

Cottam Solar Project

Environmental Statement Appendix 13.4: Air Photo and LiDAR Mapping and Interpretation Reports

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LIDAR AND AIR PHOTO
MAPPING, INTERPRETATION AND ANALYSIS
FOR ARCHAEOLOGICAL APPLICATIONS



Air Photo and LiDAR Mapping and Interpretation for the
Cottam Solar Project and Cable Routes
Lincolnshire and Nottinghamshire

October 2022

Project number 2223001

Undertaken by Alison Deegan BSc MCIfA

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Commissioned by

Lanpro

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Summary

This report concerns the results of interpretation and mapping of archaeological features from air photos and LiDAR imagery for the Cottam Solar Project, comprising the Cottam 1, 2 and 3 sites and the cable routes to Cottam Power Station.

This survey has mapped and recorded elements of medieval and post medieval landscapes, including well preserved settlement earthworks, and the Second World War airfield known as RAF Blyton. It has also tentatively identified a small number of features of possible Iron Age or Roman date and several features of uncertain origin.

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1 Introduction

1.1 Client details

1.1.1 This survey of levelled and upstanding archaeological and historical remains using existing air photos and LiDAR data was commissioned by Lanpro for the Cottam Solar Project, comprising the Cottam 1, 2 and 3 sites and the cable routes to Cottam Power Station.

1.2 The survey area (see Figure 1)

1.2.1 This survey concerns the Cottam Solar Project, comprising the Cottam 1, 2 and 3 sites and the cable routes to Cottam Power Station. Cottam 1, 2 and 3 sites lie on the east side of the River Trent in the county of Lincolnshire between Blyton in the north and Brampton on the south-west. The power station sits on the west bank of the River Trent in Nottinghamshire. The survey area covers the footprint of the constituent sites of the Cottam Solar Project, the cable routes and land to either side to variable distances, which reflect the original corridor options. To avoid duplication of effort, areas covered by the recent air photo and LiDAR survey for the Gate Burton Energy Park are excluded from this survey (Deegan 2022).

1.2.2 For ease of description the air photo and LiDAR survey area is divided into parcels of land, which are referenced in the format **AP1** etc in this report. Some of these correlate directly with parcels used by the geophysical surveys undertaken for this same scheme and where they do so this is noted in the catalogue of features in Appendix 4.

1.2.3 Overall this survey area is rural in character and passes beside small scattered settlements: Brampton, Stow, Thorpe in the Fallow. Willingham by Stow, Pilham and Blyton.

1.2.4 The bedrock geology runs in bands of varying width north to south across the survey area and its environs (Geology of Britain Viewer). Working west to east the geology comprises:

- Mercia Mudstone Group (**AP237-240**)
- Penarth Group Mudstone (**AP221-222, AP225-226, AP236**)
- Scunthorpe Mudstone Formation, interbedded mudstone and limestone (**AP130-132, AP134-136, AP139-160, AP232-235, AP241-243**) and east of that
- Lincolnshire Limestone Formation (**AP52-68, AP71-72, AP74-85, AP87-105, AP107-112, AP114-129, AP133, AP137-138**)

1.2.5 Alluvium is present along the River Trent flood plain and in ribbons along the minor rivers. Till is spread across the Lincolnshire Limestone Formation.

1.2.6 A brief overview of the uses of air photos and LiDAR for archaeological remote sensing is provided in Appendices 1 & 2.

2 Methodology

2.1 Data sources

2.1.1 The following data sources were examined between 24th August and 6th October 2022:

- Environment Agency LiDAR data, 1m resolution Digital Terrain Model and Digital Surface Model
- Google Earth imagery captured between 2003 and 2022,
- Bing imagery, undated imagery,
- Historic England Archive (HEA), 613 vertical air photos from 56 different sorties flown 1945 to 1994 and 301 obliques air photos taken between 1972 and 2015 covered this and the neighbouring West Burton Solar Projects (see Appendix 4 for full list),
- the relevant Nottinghamshire and Lincolnshire Historic Environment Record monument and event records,
- Historical Ordnance Survey and earlier maps were examined via the National Library of Scotland website (██████████).

2.1.2 The AP and LiDAR survey area is covered by the Royal Commission on the Historical Monuments of England's National Mapping Programme (NMP): specifically the Nottinghamshire NMP Project and the Lincolnshire NMP project. Both were completed in the late 1990s and they produced hand-drawn maps. Although these maps are now out-of-date in terms of the methodology and the sources available, they were consulted alongside the resources listed above because they inform many of the Historic Environment Records. Digitised versions of these maps are available through Historic England's Aerial Archaeology Mapping Explorer (██████████).

2.2 Processing and mapping

2.2.1 LiDAR data at 1m resolution was obtained from the Environment Agency in geotiff format. This was processed in the Relief Visualisation Toolbox 2.2.1. 16-direction hill-shaded visualisations were generated for the Digital Surface Model (DSM) and Digital Terrain Model (DTM) and Simple Local Relief Model models were generated for the DTM.

2.2.2 The digital aerial images delivered online by Google Earth were examined on screen. Relevant portions were captured for georeferencing and digitisation of archaeological features.

2.2.3 The digital air photos held by the HEA were examined online via the Aerial Photograph Explorer (██████████).

2.2.4 The vertical and obliques air photographic prints held by the HEA were examined systematically,

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes using x2 magnification where necessary and stereoscopically where possible during visits to the HEA in Swindon. Selected prints were then photographed with a hand-held digital camera to enable rectification and digitisation of archaeological features.

2.2.5 The various captures and the digital copies were rectified to the ground control points derived from Ordnance Survey map data and the LiDAR visualisations using Aerial5.36. AERIAL5.36 gives error readings for each control point, where 5 or more control points are used. In all cases errors of within $\pm 3\text{m}$ were achieved for the control points. However this may not reflect the on-the-ground positional accuracy of the features mapped since these tend to lie between rather than at the control points.

2.2.6 All LiDAR visualisations and rectified image captures were examined methodically and in detail in the GIS (MAPInfo Professional 17) and with reference back to the original prints, where possible. Archaeological features were mapped to a scale of 1:2500 in detail and accuracy and data pertaining to each feature was recorded in the MapInfo table. This dataset is structured as follows:

APNUMBER	AP land parcel reference number
PARCEL	Corresponding land parcel reference used for the geophysical surveys
LAYER	Indicates nature of feature depicted eg bank, ditch, ridge and furrow, modern etc
PERIOD	Period
TYPE	Historic England Monument Type Thesaurus term
EVIDENCE1	Evidence (earthwork, structure, soilmark, parchmark, cropmark) as features appears on SOURCE1
SOURCES1	Reference to individual air photos or source eg Google Earth and EA LiDAR data
EVIDENCE2	Evidence (earthwork, structure, soilmark, parchmark, cropmark) as features appears on SOURCE2
SOURCES2	Reference to individual air photos or source eg Google Earth and EA LiDAR data (used to record good alternative sources or condition change since source1)
HER	Historic Environment Record monument number (where applicable)

3 Results

3.1.1 The results of this survey are presented on Figures 2 to 12 and a brief overview by period is provided below. Features have been catalogued and described according to pre-allocated land parcels (see Appendix 4).

3.1.2 Details including type, period and sources for individual archaeological features can be accessed in the digital version of the mapping (see 2.2.6). All attributions of date and type are open to re-interpretation.

3.2 Distribution of the evidence

3.2.1 The air photos range widely in date and include digital and print, colour and black and white, vertical and oblique formats. They have revealed archaeological features as earthworks, cropmarks and, less frequently, as soilmarks. The historical air photos indicate that in the late 1940s and early 1950s fairly extensive earthworks, mostly medieval or post medieval ridge and furrow survived across the survey area.

3.2.2 The specialist air photos, which focus on archaeological and historical targets are concentrated in those areas with good surviving earthworks and in particular those with Scheduled Monument protection. There are relatively few specialist air photos of cropmarked or soilmark sites.

3.3 Neolithic and Bronze Age

3.3.1 No cropmarked, soilmark or earthwork features of known or possible Neolithic or Bronze Age date were identified by this survey.

3.4 Iron Age and Roman

3.4.1 A small number of the cropmarks observed on the air photos may have Iron Age or Roman origins.

3.4.2 The Lincolnshire NMP Project recorded a Roman trackway south-east of Marton (**MLI52489**). This feature is visible as a cropmark running south-east to north-west across two parcels: **AP227**, **AP236** and the field to the north. In **AP227** this cropmark suggests a broad compacted surface flanked by ditches. It is less well defined in **AP236** and as no more than a shallow, infilled hollow-way in the field to the north. Projecting this feature further north-west it would converge with the Roman road known as Till Bridge Lane (**MLI50575**) on the west side of Marton.

3.4.3 Lincolnshire HER records a Romano-British settlement (**MLI51104**) in **AP71**, south-west of Turpin Farm. Finds and stonework were revealed here by deep ploughing in the first half of the 20th century. An arrangement of parallel ditches is visible as cropmarks on the site, but it is more likely that these are later drains than Roman ditches.

- 3.4.4 Between the village of Stow and the River Till there are fragmentary cropmarks that may indicate Iron Age or Roman remains. Two short ditches in the south-east corner of **AP131** suggest a rectilinear enclosure and to the north-east a distinct corner and two sides suggest an enclosure that may continue unseen into **AP133**.
- 3.4.5 East of Willingham, cropmarks in **AP147** suggest the south-east corner of a rectilinear enclosure.
- 3.4.6 In AP28, east of Pilham a possible enclosure, small with rounded corners, is visible as a cropmarks on historical air photos. It appears to be cut by medieval or post medieval ploughing, which had also been levelled by the late 1940s and also appeared as cropmarks.
- 3.4.7 West of the River Trent, the air photo and LiDAR survey undertaken for the Gate Burton Energy Park recorded an extensive Iron Age and/or Roman settlement and field system, and the remains of a medieval or post medieval road in the fields to the west of AP240. Some of these features appear to continue into this parcel of land.

3.5 **Medieval and post medieval settlement remains**

- 3.5.1 Where the solar project areas or cable routes lie or run close to the historical villages then there is the potential to encounter medieval or post medieval settlement remains and associated features.
- 3.5.2 At Normanby on Stow (**MLI52445**), crofts, plough ridges, a hollow way and possible building platforms survive as earthworks on the west side of Normanby Road in **AP157**. The historical air photos show that on the east side of the village a substantial hollow way, flanked by strip fields and ridge and furrow, ran north to south, through **AP152** and **AP153**. These earthworks have now been levelled but are likely to survive below ground level. A little to the north of the village, earthworks suggesting two possible crofts flank the east side of Normanby Road in **AP156**.
- 3.5.3 At Thorpe in the Fallows, well-preserved medieval settlement earthworks lie along Thorpe Lane; these remains are outside of the solar project's red line boundary and the area of this survey (**MLI50540**). An area of these earthworks on the north side of the lane has Scheduled Monument protection (**List entry 1016978**). The red line boundary does not encroach on the Scheduled area. Just inside the red line boundary, in **AP119**, the historical air photos show traces of a plough headland and ditch, seemingly cut by plough furrows. The LiDAR imagery shows very slight undulations at this location.
- 3.5.4 Earthworks survive on the east side of the village of Pilham (**MLI51332**), including enclosures and a possible building platform in **AP22**.

3.6 **Medieval and post medieval ridge and furrow**

- 3.6.1 Evidence for medieval and early post medieval cultivation has been detected across many parcels

in the survey area on the historical and recent imagery. These remains comprise ridge and furrow and plough headlands, most have now been levelled.

- 3.6.2 The nature of the survey area limits this investigation to narrow transects across the landscape and so hinders study of the medieval and post medieval field systems. Nevertheless the air photos and LiDAR imagery have identified some interesting features.
- 3.6.3 The plough headlands can be seen as earthworks, soilmarks and cropmarks on the historical air photos, but many can also be detected as very low and spread earthworks on the LiDAR imagery. There are several locations where plough headlands appear to be cut by later ridge and furrow, usually indicated by slight deviations in the overlying plough ridges. Examples can be seen in **AP25, AP43, AP119, AP135** and **AP242**. These instances hint at a change in the organisation of land in the medieval period, at these locations
- 3.6.4 It can be difficult to distinguish denuded medieval plough headlands from the remnants of much later post medieval field boundaries. Although the latter are often still extant on the historical air photos or 19th century OS maps it seems likely that some were laid out along the earlier plough headlands.
- 3.6.5 In contrast however, the post medieval field boundaries imposed on the land around Corringham Grange show very little correlation with the underlying medieval or early post medieval field system (**AP33-34, AP36-43**). Most of the plough ridges in these fields had been levelled before the 1940s and showed only as cropmarks and soilmarks on the air photos of that period. The plough headlands, however, survive as low earthworks in a complex arrangement indicating small interlocking fields.
- 3.6.6 Across the survey area most of the ridge and furrow that stood as earthworks in the 1940s has now been levelled but small pockets do survive at Normanby by Stow (**AP156** and **AP157**), near Pilham (**AP22**), Springthorpe Grange (**AP47**), north of Brampton Grange (**AP236**) Willingham (**AP241**) and at Stow (**AP242**). This is significant not only for these earthworks themselves but for earlier features that may be sealed beneath the medieval plough soil.

3.7 **Post medieval farmsteads**

- 3.7.1 There are possible archaeological features on the field to the west of the 19th century Side Farm (**MLI118048**). They include a broad ditch and pond along the western edge of the parcel, which may have been associated with the farmstead, and other ditches and banks unknown date (**AP56**).
- 3.7.2 An unnamed farmstead or farm buildings shown on the Ordnance Survey map of 1885 and still standing on air photos taken in the 1940s has now been reduced to a shallow hollow in **AP159**.
- 3.7.3 The farmstead named as Blyton Field (**MLI117386**) was probably demolished in the 1940s to prepare the land for the construction of RAF Blyton. It was visible as a low earthwork on historical

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes
air photos in **AP15**, between the airfield's runway and taxiway but has now been levelled.

3.8 **20th Century Features**

- 3.8.1 RAF Blyton (**MLI54074**) stood at the northern end of the survey area. This Second World War airfield comprised three runways circumnavigated by a perimeter track. The perimeter track also gave access to the hard standings arranged around the airfield, on which aircraft would have stood in readiness for flight. This airfield infrastructure was present in **AP1-5**, **AP9-11**, **AP14-18** and beyond the survey area. Most of these features have now been removed and the land has been returned to cultivation. Some small sections of hard standing and concrete surfaces do survive but these are outside of the solar project's red line boundary, for example in the field between **AP14** and **AP15**, and north of **AP17**.
- 3.8.2 Two military camps stood to the west of the airfield. The larger camp, in **AP7** and **AP8**, was probably the airfield's technical site with offices, workshops and at least one aircraft hangar. The other, in **AP6** was smaller and probably provided domestic accommodation. All structures in the camps have been removed. Two further hangars stood on the eastern side of the airfield, just outside the red line boundary, their concrete bases appear to survive but the hangars themselves have been removed.
- 3.8.3 RAF Sturton (**MLI50912**) stood approximately 8km to the south of RAF Blyton. The solar projects do not impinge on the original footprint of the airfield and the corridor options specifically excludes the area of the bomb stores and loading circuit west of **AP48** (not mapped). Air photos show that some time after the 1940s one of the runways was extended further eastward and into **AP49**, probably to accommodate the re-use of the airfield by heavier bombers under the American Strategic Air Command. The surface of this runway extension has now been removed and the land returned to cultivation, but its footprint is visible as a shallow earthwork.

3.9 **Features of uncertain date and origin**

- 3.9.1 Four mound-like features stand on the outer edge of the River Trent's valley floor in fields to the west of Bunker's Hill Warren (**AP237**). Bunker's Hill itself is a low, sub-circular, mound and approximately 95-100m in diameter at its base (**MLI53786**). The BGS Geology Viewer suggests this mound is a deposit of blown sands. The LiDAR imagery also shows a smaller, lower mound 100m to the west. In the adjacent field the air photos show three pale-toned sub-circular soilmarks. These are barely perceptible on the LiDAR imagery and it is not clear if these are truncated mounds or hollows in filled with wind blown sands. Although an archaeological origin cannot be completely discounted with this evidence alone, it is perhaps more likely that all four features are of natural origin.

- 3.9.2 On the higher ground to the north-west in **AP159** a pale soilmark with a dark and narrow halo around it suggests the northern half of a small truncated mound. It abuts the northern boundary of what was a small plantation in the 19th century, which may explain the apparent absence of the southern part. It is not certain that this feature is of archaeological origin.
- 3.9.3 There is a swathe of complex cropmarks running between Brampton village and Brampton Grange (**AP222, AP225, AP226, AP227** and **AP236**). Most of these cropmarks probably reflect fissures in the underlying interbedded mudstone and limestone, but amongst these there are cropmarks that may be archaeological in origin. Unfortunately this evidence is so fragmentary and disjointed that it is not plausible to suggest dates or functions for these possible archaeological features.
- 3.9.4 Elsewhere across this survey area cropmarks of features other than plough furrow and plough headlands are relatively infrequent. Exceptions include some of possible Iron Age or Roman rectilinear enclosure noted above and other fragments of undated ditches in **AP159, AP160** and **AP237**. In **AP41** faint cropmarks suggest a group of curvilinear enclosures, but it is not certain that these marks are of archaeological origin.
- 3.9.5 In **AP50** the LiDAR imagery suggests the very shallow remains of a rectilinear enclosure. The southern edge appears to abut a former field boundary or drainage ditch. The other three sides are formed by broad but discontinuous ditches or hollows. Internally this putative feature measures 160m by 130m. It is located at the confluence of the two much-straightened streams. There is very little trace of this feature on the air photos and for this reason its origin is questionable.

4 Concluding remarks

- 4.1.1 This survey has identified and mapped extensive medieval and post medieval agricultural remains across large parts of the Cottam Solar Project and cable routes, though these have mostly been heavily truncated or completely levelled. It has also recorded medieval and/or early post medieval settlement remains around Normanby by Stow and more fragmentary features at Pilham and Thorpe in the Fallows, but again most of these remains have been levelled.
- 4.1.2 This survey has recorded relatively few features of known or likely Roman or prehistoric date but the absence of evidence for such remains should not be taken as an absence of presence.

References and resources cited

- Crutchley, S and Crow, P 2009. *The Light Fantastic: Using Airborne Laser Scanning in Archaeological Surveys*. English Heritage. Swindon.
- Deegan, A. 2022. *Air Photo and LiDAR mapping and interpretation: Gate Burton Energy Park*. Unpublished report 2122007
- Jones, R J A and Evans, R 1975. 'Soil and crop marks in the recognition of archaeological site by air photography' in Wilson, D (ed) *Aerial Reconnaissance for Archaeology*. CBA Research Report 12. 1-11
- Kokalj, Z and Hesse, R. 2017. *Airborne laser scanning raster data visualisation: A guide to good practice*. Založba ZRC, Ljubljana

Digital sources (all accessed between August and October 2022)

- Geology of Britain Viewer. Viewed online at <https://geologyviewer.bgs.ac.uk>
- Ordnance Survey 25 inch and 6 inch scale maps. Various dates via <http://maps.nls.uk/>

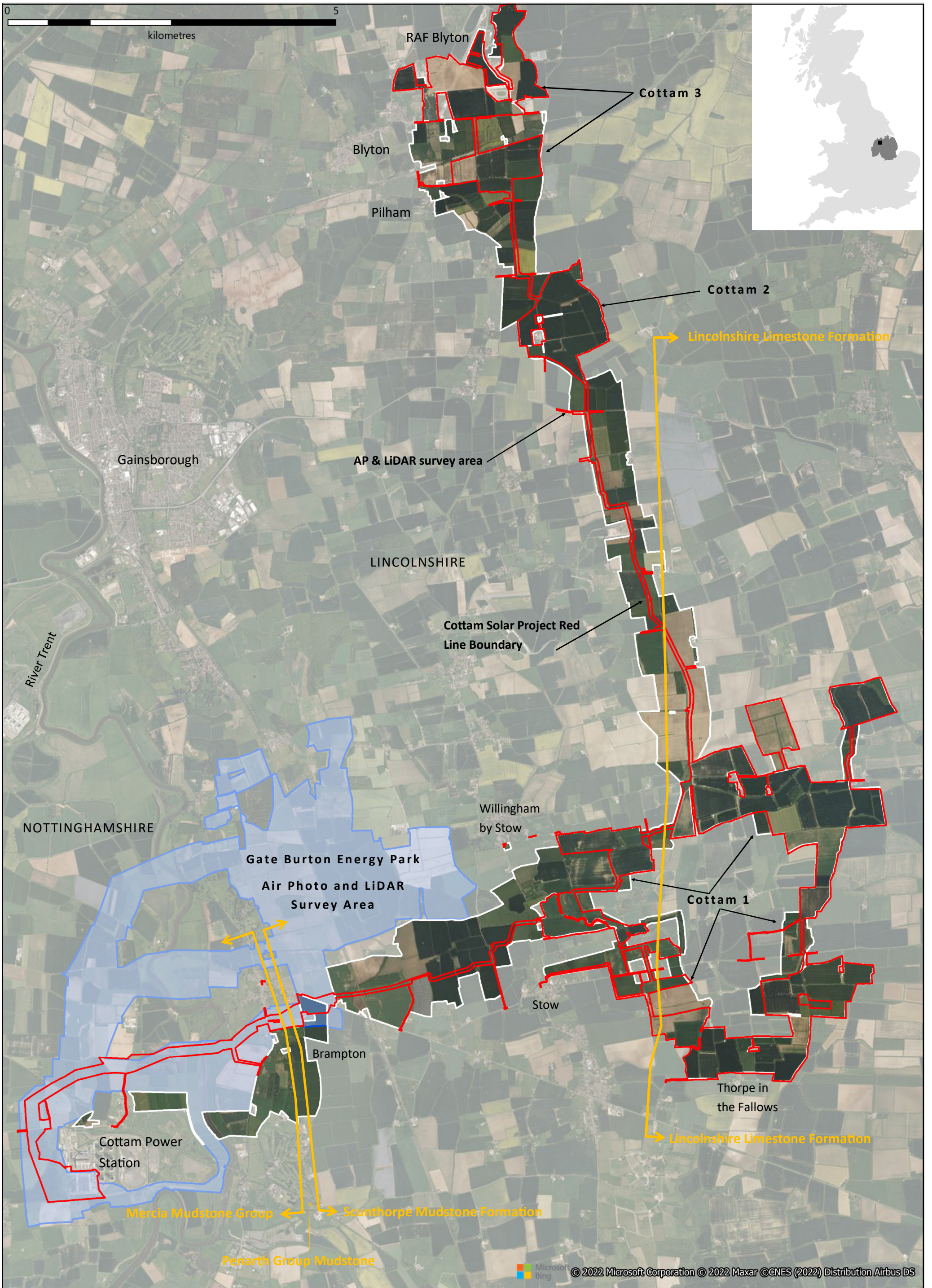


Figure 1. Location plan of the air photo & LiDAR survey area for the Cottam Solar Project and cable route, Nottinghamshire and Lincolnshire

