project and the results of any subsequent work may be produced for inclusion in a suitable archaeological journal, in agreement with the client and LDNPA.

3 HEALTH AND SAFETY

3.1 Full consideration will be given to health and safety issues during all fieldwork. NP Archaeology Ltd. Health and Safety Statement conform to the provisions of the Standing Conference of Archaeological Unit Managers (SCAUM) Health and Safety Manual (Allen and St. John Holt 1991).

3.2 A full risk assessment will be undertaken to assess all real and potential hazards prior to the commencement of fieldwork. A valid first aid certificate will be held by at least one member of staff.

4 THE COMPANY

4.1 Wardell Armstrong Archaeology Limited (WAA) is a wholly owned company of Wardell Armstrong LLP. The company (formerly North Pennines Archaeology) has been conducting fieldwork projects in Cumbria and the North of England for the past 15 years.

4.2 The work will be undertaken under the direction of Martin Railton BA (Hons) MA MIfA, WAA Project Manager. Martin Railton is a qualified archaeological surveyor with extensive experience of geophysical survey, as well as archaeological excavation. He has completed numerous similar projects, both for WA Archaeology Ltd., and his previous employer, Archaeological Services Durham University. He will be assisted by a small team of professional trained WAA staff to undertake the archaeological work. All staff are experienced archaeologists with significant previous experience of desk-based assessment, geophysical survey and archaeological excavation.

5 WORK PROGRAMME

5.1 Following approved of this WSI, WA Archaeology Ltd. would be able to undertake the work. It is expected that the rapid desk-based assessment will take up to 1 week to complete. Following this the geophysical survey will take approximately 1 week to complete. Thereafter the trial trenche evaluation will take a further two to three days to complete. All work is programmed into the works schedule for the company, and deadlines will be maintained. A draft report at least will be available within one week following completion of the fieldwork.

6 REFERENCES

Allen, J.L. and St. John Holt, A. (1991) Health and Safety in Field Archaeology, Standing Conference of Archaeological Unit Managers (SCAUM).

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Brennand, M, *et al (*2007) *Research and Archaeology in North West England – An Archaeological Research Framework for North West England: Volume 2 Research Agenda and Strategy,* Archaeology North West

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IfA (2008a) *Standards and Guidance for Archaeological Evaluations,* Institute for Archaeologists, Birmingham

IfA (2008b) *Standards and Guidance for Archaeological Watching Briefs,* Institute for Archaeologists, Birmingham

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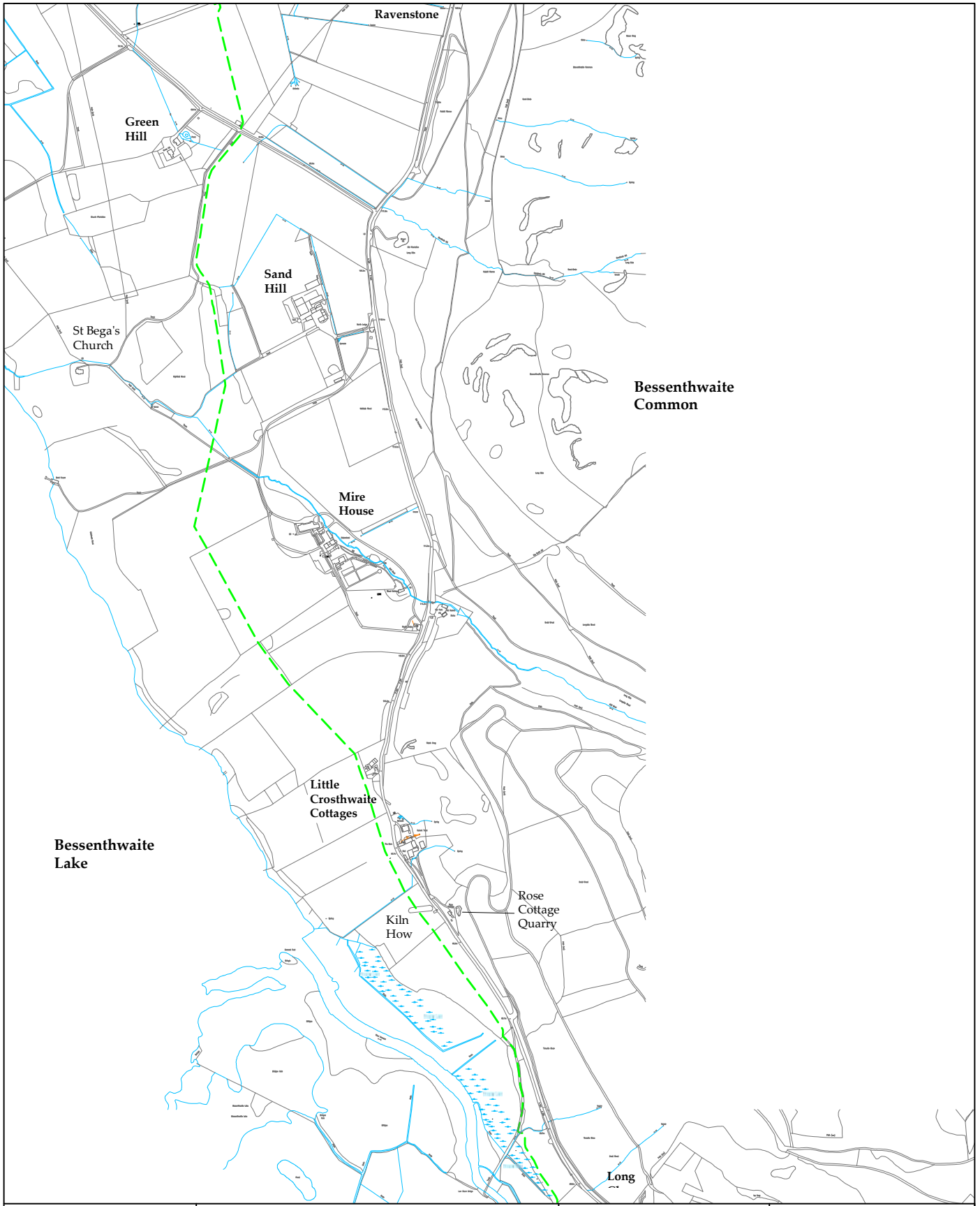
IfA (2011b) *Standard and guidance for archaeological geophysical survey*, Institute for Archaeologists, Birmingham

LDNPA (2012) *Brief for an archaeological evaluation at Mirehouse to Greenhills, Keswick,* Unpublished brief, Lake District National Park Authority

SSEW (1980) *Soils of England and Wales: Sheet 1 Northern England*, Soil Survey of England and Wales



wardell armstrong archaeology	PROJECT:	Mirehouse to Greenhills, Keswick
	SCALE:	1:5,000 at A4
	REPORT No:	CP 10316
	CLIENT:	Electricty North West
WAArchaeology Ltd 2012	DRAWN BY:	MDR
	DATE:	September 2012
	FIGURE No:	1

KEY:

proposed undergrounding route

Figure 1 : Location of the proposed electricty undergrounding route

APPENDIX 3: CONTEXT INDEX

Context Number	Context Type	Description
100	Deposit	Topsoil
101	Deposit	Subsoil
102	Deposit	Natural substrate
200	Deposit	Topsoil
201	Deposit	Subsoil
202	Deposit	Natural substrate
203	Cut	Possible water course
204	Fill	Primary fill of possible water course [203]
205	Fill	Secondary fill of possible water course [203]
206	Deposit	Natural Gravels
300	Deposit	Topsoil
301	Deposit	Subsoil
302	Deposit	Natural substrate
303	Deposit	Land Slippage
304	Cut	Cut of gully
305	Fill	Fill of gully [304]
400	Deposit	Levelling deposit
401	Deposit	Subsoil
402	Deposit	Natural substrate

APPENDIX 4: PHOTOGRAPH REGISTER

Black and White Film

Film No.	Shot No.	Contexts/ description	Direction facing
1	1	Trench 1 Overview	NE
1	2	Trench 1 Overview	NE
1	3	Trench 1 Overview	NE
1	4	Trench 1 Overview	NE
1	5	Trench 1 oblique view of baulk	N
1	6	Trench 1 oblique view of baulk	N
1	7	Trench 1 oblique view of baulk	N
1	8	Trench 1 oblique view of baulk	N
1	9	Trench 1 Example of Rutting within the top and sub soil	NW
1	10	Trench 1 Example of Rutting within the top and sub soil	NW
1	11	Trench 2 Overview whilst flooding	SW
1	12	Trench 2 Overview whilst flooding	SW
1	13	Trench 2 Overview whilst flooding	SW
1	14	Trench 2 Overview whilst flooding	SW
1	15	Trench 2 oblique view of baulk whilst flooding	S
1	16	Trench 2 oblique view of baulk whilst flooding	S
1	17	Trench 2 oblique view of baulk whilst flooding	S
1	18	Trench 2 oblique view of baulk whilst flooding	S
1	19	Working shot of draining Trench 2	SW
1	20	Working shot of draining Trench 2	SW
1	21	Trench 4 overview	SW
1	22	Trench 4 overview	SW
1	23	Trench 4 overview	SW
1	24	Trench 4 overview	SW
1	25	Trench 4 oblique view of baulk	NW
1	26	Trench 4 oblique view of baulk	NW
1	27	Trench 4 oblique view of baulk	NW
1	28	Trench 4 oblique view of baulk	NW

Film No.	Shot No.	Contexts/ description	Direction facing
1	29	ID Shot	N/A
1	30	ID Shot	N/A
1	31	Trench 3 overview	NE
1	32	Trench 3 overview	NE
1	33	Trench 3 overview	NE
1	34	Trench 3 overview	NE
1	35	Trench 3 oblique view of baulk	SE
1	36	Trench 3 oblique view of baulk	SE
2	1	Gully [304]	NW
2	2	Gully [304]	NW
2	3	Gully [304]	NW
2	4	Gully [304]	NW
2	5	ID Shot	N/A
2	6	ID Shot	N/A
2	7	Trench 2 overview after draining and clean	SW
2	8	Trench 2 overview after draining and clean	SW
2	9	Trench 2 overview after draining and clean	SW
2	10	Trench 2 overview after draining and clean	SW
2	11	Trench 2 oblique view of baulk after draining and clean	NW
2	12	Trench 2 oblique view of baulk after draining and clean	NW
2	13	Trench 2 oblique view of baulk after draining and clean	NW
2	14	Trench 2 oblique view of baulk after draining and clean	NW
2	15	Trench 2 oblique view of baulk after draining and clean	SSW
2	16	Trench 2 oblique view of baulk after draining and clean	SSW

Digital Photographs

Photo No.	Contexts/ description	Direction facing
1	Trench 1 Overview	NE
2	Trench 1 Overview	NE
3	Trench 1 Overview	NE
4	Trench 1 Overview	NE
5	Trench 1 oblique view of baulk	N
6	Trench 1 oblique view of baulk	N
7	Trench 1 oblique view of baulk	N
8	Trench 1 oblique view of baulk	N
9	Trench 1 Example of Rutting within the top and sub soil	NW
10	Trench 1 Example of Rutting within the top and sub soil	NW
11	Trench 2 Overview whilst flooding	SW
12	Trench 2 Overview whilst flooding	SW
13	Trench 2 Overview whilst flooding	SW
14	Trench 2 Overview whilst flooding	SW
15	Trench 2 oblique view of baulk whilst flooding	S
16	Trench 2 oblique view of baulk whilst flooding	S
17	Trench 2 oblique view of baulk whilst flooding	S
18	Trench 2 oblique view of baulk whilst flooding	S
19	Working shot of draining Trench 2	SW
20	Working shot of draining Trench 2	SW
21	Trench 4 overview	SW
22	Trench 4 overview	SW
23	Trench 4 overview	SW
24	Trench 4 overview	SW
25	Trench 4 oblique view of baulk	NW
26	Trench 4 oblique view of baulk	NW
27	Trench 4 oblique view of baulk	NW
28	Trench 4 oblique view of baulk	NW
29	Trench 3 overview	NE
30	Trench 3 overview	NE
31	Trench 3 overview	NE

Photo No.	Contexts/ description	Direction facing
32	Trench 3 overview	NE
33	Trench 3 oblique view of baulk	SE
34	Trench 3 oblique view of baulk	SE
35	Trench 3 oblique view of baulk	SE
36	Trench 3 oblique view of baulk	SE
37	Gully [304]	NW
38	Gully [304]	NW
39	Gully [304]	NW
40	Gully [304]	NW
41	Trench 2 overview after draining and clean	SW
42	Trench 2 overview after draining and clean	SW
43	Trench 2 overview after draining and clean	SW
44	Trench 2 overview after draining and clean	SW
45	Trench 2 oblique view of baulk after draining and clean	NW
46	Trench 2 oblique view of baulk after draining and clean	NW
47	Trench 2 oblique view of baulk after draining and clean	NW
48	Trench 2 oblique view of baulk after draining and clean	NW
49	Trench 2 oblique view of baulk after draining and clean	SSW
50	Trench 2 oblique view of baulk after draining and clean	SSW
51	Working shots of machining through possible waterway [302]	SW
52	Working shots of machining through possible waterway [302]	SW
53	Working shots of machining through possible waterway [302]	SW
54	Working shots of machining through possible waterway [302]	SW
55	Working shots of north west facing section after waterway [302] machined out	SE
56	Working shots of north west facing section after waterway [302] machined out	SE
57	Working shots of north west facing section after waterway [302] machined out	SE
58	Working shots of north west facing section after waterway [302] machined out	SE
59	Working shots of north west facing section after waterway [302] machined out	SE
60	Working shots of north west facing section after waterway [302] machined out	SE
61	Backfilling of Trench 2	N
62	Backfilling of Trench 2	SE
63	Backfilling of Trench 2	SW

Photo No.	Contexts/ description	Direction facing
64	Backfilling of Trench 2	NW
65	ID Shot	N/A

APPENDIX 5: DRAWING REGISTER

Drawing No.	Drawing Type	Contexts/ description	Date	Drawn By
1	Plan	Plan of Trench 2	17/10/12	DAC
2	Plan	Overlay of Plan 1 after [203] machined out	19/10/12	DAC
3	Section	North west facing section of Trench 2	19/10/12	DAC
4	Plan	Plan of Trench 2	18/10/12	DAC
5	Section	South east facing section of [304] within Trench 3	18/10/12	DAC

APPENDIX 6: FIGURES

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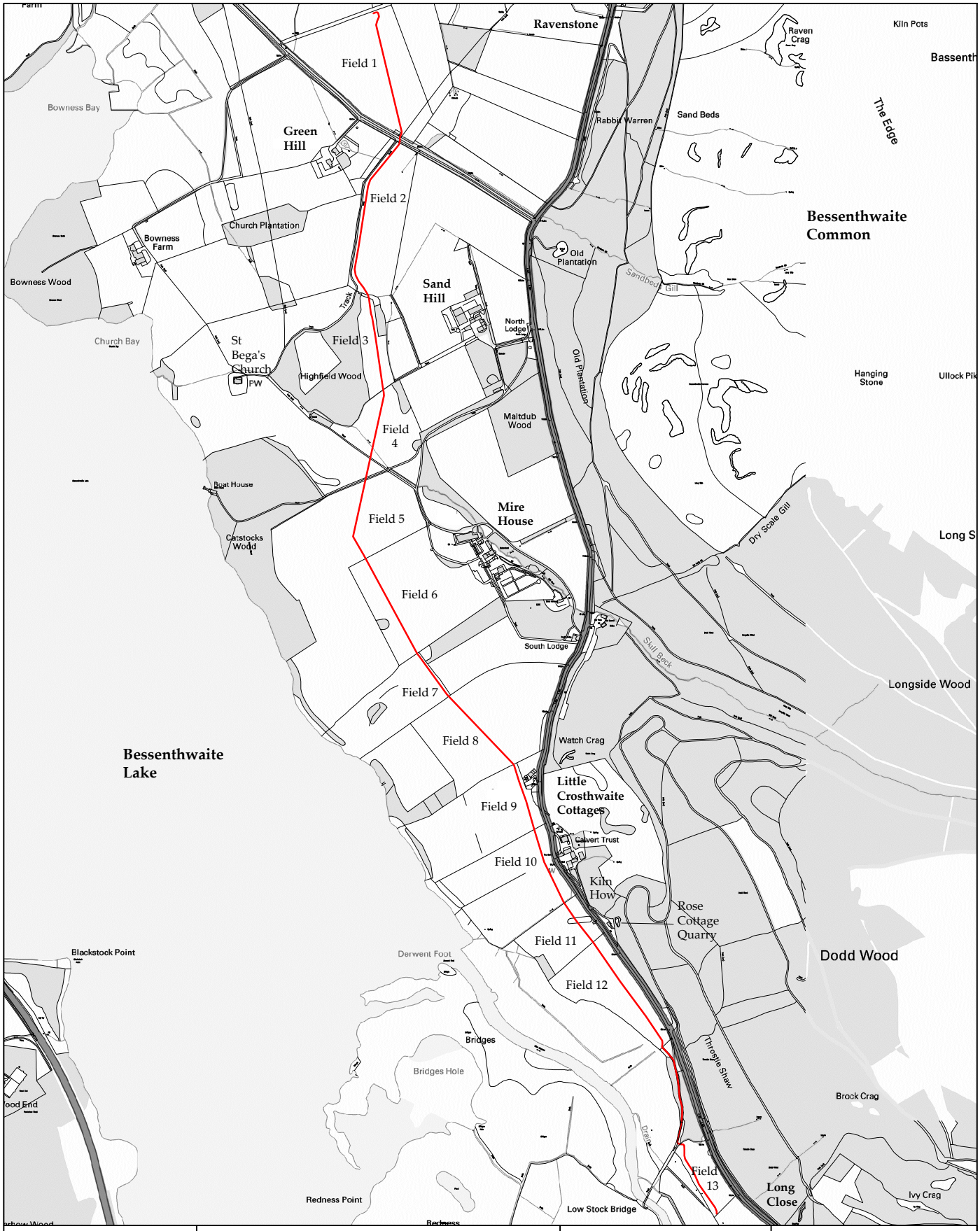
WA Archaeology Ltd
2012

PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:25,000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	AB
DATE:	September 2012
FIGURE:	1

KEY:

Proposed route of underground electricity supply

Figure 1: Site location.



PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:12,500 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	AB
DATE:	September 2012
FIGURE:	2

KEY:

Proposed route of underground electricity supply

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WA Archaeology Ltd 2012

Figure 2: Proposed route of underground electricity supply.

wardell armstrong archaeology	PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
	SCALE:	1:20,000 at A4
	REPORT No:	CP10316
WA Archaeology Ltd 2012	CLIENT:	Electricity North West
	DRAWN BY:	AB
	DATE:	September 2012
	FIGURE:	3

KEY:

- Proposed route of underground electricity supply
- 1km search area
- HER sites

Figure 3: Location of HER sites.