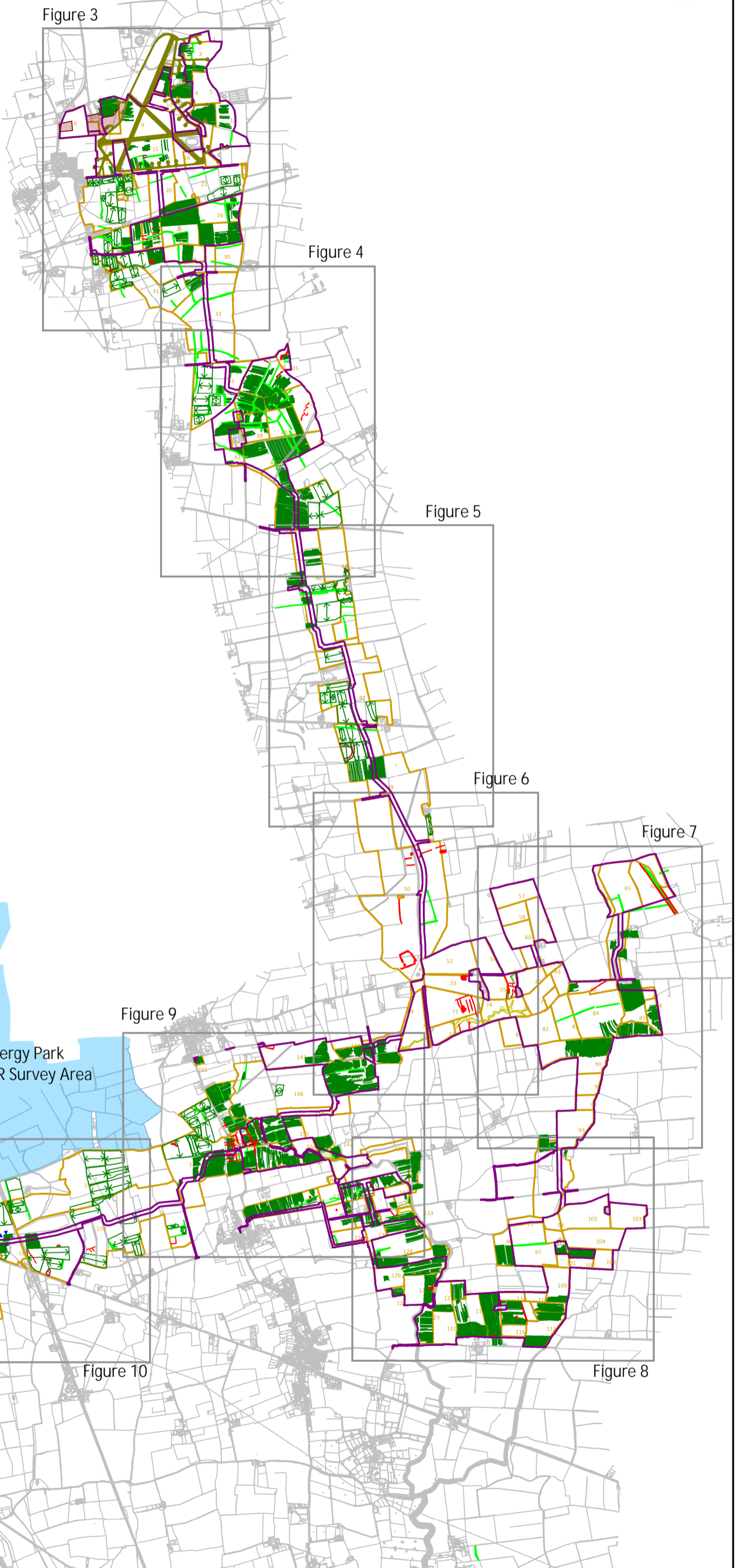
Air photo and LiDAR interpretation and mapping

Undertaken by Alison Deegan BSc MCIFA

Date of Survey August to October 2022

Sources include Historic England Archive air photos, Environment Agency 1m resolution LiDAR data, and Google Earth aerial imagery

Commissioned by Lanpro



Key	
	Archaeological bank
	Archaeological ditch
	Extent of vague or diffuse feature
	Modern feature
	Natural feature
	Ridge and Furrow
	Simplified ridge and furrow
	Historical structure
	Slope

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Figure 2 Overview of air photo and LiDAR mapping for the Cottam Solar project and cable routes

Air photo and LiDAR interpretation and mapping

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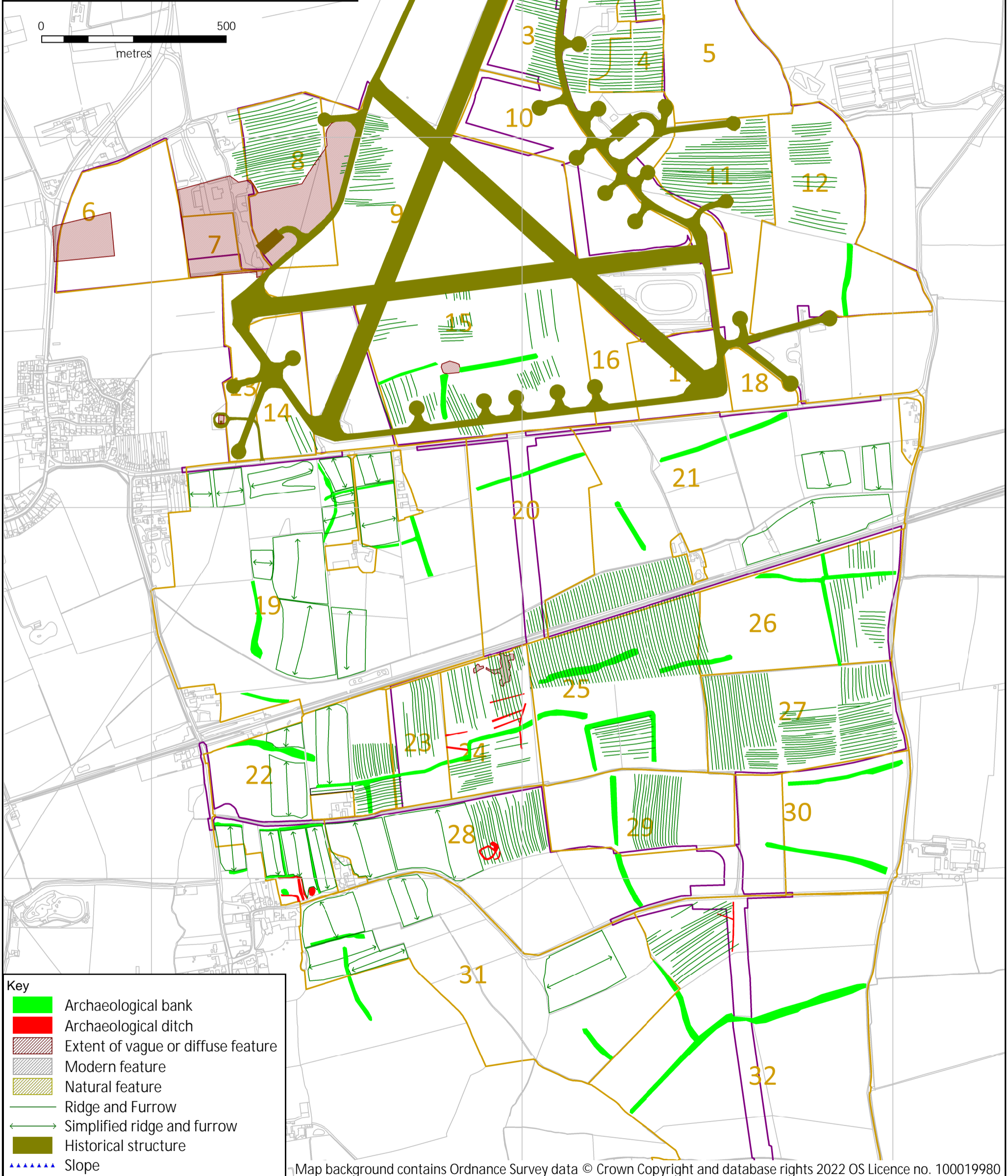


Figure 3. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Blyton and Pilham

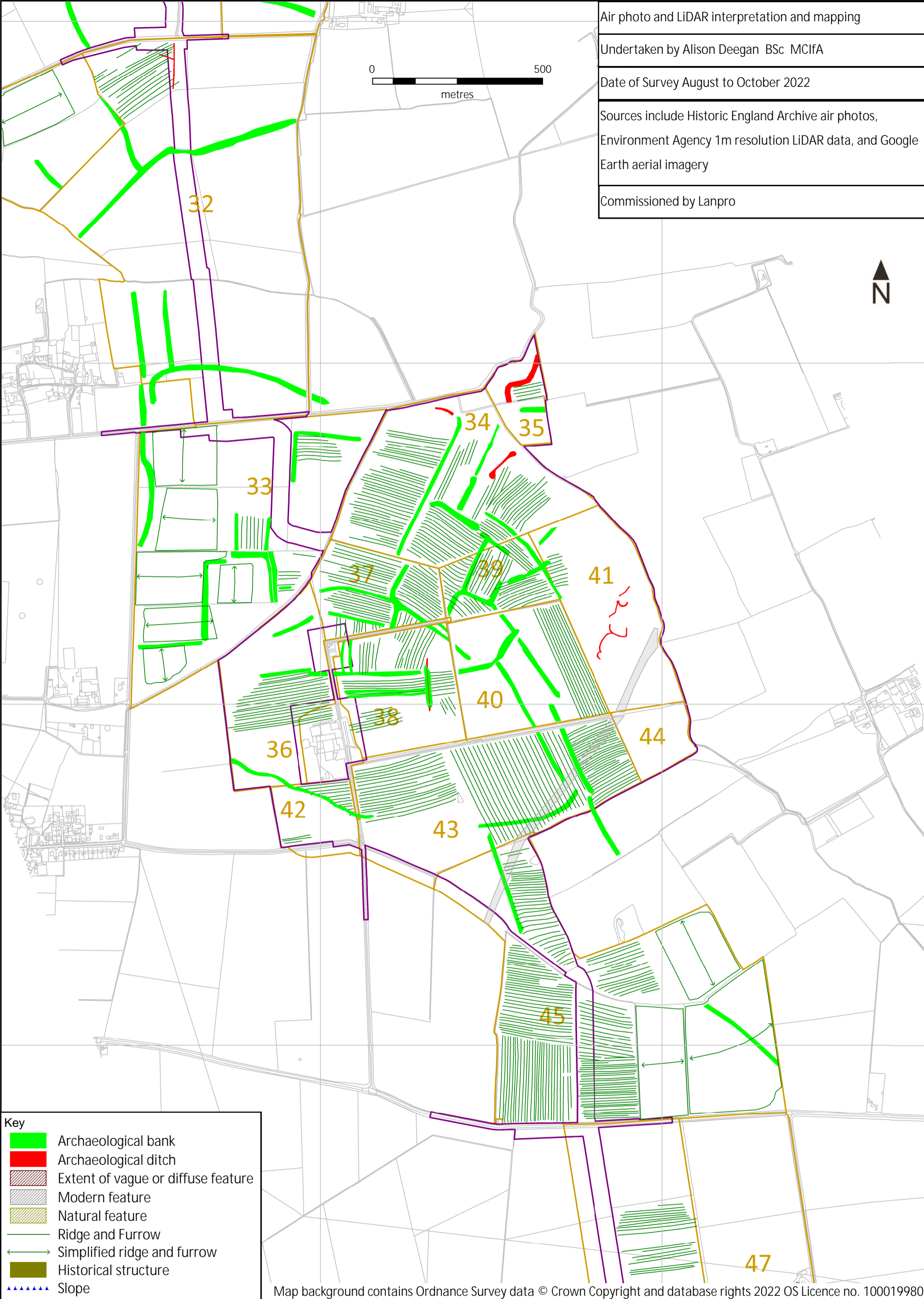
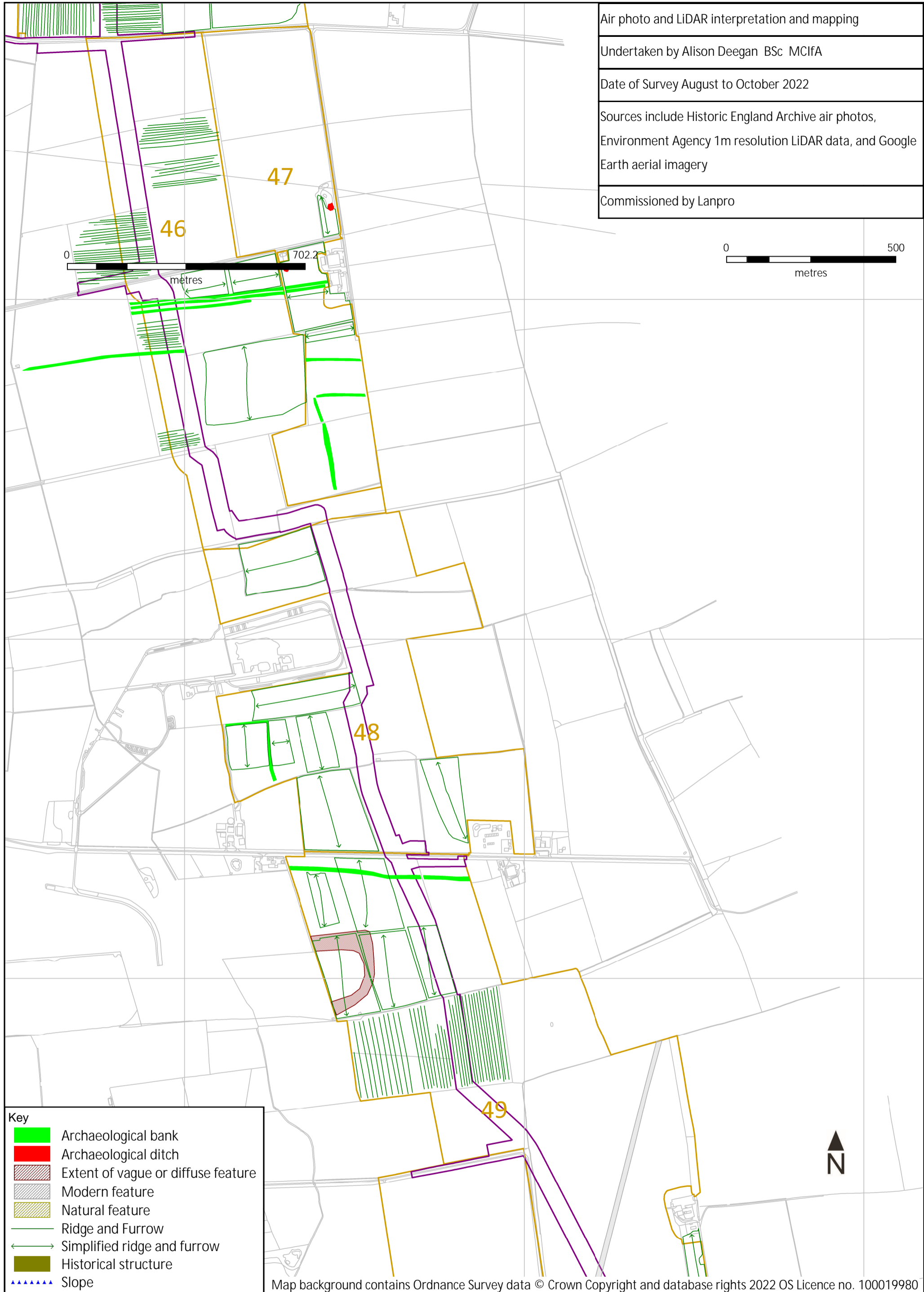


Figure 4. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Corringham Grange



Air photo and LiDAR interpretation and mapping
 Undertaken by Alison Deegan BSc MCIfA
 Date of Survey August to October 2022
 Sources include Historic England Archive air photos, Environment Agency 1m resolution LiDAR data, and Google Earth aerial imagery
 Commissioned by Lanpro

Key

- █ Archaeological bank
- █ Archaeological ditch
- Extent of vague or diffuse feature
- Modern feature
- Natural feature
- Ridge and Furrow
- Simplified ridge and furrow
- Historical structure
- ▲ Slope

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Figure 5. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Springthorpe Grange

Air photo and LiDAR interpretation and mapping
 Undertaken by Alison Deegan BSc MCIFA
 Date of Survey August to October 2022
 Sources include Historic England Archive air photos,
 Environment Agency 1m resolution LiDAR data, and Google
 Earth aerial imagery
 Commissioned by Lanpro

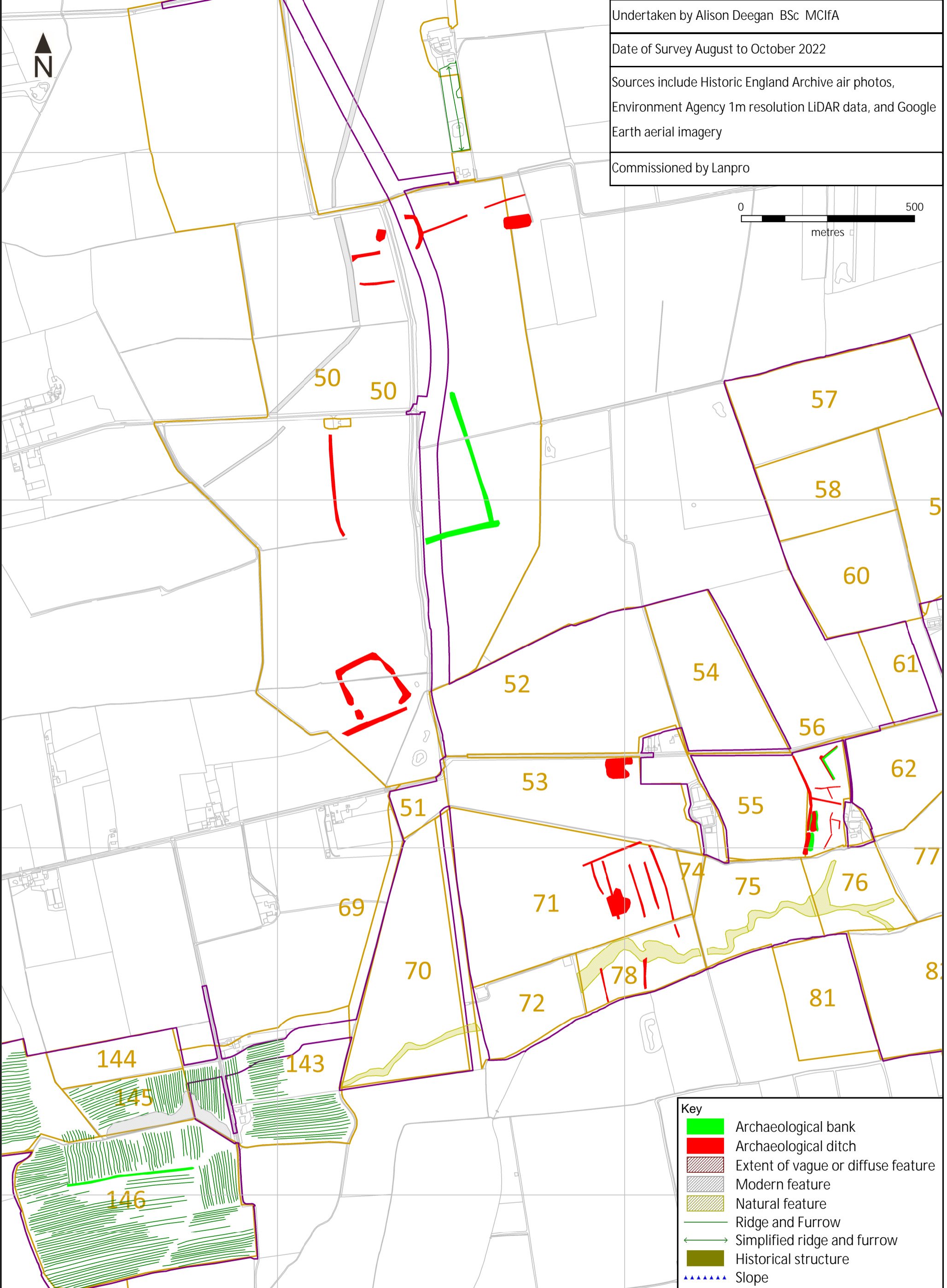
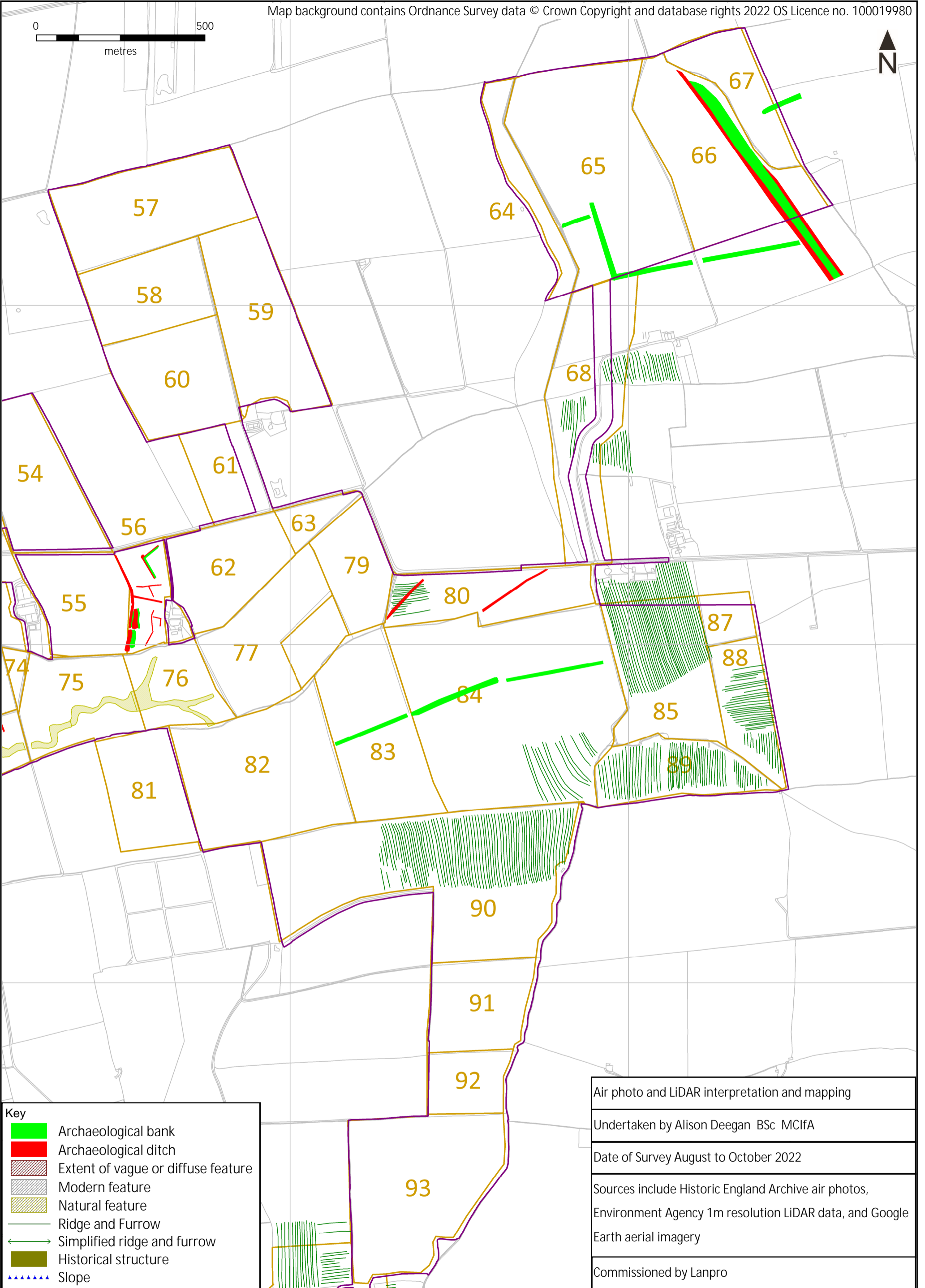
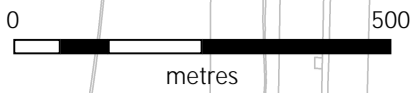