Figure 4: Speed's Map of Cumberland, 1610.

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WA Archaeology Ltd
2012

Mirehouse to Long Close Farm, Bassenthwaite, Keswick

CLIENT:
Electricity North West

SCALE: Not to scale

DRAWN BY: AB

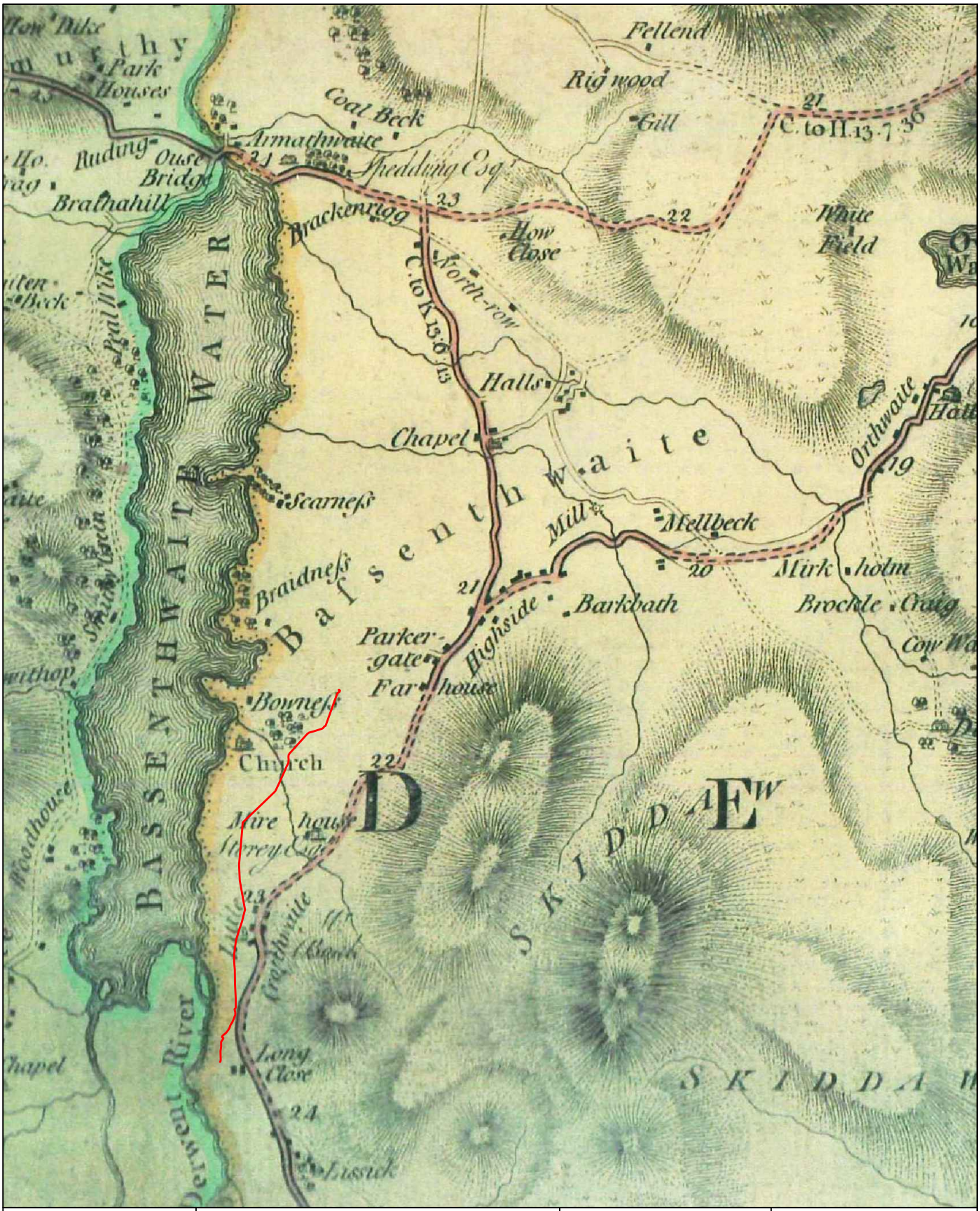
DATE: September 2012

KEY:

Approximate location of proposed underground electricity supply

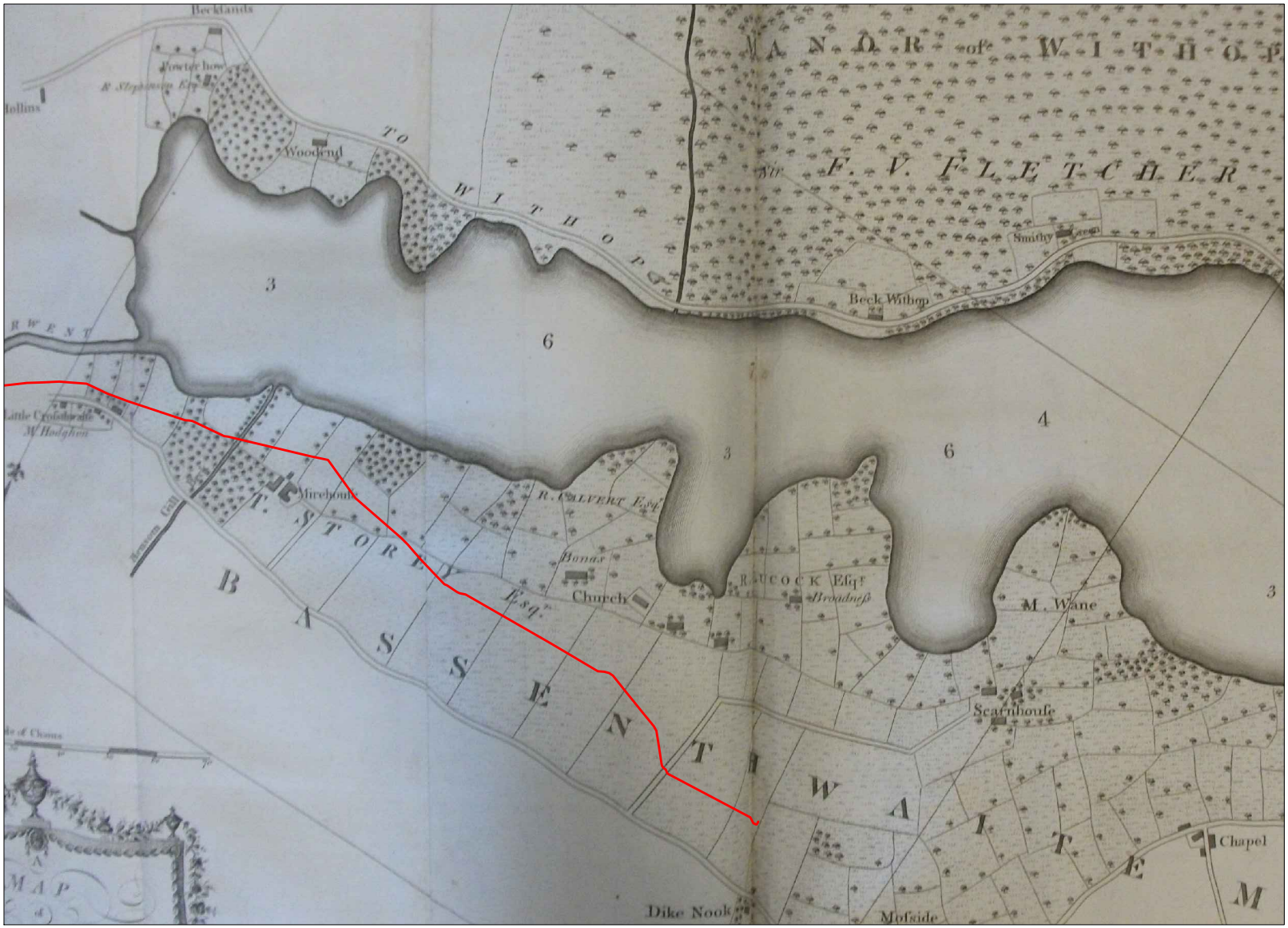
REPORT No:
CP10316

FIGURE:
4



wardell armstrong archaeology WA Archaeology Ltd 2012	PROJECT: Mirehouse to Long Close Farm, Bassenthwaite, Keswick SCALE: c.1:40,000 at A4 REPORT No: CP10316 CLIENT: Electricity North West DRAWN BY: AB DATE: September 2012 FIGURE: 5	KEY: Approximate location of proposed underground electricity supply	

Figure 5: Hodskinson and Donald's Map of Cumberland, 1774.



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WA Archaeology Ltd
2012

Mirehouse to Long Close Farm, Bassenthwaite, Keswick

CLIENT:
Electricity North West

SCALE:	Not to scale
DRAWN BY:	AB
DATE:	September 2012

KEY:

Approximate location of proposed underground electricity supply

REPORT No:
CP10316

FIGURE:
6

Figure 6: 'Map of Broadwater and Environs', James Clarke 1787.

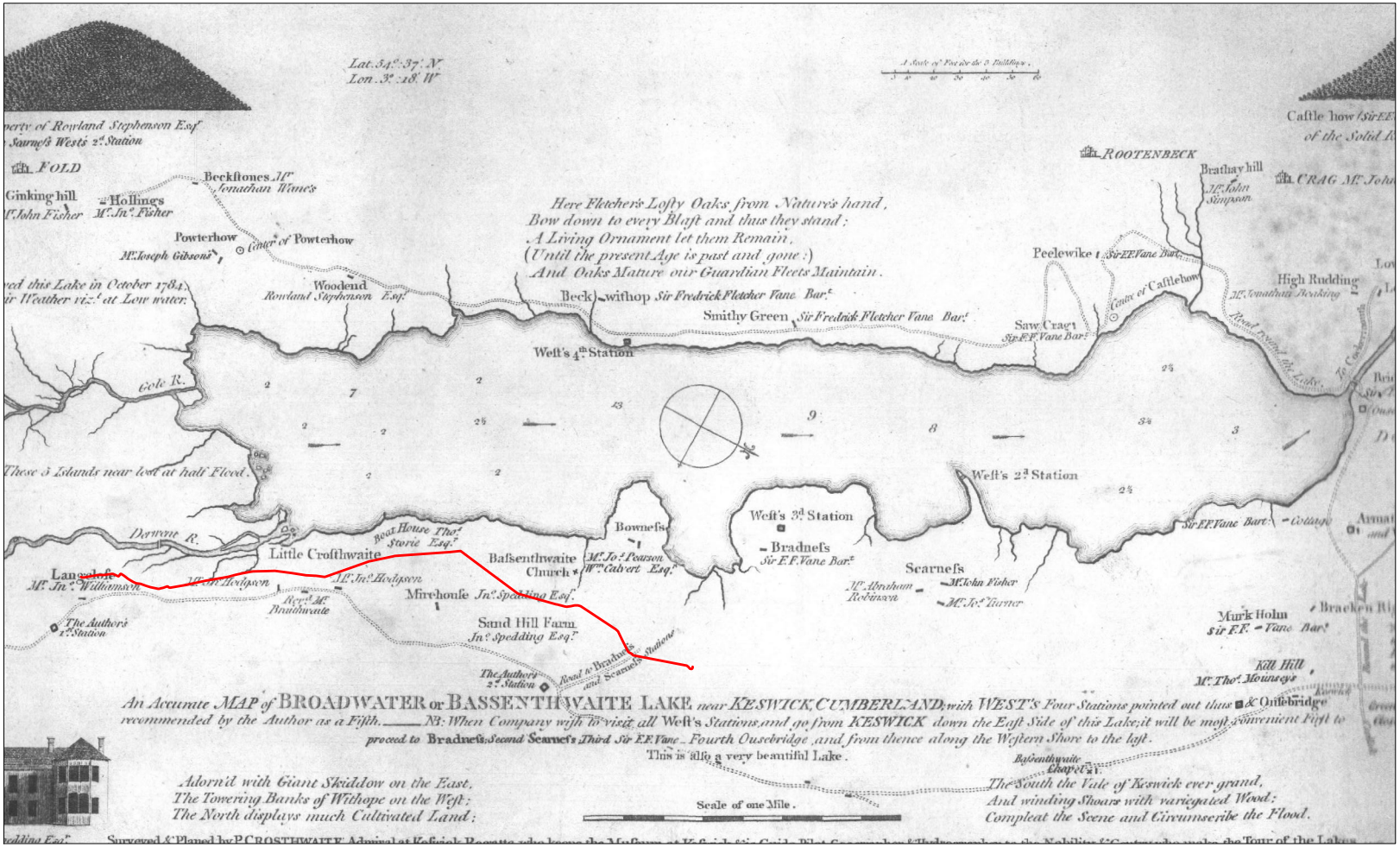

Figure 7: 'An Accurate Map of Broadwater or Bassenthwaite Lake', P Crosthwaite 1819.

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2012

Mirehouse to Long Close Farm, Bassenthwaite, Keswick

CLIENT:
Electricity North West

SCALE: c.1:50,000 at A4

DRAWN BY: AB

DATE: September 2012

KEY:

Approximate location of proposed underground electricity supply

REPORT No:
CP10316

FIGURE:
7

Figure 8: Greenwood's Map of Cumberland, 1823.

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2012

Mirehouse to Long Close Farm, Bassenthwaite, Keswick

CLIENT:
Electricity North West

SCALE:	c.1:50,000 at A4
DRAWN BY:	AB
DATE:	September 2012

KEY:

Approximate location of proposed underground electricity supply

REPORT No:
CP10316

FIGURE:
8

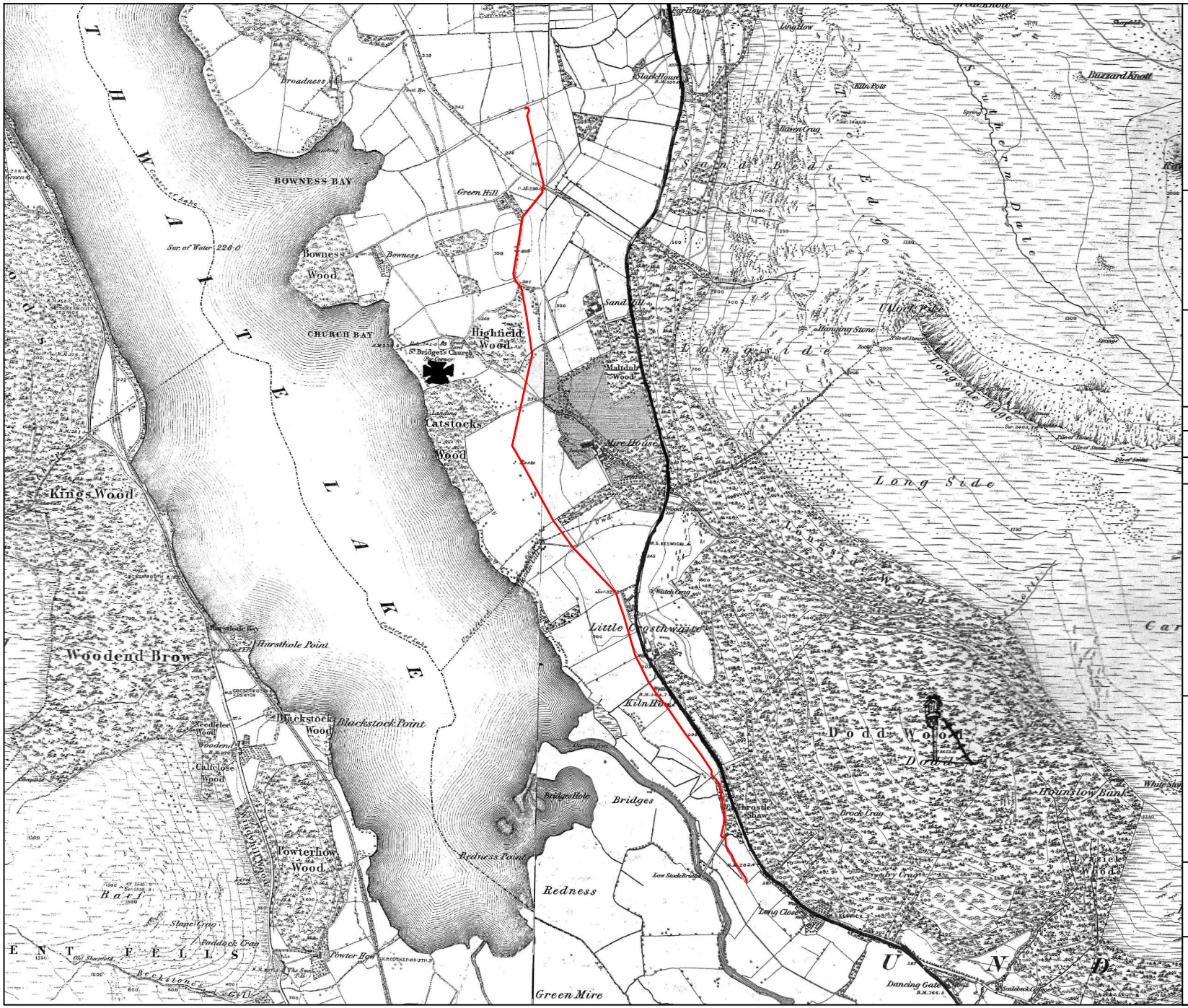

Figure 9: First Edition Ordnance Survey Map, 1867.

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Mirehouse to Long Close Farm, Bassenthwaite, Keswick

CLIENT:
Electricity North West

SCALE: 1:20,000 at A4

DRAWN BY: AB

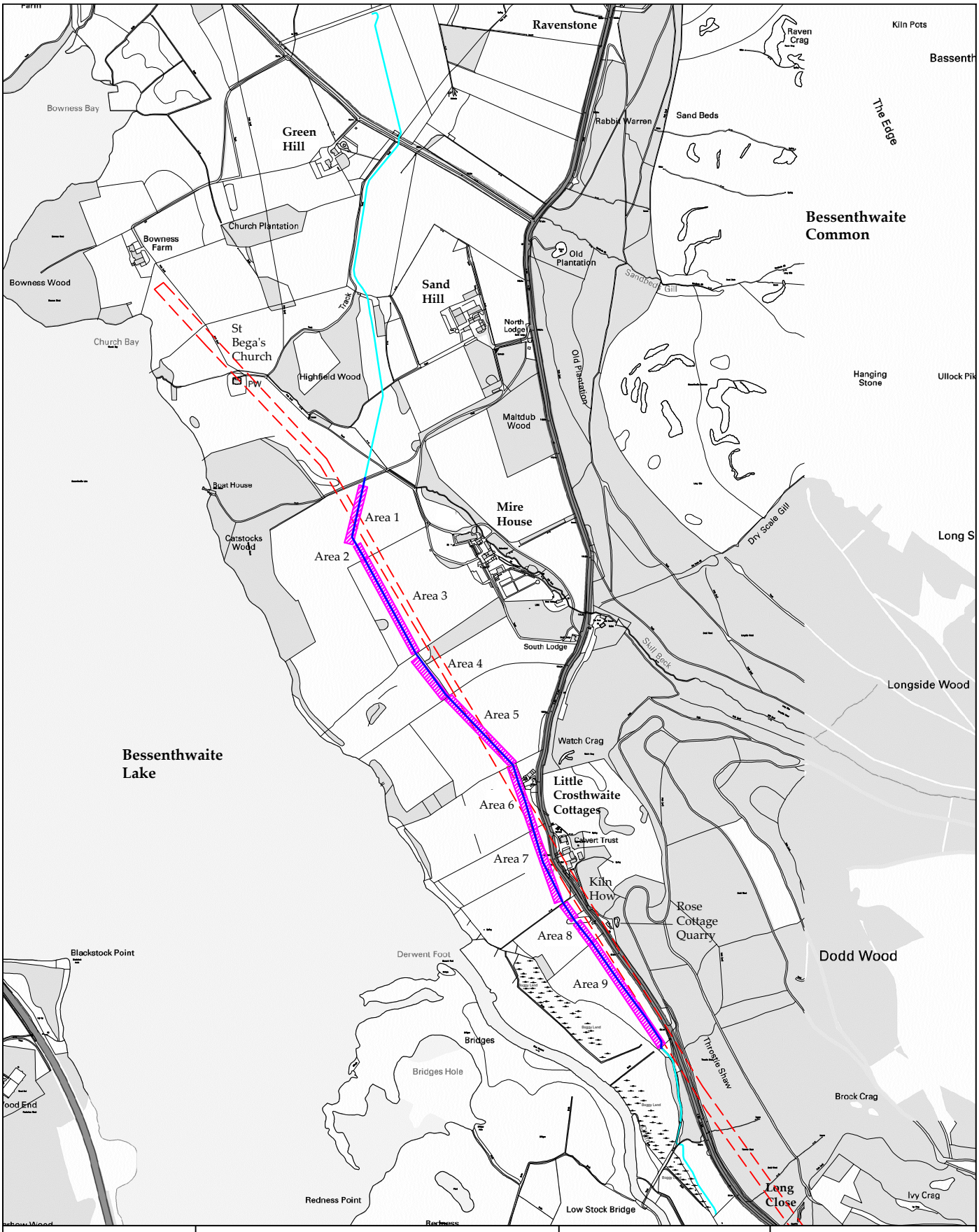
DATE: September 2012

KEY:

Approximate location of proposed underground electricity supply

REPORT No:
CP10316

FIGURE:
9



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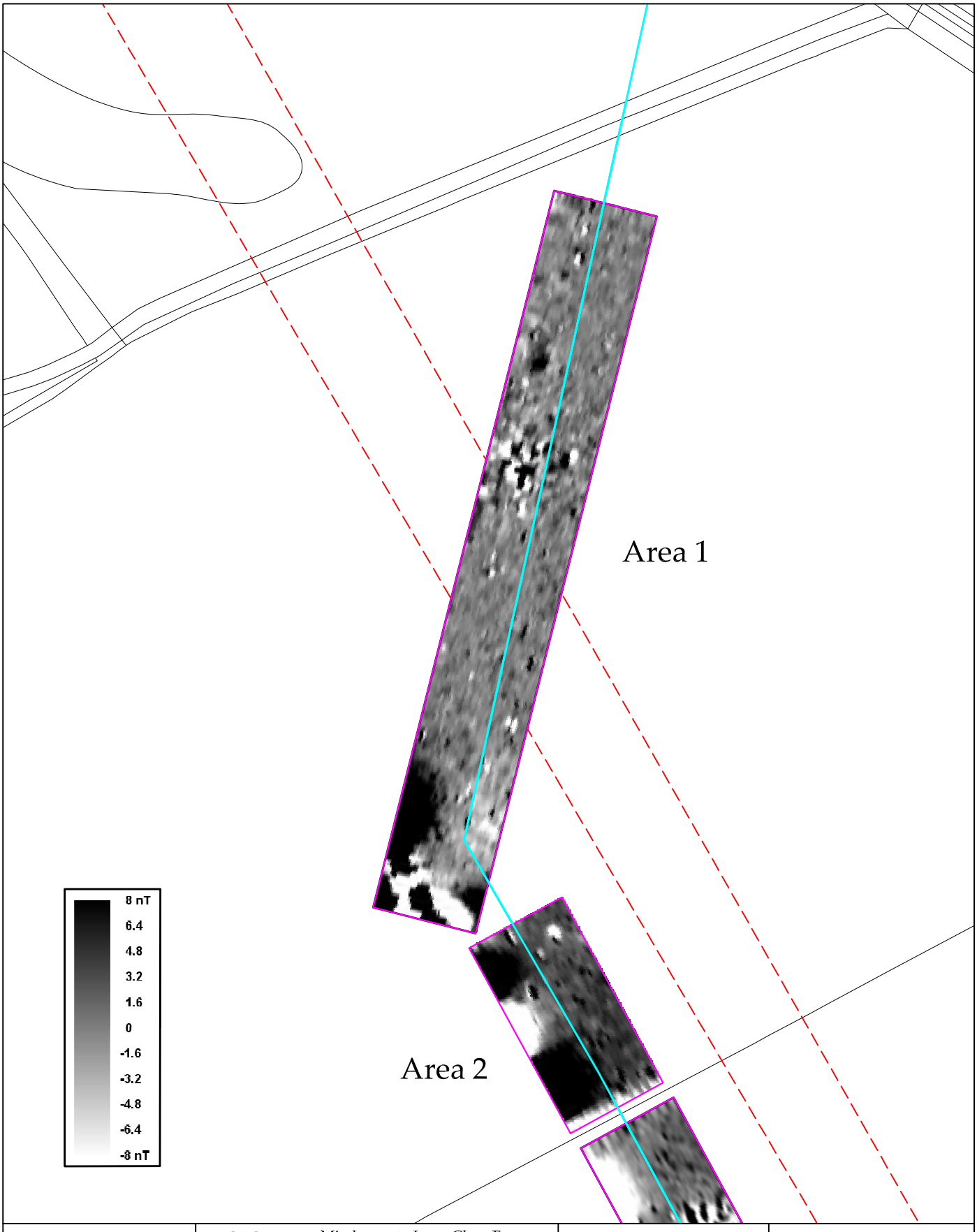
WA Archaeology Ltd
2012

PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:12,500 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	AB
DATE:	September 2012
FIGURE:	10

KEY:

- proposed undergrounding route
- section covered by geophysical survey
- projected course of Roman road
- geophysical survey area

Figure 10: Locations of the geophysical survey areas (Areas 1-9)



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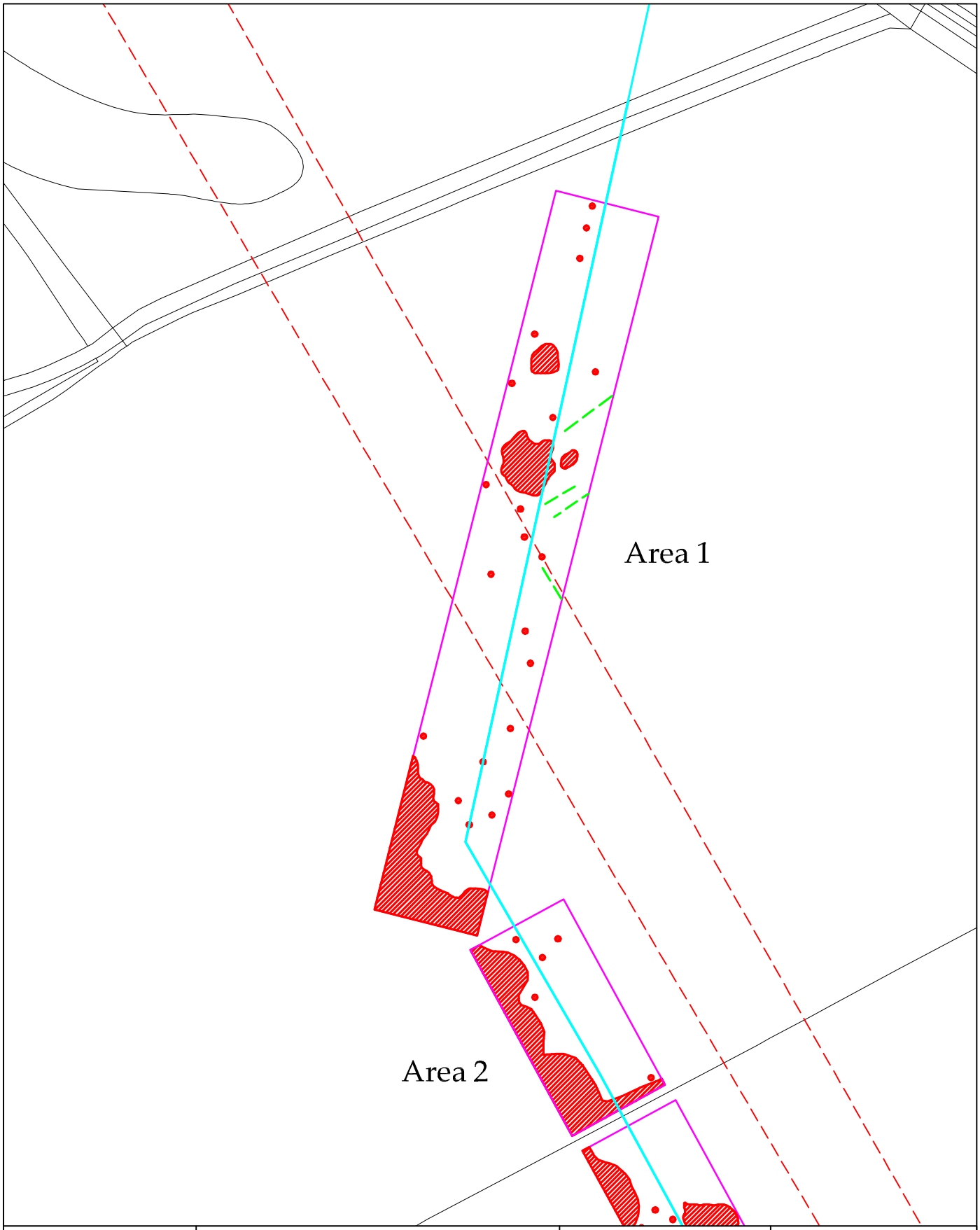
PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	11

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area

Figure 11: Geophysical survey of Area 1 and Area 2



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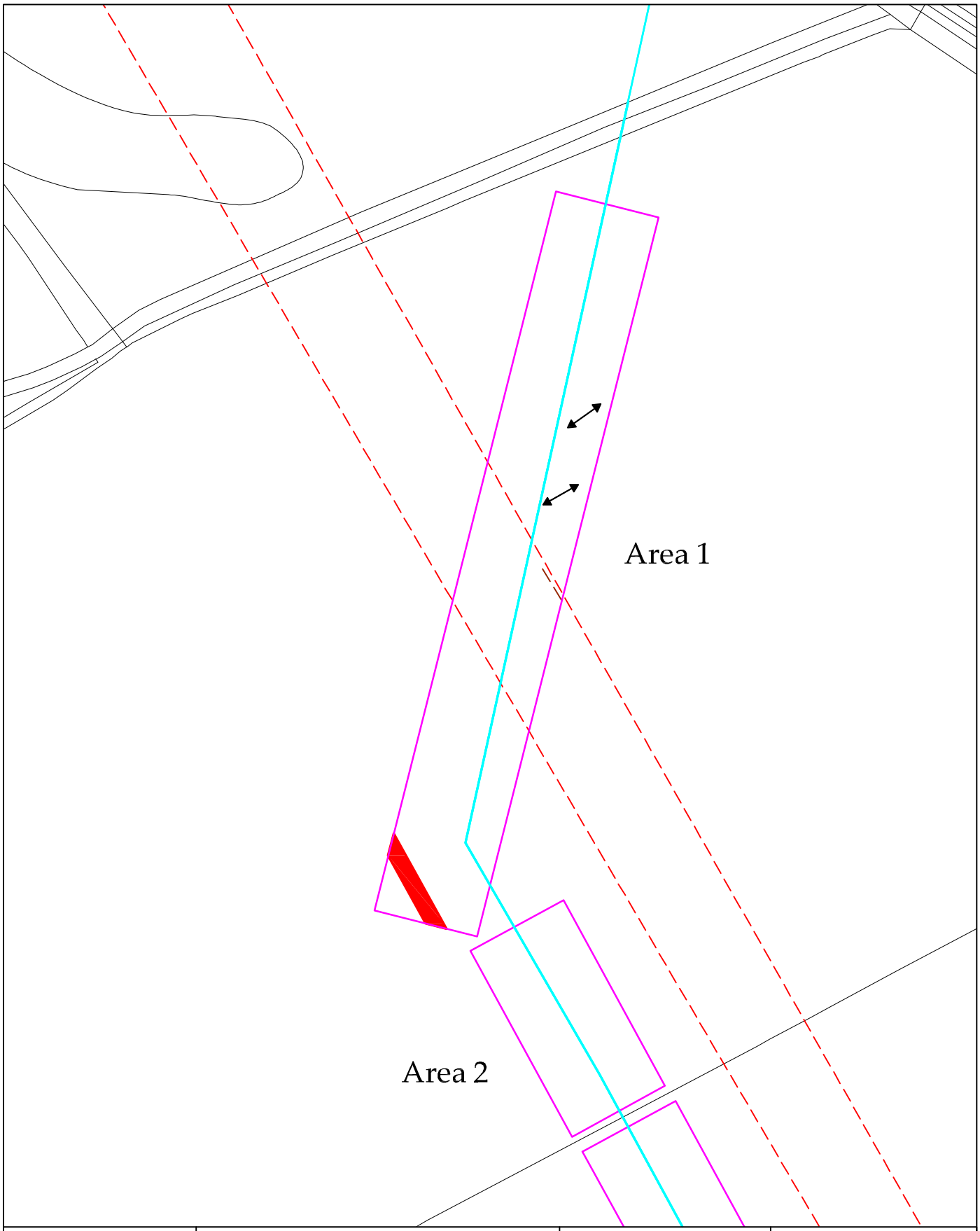
WA Archaeology Ltd 2012

PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	12

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
dipolar magnetic anomalies
positive magnetic anomalies

Figure 12: Geophysical interpretation of Area 1 and Area 2



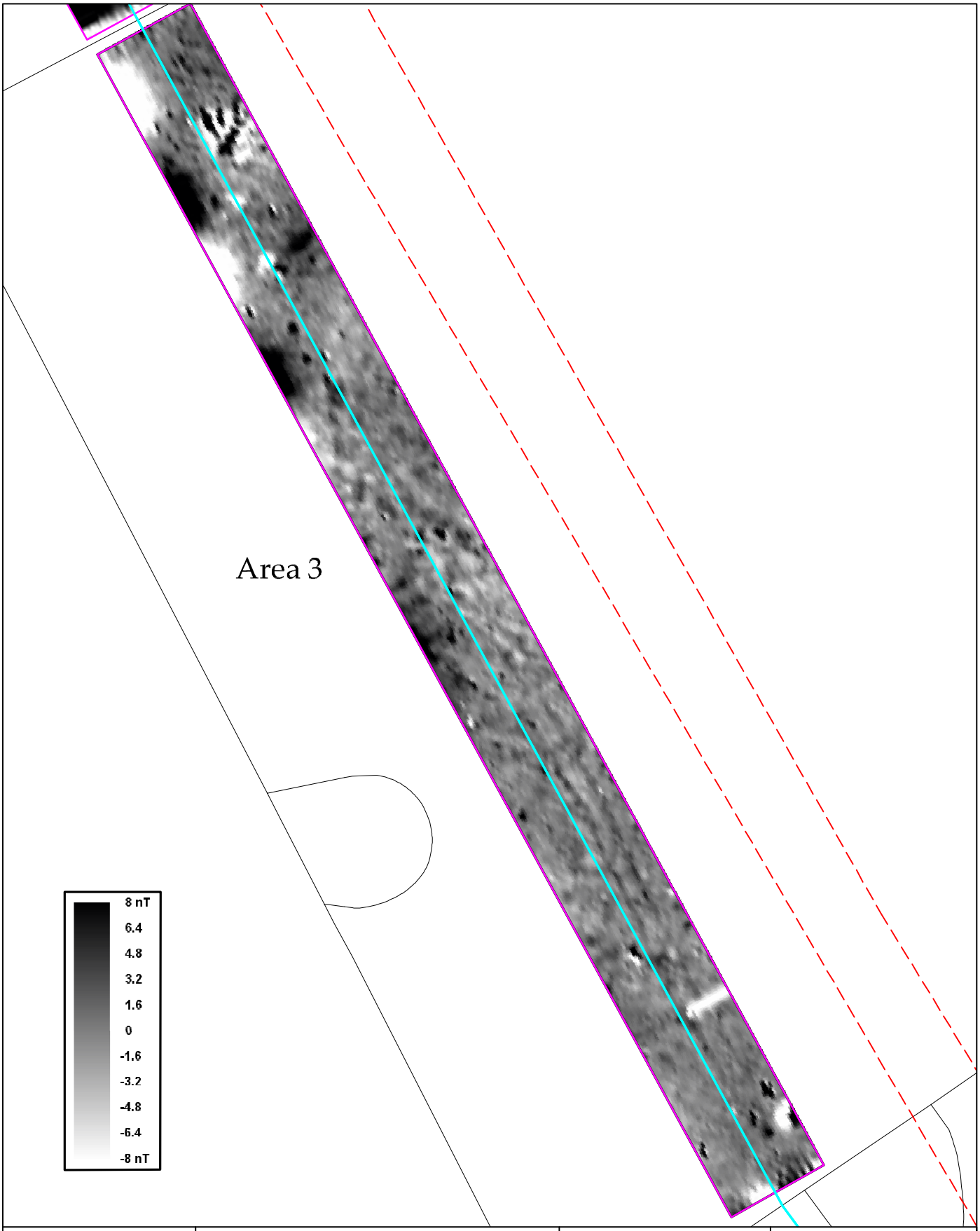
wardell armstrong archaeology

WA Archaeology Ltd
2012

PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	13

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
direction of ploughing
services