Figure 6. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Gypsy Lane Bridge



Key

	Archaeological bank
	Archaeological ditch
	Extent of vague or diffuse feature
	Modern feature
	Natural feature
	Ridge and Furrow
	Simplified ridge and furrow
	Historical structure
	Slope

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Sources include Historic England Archive air photos, Environment Agency 1m resolution LiDAR data, and Google Earth aerial imagery
Commissioned by Lanpro

Figure 7. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Side Farm

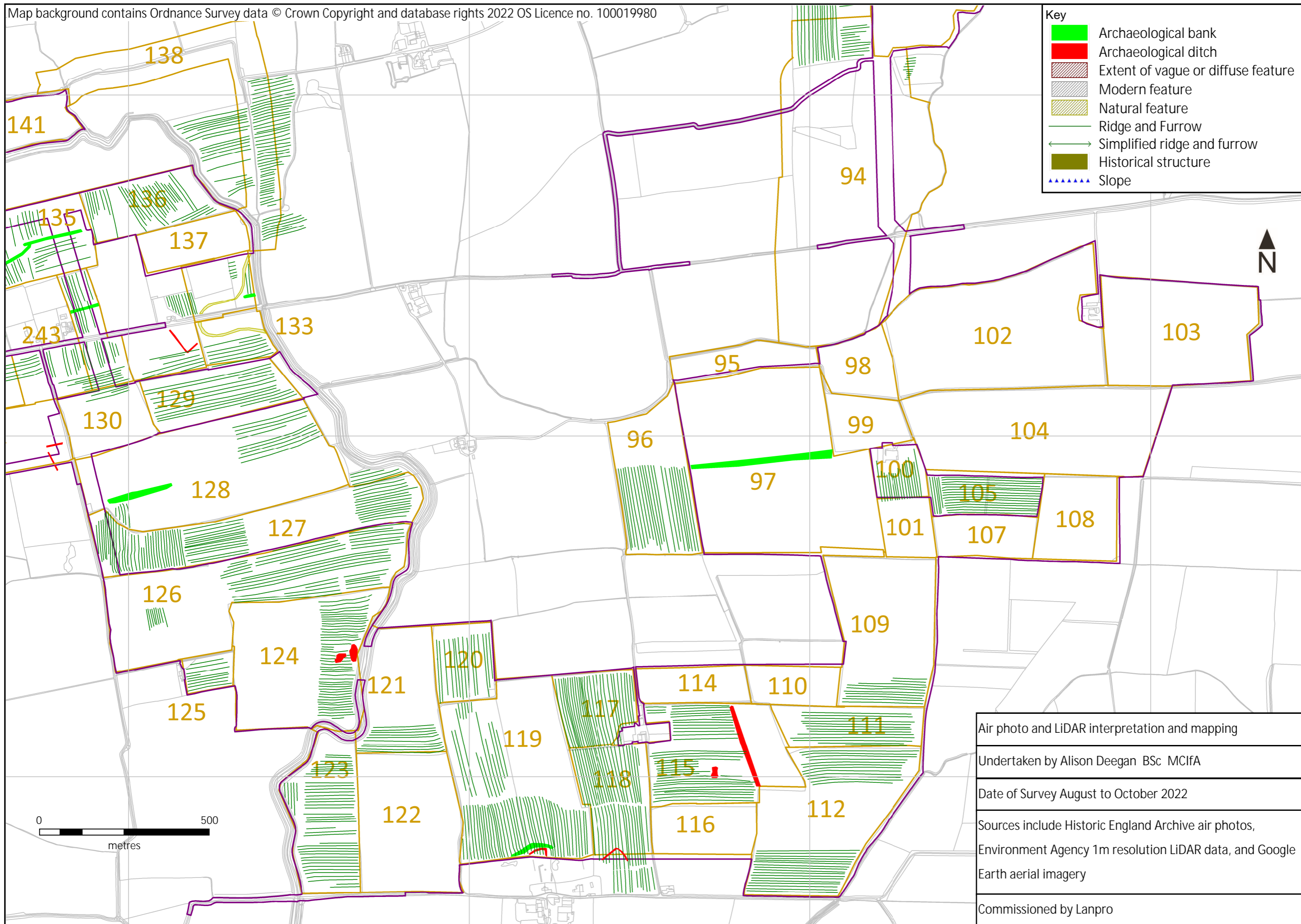


Figure 8. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Thorpe in the Fallows

Air photo and LiDAR interpretation and mapping

Undertaken by Alison Deegan BSc MCIFA

Date of Survey August to October 2022

Sources include Historic England Archive air photos, Environment Agency 1m resolution LiDAR data, and Google Earth aerial imagery

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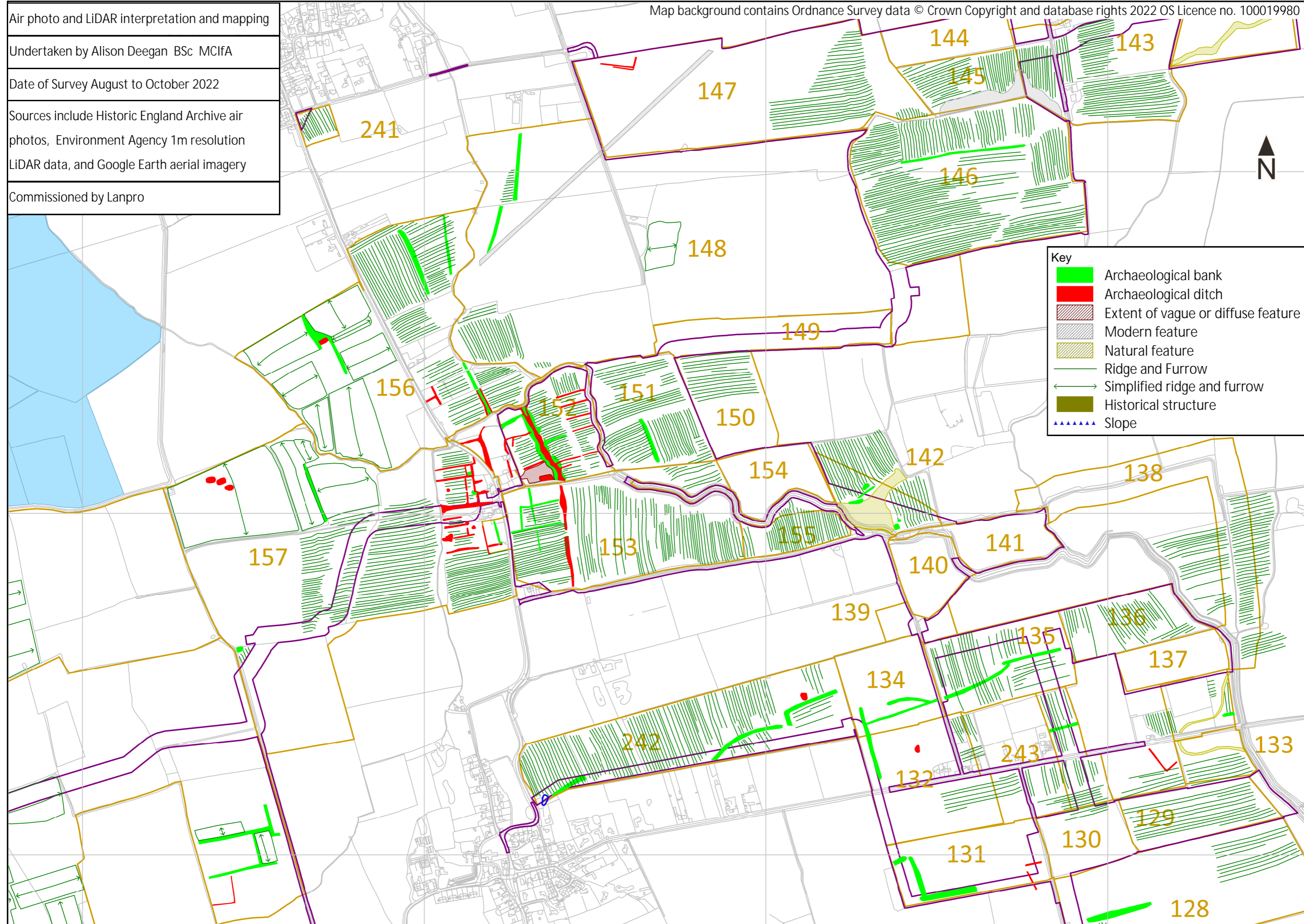


Figure 9. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Normanby by Stow

Air photo and LiDAR interpretation and mapping

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Sources include Historic England Archive air photos, Environment Agency 1m resolution LiDAR data, and Google Earth aerial imagery

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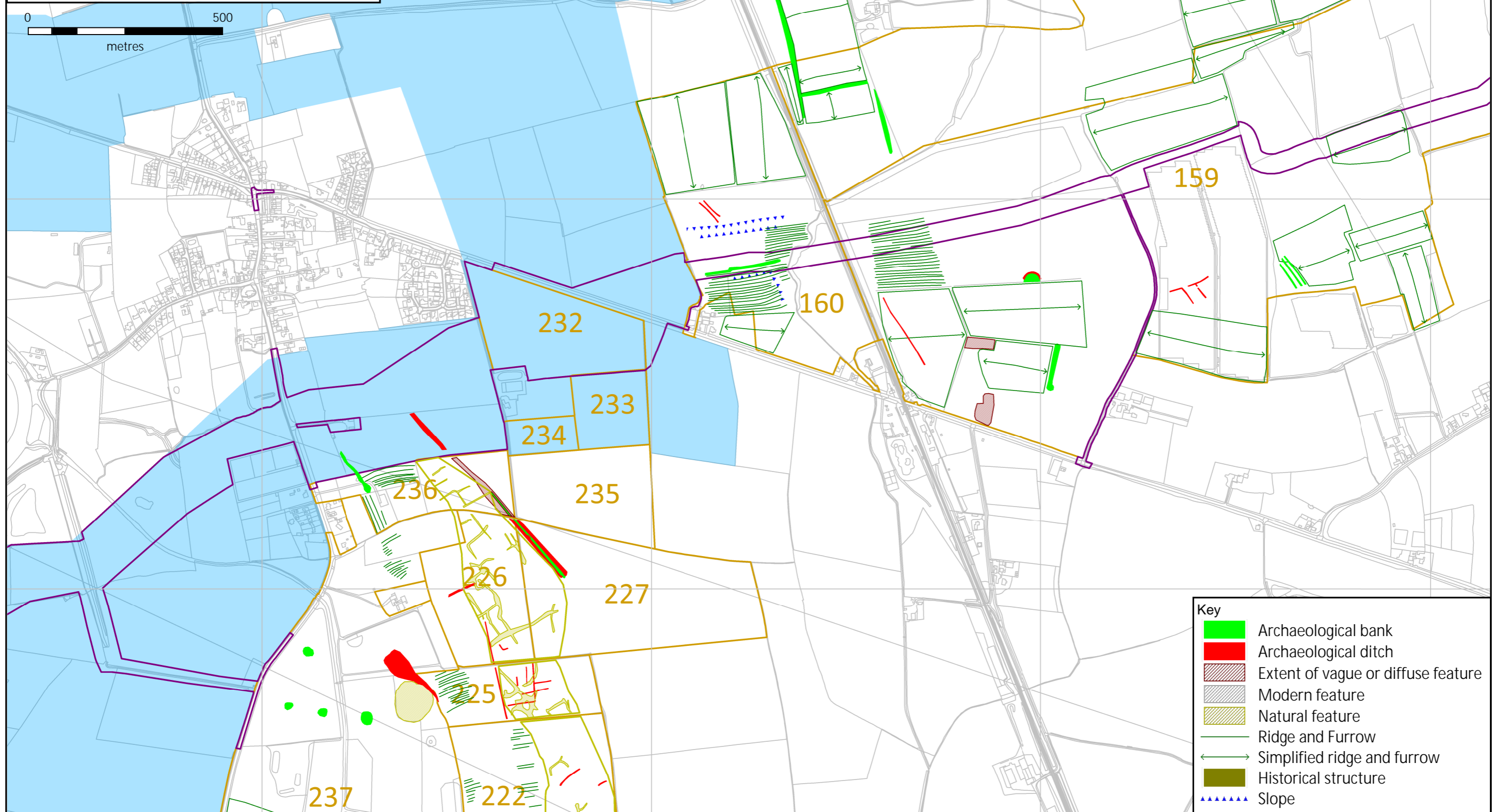


Figure 10. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Marton

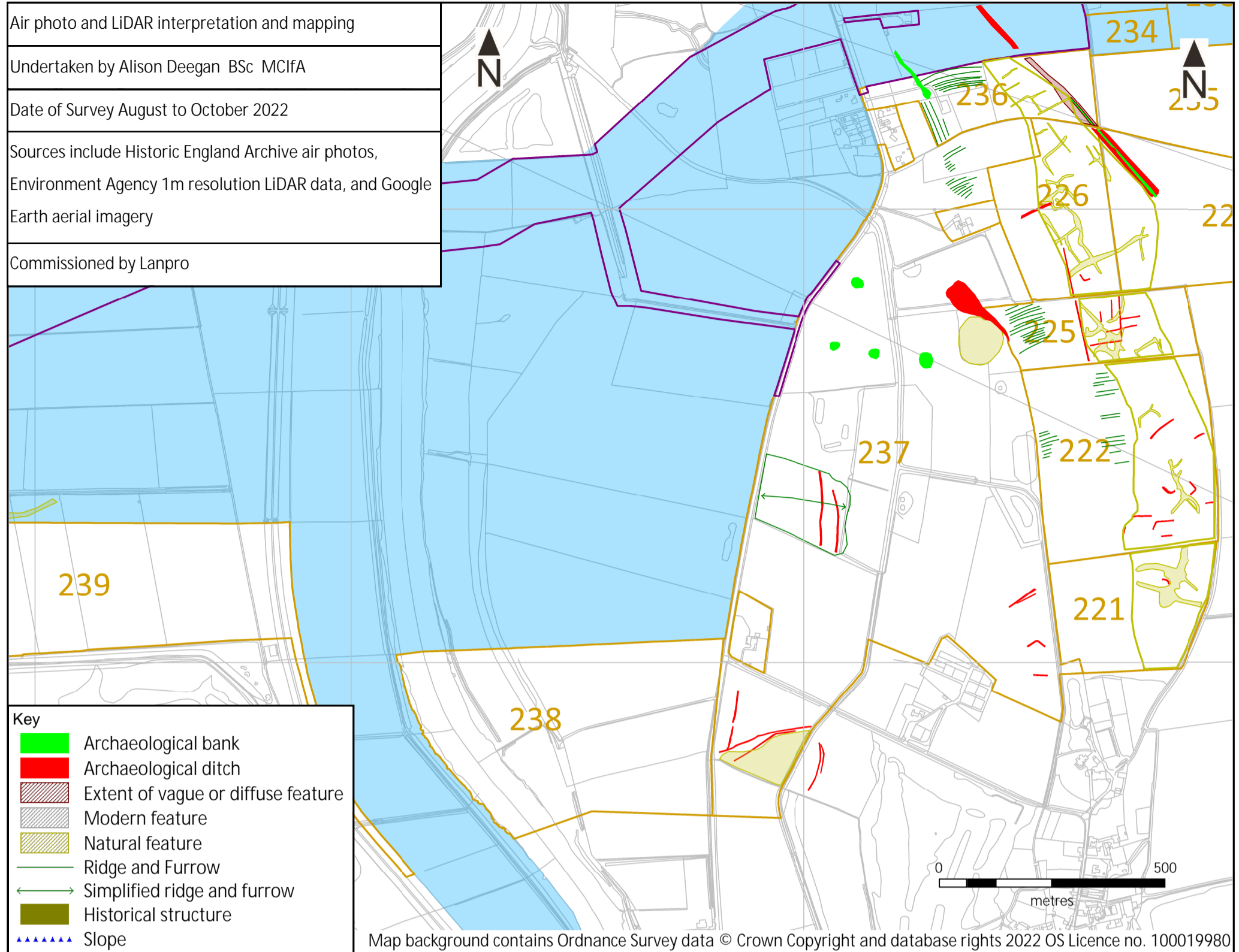


Figure 11. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Brampton

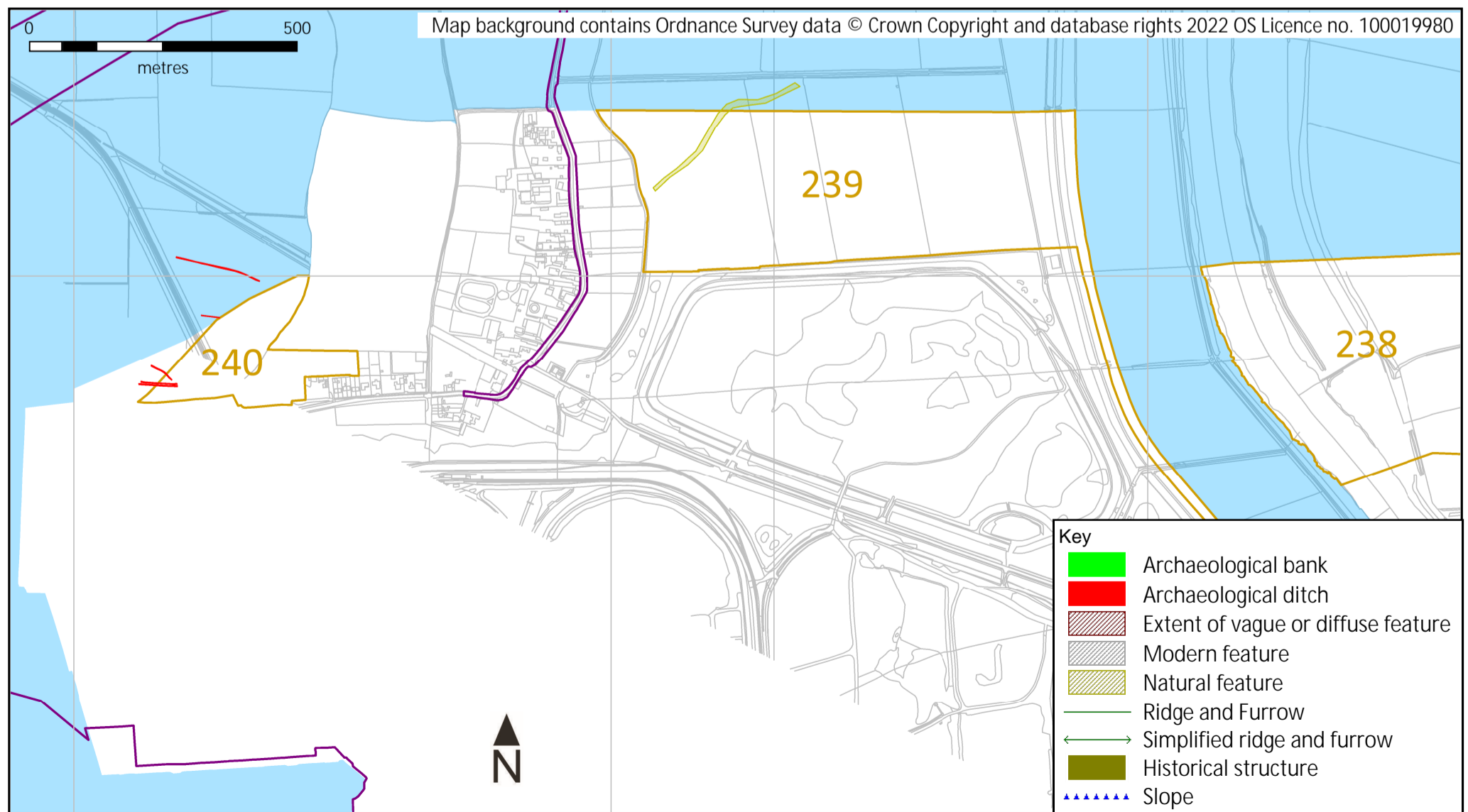


Figure 12. Air photo and LiDAR mapping for the Cottam Solar Project and cable routes: Cottam

Appendix 1 Archaeology from black and white and colour air photographs

Air photographs and aerial imagery taken in appropriate conditions can record crop marks, soilmarks and earthworks of archaeological origin.

Crop marks result from variations in leaf and stalk colour and plant height and vigour. Crop marks occur where there are anomalies below the ground: in-filled hollows, palaeochannels, frost cracks, archaeological pits, ditches, surfaces and banks or modern disturbances such as land drains. Crop marks can also be created by variations in the treatment of the topsoil and ground cover, for example the uneven application of fertilizers, pesticides and herbicides or damage.

Crop marks that delineate buried and levelled archaeological features are the effect of differential growth and ripening between the vegetation on the archaeological deposits and that on surrounding undisturbed ground. Variations in growth and ripening are most visible when there is a significant difference in the water and nutrient availability between the archaeological and natural deposits. Crop marks can form at any stage from germination to ripening but the optimal conditions are during periods when precipitation is exceeded by transpiration. This results in potential soil moisture deficit (SMD) and water-stressed plants (Jones and Evans 1975). Prolonged periods of SMD halt plant growth and then cause wilting of the plant leaves, stem and finally root. Water-stress is exacerbated by free-draining sub-surface deposits such as archaeological walls or road surfaces but mitigated by rich and humic ditch and pit deposits. Even after ripening, differences in crop height and bulk can indicate the presence of buried features where there are no tonal differences. Crop marks can be seen most clearly in large areas of homogenous, fast-growing plants such as cereal crops and, less frequently, in root crops and grass. Crop marks produced in arable and grass at times of significant moisture stress, usually over buried structures or other highly permeable archaeological deposits, are often referred to as parchmarks.

Soilmarks are the colour and tonal differences between archaeological deposits and the plough or subsoil. The action of ploughing, which can penetrate the ground to a depth of 45cm, brings to the surface previously buried material. The rotation of the plough exposes the cut surface uppermost. Where the plough cuts buried and infilled archaeological features such as banks and ditches it brings to the surface slices of these deposits. If these slices are sufficiently differentiated from the natural plough or subsoil they can be visible from the air.

Archaeological earthworks that are visible on the ground can also be seen from the air. Detection and recording of earthworks from the air is determined by their survival and visibility. The survival of earthworks depends on past and present land use; natural erosion processes, deliberate destruction and ploughing can all reduce upstanding features to ground level. Earthworks can be revealed by the pattern of sunlight and shadow, differential frost or snow cover or the distribution of standing and flood water. Large and subtle variations in ground relief are further accentuated when viewed stereoscopically. Most stereo images are vertical photographs taken in long, regular sorties but stereo-overlapping can also be achieved from correctly set-up oblique views.

Appendix 2 Archaeology from LiDAR survey data

Airborne Light Detection and Ranging (LiDAR) is a data collection technique that uses a laser to measure certain variables. For archaeological purposes it is the distance between the aircraft and the ground that provides particular interest. During LiDAR flights up to 100,000 measurements per second are made of the ground, allowing highly detailed models of the ground surface, including the details of surviving archaeological earthworks, to be generated at spatial resolutions of between 25cm and 2 metres.

The resulting dataset is a grid of height points called a Digital Elevation Surface Model, these points can be filter to remove those measurements that were read from trees, buildings and other supra-surface features, the result is a Digital Terrain Model, sometimes called a 'Bare Earth' model. The latter is particular useful for the identification of archaeological earthworks where they are obscured on conventional air photos by tree and shrub cover. The DSM and DTM need to be transformed into a visualisations for analysis and interpretation. For this survey two different visualisations were employed for the identification of archaeological earthworks: multi-direction hill-shaded model and simple local relief model.

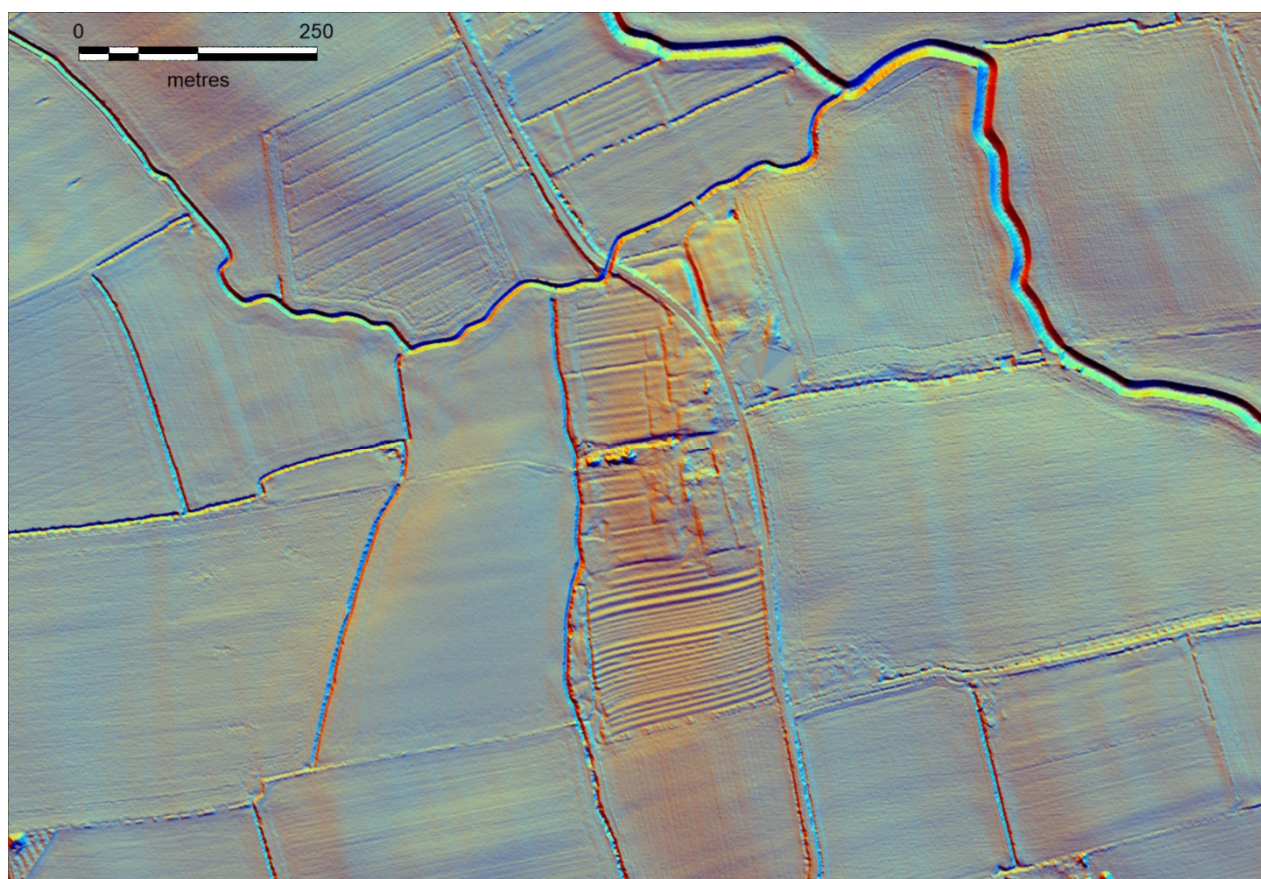


Figure A. A 16-Direction Hill-shaded model of DTM. Hill-shading casts an artificial light source across a landscape to reveal surface irregularities. Hill-shading from a single direction of light will not reveal those features that are in alignment with the light source. This visualisation combines the light and shade of 16 different directions of light. The visualisation can be further enhanced by exaggerating the vertical elevation and lowering the angle of the light source.



Figure B. Simple Local Relief Model (of DTM). General relief models convey landscape scale topography at the expense of smaller scale features including archaeological earthworks. This visualisation removes the general trend, eg hills and valleys to accentuate the appearance of the smaller scale features. In this visualisation the lighter tones represent banks and mounds, the darker, ditches and pits. This visualisation is particularly effective at revealing very low earthworks.

Further information and guidance on the use of LiDAR for archaeological prospection and the creation of visualisation from LiDAR data can be found in Crutchley and Crow (2009) and Kokalj and Hesse (2017).

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes

Appendix 3 Historic England Coversearch 135459: Vertical Air Photos.

Sortie number	Library number	Camera position	Frame number	Held	Date	Scale 1:
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Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes

Sortie number	Library number	Camera position	Frame number	Held	Date	Scale 1:
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RAF/541/35	873	RS	4233	P	19 MAY 1948	10750
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RAF/541/35	873	RS	4474	P	19 MAY 1948	10750
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RAF/58/1510	1542	F21	35	P	29 JUL 1954	10000
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RAF/58/5011	2448	V	56	P	23 MAR 1962	4500
RAF/58/5011	2448	V	57	P	23 MAR 1962	4500
RAF/58/5011	2448	V	58	P	23 MAR 1962	4500
RAF/542/63	2570	F21	209	P	12 OCT 1954	11000
RAF/541/185	2685	RP	3151	P	19 OCT 1948	9960
RAF/541/185	2685	RP	3222	P	19 OCT 1948	9960
RAF/541/185	2685	RS	4216	P	19 OCT 1948	9960
RAF/541/185	2685	RS	4217	P	19 OCT 1948	9960
RAF/541/185	2685	RS	4218	P	19 OCT 1948	9960
RAF/541/185	2685	RS	4222	P	19 OCT 1948	9960
RAF/106G/LA/228	3765	FP	1064	P	17 APR 1945	15000
RAF/106G/LA/228	3765	FP	1065	P	17 APR 1945	15000
RAF/106G/LA/228	3765	FS	2065	P	17 APR 1945	15000
RAF/106G/LA/228	3765	FS	2066	P	17 APR 1945	15000
MAL/77005	6946	V	58	P	27 FEB 1977	2500
MAL/77005	6946	V	66	P	27 FEB 1977	2500
MAL/73007	7067	V	48	P	24 FEB 1973	15000
MAL/73007	7067	V	60	P	24 FEB 1973	15000
MAL/73007	7067	V	61	P	24 FEB 1973	15000
MAL/73007	7067	V	62	P	24 FEB 1973	15000
MAL/73007	7067	V	79	P	24 FEB 1973	15000
MAL/73007	7067	V	80	P	24 FEB 1973	15000
MAL/73007	7067	V	82	P	24 FEB 1973	15000
MAL/73007	7067	V	83	P	24 FEB 1973	15000
MAL/73007	7067	V	84	P	24 FEB 1973	15000
MAL/74002	7168	V	50	P	31 JAN 1974	15000
MAL/74002	7168	V	53	P	31 JAN 1974	15000
MAL/74002	7168	V	73	P	31 JAN 1974	15000
MAL/77033	7471	V	57	P	11 OCT 1977	10000
MAL/81047	7728	V	87	P	26 OCT 1981	3000

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Sortie number	Library number	Camera position	Frame number	Held	Date	Scale 1:
MAL/81047	7728	V	88	P	26 OCT 1981	3000
MAL/81047	7728	V	90	P	26 OCT 1981	3000
MAL/81047	7728	V	92	P	26 OCT 1981	3000
MAL/81047	7728	V	94	P	26 OCT 1981	3000
MAL/81047	7728	V	96	P	26 OCT 1981	3000
MAL/81047	7728	V	98	P	26 OCT 1981	3000
MAL/81047	7728	V	100	P	26 OCT 1981	3000
MAL/81047	7728	V	102	P	26 OCT 1981	3000
MAL/81047	7728	V	104	P	26 OCT 1981	3000
MAL/81047	7728	V	201	P	26 OCT 1981	3000
MAL/81047	7728	V	203	P	26 OCT 1981	3000
MAL/81047	7728	V	205	P	26 OCT 1981	3000
MAL/81047	7728	V	207	P	26 OCT 1981	3000
MAL/81047	7728	V	209	P	26 OCT 1981	3000
MAL/81047	7728	V	213	P	26 OCT 1981	3000
MAL/81047	7728	V	215	P	26 OCT 1981	3000
MAL/81047	7728	V	217	P	26 OCT 1981	3000
MAL/81047	7728	V	219	P	26 OCT 1981	3000
MAL/81047	7728	V	222	P	26 OCT 1981	3000
MAL/81047	7728	V	224	P	26 OCT 1981	3000
MAL/81047	7728	V	226	P	26 OCT 1981	3000
MAL/81047	7728	V	228	P	26 OCT 1981	3000
MAL/81047	7728	V	230	P	26 OCT 1981	3000
MAL/81047	7728	V	232	P	26 OCT 1981	3000
MAL/81047	7728	V	234	P	26 OCT 1981	3000
MAL/81047	7728	V	236	P	26 OCT 1981	3000
MAL/81047	7728	V	238	P	26 OCT 1981	3000
MAL/81048	7729	V	69	P	26 OCT 1981	3000
MAL/81048	7729	V	71	P	26 OCT 1981	3000
MAL/81048	7729	V	73	P	26 OCT 1981	3000
MAL/81048	7729	V	75	P	26 OCT 1981	3000
MAL/81048	7729	V	77	P	26 OCT 1981	3000
MAL/81048	7729	V	79	P	26 OCT 1981	3000
MAL/81048	7729	V	81	P	26 OCT 1981	3000
MAL/81048	7729	V	83	P	26 OCT 1981	3000
MAL/81048	7729	V	91	P	26 OCT 1981	3000
MAL/81048	7729	V	93	P	26 OCT 1981	3000
MAL/81048	7729	V	95	P	26 OCT 1981	3000
MAL/81048	7729	V	97	P	26 OCT 1981	3000
MAL/81048	7729	V	99	P	26 OCT 1981	3000
MAL/81048	7729	V	101	P	26 OCT 1981	3000
MAL/81048	7729	V	103	P	26 OCT 1981	3000
MAL/81048	7729	V	105	P	26 OCT 1981	3000
MAL/81048	7729	V	206	P	26 OCT 1981	3000
MAL/81048	7729	V	212	P	26 OCT 1981	3000
MAL/81048	7729	V	214	P	26 OCT 1981	3000
MAL/81048	7729	V	216	P	26 OCT 1981	3000
MAL/81048	7729	V	218	P	26 OCT 1981	3000
MAL/81048	7729	V	220	P	26 OCT 1981	3000
MAL/81048	7729	V	222	P	26 OCT 1981	3000
MAL/81048	7729	V	224	P	26 OCT 1981	3000
MAL/81048	7729	V	226	P	26 OCT 1981	3000
MAL/81048	7729	V	229	P	26 OCT 1981	3000
MAL/81048	7729	V	230	P	26 OCT 1981	3000
MAL/81048	7729	V	232	P	26 OCT 1981	3000
MAL/81048	7729	V	234	P	26 OCT 1981	3000
MAL/81048	7729	V	236	P	26 OCT 1981	3000
MAL/81048	7729	V	238	P	26 OCT 1981	3000

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Sortie number	Library number	Camera position	Frame number	Held	Date	Scale 1:
MAL/81048	7729	V	246	P	26 OCT 1981	3000
MAL/81048	7729	V	248	P	26 OCT 1981	3000
MAL/81048	7729	V	250	P	26 OCT 1981	3000
MAL/81049	7730	V	66	P	26 OCT 1981	3000
MAL/81049	7730	V	68	P	26 OCT 1981	3000
MAL/81049	7730	V	70	P	26 OCT 1981	3000
MAL/81049	7730	V	82	P	26 OCT 1981	3000
MAL/81049	7730	V	84	P	26 OCT 1981	3000
MAL/81049	7730	V	99	P	26 OCT 1981	3000
MAL/81049	7730	V	101	P	26 OCT 1981	3000
MAL/81049	7730	V	103	P	26 OCT 1981	3000
MAL/81049	7730	V	174	P	26 OCT 1981	3000
MAL/81049	7730	V	176	P	26 OCT 1981	3000
MAL/81049	7730	V	178	P	26 OCT 1981	3000
MAL/81049	7730	V	180	P	26 OCT 1981	3000
MAL/81049	7730	V	189	P	26 OCT 1981	3000
MAL/81049	7730	V	191	P	26 OCT 1981	3000
MAL/81049	7730	V	193	P	26 OCT 1981	3000
MAL/81049	7730	V	195	P	26 OCT 1981	3000
MAL/81049	7730	V	249	P	26 OCT 1981	3000
MAL/81049	7730	V	251	P	26 OCT 1981	3000
MAL/81049	7730	V	253	P	26 OCT 1981	3000
MAL/81049	7730	V	255	P	26 OCT 1981	3000
MAL/81049	7730	V	257	P	26 OCT 1981	3000
MAL/81049	7730	V	258	P	26 OCT 1981	3000
MAL/81052	7734	V	69	P	30 OCT 1981	3000
MAL/81052	7734	V	71	P	30 OCT 1981	3000
MAL/81052	7734	V	73	P	30 OCT 1981	3000
MAL/81052	7734	V	74	P	30 OCT 1981	3000
RAF/HLA/378	8411	RP	606	P	15 DEC 1941	13500
RAF/HLA/378	8411	RP	608	P	15 DEC 1941	13500
RAF/HLA/378	8411	RP	609	P	15 DEC 1941	13500
RAF/HLA/378	8411	RP	610	P	15 DEC 1941	13500
RAF/HLA/378	8411	RP	619	P	15 DEC 1941	13500
RAF/HLA/378	8411	RS	909	P	15 DEC 1941	13500
RAF/HLA/378	8411	RS	910	P	15 DEC 1941	13500
RAF/HLA/378	8411	RS	913	P	15 DEC 1941	13500
RAF/HLA/378	8411	RS	923	P	15 DEC 1941	13500
RAF/NLA/50	8631	V	5034	P	SEP 1942	7500
RAF/NLA/50	8631	V	5035	P	SEP 1942	7500
RAF/NLA/50	8631	V	5037	P	SEP 1942	7500
RAF/NLA/50	8631	V	5038	P	SEP 1942	7500
RAF/NLA/50	8631	V	5039	P	SEP 1942	7500
RAF/FNO/96	8824	RV	6007	P	16 AUG 1942	15700
OS/69215	9273	V	488	P	08 JUN 1969	7500
OS/69215	9273	V	489	P	08 JUN 1969	7500
OS/69215	9273	V	490	P	08 JUN 1969	7500
OS/69215	9273	V	491	P	08 JUN 1969	7500
OS/69215	9273	V	492	P	08 JUN 1969	7500
OS/68218	9283	V	187	P	14 JUN 1968	7500
OS/68218	9283	V	188	P	14 JUN 1968	7500
OS/68218	9283	V	189	P	14 JUN 1968	7500
OS/68218	9283	V	190	P	14 JUN 1968	7500
OS/68218	9283	V	191	P	14 JUN 1968	7500
OS/68218	9283	V	314	P	14 JUN 1968	7500
OS/68218	9283	V	315	P	14 JUN 1968	7500
OS/68218	9283	V	316	P	14 JUN 1968	7500
OS/71185	10098	V	60	P	13 MAY 1971	7500

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Sortie number	Library number	Camera position	Frame number	Held	Date	Scale 1:
OS/71185	10098	V	61	P	13 MAY 1971	7500
OS/71185	10098	V	84	P	13 MAY 1971	7500
OS/71185	10098	V	85	P	13 MAY 1971	7500
OS/71185	10098	V	86	P	13 MAY 1971	7500
OS/71149	10122	V	6	P	03 MAY 1971	7500
OS/71149	10122	V	7	P	03 MAY 1971	7500
OS/71149	10122	V	8	P	03 MAY 1971	7500
OS/71149	10122	V	9	P	03 MAY 1971	7500
OS/71149	10122	V	10	P	03 MAY 1971	7500
OS/71149	10122	V	11	P	03 MAY 1971	7500
OS/71149	10122	V	12	P	03 MAY 1971	7500
OS/71149	10122	V	43	P	03 MAY 1971	7500
OS/71149	10122	V	44	P	03 MAY 1971	7500
OS/71149	10122	V	45	P	03 MAY 1971	7500
OS/71149	10122	V	58	P	03 MAY 1971	7500
OS/71149	10122	V	59	P	03 MAY 1971	7500
OS/71149	10122	V	60	P	03 MAY 1971	7500
OS/71149	10122	V	93	P	03 MAY 1971	7500
OS/71149	10122	V	94	P	03 MAY 1971	7500
OS/71149	10122	V	95	P	03 MAY 1971	7500
OS/71149	10122	V	107	P	03 MAY 1971	7500
OS/71149	10122	V	108	P	03 MAY 1971	7500
OS/71149	10122	V	109	P	03 MAY 1971	7500
OS/71149	10122	V	147	P	03 MAY 1971	7500
OS/71149	10122	V	148	P	03 MAY 1971	7500
OS/71149	10122	V	149	P	03 MAY 1971	7500
OS/71149	10122	V	150	P	03 MAY 1971	7500
OS/71149	10122	V	151	P	03 MAY 1971	7500
OS/71149	10122	V	154	P	03 MAY 1971	7500
OS/71149	10122	V	155	P	03 MAY 1971	7500
OS/71149	10122	V	156	P	03 MAY 1971	7500
OS/71149	10122	V	157	P	03 MAY 1971	7500
OS/72048	10263	V	26	P	24 MAR 1972	7500
OS/72048	10263	V	27	P	24 MAR 1972	7500
OS/72048	10263	V	28	P	24 MAR 1972	7500
OS/72048	10263	V	31	P	24 MAR 1972	7500
OS/72048	10263	V	32	P	24 MAR 1972	7500
OS/72048	10263	V	83	P	24 MAR 1972	7500
OS/72048	10263	V	84	P	24 MAR 1972	7500
OS/72048	10263	V	90	P	24 MAR 1972	7500
OS/72048	10263	V	138	P	24 MAR 1972	7500
OS/72048	10263	V	148	P	24 MAR 1972	7500
OS/72048	10263	V	149	P	24 MAR 1972	7500
OS/72048	10263	V	150	P	24 MAR 1972	7500
OS/72048	10263	V	151	P	24 MAR 1972	7500
OS/72048	10263	V	152	P	24 MAR 1972	7500
OS/72048	10263	V	153	P	24 MAR 1972	7500
OS/72048	10263	V	186	P	24 MAR 1972	7500
OS/72048	10263	V	187	P	24 MAR 1972	7500
OS/72024	10268	V	315	P	21 MAR 1972	7500
OS/72113	10269	V	407	P	03 MAY 1972	7500
OS/72113	10269	V	408	P	03 MAY 1972	7500
OS/72113	10269	V	432	P	03 MAY 1972	7500
OS/72113	10269	V	433	P	03 MAY 1972	7500
OS/72113	10269	V	434	P	03 MAY 1972	7500
OS/72113	10269	V	435	P	03 MAY 1972	7500
OS/72113	10269	V	436	P	03 MAY 1972	7500
OS/72114	10270	V	461	P	03 MAY 1972	7500

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Sortie number	Library number	Camera position	Frame number	Held	Date	Scale 1:
OS/72114	10270	V	462	P	03 MAY 1972	7500
OS/72114	10270	V	463	P	03 MAY 1972	7500
OS/72114	10270	V	464	P	03 MAY 1972	7500
OS/72220	10271	V	485	P	14 JUL 1972	7500
OS/72220	10271	V	486	P	14 JUL 1972	7500
OS/72220	10271	V	487	P	14 JUL 1972	7500
OS/72220	10271	V	488	P	14 JUL 1972	7500
OS/72220	10271	V	489	P	14 JUL 1972	7500
OS/72220	10271	V	490	P	14 JUL 1972	7500
OS/72220	10271	V	494	P	14 JUL 1972	7500
OS/72220	10271	V	495	P	14 JUL 1972	7500
OS/72220	10271	V	496	P	14 JUL 1972	7500
OS/72220	10271	V	497	P	14 JUL 1972	7500
OS/72220	10271	V	498	P	14 JUL 1972	7500
OS/72220	10271	V	542	P	14 JUL 1972	7500
OS/72220	10271	V	546	P	14 JUL 1972	7500
OS/72220	10271	V	547	P	14 JUL 1972	7500
OS/72220	10271	V	548	P	14 JUL 1972	7500
OS/72220	10271	V	549	P	14 JUL 1972	7500
OS/72220	10271	V	553	P	14 JUL 1972	7500
OS/71524	10272	V	72	P	21 SEP 1971	7500
OS/71524	10272	V	73	P	21 SEP 1971	7500
OS/71524	10272	V	74	P	21 SEP 1971	7500
OS/71524	10272	V	75	P	21 SEP 1971	7500
OS/71524	10272	V	76	P	21 SEP 1971	7500
OS/71524	10272	V	124	P	21 SEP 1971	7500
OS/71524	10272	V	125	P	21 SEP 1971	7500
OS/71507	10274	V	52	P	09 SEP 1971	7500
OS/71507	10274	V	53	P	09 SEP 1971	7500
OS/73033	10372	V	159	P	23 MAR 1973	7500
OS/73033	10372	V	160	P	23 MAR 1973	7500
OS/73033	10372	V	161	P	23 MAR 1973	7500
OS/73033	10372	V	166	P	23 MAR 1973	7500
OS/73033	10372	V	167	P	23 MAR 1973	7500
OS/73033	10372	V	168	P	23 MAR 1973	7500
OS/73033	10372	V	169	P	23 MAR 1973	7500
OS/73033	10372	V	170	P	23 MAR 1973	7500
OS/73033	10372	V	171	P	23 MAR 1973	7500
OS/73033	10372	V	172	P	23 MAR 1973	7500
OS/73033	10372	V	173	P	23 MAR 1973	7500
OS/73330	10374	V	375	P	23 JUN 1973	7500
OS/73330	10374	V	376	P	23 JUN 1973	7500
OS/73330	10374	V	377	P	23 JUN 1973	7500
OS/73330	10374	V	378	P	23 JUN 1973	7500
OS/73330	10374	V	379	P	23 JUN 1973	7500
OS/73327	10376	V	453	P	18 JUN 1973	7500
OS/73327	10376	V	454	P	18 JUN 1973	7500
OS/73327	10376	V	455	P	18 JUN 1973	7500
OS/73327	10376	V	461	P	18 JUN 1973	7500
OS/73327	10376	V	462	P	18 JUN 1973	7500
OS/73327	10376	V	463	P	18 JUN 1973	7500
OS/73327	10376	V	470	P	18 JUN 1973	7500
OS/73327	10376	V	471	P	18 JUN 1973	7500
OS/73327	10376	V	472	P	18 JUN 1973	7500
OS/73327	10376	V	473	P	18 JUN 1973	7500
OS/73327	10376	V	474	P	18 JUN 1973	7500
OS/73327	10376	V	475	P	18 JUN 1973	7500
OS/73331	10380	V	1	P	23 JUN 1973	7500