Figure 13: Archaeological interpretation of Area 1 and Area 2



wardell armstrong archaeology

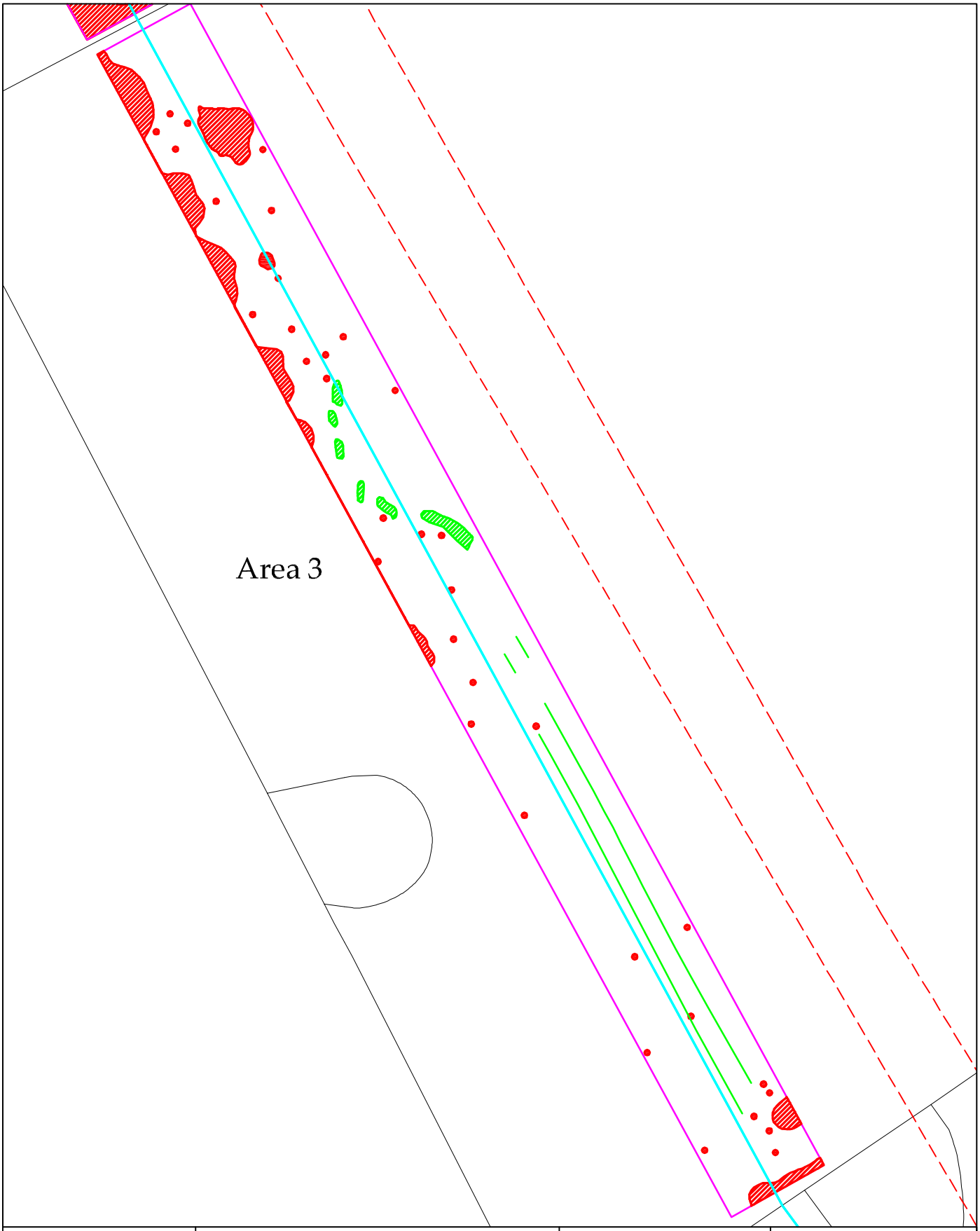
WA Archaeology Ltd 2012

PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	14

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area

Figure 14: Geophysical survey of Area 3



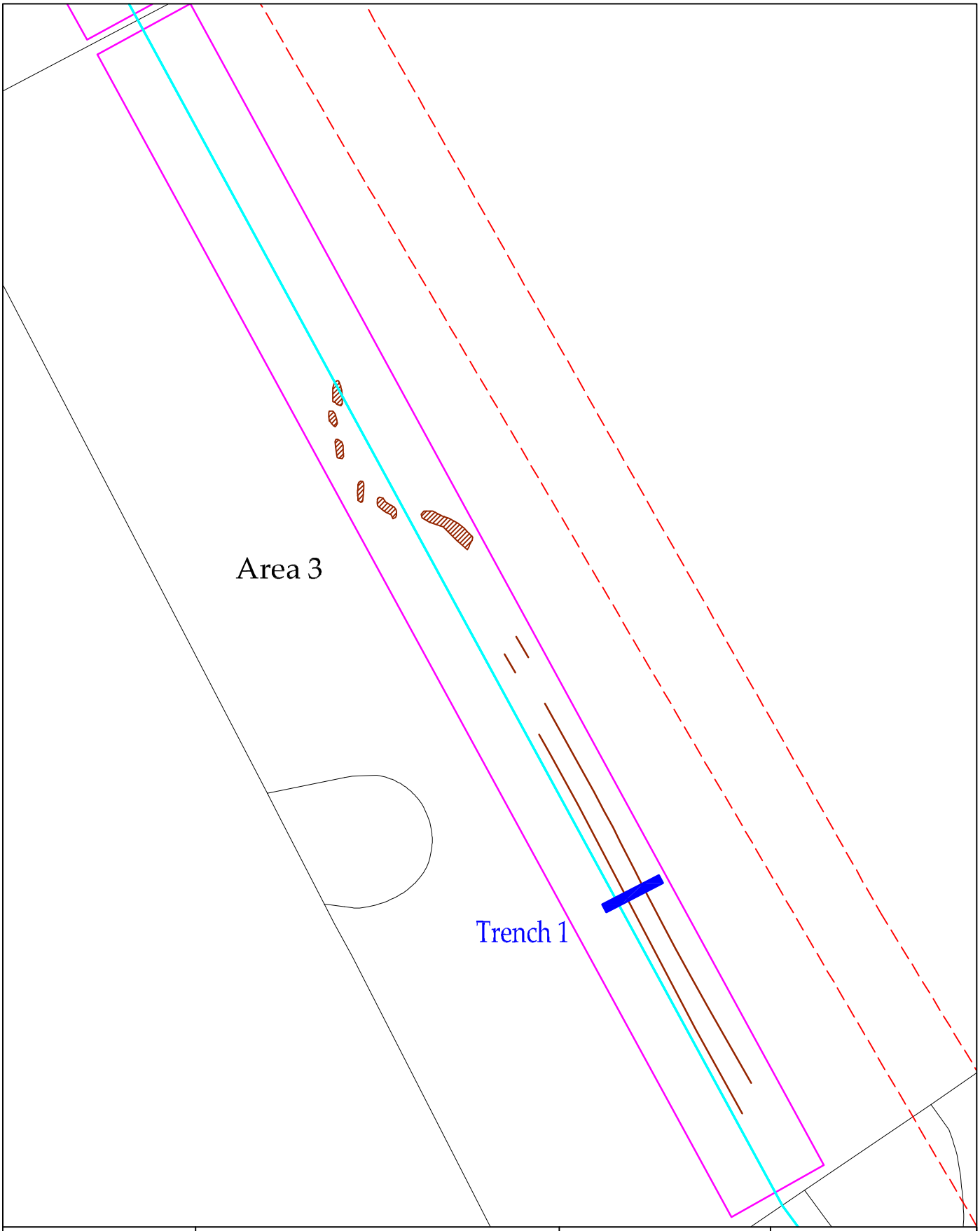
wardell armstrong archaeology

WA Archaeology Ltd
2012

PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	15

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
dipolar magnetic anomalies
positive magnetic anomalies

Figure 15: Geophysical interpretation of Area 3



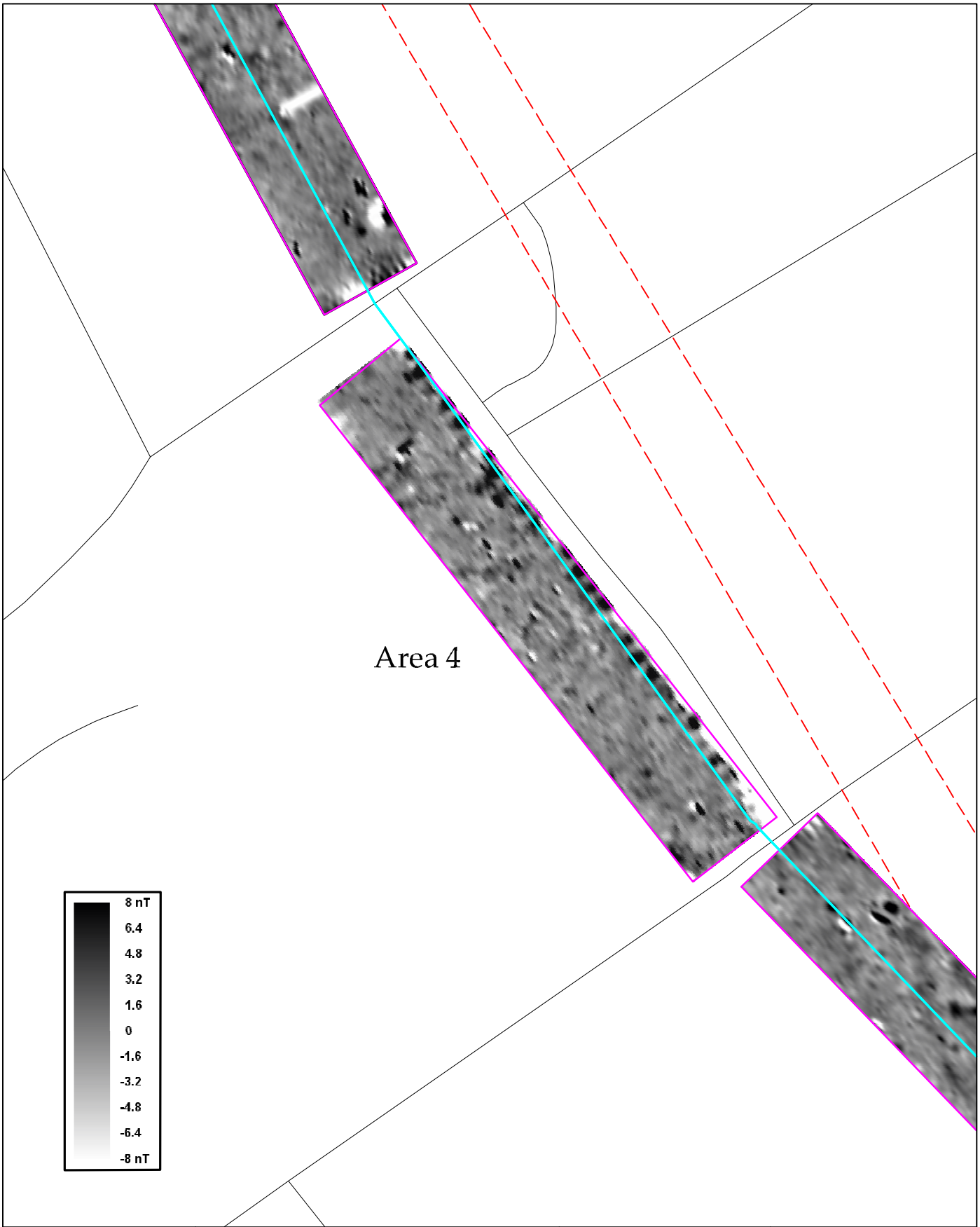
wardell armstrong archaeology

WA Archaeology Ltd
2012

PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	16

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
possible soil-filled features
evaluation trench

Figure 16: Archaeological interpretation of Area 3



wardell armstrong archaeology

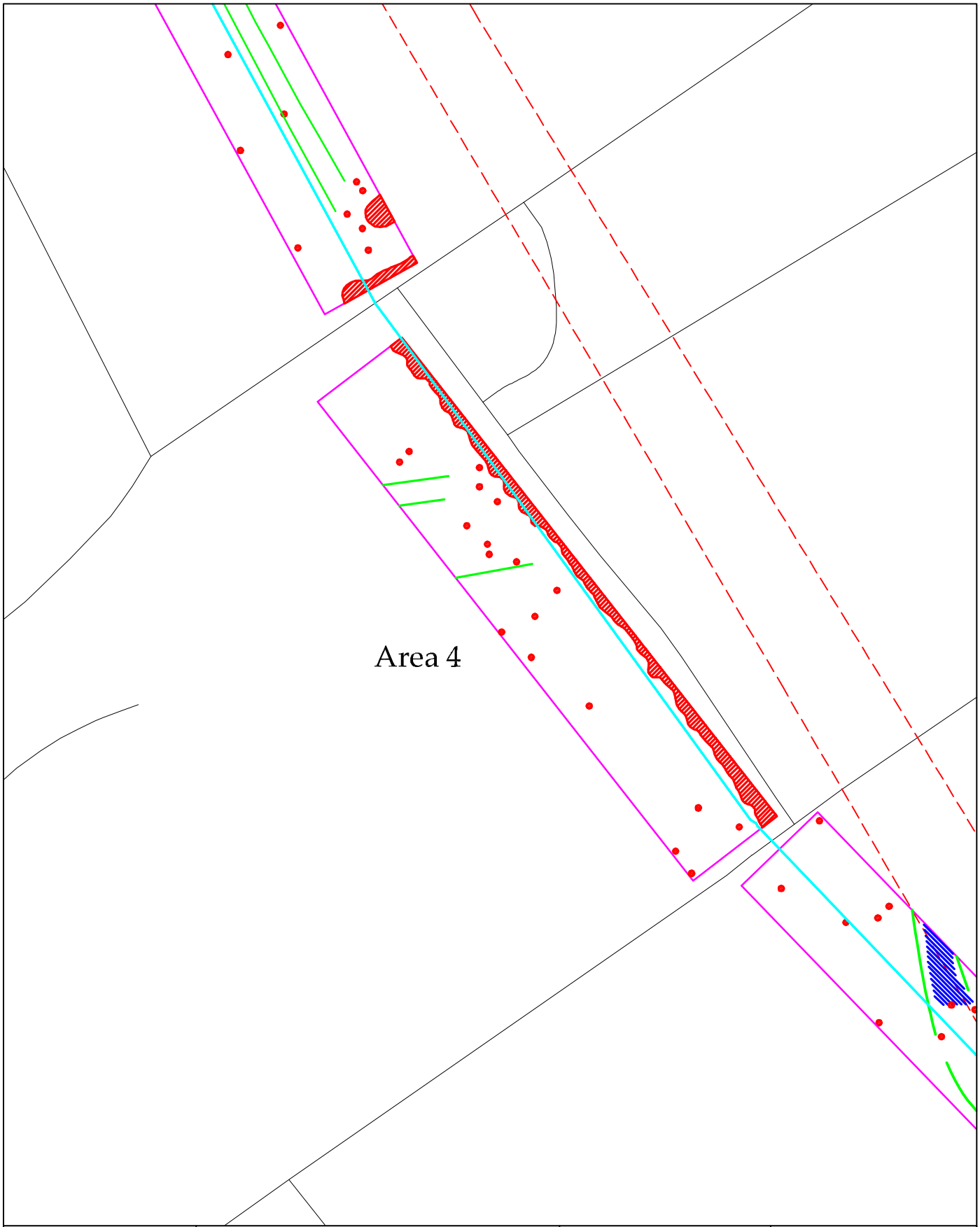
WA Archaeology Ltd 2012

PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	17

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area

Figure 17: Geophysical survey of Area 4



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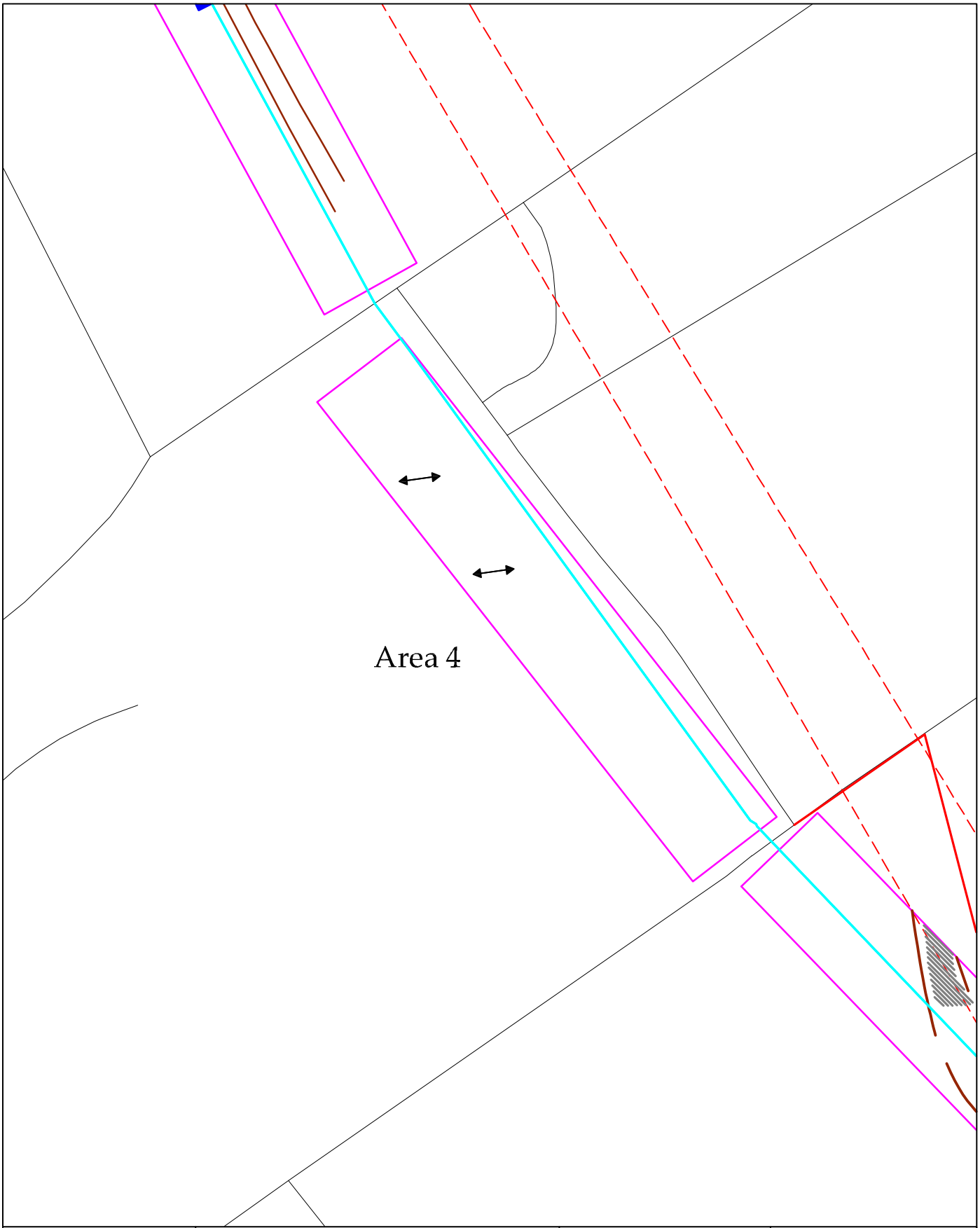
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	18