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Sortie number	Library number	Camera position	Frame number	Held	Date	Scale 1:
OS/73331	10380	V	46	P	23 JUN 1973	7500
OS/73331	10380	V	47	P	23 JUN 1973	7500
OS/70081	10615	V	21	P	05 MAY 1970	7500
OS/70081	10615	V	57	P	05 MAY 1970	7500
OS/70081	10615	V	58	P	05 MAY 1970	7500
OS/70081	10615	V	93	P	05 MAY 1970	7500
OS/70081	10615	V	95	P	05 MAY 1970	7500
OS/70081	10615	V	96	P	05 MAY 1970	7500
OS/70081	10615	V	97	P	05 MAY 1970	7500
OS/70081	10615	V	98	P	05 MAY 1970	7500
OS/70081	10615	V	125	P	05 MAY 1970	7500
OS/70081	10615	V	126	P	05 MAY 1970	7500
OS/70081	10615	V	127	P	05 MAY 1970	7500
OS/70081	10615	V	128	P	05 MAY 1970	7500
OS/70081	10615	V	129	P	05 MAY 1970	7500
OS/70081	10615	V	130	P	05 MAY 1970	7500
OS/88244	13350	V	4921	P	06 AUG 1988	7700
OS/88244	13350	V	4947	P	06 AUG 1988	7700
OS/88244	13350	V	4948	P	06 AUG 1988	7700
OS/88244	13350	V	5000	P	06 AUG 1988	7700
OS/88244	13350	V	5001	P	06 AUG 1988	7700
OS/88244	13350	V	5002	P	06 AUG 1988	7700
OS/88244	13350	V	5003	P	06 AUG 1988	7700
OS/88244	13350	V	5016	P	06 AUG 1988	7700
OS/88244	13350	V	5017	P	06 AUG 1988	7700
OS/88244	13350	V	5018	P	06 AUG 1988	7700
OS/88244	13350	V	5019	P	06 AUG 1988	7700
OS/88244	13350	V	5020	P	06 AUG 1988	7700
OS/88244	13350	V	5082	P	06 AUG 1988	7700
OS/88244	13350	V	5083	P	06 AUG 1988	7700
OS/88244	13350	V	5084	P	06 AUG 1988	7700
OS/88244	13350	V	5088	P	06 AUG 1988	7700
OS/88244	13350	V	5089	P	06 AUG 1988	7700
OS/88245	13351	V	5183	P	06 AUG 1988	7700
OS/88245	13351	V	5186	P	06 AUG 1988	7700
OS/91158	13851	V	83	P	14 AUG 1991	7500
OS/91158	13851	V	84	P	14 AUG 1991	7500
OS/91158	13851	V	85	P	14 AUG 1991	7500
OS/91158	13851	V	170	P	14 AUG 1991	7500
OS/91158	13851	V	171	P	14 AUG 1991	7500
MAL/78002	14040	V	84	P	24 FEB 1978	2500
MAL/78005	14042	V	189	P	02 APR 1978	2500
MAL/78005	14042	V	190	P	02 APR 1978	2500
MAL/77033	14046	V	213	P	10 OCT 1977	2500
MAL/77033	14046	V	214	P	10 OCT 1977	2500
MAL/78023	14059	V	133	P	20 JUN 1978	2500
MAL/78023	14059	V	134	P	20 JUN 1978	2500
MAL/78023	14059	V	135	P	20 JUN 1978	2500
MAL/78023	14059	V	136	P	20 JUN 1978	2500
MAL/76072	14060	V	260	P	20 SEP 1976	2500
OS/92325	14116	V	13	P	26 MAY 1992	7500
OS/92325	14116	V	14	P	26 MAY 1992	7500
OS/92325	14116	V	15	P	26 MAY 1992	7500
OS/92325	14116	V	16	P	26 MAY 1992	7500
OS/92325	14116	V	31	P	26 MAY 1992	7500
OS/92325	14116	V	32	P	26 MAY 1992	7500
OS/92325	14116	V	33	P	26 MAY 1992	7500
OS/92325	14116	V	34	P	26 MAY 1992	7500

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Sortie number	Library number	Camera position	Frame number	Held	Date	Scale 1:
OS/92325	14116	V	35	P	26 MAY 1992	7500
OS/92325	14116	V	36	P	26 MAY 1992	7500
OS/92325	14116	V	37	P	26 MAY 1992	7500
OS/92325	14116	V	38	P	26 MAY 1992	7500
OS/92325	14116	V	45	P	26 MAY 1992	7500
OS/92325	14116	V	46	P	26 MAY 1992	7500
OS/92325	14116	V	47	P	26 MAY 1992	7500
OS/92325	14116	V	48	P	26 MAY 1992	7500
OS/92325	14116	V	49	P	26 MAY 1992	7500
OS/92325	14116	V	50	P	26 MAY 1992	7500
OS/92325	14116	V	51	P	26 MAY 1992	7500
OS/94285	14722	V	26	P	16 AUG 1994	7500
OS/94285	14722	V	70	P	16 AUG 1994	7500
OS/94285	14722	V	71	P	16 AUG 1994	7500
OS/94305	14728	V	46	P	02 SEP 1994	7500
OS/94305	14728	V	47	P	02 SEP 1994	7500
OS/94305	14728	V	79	P	02 SEP 1994	7500
OS/94305	14728	V	80	P	02 SEP 1994	7500
OS/94305	14728	V	128	P	02 SEP 1994	7500
OS/94305	14728	V	129	P	02 SEP 1994	7500
OS/94305	14728	V	130	P	02 SEP 1994	7500
OS/94305	14728	V	160	P	02 SEP 1994	7500
MAL/61478	21271	V	91873	P	30 JUN 1961	11000
MAL/61478	21271	V	91874	P	30 JUN 1961	11000
MAL/61478	21271	V	91875	P	30 JUN 1961	11000
MAL/61478	21271	V	91876	P	30 JUN 1961	11000
MAL/61478	21271	V	91895	P	30 JUN 1961	11000
MAL/61478	21271	V	91896	P	30 JUN 1961	11000
MAL/61478	21271	V	91897	P	30 JUN 1961	11000
MAL/61478	21271	V	91898	P	30 JUN 1961	11000
MAL/61478	21271	V	91899	P	30 JUN 1961	11000
MAL/61478	21271	V	91900	P	30 JUN 1961	11000
MAL/61478	21271	V	91901	P	30 JUN 1961	11000
MAL/61478	21271	V	91902	P	30 JUN 1961	11000
MAL/61478	21271	V	91903	P	30 JUN 1961	11000

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes

Appendix 3 Historic England Coversearch 135459: Specialist Air Photos.

Photo reference (NGR and Index number)	Film number	Frame number	Date	Film type
SK 7387 / 1	INV 19416	/ 32A	08 JUN 1997	Colour neg
SK 7390 / 2	INV 19551	/ 05	03 JAN 1999	Colour neg
SK 7390 / 4	NMR 28139	/ 42	03 JUN 2011	Digital colour
SK 7390 / 5	NMR 28139	/ 43	03 JUN 2011	Digital colour
SK 7390 / 6	NMR 28139	/ 44	03 JUN 2011	Digital colour
SK 7390 / 7	NMR 28139	/ 45	03 JUN 2011	Digital colour
SK 7487 / 2	INV 19546	/ 07A	19 JUL 1998	Colour neg
SK 7884 / 4	INV 19416	/ 30A	08 JUN 1997	Colour neg
SK 7885 / 1	HEA 29953	/ 034	26 AUG 2016	Digital colour
SK 7885 / 2	HEA 29953	/ 042	26 AUG 2016	Digital colour
SK 7885 / 3	HEA 34016	/ 023	26 JUN 2018	Digital colour
SK 7885 / 4	HEA 34016	/ 024	26 JUN 2018	Digital colour
SK 7983 / 1	INV 19416	/ 29A	08 JUN 1997	Colour neg
SK 7983 / 2	NMR 17944	/ 06	17 SEP 2003	Digital colour
SK 7983 / 3	NMR 17944	/ 07	17 SEP 2003	Digital colour
SK 7983 / 4	NMR 17920	/ 08	17 SEP 2003	Colour neg
SK 7983 / 5	NMR 17920	/ 09	17 SEP 2003	Colour neg
SK 7983 / 6	NMR 17942	/ 09	17 SEP 2003	Black & white
SK 7983 / 7	NMR 17942	/ 10	17 SEP 2003	Black & white
SK 7985 / 9	NMR 20907	/ 08	10 JUL 2009	Digital colour
SK 7985 / 10	NMR 20907	/ 09	10 JUL 2009	Digital colour
SK 7985 / 11	NMR 20907	/ 10	10 JUL 2009	Digital colour
SK 7985 / 12	HEA 29953	/ 024	26 AUG 2016	Digital colour
SK 7985 / 13	HEA 29953	/ 025	26 AUG 2016	Digital colour
SK 7985 / 14	HEA 29953	/ 026	26 AUG 2016	Digital colour
SK 7985 / 15	HEA 29953	/ 027	26 AUG 2016	Digital colour
SK 7985 / 16	HEA 29953	/ 029	26 AUG 2016	Digital colour
SK 7985 / 17	HEA 29953	/ 030	26 AUG 2016	Digital colour
SK 7985 / 18	HEA 29953	/ 031	26 AUG 2016	Digital colour
SK 7985 / 19	HEA 29953	/ 032	26 AUG 2016	Digital colour
SK 7985 / 20	HEA 29953	/ 033	26 AUG 2016	Digital colour
SK 7985 / 21	HEA 29953	/ 035	26 AUG 2016	Digital colour
SK 7985 / 22	HEA 29953	/ 036	26 AUG 2016	Digital colour
SK 7985 / 23	HEA 29953	/ 037	26 AUG 2016	Digital colour
SK 7985 / 24	HEA 29953	/ 038	26 AUG 2016	Digital colour
SK 7985 / 25	HEA 29953	/ 039	26 AUG 2016	Digital colour
SK 7985 / 27	HEA 29953	/ 041	26 AUG 2016	Digital colour
SK 7985 / 28	HEA 29953	/ 043	26 AUG 2016	Digital colour
SK 7985 / 29	HEA 29953	/ 044	26 AUG 2016	Digital colour
SK 7985 / 30	HEA 29953	/ 045	26 AUG 2016	Digital colour
SK 7985 / 31	HEA 29953	/ 046	26 AUG 2016	Digital colour
SK 7985 / 32	HEA 29953	/ 047	26 AUG 2016	Digital colour
SK 7985 / 36	HEA 28715	/ 020	24 JUN 2015	Digital colour
SK 7985 / 37	HEA 28715	/ 021	24 JUN 2015	Digital colour
SK 8081 / 1	DNR 427	/ 10	21 JUN 1970	Black & white
SK 8081 / 2	DNR 427	/ 11	21 JUN 1970	Black & white
SK 8081 / 3	DNR 870	/ 4	02 JUL 1976	Black & white
SK 8081 / 4	DNR 870	/ 5	02 JUL 1976	Black & white
SK 8081 / 5	DNR 870	/ 6	02 JUL 1976	Black & white
SK 8081 / 6	DNR 870	/ 7	02 JUL 1976	Black & white
SK 8081 / 7	DNR 865	/ 5	29 JUN 1976	Black & white
SK 8081 / 8	DNR 865	/ 6	29 JUN 1976	Black & white
SK 8081 / 9	DNR 865	/ 7	29 JUN 1976	Black & white
SK 8081 / 11	DNR 865	/ 10	29 JUN 1976	Black & white
SK 8081 / 12	DNR 865	/ 12	29 JUN 1976	Black & white
SK 8081 / 13	DNR 865	/ 13	29 JUN 1976	Black & white

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes

Photo reference (NGR and Index number)	Film number	Frame number	Date	Film type
SK 8081 / 16	DNR 1557	/ 29	27 JUL 1979	Black & white
SK 8082 / 4	NMR 20269	/ 09	28 JUN 2005	Colour neg
SK 8082 / 5	NMR 20269	/ 10	28 JUN 2005	Colour neg
SK 8082 / 6	NMR 20269	/ 11	28 JUN 2005	Colour neg
SK 8082 / 7	NMR 20321	/ 15	28 JUN 2005	Digital colour
SK 8082 / 8	NMR 20297	/ 05	28 JUN 2005	Colour neg
SK 8082 / 9	NMR 20297	/ 06	28 JUN 2005	Colour neg
SK 8084 / 1	INV 19406	/ 07A	25 AUG 1996	Colour neg
SK 8180 / 4	DNR 870	/ 13	02 JUL 1976	Black & white
SK 8180 / 5	DNR 866	/ 62	29 JUN 1976	Black & white
SK 8180 / 10	NMR 20269	/ 14	28 JUN 2005	Colour neg
SK 8180 / 12	NMR 20269	/ 16	28 JUN 2005	Colour neg
SK 8180 / 15	NMR 20321	/ 20	28 JUN 2005	Digital colour
SK 8180 / 16	NMR 20321	/ 21	28 JUN 2005	Digital colour
SK 8180 / 17	NMR 20297	/ 11	28 JUN 2005	Colour neg
SK 8180 / 18	NMR 20297	/ 12	28 JUN 2005	Colour neg
SK 8180 / 19	NMR 20297	/ 13	28 JUN 2005	Colour neg
SK 8180 / 22	NMR 20551	/ 45	11 JUL 2006	Digital colour
SK 8180 / 24	NMR 20551	/ 47	11 JUL 2006	Digital colour
SK 8181 / 1	JAP 1187	/ 5	02 SEP 1972	Black & white
SK 8181 / 2	JAP 1187	/ 6	02 SEP 1972	Black & white
SK 8181 / 3	JAP 1187	/ 7	02 SEP 1972	Black & white
SK 8181 / 4	JAP 1187	/ 8	02 SEP 1972	Black & white
SK 8181 / 11	DNR 1170	/ 60	09 JUL 1977	Black & white
SK 8181 / 12	DNR 1170	/ 61	09 JUL 1977	Black & white
SK 8181 / 13	DNR 1170	/ 62	09 JUL 1977	Black & white
SK 8181 / 14	DNR 1170	/ 63	09 JUL 1977	Black & white
SK 8181 / 15	DNR 1170	/ 64	09 JUL 1977	Black & white
SK 8181 / 20	DNR 1557	/ 28	27 JUL 1979	Black & white
SK 8181 / 24	NMR 20269	/ 13	28 JUN 2005	Colour neg
SK 8181 / 25	NMR 20321	/ 17	28 JUN 2005	Digital colour
SK 8181 / 26	NMR 20321	/ 18	28 JUN 2005	Digital colour
SK 8181 / 27	NMR 20297	/ 07	28 JUN 2005	Colour neg
SK 8182 / 1	NMR 1830	/ 083	24 JUL 1980	Black & white
SK 8182 / 2	NMR 1830	/ 084	24 JUL 1980	Black & white
SK 8182 / 3	NMR 1830	/ 085	24 JUL 1980	Black & white
SK 8182 / 4	NMR 1830	/ 086	24 JUL 1980	Black & white
SK 8182 / 18	NMR 20321	/ 16	28 JUN 2005	Digital colour
SK 8182 / 20	NMR 20297	/ 03	28 JUN 2005	Colour neg
SK 8182 / 21	NMR 20297	/ 04	28 JUN 2005	Colour neg
SK 8379 / 4	PLE 2969	/ 34	04 AUG 1979	Black & white
SK 8380 / 1	NMR 1961	/ 083	08 JUL 1981	Black & white
SK 8380 / 2	NMR 1961	/ 084	08 JUL 1981	Black & white
SK 8380 / 4	HEA 28714	/ 053	15 JUN 2015	Digital colour
SK 8381 / 1	DNR 2401	/ 10	26 JUL 1986	Black & white
SK 8381 / 3	NMR 17815	/ 00	20 JUN 2003	Colour neg
SK 8381 / 8	NMR 28313	/ 06	23 JUL 2012	Digital colour
SK 8381 / 9	NMR 28313	/ 07	23 JUL 2012	Digital colour
SK 8381 / 10	NMR 28313	/ 08	23 JUL 2012	Digital colour
SK 8381 / 11	HEA 33822	/ 011	27 JUN 2019	Digital colour
SK 8381 / 12	HEA 33822	/ 012	27 JUN 2019	Digital colour
SK 8382 / 15	NMR 12114	/ 64	22 JUL 1991	Black & white
SK 8382 / 16	NMR 12086	/ 26	22 JUL 1991	Colour slide
SK 8382 / 17	NMR 12086	/ 27	22 JUL 1991	Colour slide
SK 8382 / 40	NMR 28313	/ 09	23 JUL 2012	Digital colour
SK 8382 / 49	HEA 33822	/ 010	27 JUN 2019	Digital colour
SK 8382 / 50	HEA 33822	/ 013	27 JUN 2019	Digital colour
SK 8479 / 1	DNR 427	/ 12	21 JUN 1970	Black & white

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes

Photo reference (NGR and Index number)	Film number	Frame number	Date	Film type
SK 8479 / 2	NMR 1863	/ 244	31 OCT 1980	Black & white
SK 8479 / 3	PLE 2952	/ 9	JUL 1980	Black & white
SK 8479 / 4	PLE 2952	/ 10	JUL 1980	Black & white
SK 8479 / 7	NMR 1863	/ 245	31 OCT 1980	Black & white
SK 8479 / 8	NMR 1863	/ 246	31 OCT 1980	Black & white
SK 8479 / 9	NMR 1863	/ 247	31 OCT 1980	Black & white
SK 8479 / 10	NMR 1863	/ 248	31 OCT 1980	Black & white
SK 8480 / 1	NMR 1961	/ 080	08 JUL 1981	Black & white
SK 8480 / 2	NMR 1961	/ 081	08 JUL 1981	Black & white
SK 8480 / 3	NMR 1961	/ 082	08 JUL 1981	Black & white
SK 8480 / 10	NMR 28172	/ 59	27 JUN 2011	Digital colour
SK 8480 / 11	NMR 28172	/ 60	27 JUN 2011	Digital colour
SK 8480 / 12	NMR 28172	/ 61	27 JUN 2011	Digital colour
SK 8480 / 13	NMR 28172	/ 62	27 JUN 2011	Digital colour
SK 8481 / 1	DNR 1099	/ 64	05 AUG 1977	Black & white
SK 8578 / 7	NMR 28671	/ 46	17 FEB 2015	Digital colour
SK 8578 / 10	NMR 28671	/ 50	17 FEB 2015	Digital colour
SK 8579 / 1	NMR 28671	/ 44	17 FEB 2015	Digital colour
SK 8579 / 2	NMR 28671	/ 45	17 FEB 2015	Digital colour
SK 8579 / 3	NMR 28671	/ 47	17 FEB 2015	Digital colour
SK 8581 / 1	DNR 1099	/ 65	05 AUG 1977	Black & white
SK 8581 / 2	FXH 14155	/ 12	19 JUL 1992	Black & white
SK 8581 / 3	NMR 28335	/ 31	06 SEP 2012	Digital colour
SK 8581 / 4	NMR 28335	/ 32	06 SEP 2012	Digital colour
SK 8581 / 5	NMR 28335	/ 33	06 SEP 2012	Digital colour
SK 8581 / 6	NMR 28335	/ 34	06 SEP 2012	Digital colour
SK 8678 / 1	NMR 28671	/ 31	17 FEB 2015	Digital colour
SK 8678 / 2	NMR 28671	/ 32	17 FEB 2015	Digital colour
SK 8679 / 1	NMR 28671	/ 33	17 FEB 2015	Digital colour
SK 8680 / 1	PLE 2970	/ 21	04 AUG 1979	Black & white
SK 8680 / 2	INV 19414	/ 15	24 MAY 1997	Colour neg
SK 8680 / 3	INV 19414	/ 16	24 MAY 1997	Colour neg
SK 8680 / 4	INV 19413	/ 08	20 APR 1997	Colour neg
SK 8680 / 5	INV 19413	/ 09	20 APR 1997	Colour neg
SK 8680 / 6	NMR 28671	/ 41	17 FEB 2015	Digital colour
SK 8680 / 7	NMR 28671	/ 42	17 FEB 2015	Digital colour
SK 8680 / 8	NMR 28671	/ 43	17 FEB 2015	Digital colour
SK 8681 / 1	INV 19404	/ 09A	10 AUG 1996	Colour neg
SK 8681 / 2	INV 19404	/ 10A	10 AUG 1996	Colour neg
SK 8681 / 3	INV 19404	/ 11A	10 AUG 1996	Colour neg
SK 8681 / 4	INV 19404	/ 17A	10 AUG 1996	Colour neg
SK 8681 / 5	INV 19404	/ 18A	10 AUG 1996	Colour neg
SK 8681 / 6	NMR 28671	/ 37	17 FEB 2015	Digital colour
SK 8681 / 7	NMR 28671	/ 38	17 FEB 2015	Digital colour
SK 8681 / 8	NMR 28671	/ 39	17 FEB 2015	Digital colour
SK 8681 / 9	NMR 28671	/ 40	17 FEB 2015	Digital colour
SK 8693 / 2	NMR 1850	/ 303	09 OCT 1980	Black & white
SK 8693 / 12	NMR 1850	/ 304	09 OCT 1980	Black & white
SK 8693 / 13	NMR 1850	/ 305	09 OCT 1980	Black & white
SK 8693 / 14	NMR 1850	/ 306	09 OCT 1980	Black & white
SK 8693 / 15	NMR 1850	/ 307	09 OCT 1980	Black & white
SK 8693 / 16	NMR 1850	/ 308	09 OCT 1980	Black & white
SK 8693 / 17	NMR 1850	/ 309	09 OCT 1980	Black & white
SK 8693 / 18	NMR 1850	/ 310	09 OCT 1980	Black & white
SK 8693 / 24	INV 19424	/ 13	22 FEB 1998	Colour neg
SK 8778 / 1	NMR 1863	/ 249	31 OCT 1980	Black & white
SK 8778 / 2	NMR 1863	/ 250	31 OCT 1980	Black & white
SK 8778 / 3	NMR 1863	/ 251	31 OCT 1980	Black & white

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes

Photo reference (NGR and Index number)	Film number	Frame number	Date	Film type
SK 8778 / 4	INV 19404	/ 13A	10 AUG 1996	Colour neg
SK 8778 / 5	INV 19404	/ 14A	10 AUG 1996	Colour neg
SK 8778 / 6	INV 19404	/ 15A	10 AUG 1996	Colour neg
SK 8779 / 2	NMR 28671	/ 34	17 FEB 2015	Digital colour
SK 8779 / 3	NMR 28671	/ 35	17 FEB 2015	Digital colour
SK 8781 / 5	INV 19404	/ 12A	10 AUG 1996	Colour neg
SK 8782 / 1	NMR 1863	/ 323	31 OCT 1980	Black & white
SK 8782 / 2	NMR 1863	/ 324	31 OCT 1980	Black & white
SK 8782 / 3	NMR 1863	/ 325	31 OCT 1980	Black & white
SK 8782 / 4	NMR 1863	/ 326	31 OCT 1980	Black & white
SK 8783 / 1	NMR 1863	/ 320	31 OCT 1980	Black & white
SK 8783 / 2	NMR 1863	/ 321	31 OCT 1980	Black & white
SK 8783 / 3	NMR 1863	/ 322	31 OCT 1980	Black & white
SK 8791 / 1	NMR 1850	/ 142	09 OCT 1980	Black & white
SK 8791 / 5	NMR 1850	/ 143	09 OCT 1980	Black & white
SK 8791 / 6	NMR 1850	/ 144	09 OCT 1980	Black & white
SK 8791 / 7	NMR 1850	/ 145	09 OCT 1980	Black & white
SK 8791 / 8	NMR 1850	/ 146	09 OCT 1980	Black & white
SK 8791 / 9	NMR 1850	/ 147	09 OCT 1980	Black & white
SK 8792 / 1	NMR 1850	/ 131	09 OCT 1980	Black & white
SK 8792 / 2	NMR 1850	/ 132	09 OCT 1980	Black & white
SK 8792 / 3	NMR 1850	/ 133	09 OCT 1980	Black & white
SK 8792 / 4	NMR 1850	/ 134	09 OCT 1980	Black & white
SK 8792 / 5	NMR 1850	/ 135	09 OCT 1980	Black & white
SK 8877 / 1	NMR 1863	/ 266	31 OCT 1980	Black & white
SK 8878 / 1	NMR 1863	/ 263	31 OCT 1980	Black & white
SK 8878 / 2	NMR 1863	/ 264	31 OCT 1980	Black & white
SK 8878 / 3	NMR 1863	/ 265	31 OCT 1980	Black & white
SK 8882 / 20	INV 19404	/ 20A	10 AUG 1996	Colour neg
SK 8882 / 21	INV 19406	/ 18A	25 AUG 1996	Colour neg
SK 8882 / 22	INV 19406	/ 19A	25 AUG 1996	Colour neg
SK 8882 / 23	INV 19414	/ 20	24 MAY 1997	Colour neg
SK 8882 / 24	INV 19414	/ 21	24 MAY 1997	Colour neg
SK 8883 / 1	NMR 1863	/ 314	31 OCT 1980	Black & white
SK 8883 / 2	NMR 1863	/ 315	31 OCT 1980	Black & white
SK 8883 / 3	NMR 1863	/ 316	31 OCT 1980	Black & white
SK 8883 / 4	NMR 1863	/ 317	31 OCT 1980	Black & white
SK 8883 / 5	NMR 1863	/ 318	31 OCT 1980	Black & white
SK 8883 / 6	NMR 1863	/ 319	31 OCT 1980	Black & white
SK 8883 / 7	INV 19405	/ 15	11 AUG 1996	Colour neg
SK 8883 / 8	INV 19406	/ 17A	25 AUG 1996	Colour neg
SK 8888 / 20	INV 19414	/ 18	24 MAY 1997	Colour neg
SK 8977 / 1	DNR 492	/ 2	08 JUL 1972	Black & white
SK 8977 / 2	DNR 492	/ 3	08 JUL 1972	Black & white
SK 8977 / 3	DNR 492	/ 4	08 JUL 1972	Black & white
SK 8977 / 4	DNR 492	/ 5	08 JUL 1972	Black & white
SK 8977 / 5	DNR 492	/ 6	08 JUL 1972	Black & white
SK 8977 / 6	NMR 1863	/ 252	31 OCT 1980	Black & white
SK 8977 / 7	NMR 1863	/ 253	31 OCT 1980	Black & white
SK 8977 / 8	NMR 1863	/ 254	31 OCT 1980	Black & white
SK 8977 / 9	NMR 1863	/ 255	31 OCT 1980	Black & white
SK 8977 / 10	NMR 1863	/ 256	31 OCT 1980	Black & white
SK 8977 / 11	NMR 1863	/ 257	31 OCT 1980	Black & white
SK 8977 / 12	NMR 1863	/ 258	31 OCT 1980	Black & white
SK 8977 / 13	NMR 1863	/ 267	31 OCT 1980	Black & white
SK 8977 / 14	NMR 1863	/ 268	31 OCT 1980	Black & white
SK 8977 / 15	NMR 1863	/ 269	31 OCT 1980	Black & white
SK 8977 / 16	NMR 1863	/ 270	31 OCT 1980	Black & white

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes

Photo reference (NGR and Index number)	Film number	Frame number	Date	Film type
SK 8977 / 17	NMR 1863	/ 271	31 OCT 1980	Black & white
SK 8977 / 18	NMR 1863	/ 272	31 OCT 1980	Black & white
SK 8977 / 19	NMR 1863	/ 273	31 OCT 1980	Black & white
SK 8977 / 20	INV 19412	/ 14	06 APR 1997	Colour neg
SK 8977 / 21	INV 19412	/ 15	06 APR 1997	Colour neg
SK 8977 / 22	INV 19412	/ 16	06 APR 1997	Colour neg
SK 8977 / 23	INV 19412	/ 17	06 APR 1997	Colour neg
SK 8977 / 24	INV 19412	/ 18	06 APR 1997	Colour neg
SK 8977 / 25	INV 19412	/ 19	06 APR 1997	Colour neg
SK 8977 / 26	INV 19418	/ 16A	20 JUL 1997	Colour neg
SK 8977 / 27	INV 19418	/ 17A	20 JUL 1997	Colour neg
SK 8977 / 28	INV 19418	/ 18A	20 JUL 1997	Colour neg
SK 8977 / 29	INV 19419	/ 15	06 AUG 1997	Colour neg
SK 8977 / 30	INV 19421	/ 01A	07 SEP 1997	Colour neg
SK 8977 / 31	INV 19421	/ 02A	07 SEP 1997	Colour neg
SK 8977 / 32	INV 19421	/ 03A	07 SEP 1997	Colour neg
SK 8977 / 33	INV 19421	/ 04A	07 SEP 1997	Colour neg
SK 8977 / 34	INV 19421	/ 05A	07 SEP 1997	Colour neg
SK 8977 / 35	INV 19421	/ 06A	07 SEP 1997	Colour neg
SK 8977 / 36	INV 19421	/ 07A	07 SEP 1997	Colour neg
SK 8977 / 37	INV 19421	/ 08A	07 SEP 1997	Colour neg
SK 8977 / 38	NMR 20530	/ 01	21 MAR 2006	Black & white
SK 8977 / 39	NMR 20528	/ 32	21 MAR 2006	Digital colour
SK 8977 / 40	NMR 20528	/ 33	21 MAR 2006	Digital colour
SK 8977 / 41	NMR 20528	/ 34	21 MAR 2006	Digital colour
SK 8977 / 42	NMR 20528	/ 35	21 MAR 2006	Digital colour
SK 8977 / 43	NMR 20528	/ 36	21 MAR 2006	Digital colour
SK 8977 / 44	NMR 20528	/ 37	21 MAR 2006	Digital colour
SK 8988 / 1	INV 19422	/ 17	07 SEP 1997	Colour neg
SK 8988 / 2	INV 19554	/ 16	07 SEP 1997	Colour neg
SK 8988 / 3	INV 19554	/ 17	07 SEP 1997	Colour neg
SK 9078 / 1	CAP 8105	/ 29	21 APR 1953	Black & white
SK 9078 / 2	NMR 1863	/ 274	31 OCT 1980	Black & white
SK 9078 / 3	NMR 1863	/ 275	31 OCT 1980	Black & white
SK 9078 / 4	NMR 1863	/ 276	31 OCT 1980	Black & white
SK 9086 / 1	NMR 1863	/ 302	31 OCT 1980	Black & white
SK 9086 / 2	NMR 1863	/ 303	31 OCT 1980	Black & white
SK 9086 / 3	NMR 1863	/ 304	31 OCT 1980	Black & white
SK 9086 / 4	INV 19411	/ 14A	30 MAR 1997	Colour neg
SK 9088 / 2	INV 19552	/ 18	14 MAR 1999	Colour neg
SK 9177 / 1	CAP 8084	/ 39	30 JUN 1952	Black & white
SK 9177 / 2	CAP 8084	/ 40	30 JUN 1952	Black & white
SK 9177 / 3	CAP 8084	/ 41	30 JUN 1952	Black & white
SK 9177 / 4	CAP 8105	/ 24	21 APR 1953	Black & white
SK 9177 / 5	CAP 8105	/ 25	21 APR 1953	Black & white
SK 9177 / 6	CAP 8105	/ 26	21 APR 1953	Black & white
SK 9177 / 7	CAP 8105	/ 27	21 APR 1953	Black & white
SK 9177 / 8	CAP 8105	/ 28	21 APR 1953	Black & white
SK 9177 / 9	NMR 1863	/ 280	31 OCT 1980	Black & white
SK 9177 / 10	NMR 1863	/ 284	31 OCT 1980	Black & white
SK 9177 / 11	NMR 1863	/ 278	31 OCT 1980	Black & white
SK 9177 / 12	NMR 1863	/ 279	31 OCT 1980	Black & white
SK 9177 / 13	NMR 1863	/ 281	31 OCT 1980	Black & white
SK 9177 / 14	NMR 1863	/ 282	31 OCT 1980	Black & white
SK 9177 / 15	NMR 1863	/ 283	31 OCT 1980	Black & white
SK 9177 / 16	NMR 1863	/ 285	31 OCT 1980	Black & white
SK 9177 / 17	INV 19425	/ 16	17 MAY 1998	Colour neg
SK 9177 / 18	INV 19425	/ 17	17 MAY 1998	Colour neg

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes

Photo reference (NGR and Index number)	Film number	Frame number	Date	Film type
SK 9177 / 19	INV 19425	/ 18	17 MAY 1998	Colour neg
SK 9178 / 1	NMR 1863	/ 277	31 OCT 1980	Black & white
SK 9180 / 1	NMR 1863	/ 286	31 OCT 1980	Black & white
SK 9180 / 2	NMR 1863	/ 287	31 OCT 1980	Black & white
SK 9180 / 3	NMR 1863	/ 288	31 OCT 1980	Black & white
SK 9180 / 4	NMR 1863	/ 289	31 OCT 1980	Black & white
SK 9180 / 5	NMR 1863	/ 290	31 OCT 1980	Black & white
SK 9180 / 6	INV 19555	/ 19	17 MAY 1998	Colour neg
SK 9180 / 7	INV 19555	/ 20	17 MAY 1998	Colour neg
SK 9180 / 8	INV 19555	/ 21	17 MAY 1998	Colour neg
SK 9185 / 1	NMR 1863	/ 299	31 OCT 1980	Black & white
SK 9185 / 2	NMR 1863	/ 300	31 OCT 1980	Black & white
SK 9185 / 3	NMR 1863	/ 301	31 OCT 1980	Black & white

Air photo and LiDAR mapping and interpretation: Cottam Solar Project and Cable Routes

Appendix 3 Historic England Coversearch 135459: Military Oblique Air Photos.

Library and frame number	Photo reference (NGR & Index number)	Original number	Date	Film type
RAF 30141	/ F31-0038 SK 8180 / 9	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F31-0039 SK 8181 / 21	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F31-0086 SK 8281 / 1	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F31-0087 SK 8281 / 2	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F31-0088 SK 8280 / 1	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F31-0089 SK 8280 / 2	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F31-0090 SK 8280 / 3	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0037 SK 8379 / 10	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0038 SK 8380 / 3	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0039 SK 8381 / 2	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0040 SK 8382 / 25	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0079 SK 8084 / 2	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0080 SK 8084 / 3	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0081 SK 8084 / 4	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0082 SK 8083 / 1	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0083 SK 8083 / 2	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0084 SK 8082 / 1	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0085 SK 8082 / 2	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0086 SK 8082 / 3	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0087 SK 8081 / 17	RAF/543/781	03 FEB 1960	Black & white
RAF 30141	/ F33-0088 SK 8081 / 18	RAF/543/781	03 FEB 1960	Black & white
RAF 30421	/ PO-0001 SK 8082 / 10	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0002 SK 8082 / 11	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0003 SK 8182 / 22	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0004 SK 8182 / 23	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0012 SK 8181 / 35	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0013 SK 8180 / 25	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0014 SK 8180 / 26	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0015 SK 8180 / 27	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0355 SK 8379 / 11	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0356 SK 8480 / 4	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0357 SK 8480 / 5	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0358 SK 8480 / 6	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0359 SK 8480 / 7	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0360 SK 8480 / 8	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0361 SK 8480 / 9	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0362 SK 8481 / 2	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0363 SK 8481 / 3	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0364 SK 8381 / 4	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0365 SK 8381 / 5	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0366 SK 8381 / 6	RAF/58/3400	03 FEB 1960	Black & white
RAF 30421	/ PO-0367 SK 8381 / 7	RAF/58/3400	03 FEB 1960	Black & white

Appendix 4 Catalogue of features

AP Parcel	Geophysical Survey Parcel	Description
1	K13	Elements of Second World War RAF Blyton airfield (MLI54074): a pan handle hard standing and taxiway, are visible on historical air photos. These features date to the Second World War and have now been removed.
2	K14	Medieval or post medieval ridge and furrow and a post medieval field boundary are visible on historical and recent air photos and on lidar imagery. The field boundary was still extant on the earliest air photos. These features are overlain by elements of Second World War RAF Blyton (MLI54074). The pan handle hard standings and taxiway in this parcel were extant on historical air photos but have now been removed.
3	K8	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos.
4	K15	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos but has now been levelled.
5	K16	No features of archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
6	K1	A Second World War military camp associated with RAF Blyton is visible as upstanding structures and buildings on historical air photos. All above ground elements have now been removed but very shallow earthworks indicate where this camp stood.
7	K2	The military camp described in AP8 continues into this parcel
8	K5	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos and on LiDAR imagery in the northern half of this parcel (MLI54075). To the south stood the technical site for the Second World War RAF Blyton (MLI54074). The buildings were still upstanding on historical air photos but have now been demolished. The airfield's perimeter track, described in AP9, also runs through this parcel.
9	K6	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos. This parcel is at the centre of the Second World War RAF Blyton airfield (MLI54074). The airfield comprised three runways: one oriented near east to west, another south-west to north-east and the other south-east to north-west. A perimeter track ran around the edge of the air field, connecting the ends of each runway. The runways and perimeter track are also present in parcels :AP8, 13-17. Although some section of the runway hard surface do survive, these lie outside the boundaries of this scheme (eg between AP14 and AP15, and north of AP17).
10	K9	Elements of Second World War RAF Blyton airfield (MLI54074), four pan handle aircraft hard standings, are visible on historical air photos in this parcel. They opened onto the perimeter track (see AP9), which ran along the eastern boundary of this parcel. These features have been removed but their location is still indicated by cropmarks on some air photos.

AP Parcel	Geophysical Survey Parcel	Description
11	K17	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos but has now been levelled. Elements of Second World War RAF Blyton airfield (MLI54074), two pan handle aircraft hard standings, are visible on historical air photos in this parcel. These features have been removed.
12	K18	Fragments of medieval or post medieval ridge and furrow and a plough headland or field boundary are visible as earthworks and soilmarks on historical air photos and on lidar imagery.
13	K3	Elements of Second World War RAF Blyton airfield (MLI54074), two pan handle aircraft hard standings, are visible on historical air photos in this parcel. These features have been removed.
14	K4	A fragment of medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos. Elements of Second World War RAF Blyton airfield (MLI54074): a pan handle aircraft hard standing and a section of perimeter track, are visible on historical air photos in this parcel. These features have been removed.
15	K7	The remains of a post medieval farmstead named Blyton Field (MLI117386) surrounded by fragments of medieval or post medieval ridge and furrow and a plough headland or field boundary are visible as earthworks and cropmarks on historical air photos and on lidar imagery. Elements of Second World War RAF Blyton airfield (MLI54074): pan handle aircraft hard standings, sections of runway and part of the perimeter track, are visible on historical air photos in this parcel. These features have now been removed.
16	K10	Elements of Second World War RAF Blyton airfield (MLI54074): a pan handle hard standing and section of taxiway, are visible on historical air photos. These features have now been removed.
17	K11	Elements of Second World War RAF Blyton airfield (MLI54074): sections of taxiway and runway, are visible on historical air photos. These features have now been removed.
18	K12	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
19	NA	Medieval or post medieval ridge and furrow and plough headlands and/or field boundaries are visible as cropmarks and earthworks on historical and recent air photos and lidar imagery. The plough ridges have now been levelled but some of the boundaries survive as very low earthwork. (MLI54076, MLI54077)
20	NA	A medieval or post medieval plough headland or field boundary is visible as an earthwork on lidar imagery.
21	NA	Medieval or post medieval ridge and furrow and plough headlands and/or field boundaries are visible as cropmarks and earthworks on historical and recent air photos and lidar imagery.
22	NA	Medieval and/or post medieval earthworks and cropmarks around the village of Piham (MLI51332) are visible on historical air photos and on lidar imagery. There are possible settlement remains on the north-east edge of the village flanked by small strip fields with ridge and furrow.

AP Parcel	Geophysical Survey Parcel	Description
23	J1	Fragments of medieval or post medieval ridge and furrow and a plough headland or field boundary are visible as cropmarks and earthworks on historical air photos and on lidar imagery.
24	J2	Fragments of medieval or post medieval ridge and furrow and a plough headland or field boundary are visible as cropmarks and earthworks on historical air photos and on lidar imagery. Also within this parcel are a series of short ditches and irregular hollows of unknown date.
25	J3	Medieval or post medieval ridge and furrow and a plough headland or field boundary are visible as cropmarks and earthworks on historical air photos and on lidar imagery.
26	J5	Medieval or post medieval ridge and furrow and field boundaries are visible as cropmarks and earthworks on historical air photos and on lidar imagery.
27	J6	Medieval or post medieval ridge and furrow is visible as cropmarks and earthworks on historical air photos. All earthworks have now been levelled.
28	NA	A small poorly-defined cropmark that may indicate an Iron Age or Roman enclosure is visible on air photos. It is overlain by the remains of medieval or post medieval ridge and furrow. A medieval or post medieval plough headland or field boundary is also visible in this parcel.
29	J4	A fragment of medieval or post medieval ridge and furrow and a plough headland or field boundary are visible as earthworks on historical air photos.
30	NA	Two medieval or post medieval plough headlands or field boundaries are visible as earthworks on lidar imagery.
31	NA	Medieval or post medieval ridge and furrow and plough headlands or field boundaries on the east side of the village of Piham are visible as cropmarks and earthworks on historical air photos and on lidar imagery. (MLI51332)
32	NA	A fragment of medieval or post medieval ridge and furrow and arrangement of plough headlands or field boundaries are visible on various images. Some of the boundaries were still extant on the historical air photos and the lidar imagery indicates that some survive as low earthworks.
33	NA	The remains of a medieval or post medieval field system are visible as cropmarks, soilmarks and earthworks on historical air photos and on LiDAR imagery. The field system consists of small blocks of ridge and furrow with plough headlands or field boundaries between them.
34	H6	An extensive medieval and/or post medieval field system is visible around Corringham Grange Farm and extends into AP36-43. It comprises small interlocking blocks of ridge and furrow with plough headlands between them. Most of the plough ridges have been levelled but some of the headlands survive as low earthworks.
35	H9	A fragment of medieval or post medieval ridge and furrow bound by a short section of field boundary to the south and a waterchannel to the north are visible as earthworks on lidar imagery.

AP Parcel	Geophysical Survey Parcel	Description
36	H1	The medieval and/or post medieval field system described in AP34 continues in this parcel.
37	H3	The medieval and/or post medieval field system described in AP34 continues in this parcel.
38	H4	The medieval and/or post medieval field system described in AP34 continues in this parcel.
39	H7	The medieval and/or post medieval field system described in AP34 continues in this parcel.
40	H8	The medieval and/or post medieval field system described in AP34 continues in this parcel.
41	H9	A swathe of indistinct cropmarks may indicate curvilinear enclosures of unknown date but a natural origin for these cropmarks cannot be discounted. The medieval and/or post medieval field system described in AP34 continues in this parcel..
42	H2	The medieval and/or post medieval field system described in AP34 continues in this parcel
43	H5	The medieval and/or post medieval field system described in AP34 continues in this parcel. (MLI54038)
44	H11	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
45	NA	Extensive medieval or post medieval ridge and furrow, post medieval narrow ridge and furrow and field boundaries are visible as soilmarks and earthworks on historical air photos and on lidar imagery. (MLI98190)
46	NA	Fragments of medieval or post medieval ridge and furrow are visible as cropmarks, soilmarks and earthworks on historical air photos. Three broad ridges running westward from Springthorpe Grange are visible over a distance of at least 580m (continues from AP47). Although they resemble a linear boundary it is perhaps more likely that they are the remains of a long furlong.
47	NA	Fragments of medieval or post medieval ridge and furrow are visible as cropmarks, soilmarks and earthworks on historical air photos. Three broad ridges running westward from Springthorpe Grange are visible over a distance of at least 580m (continues into AP46). Although they resemble a linear boundary it is perhaps more likely that they are the remains of a long furlong. (MLI54272)
48	NA	Medieval or post medieval ridge and furrow and a post medieval field boundary are visible as cropmarks and soilmarks on historical air photos.
49	NA	Medieval or post medieval ridge and furrow, a plough headland and part of Sturgate airfield are visible as cropmarks and earthworks on historical air photos. The plough headland runs east to west over a distance of 520m and appears to underlie some of the ridge and furrow. The remains of Sturgate airfield stand west of the route corridor. The runway extension that is visible in this parcel was not constructed until after the 1940s. A narrow strip of possible ridge and furrow runs southward from Lowfield Farm (MLI54142)

AP Parcel	Geophysical Survey Parcel	Description
50	NA	A number of ditches and hollows of uncertain date are visible as earthworks and cropmarks in this parcel. The lidar imagery shows broad shallow ditches near Moor Bridge that suggest a rectilinear enclosure measuring 160mx120m.
51	NA	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
52	C3	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
53	C4	A shallow, irregular hollow of unknown date is visible on the lidar imagery.
54	C9	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
55	C10	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
56	C12	Earthworks are visible on historical air photos in the field to the west of Side Farm. Most had been levelled on later air photos and occasionally appeared as cropmarks or soilmarks. These features include a broad ditch that runs north to south and forms the western boundary of this parcel, abutted by a possible pond. Both are likely to be of post medieval date. The origin of the other linear features in this parcel is not known.
57	A1	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
58	A2	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
59	A4	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
60	A3	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
61	NA	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
62	C15	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
63	C18	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
64	B1	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
65	B2	Post medieval field boundaries are visible as low earthworks on lidar imagery.
66	B3	A low broad bank and ditches to either side are visible as earthworks and soilmarks on lidar imagery and recent air photos. The western-most ditch appears to be an old field boundary but the bank and eastern ditch may be more recent constructs because they do not appear to be present on the earliest air photos.