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area
- dipolar magnetic anomalies
- positive magnetic anomalies
- negative magnetic anoamlies

Figure 18: Geophysical interpretation of Area 4



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SCALE:	1:1000 at A4
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CLIENT:	Electricity North West
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DATE:	September 2012
FIGURE:	19

proposed undergrounding route

projected course of Roman road

outline of geophysical survey area

possible soil-filled features

direction of ploughing

Figure 19: Archaeological interpretation of Area 4

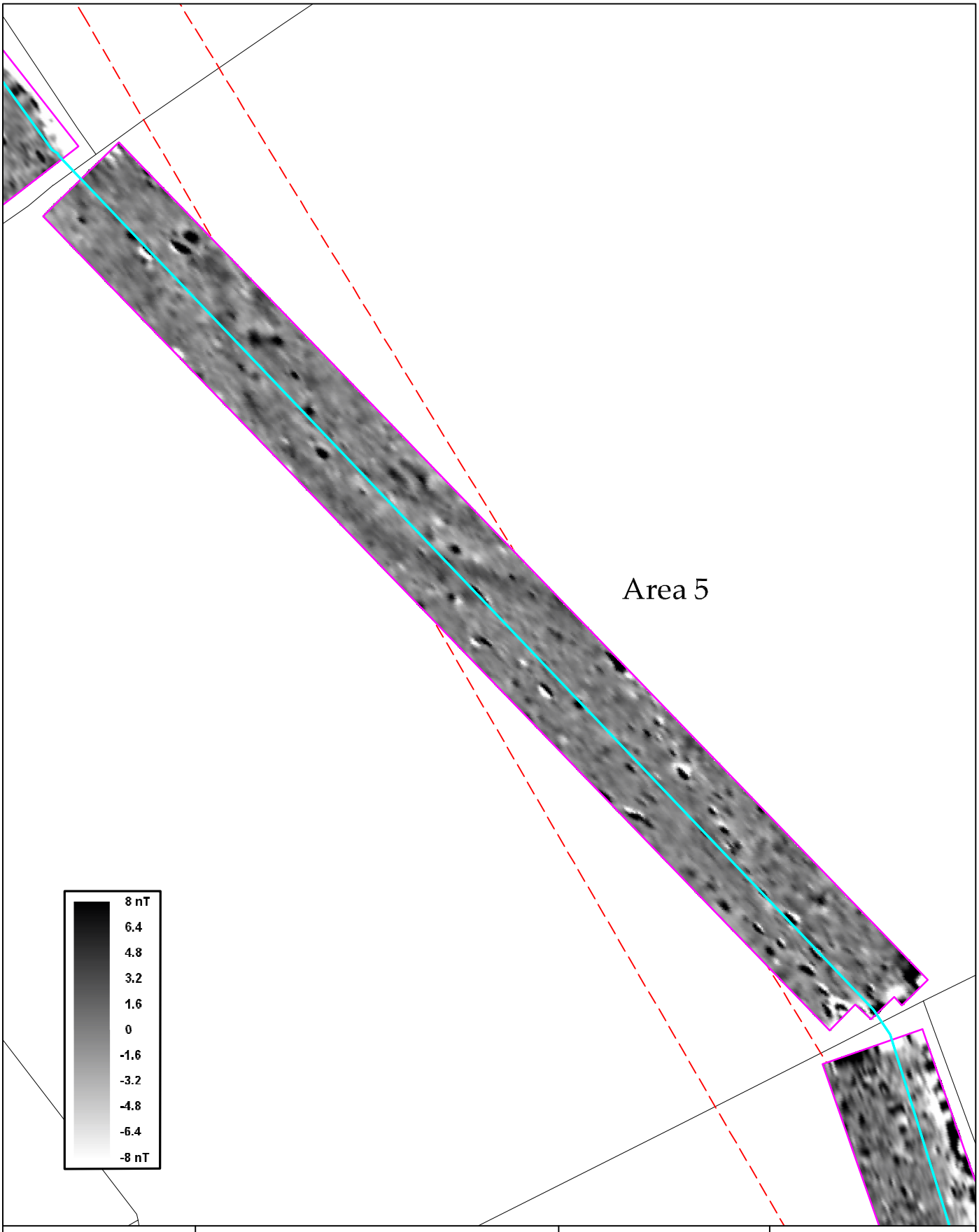

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FIGURE:	20

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area

Figure 20: Geophysical survey of Area 5

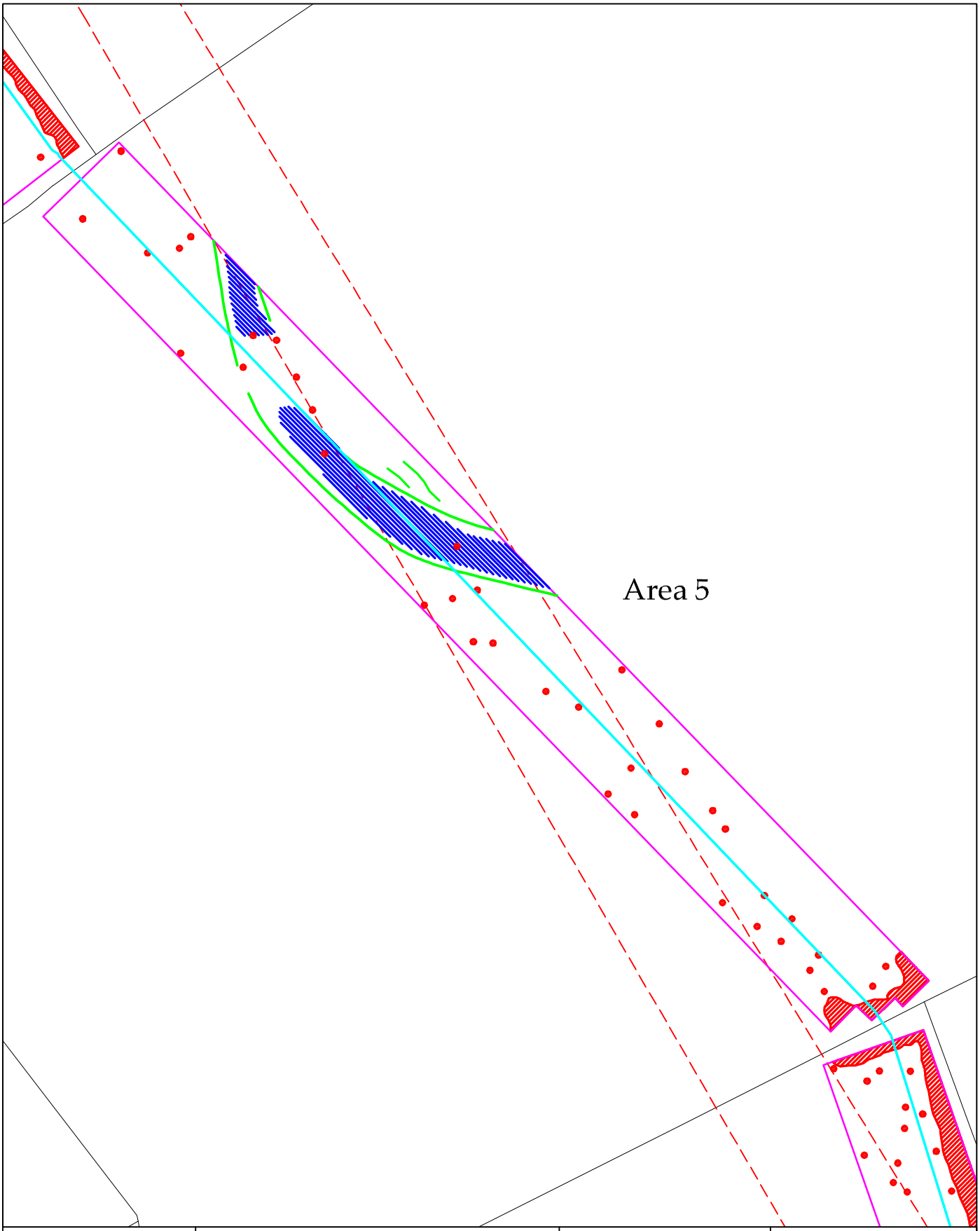
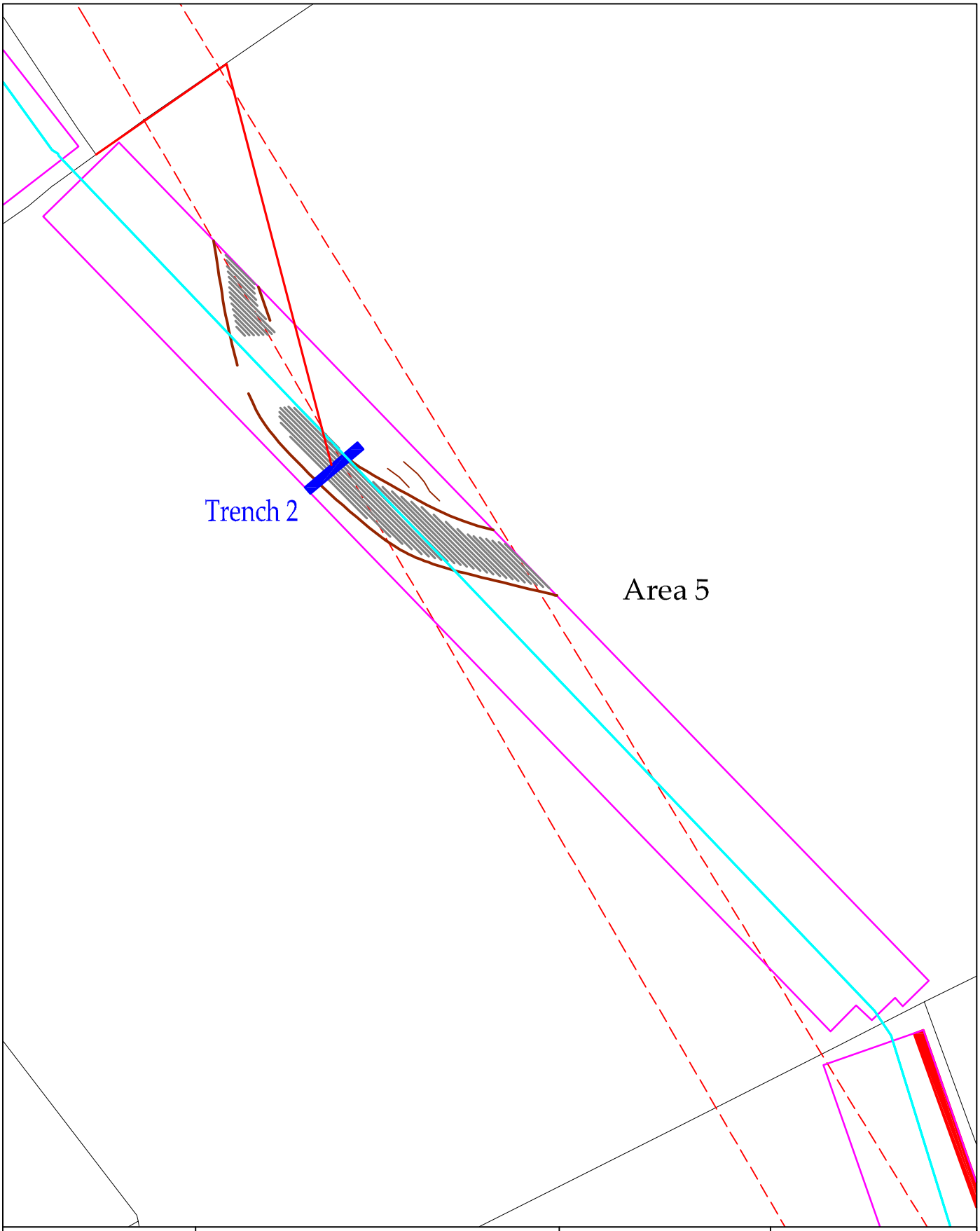


Figure 21: Geophysical interpretation of Area 5



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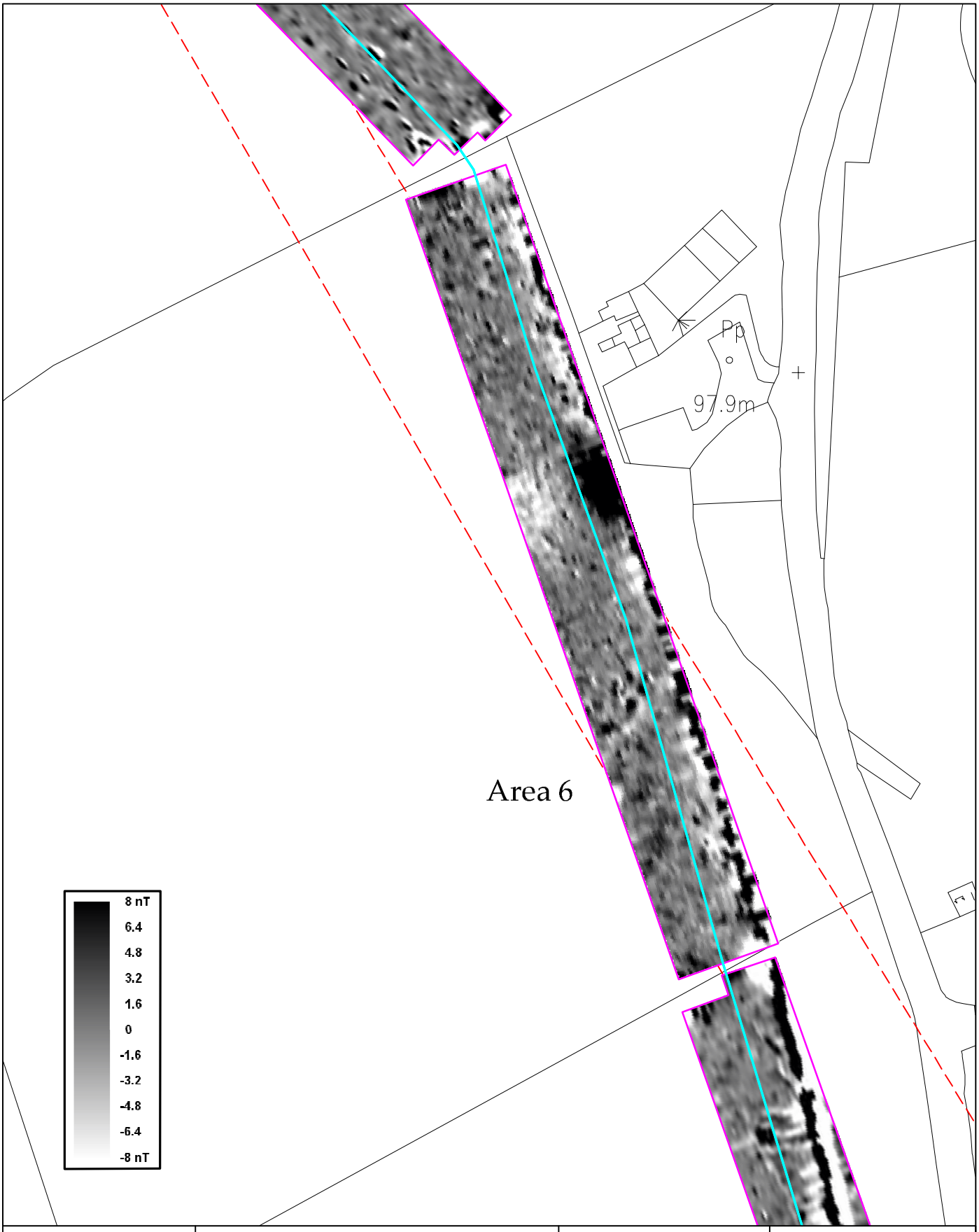
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	22

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
possible soil-filled features
possible stone/bank
services
evaluation trench

Figure 22: Archaeological interpretation of Area 5



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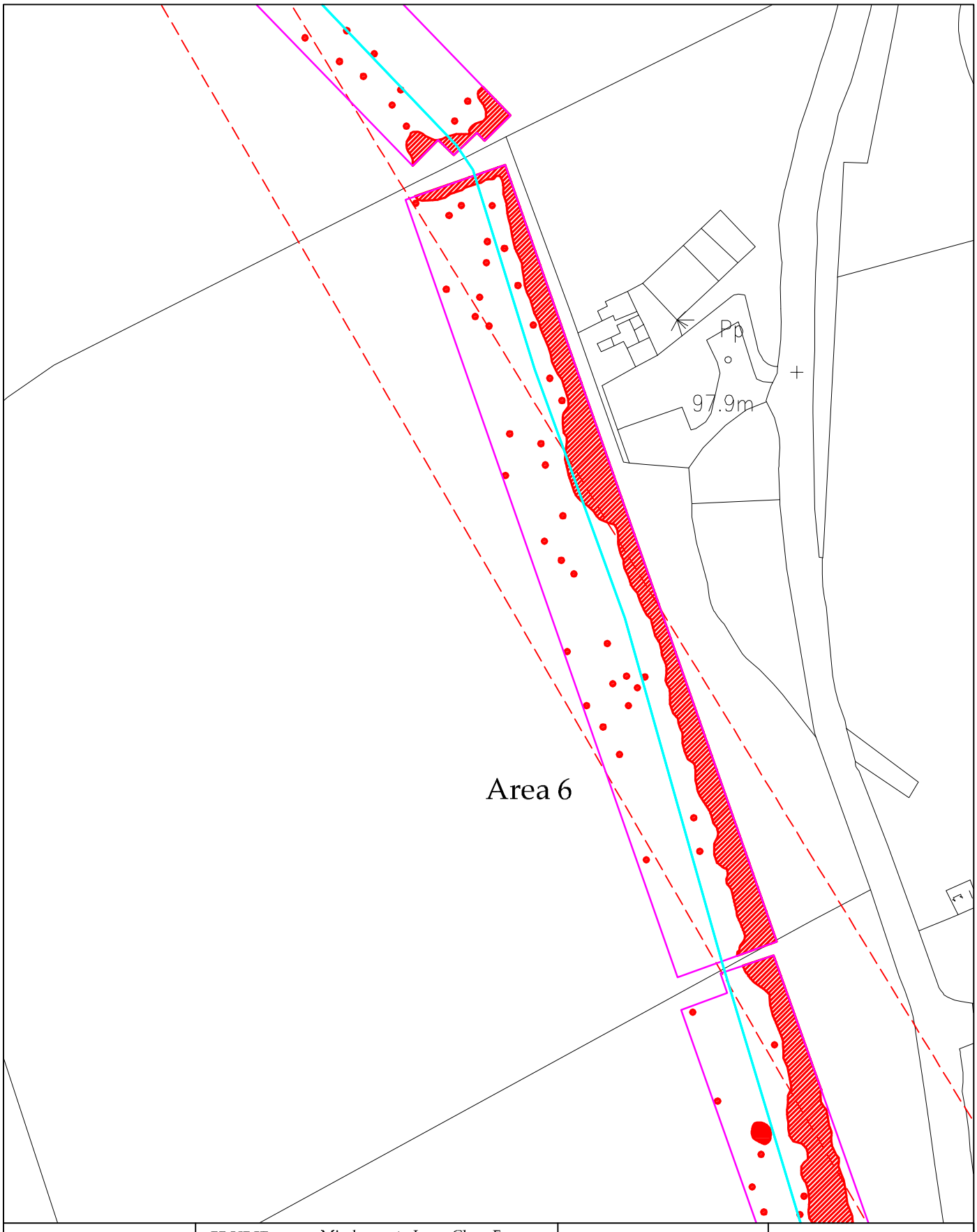
DATE:	September 2012
FIGURE:	23