AP Parcel	Geophysical Survey Parcel	Description
67	B4	A short section of medieval or post medieval plough headland or field boundary is visible as an earthwork on lidar imagery.
68	NA	Fragments of medieval or post medieval ridge and furrow are visible as earthworks on historical air photos but have now been levelled.
69	NA	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
70	NA	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined. A possible palaeochannel runs east west through this parcel.
71	C5	A series of parallel ditches and an irregular hollow are visible as cropmarks on historical air photos. They coincide with the location of a putative late Romano-British settlement (MLI51104) identified from ceramics and stonework in the plough soil.
72	C6	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
73	C7	Two ditches of unknown date are visible as cropmarks on historical air photos. A possible palaeochannel runs east west through this parcel.
74	C8	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
75	C11	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined. A possible palaeochannel runs east west through this parcel.
76	C13	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined. A possible palaeochannel runs east west through this parcel.
77	C16	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
78	C7	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
79	C19	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
80	C21	A fragment of medieval or post medieval ridge and furrow and two ditches are visible as cropmarks on historical air photos.
81	C14	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
82	C17	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
83	C20	A field boundary is visible as a low earthwork on lidar imagery and was still extant on historical air photos.

AP Parcel	Geophysical Survey Parcel	Description
84	C22	A fragment of medieval or post medieval ridge and furrow and post medieval field boundaries are visible as soilmarks and earthworks on historical air photos and on lidar imagery.
85	C27	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos, but has now been levelled.
86		Not allocated
87	C29	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
88	C30	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos but has now been levelled.
89	C28	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos but has now been levelled.
90	C23	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos.
91	C24	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
92	C25	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
93	C26	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
94	NA	Fragments of medieval or post medieval ridge and furrow are visible as cropmarks on historical air photos.
95	D25	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
96	D24	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos but have now been levelled.
97	D26	A post medieval field boundary is visible as a low earthwork on lidar imagery.
98	D27	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
99	D28	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
100	NA	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos and on lidar imagery.
101	D29	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
102	D30	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
103	D34	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.

AP Parcel	Geophysical Survey Parcel	Description
104	D31	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
105	NA	Medieval or post medieval ridge and furrow is visible as earthworks on lidar imagery.
106		Not allocated
107	D32	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
108	D33	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
109	D23	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos.
110	D20	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
111	D21	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos.
112	D22	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos. (MLI52527 & MLI52526)
113		Not allocated
114	D17	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos.
115	D18	Medieval or post medieval ridge and furrow and a post medieval field boundary and small hollow are visible as soilmarks and earthworks on historical air photos and on lidar imagery.
116	D19	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
117	D15	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos.
118	D16	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos and as cropmarks on later imagery. The plough ridges appear to be cut by an L-shaped ditch near the eastern end of the village of Thorpe Fallows. This feature is likely to be of post medieval date.
119	D14	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos. These plough ridges lie to the immediate north of the Scheduled Monument Thorpe medieval settlement (List entry 1016978, MLI50540). The Scheduled area and other village earthworks are outside of the project's red line boundary but the historical air photos show low earthworks: a possible plough headland and ditch that appear to underlie the plough ridges at SK912807. The LiDAR imagery shows very slight undulations at this location.
120	D13	Medieval or post medieval ridge and furrow is visible as soilmarks on historical air photos.

AP Parcel	Geophysical Survey Parcel	Description
121	D11	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos.
122	D12	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
123	D10	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos and has now been levelled.
124	D9	Medieval or post medieval ridge and furrow and two small hollows are visible as soilmarks on historical air photos.
125	D8	Medieval or post medieval ridge and furrow is visible as soilmarks on historical air photos.
126	D7	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos and has now been levelled.
127	D6	Medieval or post medieval ridge and furrow is visible as earthworks and soilmarks on historical air photos. The earthworks have now been levelled.
128	D5	Fragments of medieval or post medieval ridge and furrow are visible as earthworks and soilmarks on historical air photos. The earthworks have now been levelled and a post medieval field boundary, extant in the 1940s, survives as a very low earthwork.
129	D3	Medieval or post medieval ridge and furrow is visible as soilmarks on historical air photos.
130	D2	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
131	D1	Two ditches that may be the remains of an Iron Age or Roman enclosure are visible as cropmarks in the south-east corner of this parcel. An arrangement of medieval or post medieval plough headlands or field boundaries is visible as very low earthworks in the west of this parcel.
132	NA	Fragments of medieval or post medieval ridge and furrow, a plough headland and a small pond or hollow are visible as earthworks and soilmarks on historical air photos. Most earthworks have now been levelled.
133	D4	A fragment of medieval or post medieval ridge and furrow survives as an earthwork in this parcel. A relict meander of the River Till lies in the north part of this parcel. An L-shaped ditch in the field to the west (outside of scheme corridor) may be the remains of an Iron Age or Roman rectilinear enclosure and may have continued into this parcel, though would have been constrained by its proximity to the meander.
134	E3	An arrangement of medieval or post medieval plough headlands or field boundaries is visible as very low earthworks on the lidar imagery.
135	E4	Medieval or post medieval ridge and furrow and plough headlands or field boundaries are visible as cropmarks on historical air photos. The lidar imagery indicates that some of the boundaries survive as very low earthworks.
136	E5	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos but has now been levelled.

AP Parcel	Geophysical Survey Parcel	Description
137	E6	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
138	NA	Medieval or post medieval ridge and furrow, a short plough headland and a relict river meander are visible as earthworks on historical air photos. The ridge and furrow to the east of the river has now been levelled. The remains to the west, survive as earthworks. (MLI52430)
139	NA	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
140	E1	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
141	E2	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
142	NA	Medieval or post medieval ridge and furrow and low mounds flanking a palaeochannel are visible as soilmarks on historical air photos on the banks of the River Till. The palaeochannel probably marks the old course of the tributary that now joins the River Till 700m further downstream. The ridge and furrow runs to the banks of the former channel and there are indistinct mounds along the edges of the ploughing.
143	NA	Medieval or post medieval ridge and furrow is visible as cropmarks, soilmarks and earthworks on historical air photos. The earthworks have now been levelled. Overburden in the south-west corner of this parcel may conceal archaeological features.
144	G2	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
145	G3	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos. Overburden along the southern edge of this parcel may conceal archaeological features.
146	G4	Extensive medieval or post medieval ridge and furrow and a post medieval field boundary are visible as soilmarks on historical air photos.
147	G1	The corner of a possible Iron Age or Roman rectilinear enclosure and medieval or post medieval ridge and furrow are visible as cropmarks on historical air photos.
148	NA	Fragments of medieval or post medieval ridge and furrow and post medieval field boundaries are visible as soilmarks, cropmarks and earthworks on historical air photos. Most of these features have now been levelled.
149	F4	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
150	F5	Medieval or post medieval ridge and furrow is visible as soilmarks on historical air photos.
151	F3	The remains of medieval or post medieval field system comprising interlocking ridge and furrow and a plough headland are visible as cropmarks on historical air photos.

AP Parcel	Geophysical Survey Parcel	Description
152	F1	Possible medieval settlement remains, a hollow way and field system are visible as earthworks on historical air photos at Normanby on Stow. The possible settlement remains are located in the south-west corner of this parcel, next to East Farm. The hollow way comprises a broad hollow flanked by irregular banks. It runs north to south with the River Till to the east and Normanby Road to the west and it continues into parcel AP153. The hollow way is flanked by strip fields and ridge and furrow. Most of these features have now been levelled. (MLI52445)
153	F2	Possible medieval field boundaries, a hollow way, boundary bank and ridge and furrow are visible as cropmarks on historical air photos. The hollow way runs north to south and continues from parcel AP153. It is flanked by fields and ridge and furrow. A possible boundary runs parallel and to the west of the hollow way. (MLI52445)
154	F6	No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
155	F7	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos but has now been levelled.
156	NA	Extensive medieval or post medieval ridge and furrow, plough headlands and/or field boundaries, a small pond and possible crofts are visible as earthworks on historical air photos. The two possible crofts lie on the east side of Normanby Road, south of Tilby-Dale. They comprise a perpendicular arrangement of ditches and are devoid of ridge and furrow. Most of these remains in this parcel have now been levelled but earthworks do survive in the small field containing the crofts. (MLI52445)
157	NA	Medieval settlement remains and ridge and furrow are visible as earthworks on LiDAR imagery at Normanby by Stow. The fields to the north and south of West Farm contain a series of crofts, some mounds and building platforms, and strip fields. A track or hollow way runs east to west from the Normanby Road between these remains. This route was still in use in the late 19th century (OS 6inch map 1886). (MLI52445)
158	NA	Medieval or post medieval ridge and furrow is visible as cropmarks and earthworks on historical air photos. Most of these remains have been levelled but some of the boundaries survive as very low earthworks. (MLI52493)
159	NA	Medieval or post medieval ridge and furrow and a number of other features are visible on historical air photos and on lidar imagery. These other features included: at SK8566 8166 a cropmarked ditch of uncertain date, at SK8584 8163 a shallow scoop marking the location of a demolished post medieval farmstead, at SK8586 8146 the shallow remains of a post medieval pond or clay pit, at SK8597 8180 a low semi-circular mound of unknown origin, at SK8638 8178 short undated ditches, at SK8664 8181 a trio of undated banks and at SK8744 8186 a field boundary of unknown date.
160	NA	Medieval or post medieval ridge and furrow, field boundaries and scarp slopes are visible as earthworks on historical air photos but have now been levelled (MLI52493). Also two short cropmarked ditches of uncertain date are visible on air photos taken in the 1970s.

AP Parcel	Geophysical Survey Parcel	Description
161-220		These parcels not part of Cottam Scheme. Please refer to the West Burton Scheme for descriptions of these parcels.
221	Q8	A swathe of complex and indistinct cropmarks is visible between Brampton village and Brampton Grange and running through AP222, 225, 226, 227 and 236. This swathe runs along the edge of the higher ground that marks the edge of the Trent Valley in this area. Here the geology is interbedded mudstone and limestone (Scunthorpe Mudstone Formation) and is devoid of superficial deposits (BGS Geology Viewer). It is likely, therefore, that most of these cropmarks are of geological rather than archaeological origin. However amongst these there are fragmentary cropmarks that may indicate buried archaeological ditches.
222	Q7	See AP221. Fragments of medieval or post medieval ridge and furrow are visible on the slope down to the river valley, several cropmarks of possible archaeological significance are visible between those of likely geological origin.
223-224		These parcels not part of the Cottam Scheme. Please refer to the West Burton Scheme for descriptions of these parcels.
225	Q6	See AP221. A perpendicular arrangement of ditches is visible as cropmarks on recent air photos. At least one of these ditches is a post medieval field boundary.
226	Q5	See AP221. Three ditches are visible between the geological cropmarks, at least two are post medieval field boundaries, the origin of the third, a short arc of ditch, is not known.
227	Q13	See AP221. A broad linear feature runs south-east to north-west through this parcel and continues into AP236 and beyond. This feature has been identified as a possible Roman trackway (see MLI52489). In this parcel it comprises a broad bank flanked to either side by broad, slightly-irregular ditches. Projecting this feature further north-west it would converge with the Roman road known as Till Bridge Lane (MLI50575) on the west side of Marton.
228-235		These parcels not part of the Cottam Scheme. Please refer to the West Burton Scheme for descriptions of these parcels.
236		The possible Roman trackway described in AP227 continues in this parcel. MLI52489 also refers to Roman field boundaries alongside the trackway but it is perhaps more likely that these cropmarks are of geological origin, as discussed in AP221
237		Various features are visible as cropmarks and soilmarks in this parcel. At SK9392 7984 (MLI52500) and a little further north at SK8404 8034 there are irregular cropmarked ditches of unknown date. The former appear to mark the edge of an area of deeper or damper soil. Fragments of short ditches are visible at SK8451 8004. A low sub-circular mound at SK8440 8071, known as Bunkers Hill Warren (MLI53786) appears to be a deposit of blown sands that has been exploited and perhaps modified in the past. An arc of lower ground to the east and north of the hill, now filled in, appears to contain peat (BGS Geology Viewer). To the east of Bunker's Hill there are at least four subcircular features, it is not clear if these are truncated mounds or infilled hollows, they are likely be of natural origin.

AP Parcel	Geophysical Survey Parcel	Description
238		No features of known or possible archaeological significance were observed in this parcel on the air photos and LiDAR imagery examined.
239		A possible palaeochannel is visible as a shallow earthwork on the LiDAR imagery.
240		Possible Iron Age or Roman field boundaries and a road of medieval or post medieval date run into or to the edge of this parcel. These features are visible as cropmarks on recent air photos.
241		A fragment of medieval or post medieval ridge and furrow is visible as earthworks on LiDAR imagery.
242		Medieval or post medieval ridge and furrow, plough headlands and a small pond or hollow are visible as earthworks on historical air photos. The LiDAR imagery indicates that most of the ridge and furrow has now been levelled except for in the field closest to Normanby Road, where the ridges are well-preserved. The plough headlands survive as very low earthworks.
243		Medieval or post medieval ridge and furrow and a plough headland are visible as cropmarks and soilmarks on historical air photos.



LIDAR AND AIR PHOTO
MAPPING, INTERPRETATION AND ANALYSIS
FOR ARCHAEOLOGICAL APPLICATIONS



Air photo and LiDAR mapping and interpretation: Gate Burton Energy Park Nottinghamshire and Lincolnshire

May 2022

Project number 2122007

Undertaken by Alison Deegan BSc MCIfA

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Commissioned by

AECOM

Summary

This report concerns the results of interpretation and mapping of archaeological features from air photos and LiDAR imagery for the Gate Burton Energy Park.

This survey has identified the levelled and buried remains of prehistoric and Roman date enclosures, field and trackways and remnants of medieval or post medieval farming landscapes.

This work was commissioned from Alison Deegan, 6 Wain Close, South Milford, Leeds LS25 5AH by AECOM. This work is supplied in digital format as well as hard copy and the above named parties may manipulate and/or reproduce the work as they wish providing the archaeological integrity of the work is not compromised. All reproductions of the work either in part, whole or combined with other works should clearly identify Alison Deegan as the author of the air photo and LiDAR interpretation and mapping.

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1 Introduction

1.1 Client details

1.1.1 This survey of levelled and upstanding archaeological and historical remains using existing air photos and LiDAR data was commissioned by AECOM on behalf of Gate Burton Energy Park.

1.2 The survey area (see Figure 1)

1.2.1 This survey concerns the Energy Park Site and the Grid Connection Options for the Gate Burton Energy Park. The Energy Park Site comprises approximately 682 hectares of land east of the River Trent in the county of Lincolnshire. The four Grid Connection Options link the Energy Park Site to a substation near Cottam Power Station, on the west side of the River Trent, in the county of Nottingham. Together the connection corridor options cover approximately 987 hectares.

1.2.2 Overall this survey area is rural in character with small scattered settlements, Littleborough, Coates and Cottam to the west of the river, Knaith, Gate Burton and Marton to the east and minor roads. Cottam Power Station is a significant industrial component in this landscape but its footprint is largely excluded from this survey.

1.2.3 Along this stretch of the Trent valley the bedrock geology comprises a narrow band of Penarth Group Mudstone that runs north-north-west to south-south-west between Knaith and Brampton. To the west is Mercia mudstone (Mercia Mudstone Group) and to the east interbedded mudstone and limestone (Scunthorpe Mudstone Formation) (Geology of Britain Viewer).

1.2.4 To the west of the Knaith to Brampton Line the bedrock is covered with sand and gravel (Holme Pierrepoint Sand And Gravel Member) and, along the floodplain and in palaeochannels, with alluvium.

1.2.5 To the east of the river the superficial deposits are less extensive and characterised by small patches of sand and gravel (Glaciofluvial Deposits), particularly around Knaith.

1.2.6 A brief overview of the uses of air photos and LiDAR for archaeological remote sensing is provided in Appendices 1 & 2.

2 Methodology

2.1 Data sources

2.1.1 The following data sources were examined

- Environment Agency LiDAR data, 1m resolution Digital Terrain Model and Digital Surface Model,
- Google Earth imagery, data captured between 2003 and 2021,
- Bing imagery, undated imagery,
- Historic England Archive, 185 vertical air photos from 21 different sorties flown 1946 to 1992 and 390 obliques air photos taken between 1954 and 2006 (see Appendix 4 for full list),
- Low resolution screen captures from the Cambridge University Collection of Air Photos online catalogue ([REDACTED]) (see Appendix 4 for full list),
- Historic Environment Monument and Event Records from Nottinghamshire and Lincolnshire, spatial data and record documents, and
- Historical Ordnance Survey and earlier maps were examined via the National Library of Scotland website ([REDACTED]).

2.1.2 The AP and LiDAR survey area is covered by the Royal Commission on the Historical Monuments of England's National Mapping Programme (NMP): specifically the Nottinghamshire NMP Project and the Lincolnshire NMP project. Both were completed in the late 1990s and they produced hand-drawn maps. Although these maps are now out-of-date in terms of the methodology and the sources available, they were consulted alongside the resources listed above as they inform many of the Historic Environment Records. Digitised versions of these maps are available through Historic England's Aerial Archaeology Mapping Explorer ([REDACTED]).

2.2 Processing and mapping

2.2.1 LiDAR data at 1m resolution was obtained from the Environment Agency in geotiff format. Using the Relief Visualisation Toolbox 2.2.1 16-direction hill-shaded visualisations were generated for the Digital Surface Model (DSM) and Digital Terrain Model (DTM) and Simple Local Relief Model models were generated for the DTM. A colour relief and hill-shaded model of the DTM was generated in MapInfo Professional 17 to provide an overview of the topography (see Figure 2).

2.2.2 The digital aerial images delivered online by Google Earth were examined on screen. Relevant portions were captured for georeferencing and digitisation of archaeological features.

2.2.3 The digital air photos held by the Historic England Archive were examined online via the Aerial Photograph Explorer ([REDACTED]) a small number were selected and digital copies were obtained to facilitate rectification

and digitisation of archaeological features.

- 2.2.4 The vertical and obliques air photographic prints held by the Historic England Archive were examined systematically, using x2 magnification where necessary and stereoscopically where possible. Selected prints were then photographed with a hand-held digital camera to enable rectification and digitisation of archaeological features.
- 2.2.5 The various captures and the digital copies were rectified to the ground control points derived from the Ordnance Survey Mastermap and the LiDAR visualisations using Aerial5.36. AERIAL5.36 gives error readings for each control point, where 5 or more control points are used. In all cases errors of within $\pm 3\text{m}$ were achieved for the control points. However this may not reflect the on-the-ground positional accuracy of the features mapped since these tend to lie between rather than at the control points.
- 2.2.6 All LiDAR visualisations and rectified image captures were examined methodically and in detail in the GIS (MAPInfo Professional 17) and with reference back the original prints, where possible. Archaeological features were mapped to a scale of 1:2500 in detail and accuracy and data pertaining to each feature was recorded in the MapInfo table. The structure and content of the digital map dataset is described in Appendix 5.

3 Results

3.1.1 The results of this survey are presented on Figures 2 to 6 and a brief overview by period is provided below. Features have been catalogued and described according to pre-allocated land parcels (see Appendix 3).

3.1.2 Details including type, period and sources for individual archaeological features can be accessed in the digital version of the mapping (see Appendix 5). All attributions of date and type are open to re-interpretation.

3.2 Distribution of the evidence

3.2.1 The air photos range widely in date and include digital and print, colour and black and white, vertical and oblique formats. They have revealed archaeological features as earthworks, cropmarks and, less frequently, as soilmarks. The historical air photos indicate that in the late 1940s and early 1950s fairly extensive earthworks, mostly medieval or post medieval ridge and furrow survived in the east of the survey area, but earthworks only survived in a few pockets of land on the west side of the river.

3.2.2 Conversely the more extensive cropmarked landscapes are concentrated on the sand and gravel capped upper river terrace in the west. There are some fragmentary and poorly defined cropmarked features of possible pre-medieval date around Knaith and to the east and west of Marton that suggest more extensive pre-medieval landscapes may survive largely unseen in this area.

3.3 Neolithic and Bronze Age

3.3.1 No cropmarked, soilmark or earthwork features of known or possible Neolithic or Bronze Age date were identified by this survey. Pollen evidence from cores augured in the vicinity of **parcels 122 and 224** indicated possible small scale agricultural activity in the Neolithic (see **MNT27156**) and a possible Late Neolithic or Early Bronze Age burial was recovered at Rampton in **parcel 226 (M18354-MNT26008)** (Knight 2000,12). Relatively little material from these periods has been recovered across the survey area, either incidentally or from archaeological field walking.

3.3.2 A triple ditched boundary runs east to west across **parcels 126, 128 and 155**, and a possible second example lies just 160m to the north in **parcels 127 and 130**. Long boundary features such as these have been resistant to dating and are often complex and long lived, but an example at Ketton, Rutland produced late Bronze Age to Middle Iron Age pottery (Mackie 1993,7).

3.4 Iron Age and Roman

- 3.4.1 There is evidence for Iron Age and Roman settlement at several locations within and immediately adjacent to the AP and LiDAR survey area. There has been a thorough archaeological excavation at one of these sites: Moor Pool, Rampton and small scale excavations at the Roman town of Segelocum, just outside of the survey area. Other sites are known only from remote sensing activities.
- 3.4.2 Moor Pool, Rampton (**parcel 226** in this survey) was the site of several archaeological investigations in the 1960s and 1990s (eg ENT457 and ENT3739). These revealed an extensive settlement considered to be of 'village' status. Excavation revealed an early to middle Iron Age settlement that developed into a series of large sub-divided enclosures and field from the late Iron Age through to the 4th century AD (Knight, 2000 20-21). Some elements of this settlement were visible as cropmarks on air photos taken in 1991 but the site has now been destroyed by gravel extraction.
- 3.4.3 A swathe of cropmarks runs along the west edge of the AP and LiDAR survey area. Although the map shows these to be extensive and cohesive the evidence is pieced together from many different air photos. Some of these cropmarks represent features that were demonstrably in use in the post medieval period (see below) others are likely to be of Iron Age or Roman date. They comprise enclosures, trackways and fields systems. The groups of enclosures in **parcels 219, 136** and **141** may represent farmsteads.
- 3.4.4 In **parcels 137** and **138** the system of fields and trackways follows a regular grid-like layout, but in the **parcels 130, 131, 218** and **219** the trackways follow the topography and influence the shape and alignment of the neighbouring fields.
- 3.4.5 Moving eastward the cropmarks peter out across the lower terrace before the flood plain. Parcels such as **125, 126, 155, 214** and **235** do produce some small and well-defined cropmarks, but not the extensive and cohesive features that are observed a few fields further west. A similar difference in the distribution of known archaeological sites was observed between the higher and lower terraces at the Trent-Soar confluence by Howard et al (2008, 1044-1046). This was attributed, in part, to alluviation on the lower terrace continuing into the late historic period (Howard 2008, Figure 7). In this survey area subtle variations in topography revealed by the LiDAR imagery suggest alluvial deposits may have washed southward across the lower terrace from the lower ground of the old meander at Littleborough rather than eastward where the edge of the terrace is well defined (see Figure 2). There is potential, as realised at Moor Pool, Rampton, for prehistoric and Roman date features to be concealed beneath alluvium deposits on this lower terrace.
- 3.4.6 Cropmarked features are almost entirely absent from the flood plain. Between Cottam and

Coates the western edge of the flood plain is topographically well defined and further north spreads westward across a large relict meander.