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area

Figure 23: Geophysical survey of Area 6



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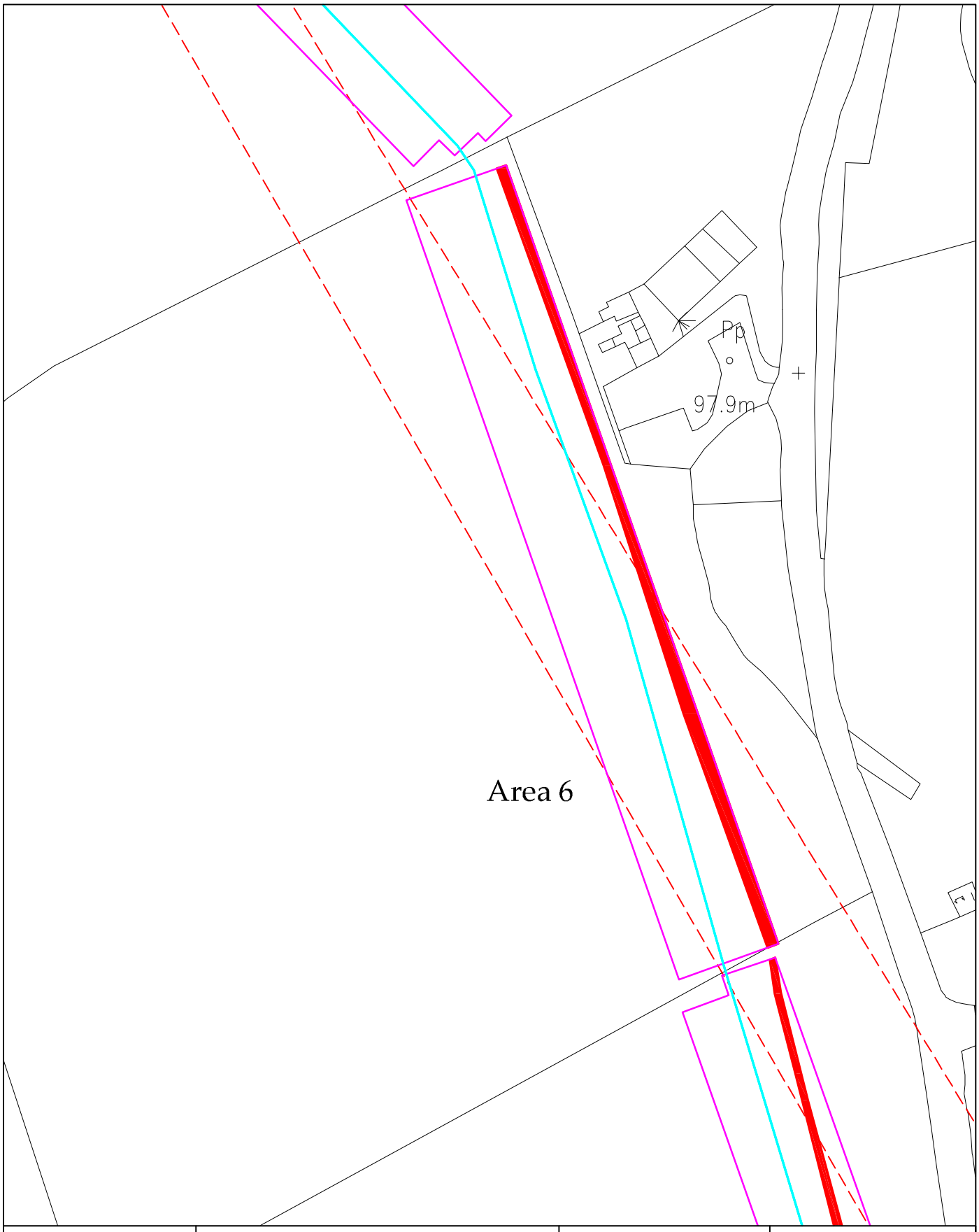
DATE:	September 2012
FIGURE:	24

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
dipolar magnetic anomalies

Figure 24: Geophysical interpretation of Area 6



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REPORT No:	CP10316
CLIENT:	Electricity North West
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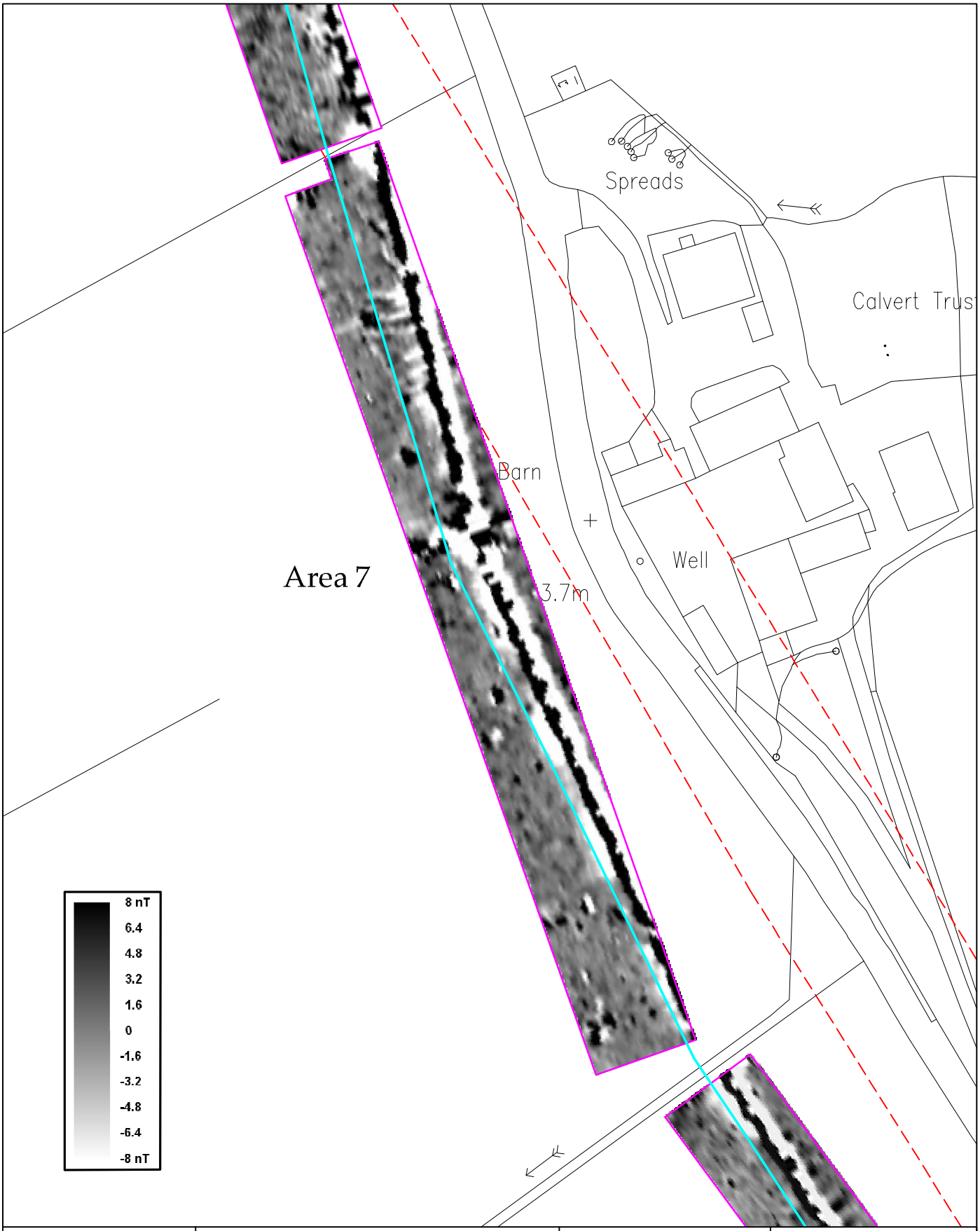
DATE:	September 2012
FIGURE:	25

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
services

Figure 25: Archaeological interpretation of Area 6



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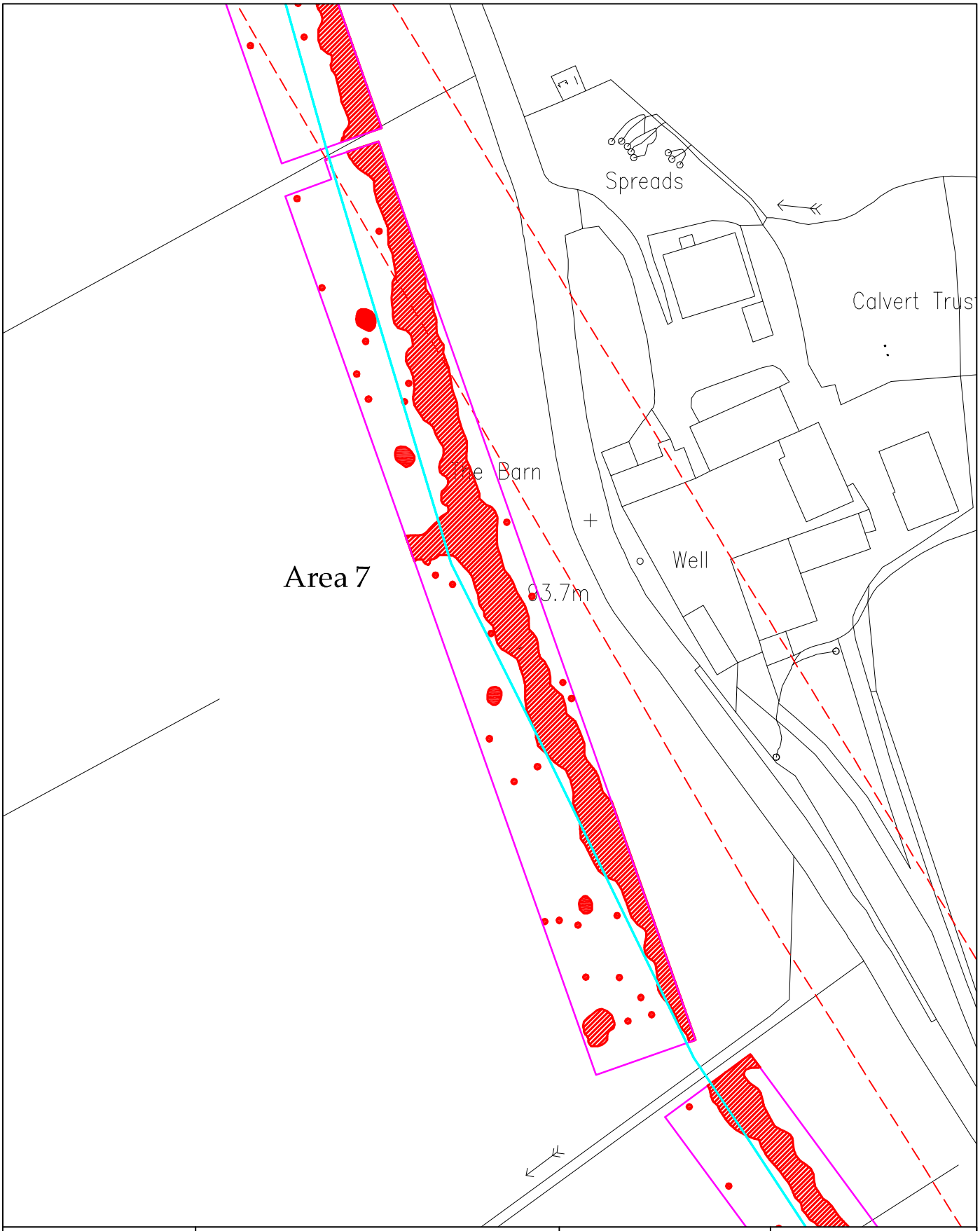
DATE:	September 2012
FIGURE:	26

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area

Figure 26: Geophysical survey of Area 7



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SCALE:	1:1000 at A4
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CLIENT:	Electricity North West
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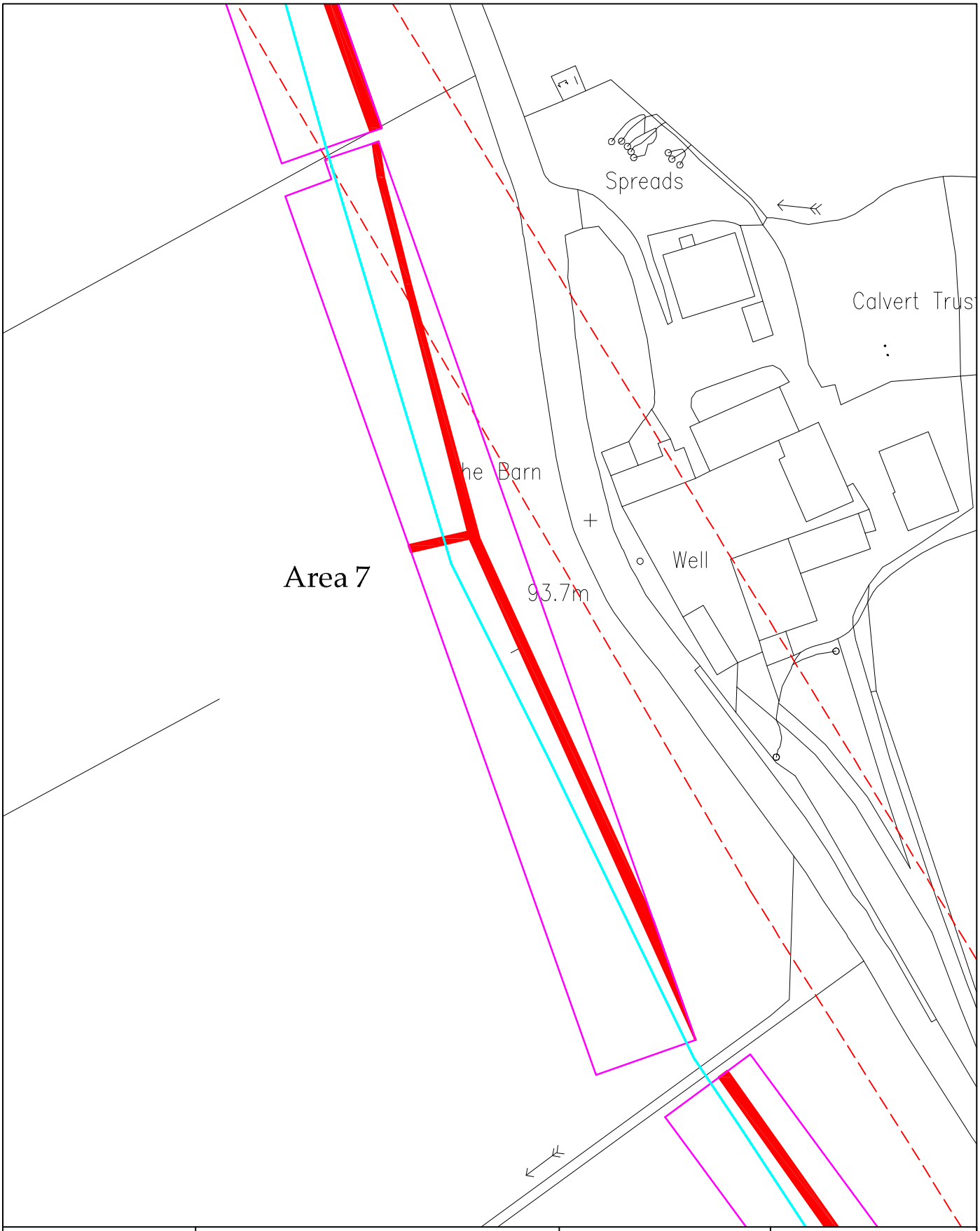
DATE:	September 2012
FIGURE:	27

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
dipolar magnetic anomalies

Figure 27: Geophysical interpretation of Area 7



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REPORT No:	CP10316
CLIENT:	Electricity North West
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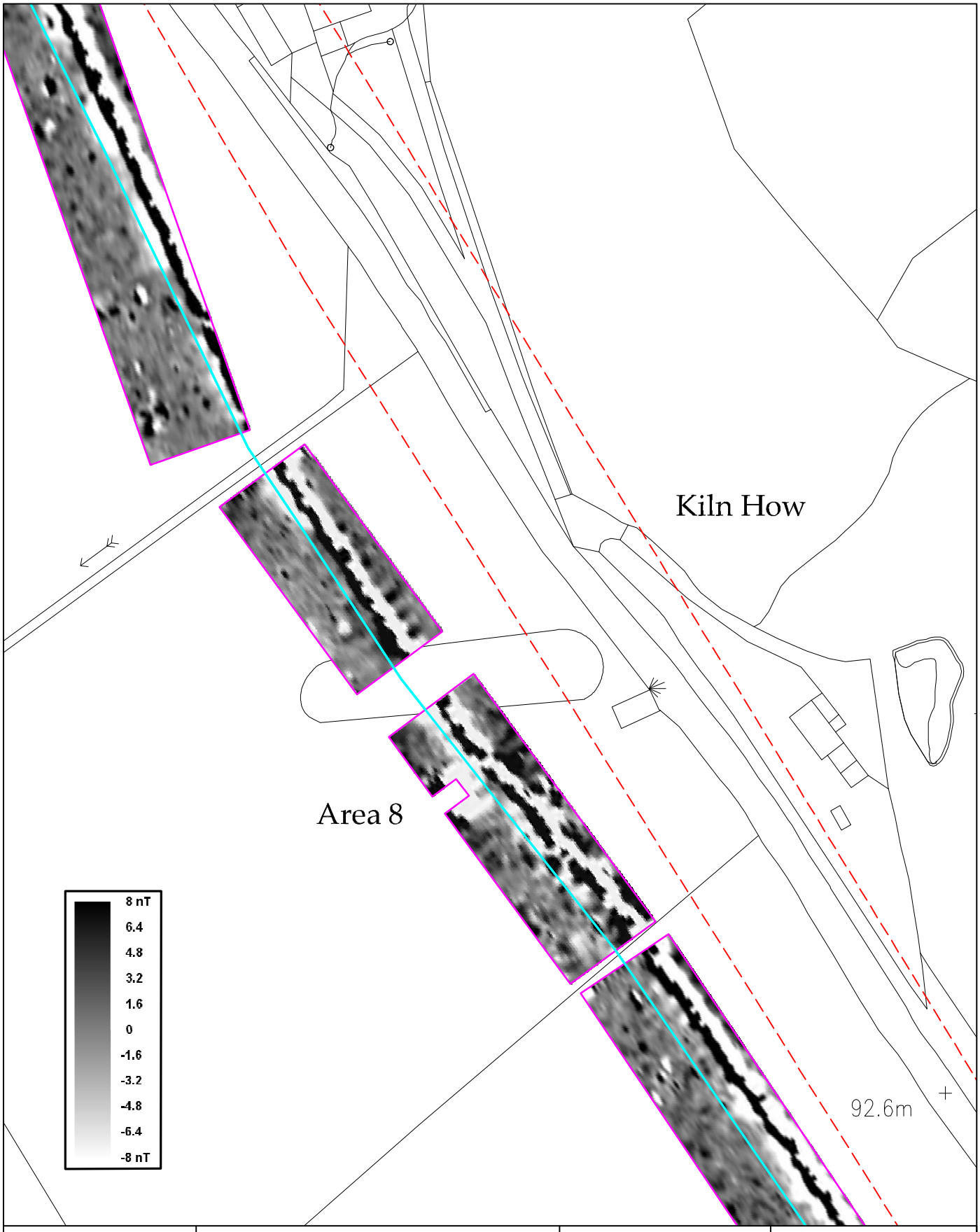
DATE:	September 2012
FIGURE:	28

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
services

Figure 28: Archaeological interpretation of Area 7



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SCALE:	1:1000 at A4
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DATE:	September 2012
FIGURE:	29

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area

Figure 29: Geophysical survey of Area 8

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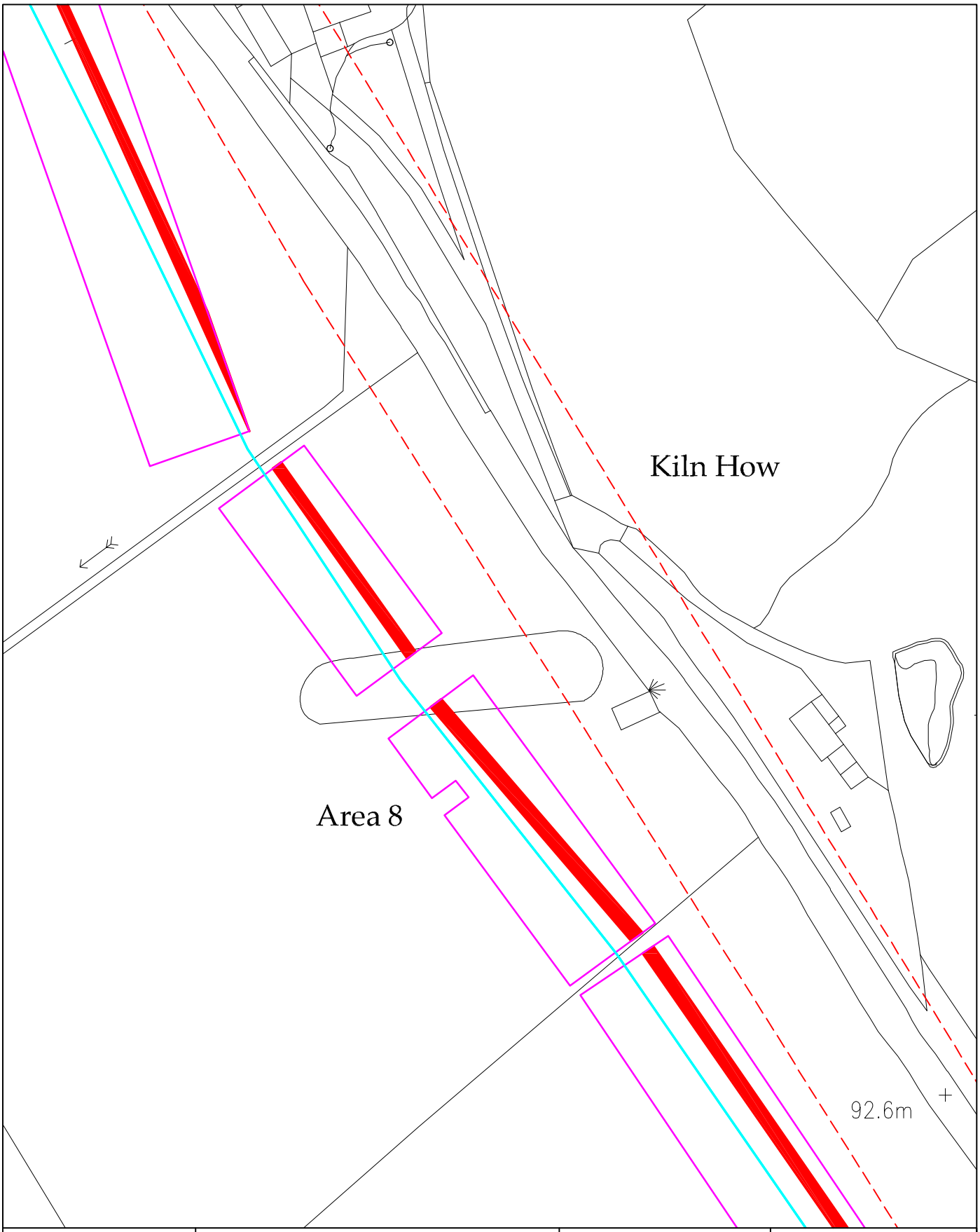
DATE:	September 2012
FIGURE:	30

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
dipolar magnetic anomalies

Figure 30: Geophysical interpretation of Area 8



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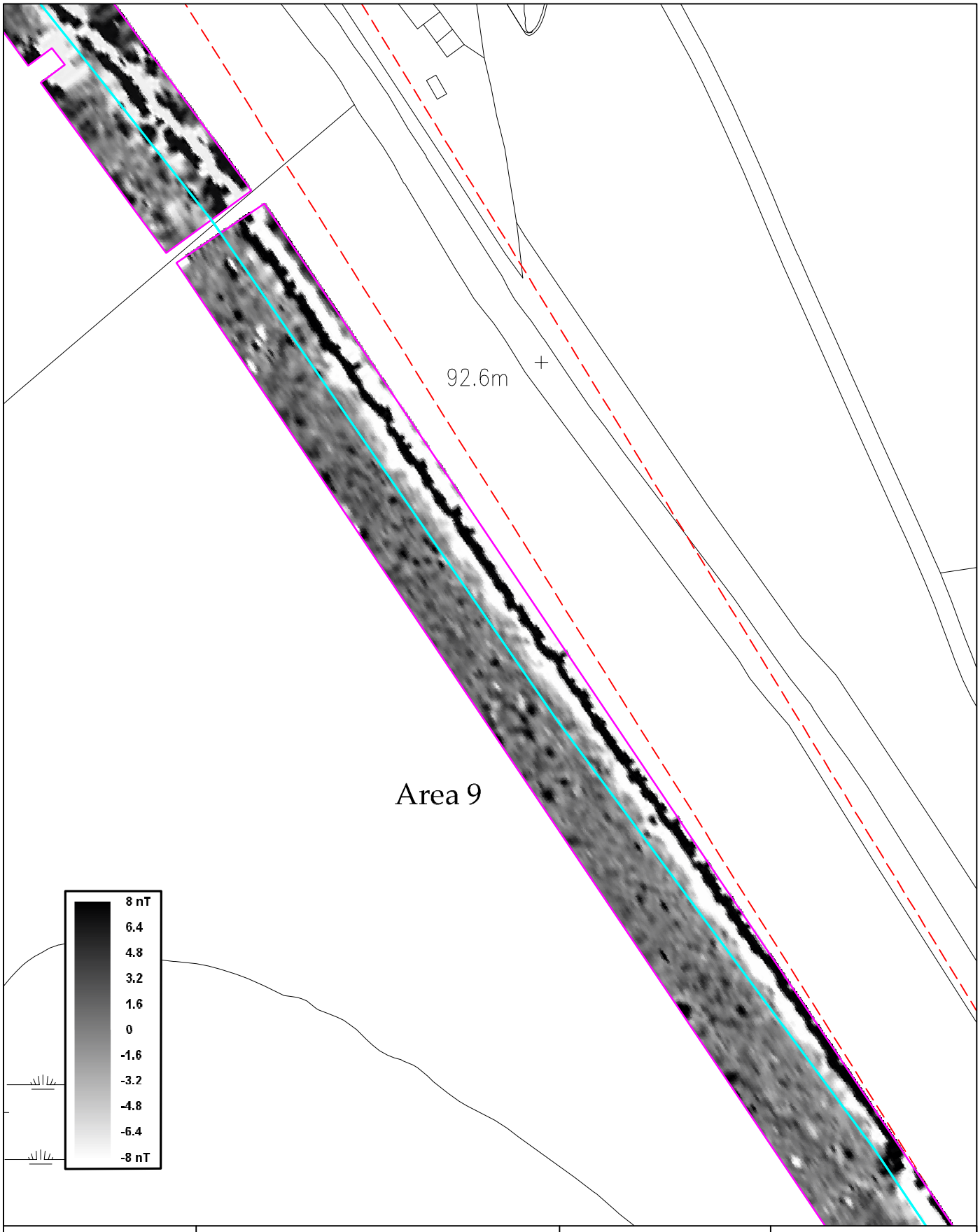
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	31

proposed undergrounding route
projected course of Roman road
outline of geophysical survey area
services

Figure 31: Archaeological interpretation of Area 8



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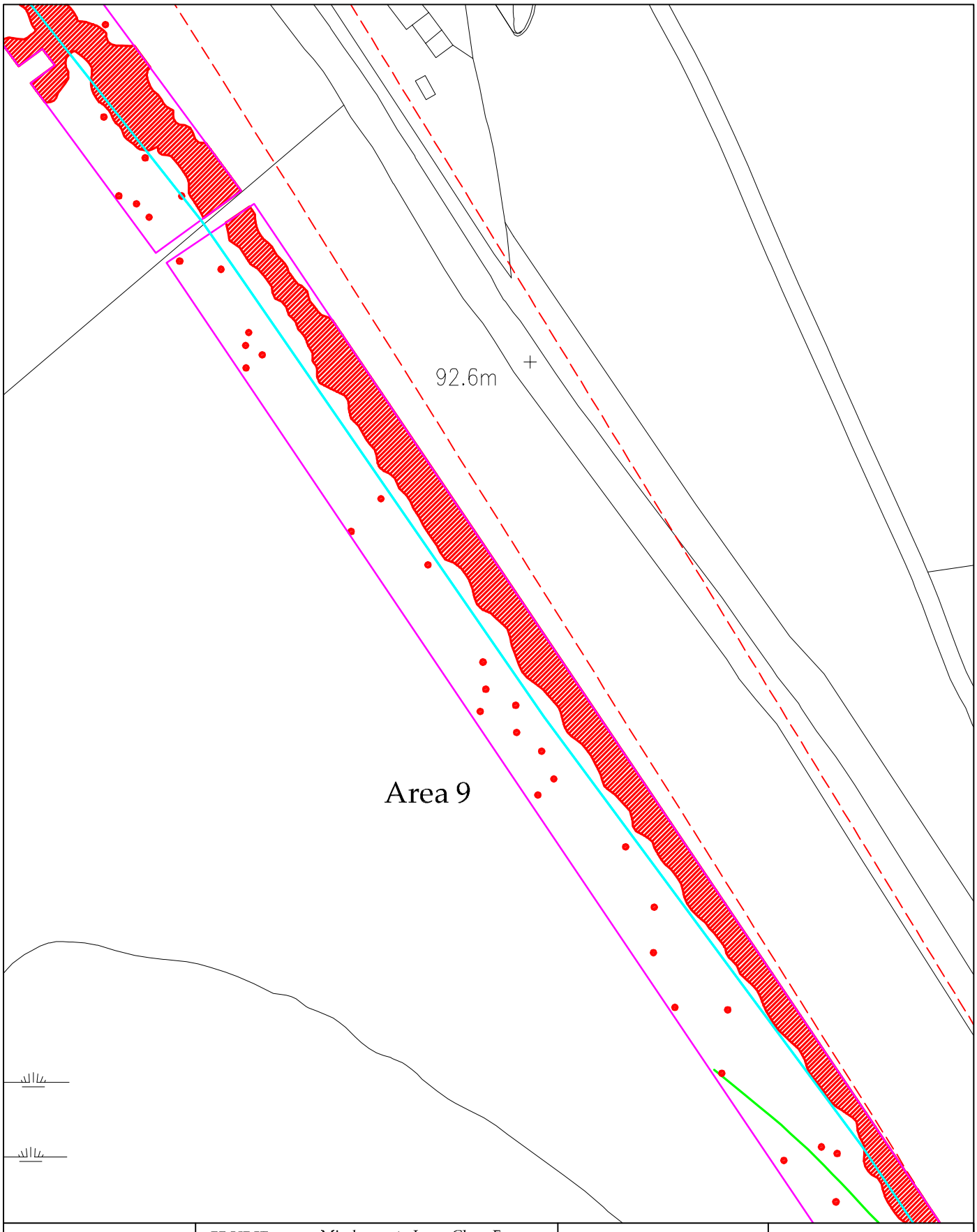
SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	32

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area

Figure 32: Geophysical survey of Area 9 (north end)



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SCALE:	1:1000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	MDR
DATE:	September 2012
FIGURE:	33

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area
- dipolar magnetic anomalies
- positive magnetic anomalies

Figure 33: Geophysical interpretation of Area 9 (north end)

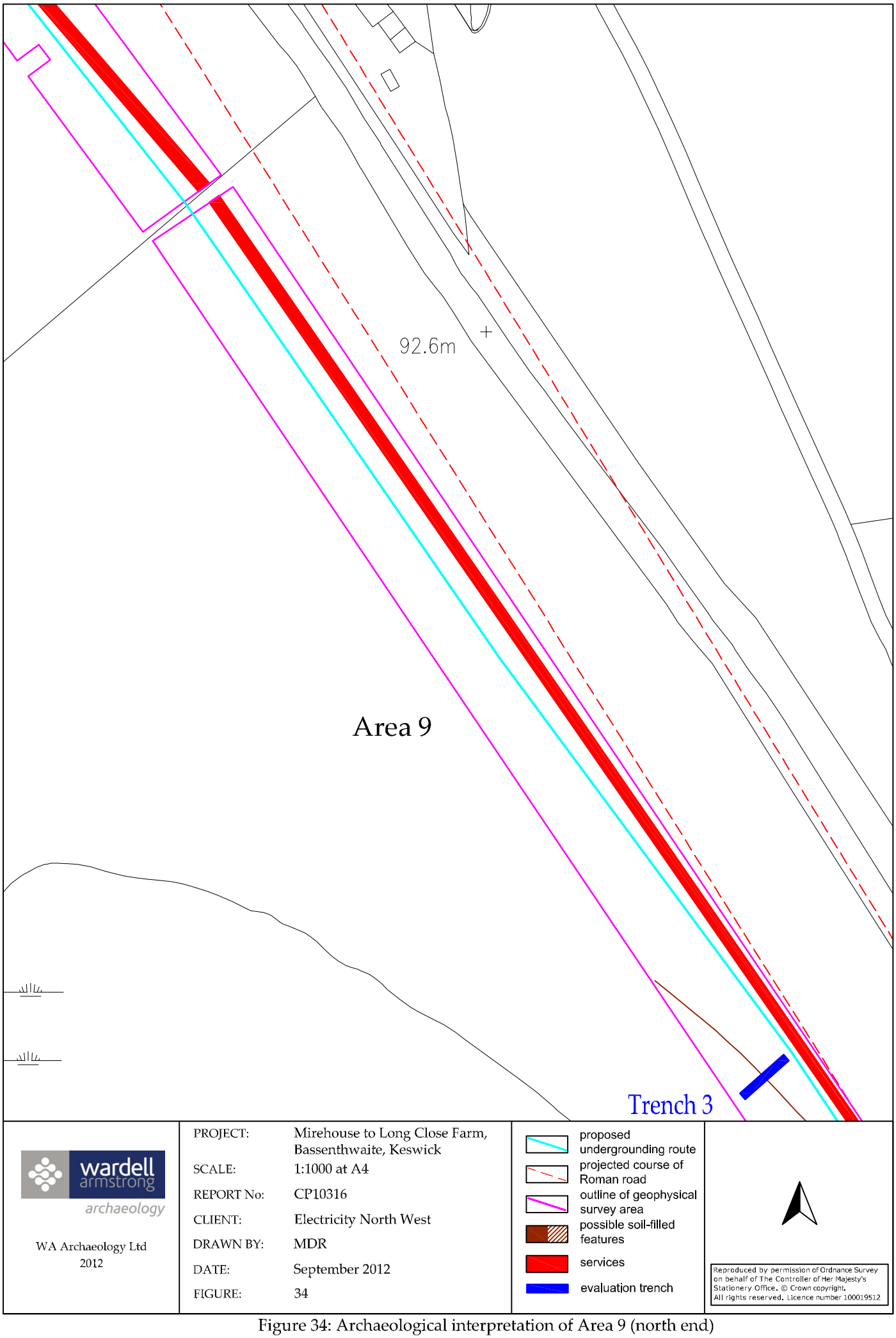
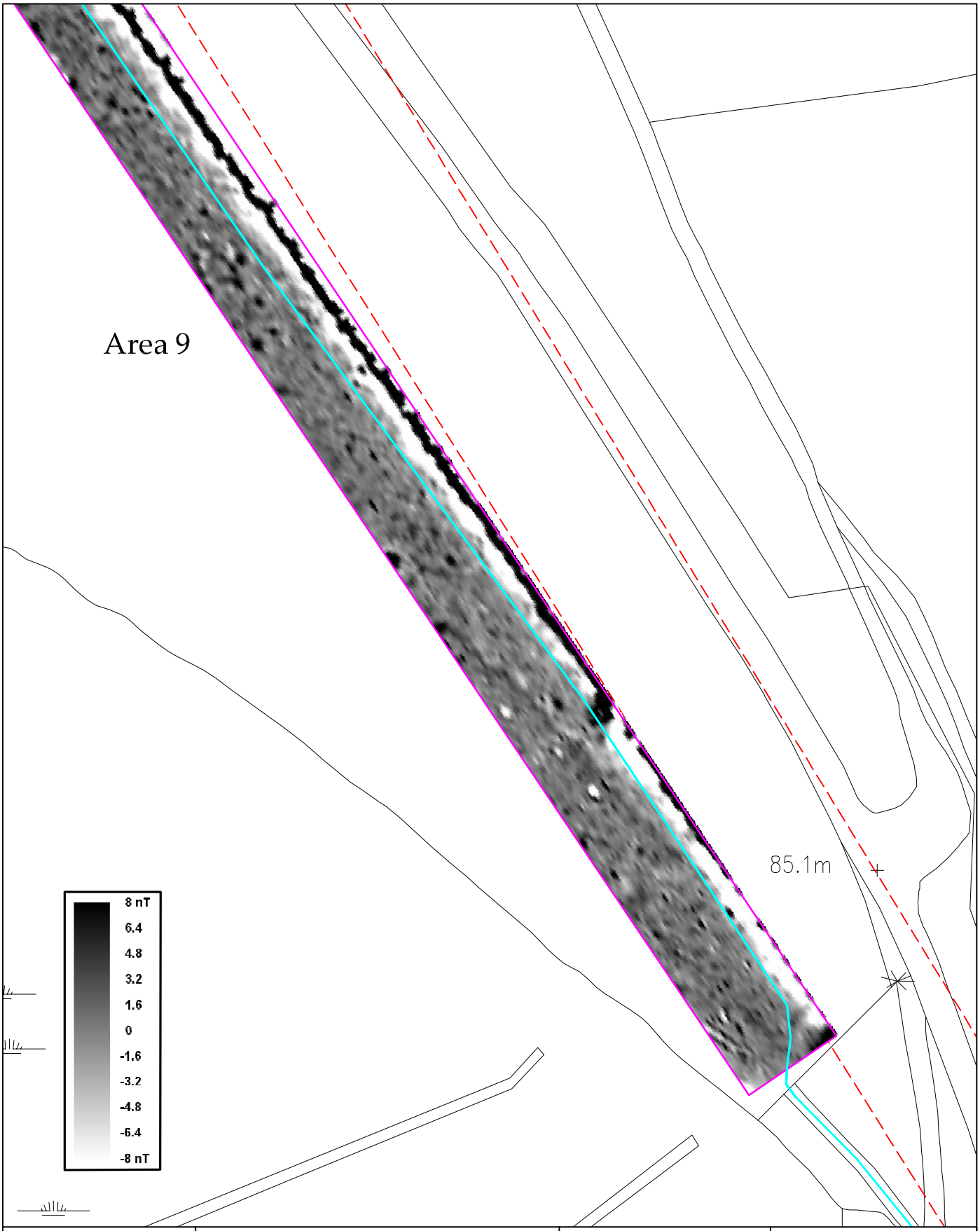


Figure 34: Archaeological interpretation of Area 9 (north end)



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DATE:	September 2012
FIGURE:	35

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area

Figure 35: Geophysical survey of Area 9 (south end)

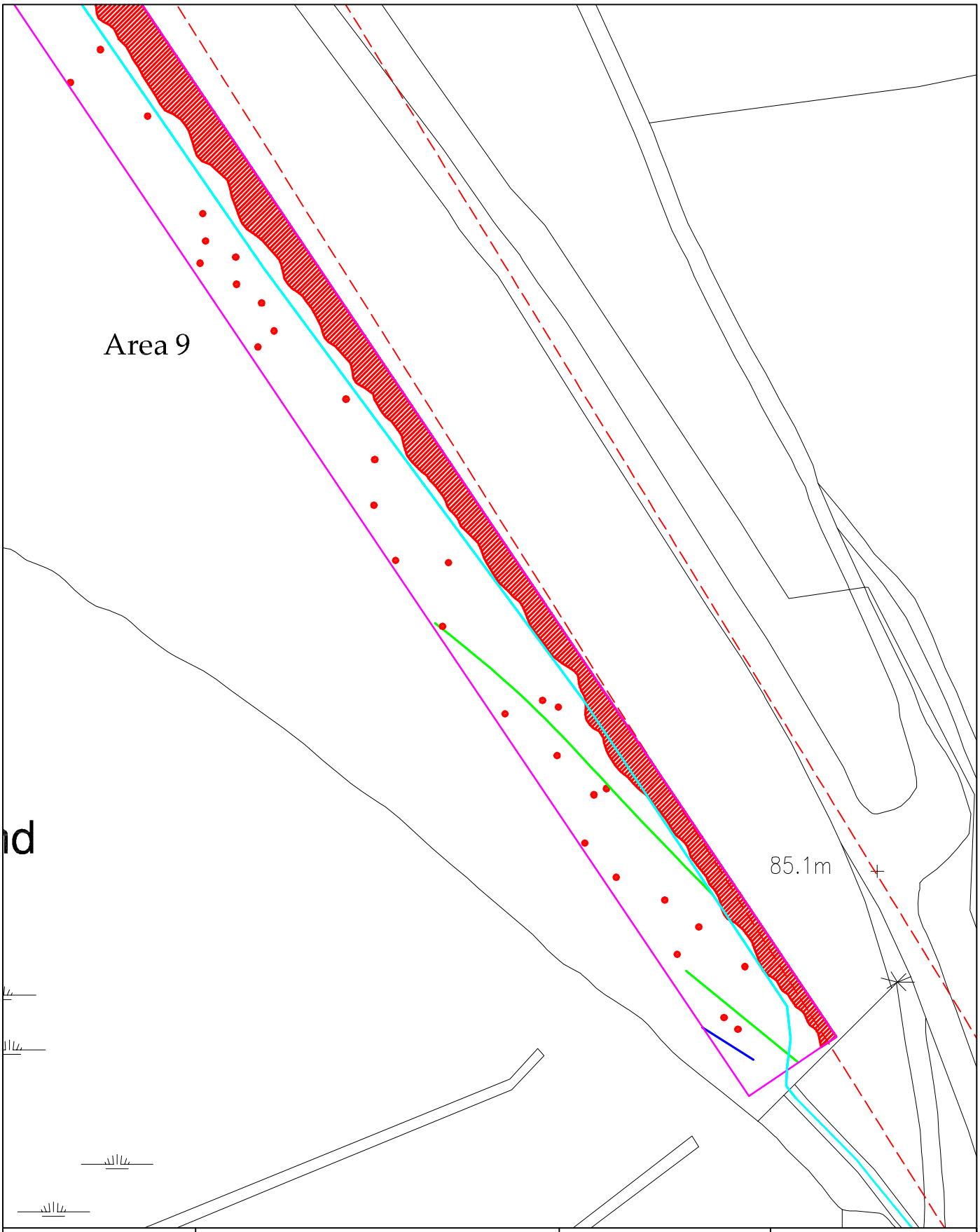


Figure 36: Geophysical interpretation of Area 9 (south end)

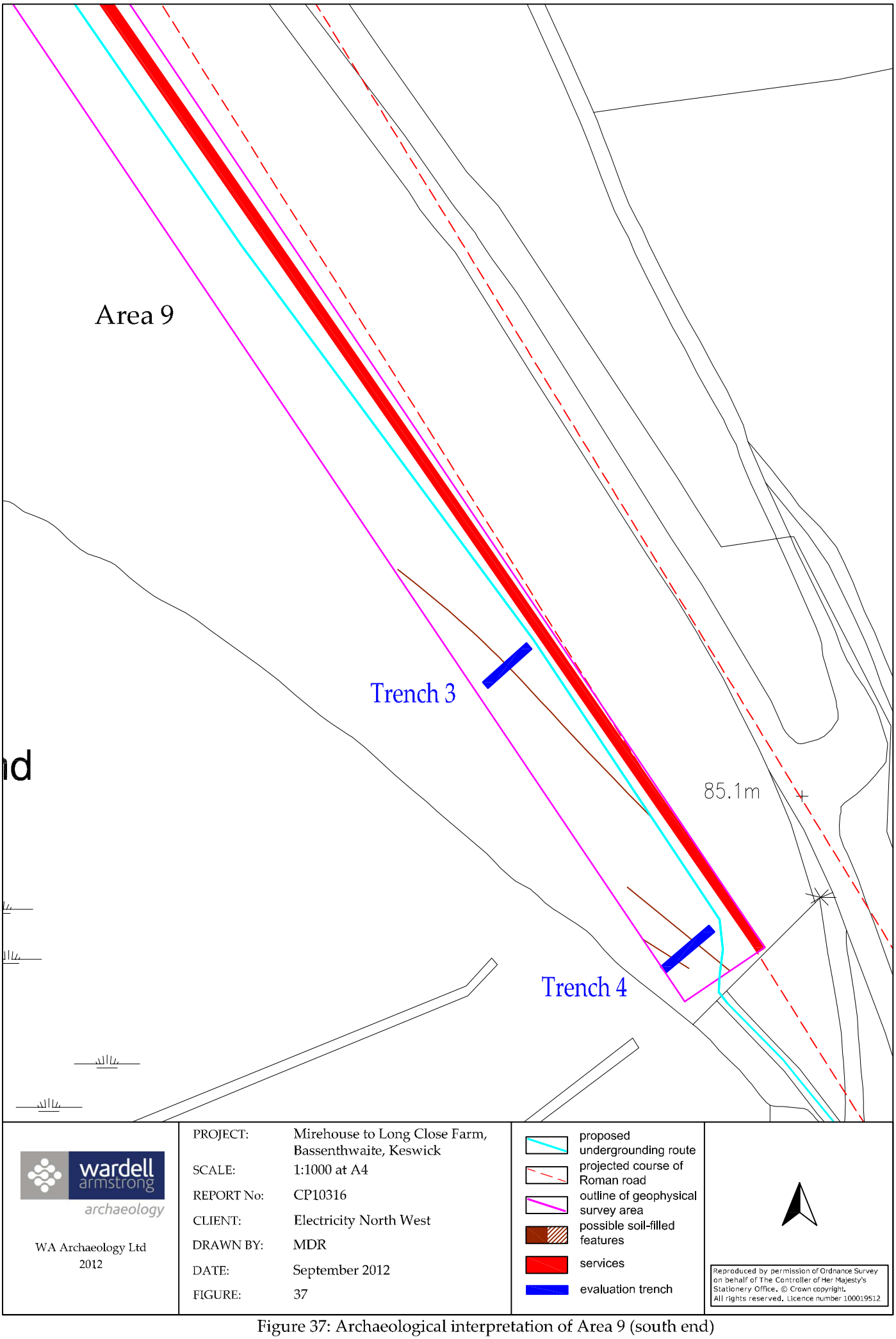
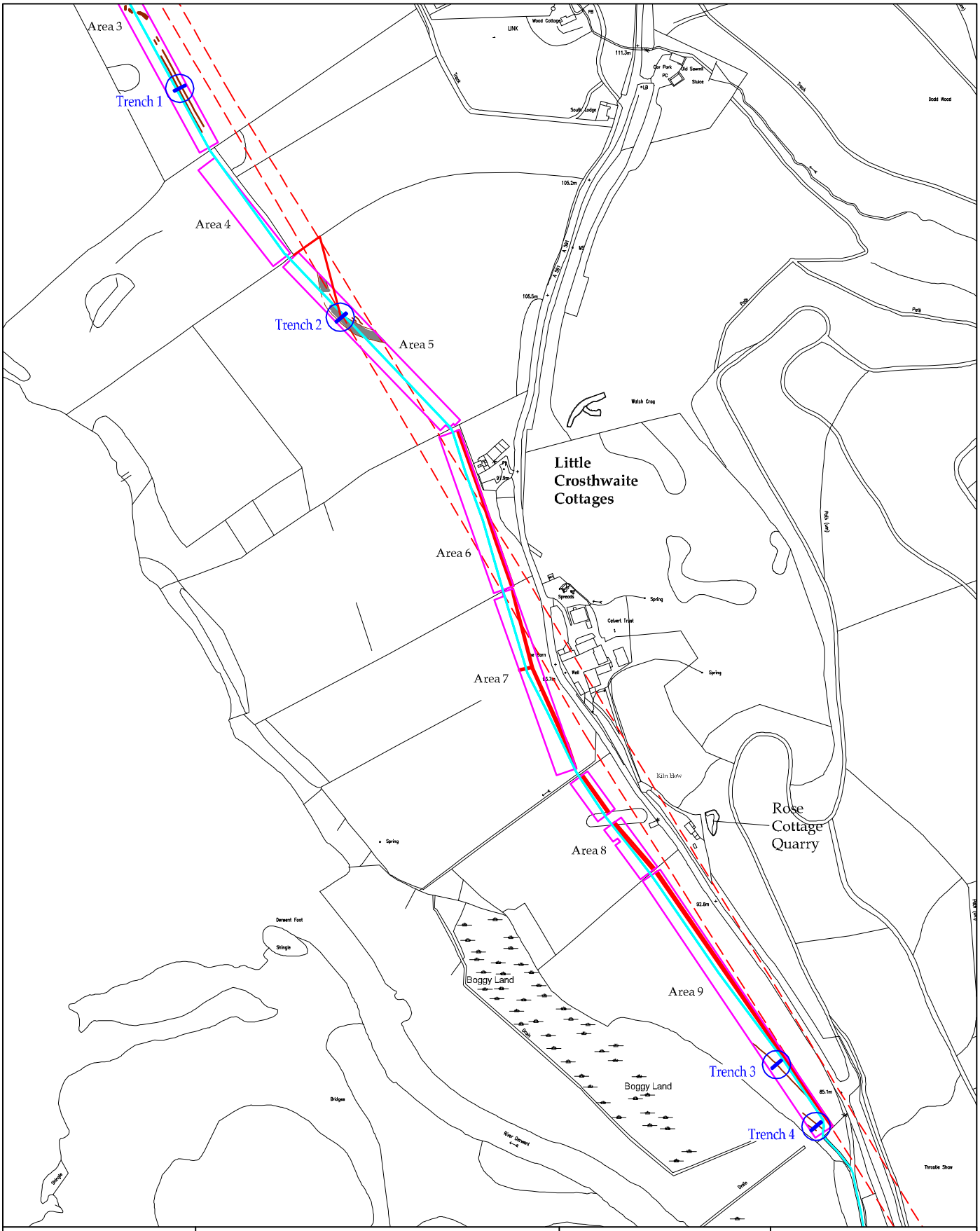


Figure 37: Archaeological interpretation of Area 9 (south end)



PROJECT:	Mirehouse to Long Close Farm, Bassenthwaite, Keswick
SCALE:	1:5,000 at A4
REPORT No:	CP10316
CLIENT:	Electricity North West
DRAWN BY:	AB
DATE:	September 2012
FIGURE:	38

KEY:

- proposed undergrounding route
- projected course of Roman road
- outline of geophysical survey area
- evaluation trenches

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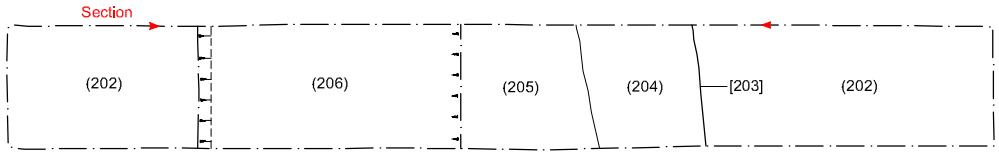
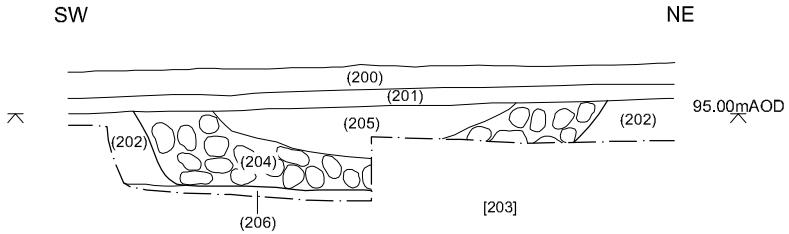
Figure 38: Evaluation trench locations.



Trench 2. Plan.



Trench 2. South-east facing section.

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SCALE: 1:100 at A4

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DATE: October 2012

KEY:

(202) Context number

Height mAOD

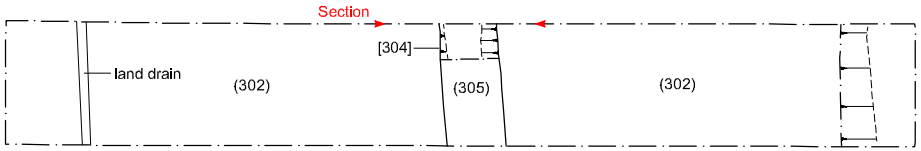
Limit of excavation

Location of section

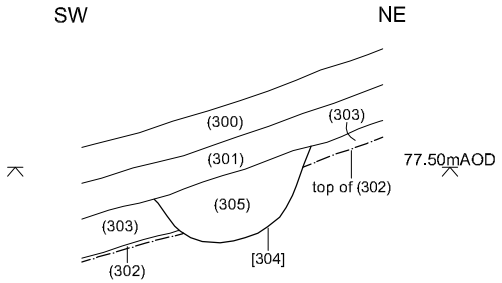
REPORT No:
CP10316

FIGURE:
39

Figure 39: Trench 2, plan and section.



Trench 3. Plan.



Trench 3. South-east facing section showing gully [304].

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SCALE: Plan 1:100/ Section 1:50 at A4

DRAWN BY: AB

DATE: October 2012

KEY:

(202) Context number

Height mAOD

Limit of excavation

Location of section

REPORT No:
CP10316

FIGURE:
40

Figure 40: Trench 3, plan and section.