3.4.7 East of the river the cropmark evidence is very patchy and sporadic, a factor of the bedrock and superficial geology and more persistent medieval and post medieval cultivation remains. **Parcels 102, 207, F1 and F30** contain fragmentary enclosures and traces of field system that may be of Iron Age or Roman date, but there is no supporting evidence at present.

3.4.8 As mentioned above, the Roman town of Segelocum lies just outside of the Survey Area at Littleborough. The main area of the town has repeatedly produced clear and complex cropmarks but there is no evidence on the air photos that the settlement continued westward into **parcel 104**. Segelocum appears to have been constrained to the small island rising slightly above the flood plain and separated from the river terrace to the west by a palaeochannel, now cut by the Mother Drain (see Figure 2). The only feature extending into **parcel 104** is a short stretch of possible Roman road. This appears to be the same feature that was investigated on east side of the Mother Drain in 1954 (Riley et al 1995 262).

3.4.9 In **parcel 206**, however, approximately 370m to the south-west of Segelocum, cropmarks and geophysical anomalies indicate the presence of a roadside settlement of likely Roman date (Johnson 2016, Fig 8). The road lies on the course of the Roman road that ran from Lincoln to Doncaster. This section runs north-west to south-east and aligns with a section of road observed as a cropmark within the town (MNT6182) and the possible Roman-date ford that crossed the Trent near Littleborough (MLI52485). Ditches running perpendicular to the road indicate a series of narrow and organised plots of land. Pits are heavily distributed across the plots, but appear to avoid the road.

3.4.10 This settlement is mirrored on the east side of the River Trent in **parcels 212 and 211** near Marton. Here the cropmark evidence is more sporadic and fragmentary but there is a series of short cropmark ditches and geophysical anomalies running perpendicular to the Lincoln to Doncaster Roman road (MLI50575), here still in use and known as Littleborough Lane. It is the finds recovered from the field walking on either side of the road that indicate the likely Roman origin and status of this settlement (Worrell 1997, 177-178).

3.4.11 Also in **parcel 212** is a small Roman fort. It sits on the edge of the low cliff overlooking what likely to have been an important crossing point even before the ford was constructed (see Figure 2).

3.5 **Medieval and post medieval cultivation remains**

3.5.1 The evidence of cultivation remains such as ridge and furrow and plough headlands is fairly widespread east of the River Trent but far less so to the west. This probably reflects the differences in bedrock and superficial geology and their influences on land use.

- 3.5.2 West of the Trent traces of medieval or post medieval ridge and furrow are visible as cropmarks in **parcels 151, 127, 218, 235 and 206**. The ridge and furrow in **parcel 206** is significant because it runs across the Roman road and settlement. Ridge and furrow in **parcels 147 and 149** survived as earthworks in the late 1940s but most other examples had already been levelled by that time. Only in **parcel 225**, on at the north end of Cottam and on the edge of the flood plain, does ridge and furrow still survive as earthworks on the west side of the river.
- 3.5.3 The floodplain was probably grazed rather than cultivated in these periods and this land is labelled as 'Common Meadows' on Chapman's map of 1794. However on the higher ground further west the fragmentary evidence for ridge and furrow probably reflects the ease with which subsequent intensive ploughing truncated the earlier plough ridges.
- 3.5.4 East of the Trent many fields still contained ridge and furrow earthworks in the late 1940s but most has now been levelled. The AP and LiDAR survey area avoids the areas of well-preserved ridge and furrow and other earthworks around Knaith, Gate Burton and Marton but there are fragments of earthwork plough ridges in **parcels 105, 116, F17 and F18**.
- 3.5.5 The LiDAR imagery reveals that very low and spread remnants of medieval plough headlands and later field boundaries extend across many of the fields east of the river.
- 3.5.6 The relationship between the ridge and furrow and the plough headlands is complex. In **parcels F16, F64 and F65**, for example, the plough ridges appear to run over the plough headlands suggesting a change in the layout of fields between the development of the latter and the former. In contrast some post medieval field boundaries, for example in **parcels F12, F63 and 104** appear to follow former plough headlands suggesting that these persisted as boundary markers through the medieval and post medieval period.
- 3.5.7 Ridge and furrow in the **parcels F16, F62, F65 and 116** has some of the characteristics of medieval ploughing: broad S-shaped ridges and interlocking furlongs, but overall it is difficult to distinguish the plough ridges that are medieval from those with post medieval origins.

3.6 **Other post medieval features**

- 3.6.1 Amongst the cropmarks of likely Iron Age and Roman field systems and settlements on the western edge of the survey area there are linear features that correspond with roads or lanes and field boundaries that are depicted on historical maps. These features are summarised in the table below.

Parcel	Feature	Corresponds with	Historical map source
218	Lane and field boundaries to the north extant in 1940s, cropmarks on recent air photos	Section of Southbank Lane and adjacent fields	OS 6inch 1885,
219	Lane extant in 1940s, cropmarks on recent air photos	Section of Craikbank Lane	OS 6inch 1885
220	Long boundary running along northern side of Broad Lane	Section of Broad Lane	Chapman 1794
141 & 135	Boundary consisting of broad ditch and narrow ridge running perpendicular to Outgang Road	Northern boundary of previously wider Outgang Road	Chapman 1794
232, 142 & 134	Scarp slope south of Outgang Road	Southern boundary of previously wider Outgang Road	Chapman 1794
151 & 229	Scarp and double-ditched linear feature	Earlier route of Torksey Ferry Road	Chapman 1794

3.6.2 There is an arrangement of flood defences to the south-west of Marton. A sinuous and degraded embankment meanders through **parcels 233, 110, 111, 109 and 113**. This feature is depicted on the OS map of 1885. A more substantial embankment runs south-west to Trent Port. It is not clear if this is a flood defence or infrastructure associated with Trent Port.

3.7 Features of uncertain date and origin

3.7.1 Within the survey area there are some cropmarked, soilmark or earthwork features of uncertain origin and unknown date.

3.7.2 Part of the long sinuous feature that runs through **parcels 125 and 126** has previously been interpreted as a possible Iron Age or Roman enclosure (see MNT15983). More recent air photos highlight the very diffuse and ephemeral nature of these cropmarks and cast doubt on their being caused by buried archaeological features. These are more likely to be cropmarks formed in response to localised variations in the soils and superficial geology, perhaps ribbons of alluvium running through sand and gravel.

3.7.3 A similarly ambiguous feature is visible on some air photos in **parcel 136**. It is defined by broad dark soilmarks on some air photos and on others by diffuse cropmarks that suggest a large near-square enclosure. Some air photos show areas of parching within the 'ditch' and fine linears that resemble rubble and robber trenches suggesting levelled buildings or structures. On balance it is more likely that these cropmarks and soilmarks are natural or geological origin.

3.7.4 There are two small but well-defined cropmarks in **parcel F40 and F41**. One is oval plan and 33m long, the other a very crisp and regular rectangle and 26m long. Both are visible on air photos taken nearly 34 years apart, so they are unlikely to be cropmarks produced by some superficial agent such as overseeding or spraying. The oval example is visible as slight hollow on the LiDAR imagery. The archaeological significance of these features is not known.

4 **Concluding remarks**

- 4.1.1 The survey area is a transect across different soils and topography and this is reflected in the variations in the nature of the evidence collected from the air photo and LiDAR data by this survey.
- 4.1.2 The absence of evidence for archaeological features, particularly in those areas with a complex history of alluviation, and on the heavier soils to the east, should not be taken as an absence of presence.

Appendix 1 Archaeology from black and white and colour air photographs

Air photographs and aerial imagery taken in appropriate conditions can record crop marks, soilmarks and earthworks of archaeological origin.

Crop marks result from variations in leaf and stalk colour and plant height and vigour. Crop marks occur where there are anomalies below the ground: in-filled hollows, palaeochannels, frost cracks, archaeological pits, ditches, surfaces and banks or modern disturbances such as land drains. Crop marks can also be created by variations in the treatment of the topsoil and ground cover, for example the uneven application of fertilizers, pesticides and herbicides or damage.

Crop marks that delineate buried and levelled archaeological features are the effect of differential growth and ripening between the vegetation on the archaeological deposits and that on surrounding undisturbed ground. Variations in growth and ripening are most visible when there is a significant difference in the water and nutrient availability between the archaeological and natural deposits. Crop marks can form at any stage from germination to ripening but the optimal conditions are during periods when precipitation is exceeded by transpiration. This results in potential soil moisture deficit (SMD) and water-stressed plants (Jones and Evans 1975). Prolonged periods of SMD halt plant growth and then cause wilting of the plant leaves, stem and finally root. Water-stress is exacerbated by free-draining sub-surface deposits such as archaeological walls or road surfaces but mitigated by rich and humic ditch and pit deposits. Even after ripening, differences in crop height and bulk can indicate the presence of buried features where there are no tonal differences. Crop marks can be seen most clearly in large areas of homogenous, fast-growing plants such as cereal crops and, less frequently, in root crops and grass. Crop marks produced in arable and grass at times of significant moisture stress, usually over buried structures or other highly permeable archaeological deposits, are often referred to as parchmarks.

Soilmarks are the colour and tonal differences between archaeological deposits and the plough or subsoil. The action of ploughing, which can penetrate the ground to a depth of 45cm, brings to the surface previously buried material. The rotation of the plough exposes the cut surface uppermost. Where the plough cuts buried and infilled archaeological features such as banks and ditches it brings to the surface slices of these deposits. If these slices are sufficiently differentiated from the natural plough or subsoil they can be visible from the air.

Archaeological earthworks that are visible on the ground can also be seen from the air. Detection and recording of earthworks from the air is determined by their survival and visibility. The survival of earthworks depends on past and present land use; natural erosion processes, deliberate destruction and ploughing can all reduce upstanding features to ground level. Earthworks can be revealed by the pattern of sunlight and shadow, differential frost or snow cover or the distribution of standing and flood water. Large and subtle variations in ground relief are further accentuated when viewed stereoscopically. Most stereo images are vertical photographs taken in long, regular sorties but stereo-overlapping can also be achieved from correctly set-up oblique views.

Appendix 2 Archaeology from LiDAR survey data

Airborne Light Detection and Ranging (LiDAR) is a data collection technique that uses a laser to measure certain variables. For archaeological purposes it is the distance between the aircraft and the ground that provides particular interest. During LiDAR flights up to 100,000 measurements per second are made of the ground, allowing highly detailed models of the ground surface, including the details of surviving archaeological earthworks, to be generated at spatial resolutions of between 25cm and 2 metres.

The resulting dataset is a grid of height points called a Digital Elevation Surface Model, these points can be filter to remove those measurements that were read from trees, buildings and other supra-surface features, the result is a Digital Terrain Model, sometimes called a 'Bare Earth' model. The latter is particular useful for the identification of archaeological earthworks where they are obscured on conventional air photos by tree and shrub cover. The DSM and DTM need to be transformed into a visualisations for analysis and interpretation. For this survey two different visualisations were employed for the identification of archaeological earthworks: multi-direction hill-shaded model and simple local relief model.

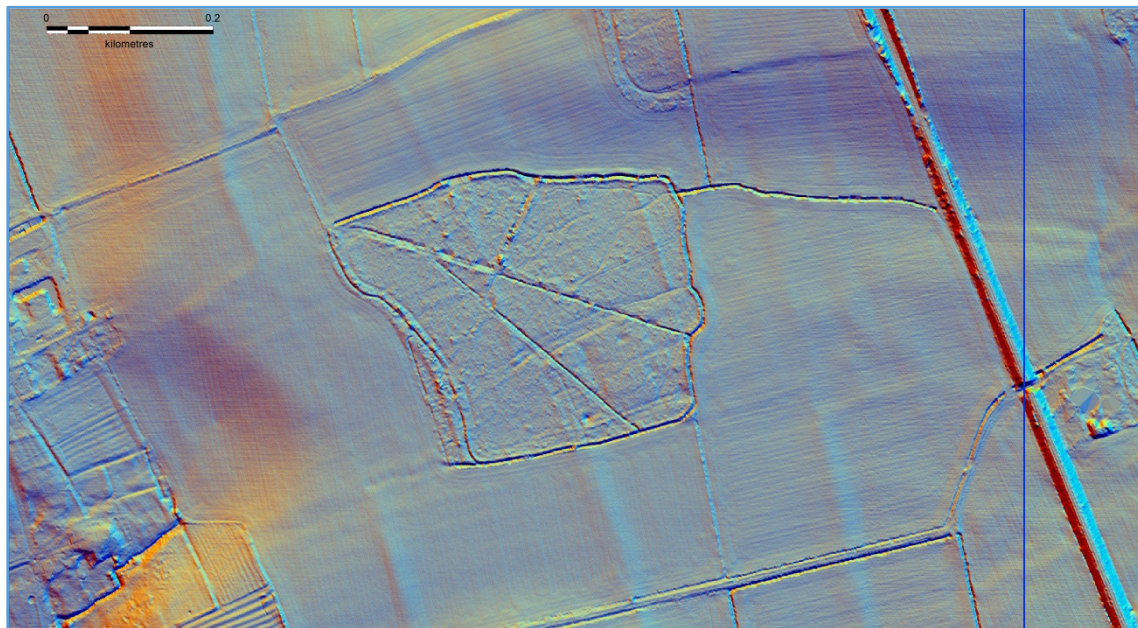


Figure A. A 16-Direction Hill-shaded model of DTM. Hill-shading casts an artificial light source across a landscape to reveal surface irregularities. Hill-shading from a single direction of light will not reveal those features that are in alignment with the light source. This visualisation combines the light and shade of 16 different directions of light. The visualisation can be further enhanced by exaggerating the vertical elevation and lowering the angle of the light source.

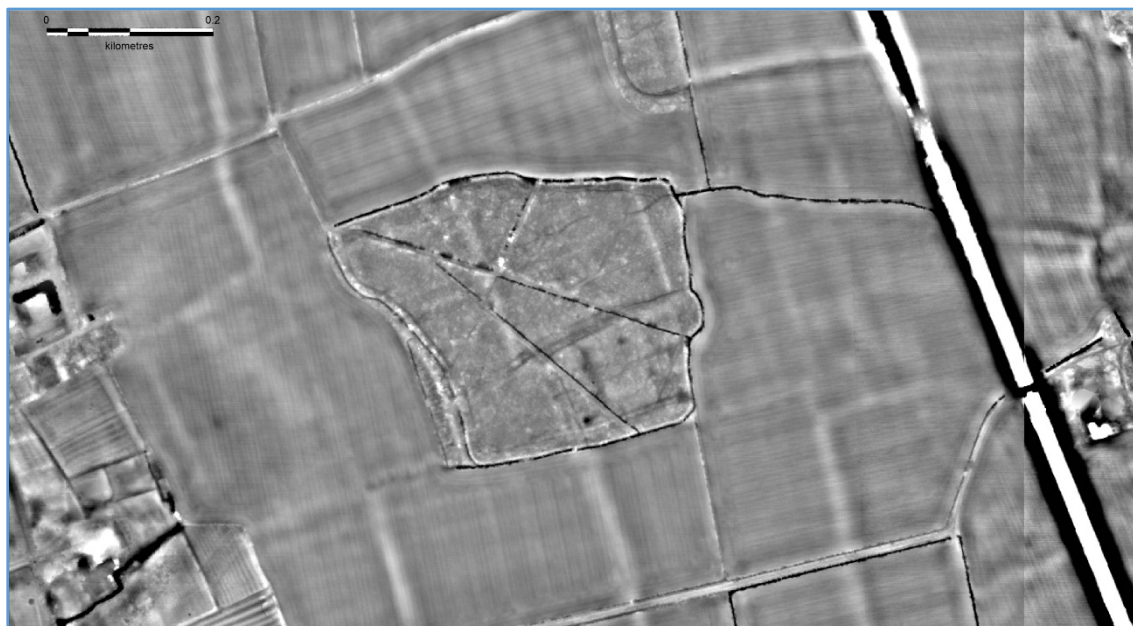


Figure B. Simple Local Relief Model (of DTM). General relief models convey landscape scale topography at the expense of smaller scale features including archaeological earthworks. This visualisation removes the general trend, eg hills and valleys to accentuate the appearance of the smaller scale features. In this visualisation the lighter tones represent banks and mounds, the darker, ditches and pits. This visualisation is particularly effective at revealing very low earthworks.

Further information and guidance on the use of LiDAR for archaeological prospection and the creation of visualisation from LiDAR data can be found in Crutchley and Crow (2009) and Kokalj and Hesse (2017).

Appendix 3 Catalogue of features

Parcel	Description	HER
F1	Faint cropmarks of possible Iron Age or Roman rectilinear enclosures and the low remains of a post medieval field boundary are visible on air photos and on lidar imagery respectively. The cropmarks indicate an arrangement of short perpendicular ditches to the immediate east of Fox Covert, but more features are likely to survive beneath the ground surface.	MLI54018
F2	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F3	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos and on lidar imagery.	
F4	The low remains of a post medieval field boundary extends into this field from F1.	
F5	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F6	The low remains of a post medieval field boundary are visible on lidar imagery respectively. This field boundary is depicted on the OS map of 1885.	
F7	Fragments of likely post medieval ridge and furrow and a pair of banks are visible as earthworks on lidar imagery. The former are located amongst the trees along the western edge of the parcel, the latter along the northern edge of this parcel and within Long Nursery.	
F8	Ridge and furrow and a possible plough headland are visible as earthworks on historical air photos and on lidar imagery. The plough headland survives as a low spread earthwork, it runs near north to south and is likely to be of medieval origin. The plough furrows appear to run across the headland so may be of later medieval or post medieval date.	
F9	Ridge and furrow and a possible plough headland are visible as earthworks on historical air photos and on lidar imagery. The plough headland runs near north to south and is likely to be of medieval origin. The ridge and furrow continues from F8 and may be of later medieval or post medieval date.	
F10	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F11	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F12	Ridge and furrow, plough headlands and a possible trackway or avenue are visible as earthworks on historical air photos and on lidar imagery. The plough headlands most run north to south and are likely to be of medieval origin but they were marked by field boundaries until the late 20th century. The ridge and furrow is of medieval or post medieval date. A pair of narrow banks run near east to west from Burton Wood towards Gate Burton Hall, these may be a trackway or avenue associated with the landscaping around the hall. The ridge and furrow and the banks have now been levelled.	
F13	Part of a medieval plough headland is visible as a low earthwork on lidar imagery. It continues southward into Burton Wood.	
F14	Medieval or post medieval ridge and furrow and a post medieval field boundary are visible as earthworks on historical air photos and on lidar imagery respectively. The ridge and furrow has now been levelled. The field boundary was extant in the 1940s.	
F15	A medieval plough headland and post medieval field boundaries are visible as low earthworks on lidar imagery. The field boundaries were extant in the 1940s.	
F16	Ridge and furrow and plough headlands of likely medieval origin are visible as earthworks on historical air photos and on lidar imagery. The plough headlands survive as low earthworks but the plough ridges have been levelled.	
F17	A medieval plough headland continues into this parcel from F15. A fragment of likely post medieval ridge and furrow is visible in Golddale Plantation. Both features are visible as earthworks on lidar imagery.	
F18	A fragment of likely post medieval ridge and furrow is visible as earthworks on lidar imagery in Golddale Plantation.	

Parcel	Description	HER
F19	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F20	A broad ditch and fragments of ridge and furrow and plough headland are visible as earthworks on historical air photos and on lidar imagery. The ditch runs north-west to south-east across this parcel and continues along the eastern side of Siding Farm (see F21) and into the field to the south(see F23). These features may be of medieval or post medieval origin.	
F21	A broad ditch is visible as an earthwork on lidar imagery and two narrow ditches are indicated by cropmarks on Google Earth imagery. The broad ditch continued into F20 to the north and F23 to the south and its relationship to ridge and furrow is those two parcels suggests it may be of medieval or post medieval origin. The date of the two cropmarked ditches is not known.	
F22	A likely drainage ditch of post medieval origin is visible cropmarks and soilmarks on historical air photos.	
F23	The possible medieval or post medieval broad ditch observed in F20 and F21 continues into this field. It appears to be cut by medieval or post medieval ridge and furrow that is visible as earthworks on historical air photos. The lidar imagery indicates that the ditch survives as a shallow earthwork but the ridge and furrow has been levelled.	
F24	Medieval and post medieval ridge and furrow and post medieval field boundaries are visible as earthworks and cropmarks on historical air photos and lidar imagery. Most of the field boundaries, which are marked by ditches and banks, were still extant in the 1940s. These survive as low earthworks but the ridge and furrow has been levelled.	
F25	A fragment of medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos.	
F26	Medieval or post medieval ridge and furrow and post medieval field boundaries are visible as earthworks on historical air photos. The ridge and furrow has now been levelled. The field boundaries, which were extant in the 1940s survive as low and spread earthworks.	
F27	Fragments of medieval or post medieval ridge and furrow are visible as soilmarks on historical air photos.	
F28	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F29	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F30	A possible Iron Age or Roman rectilinear enclosure, a post medieval field boundary and ditches of uncertain date are visible as cropmarks on air photos. The enclosure and possible internal features is located to the north-west of Central Park Farm and measure 58m by at least 87m. The field boundary is depicted on the OS map of 1885.	MLI54017
F31	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F32	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F33	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F34	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F35	Two ditches of likely post medieval date are visible as cropmarks on historical air photos.	
F36	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F37	Cropmarks of a post medieval field boundary, fragments of medieval or post medieval ridge and furrow and ditches of unknown date are visible on air photos.	
F38	Two narrow ditches in a perpendicular arrangement are visible as cropmarks on air photos. The date of these features is not known.	

Parcel	Description	HER
F39	Three narrow ditches are visible as cropmarks on air photos. One of the ditches is likely to be a continuation of a similar feature observed in F38. The date of these ditches is not known.	
F40	Numerous ditches are visible as cropmarks on historical air photos, and a small earthwork mound is visible on air photos and on lidar imagery between Park Wood and the railway line. The mound measures approximately 42x18m is rectangular in plan and well-defined. It is depicted on the OS map of 1885 and lies to the immediate west of the railway line. The same map also depicts earthworks on the east side of the line (outside of the area of this survey). This mound is likely to be of post medieval date but its purpose is not known. The origins of the various ditches is also unknown but it is noted that one appears to continue as an earthwork running south-westward through Park Plantation.	MLI54019
F41	Two small cropmarks, one oval, the other rectangular, are visible on air photos taken in 1971 and again in 2005. This suggests they are caused by subsurface features or disturbance rather than a superficial influence such as overseeding or spraying. The oval feature is also visible as a very shallow hollow on the lidar imagery. The archaeological significance of these features is not known.	MLI90939
F42	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F43	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F44	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F45	Medieval or post medieval ridge and furrow is visible as cropmarks on historical air photos.	
F46	A possible post medieval field boundary is visible as a cropmark on recent air photos.	
F47	Medieval or post medieval ridge and furrow are visible as cropmarks on historical air photos.	
F48	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F49	A fragment of medieval or post medieval ridge and furrow is visible as earthworks on historical air photos. The lidar imagery indicates that it has now been levelled.	
F50	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F51	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F52	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F53	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F54	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F55	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
F56	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos. The lidar imagery indicates that it has now been levelled.	
F57	A possible medieval plough headland is visible as a very low earthwork on lidar imagery.	
F58	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos. The lidar imagery indicates that it has now been levelled.	
F59	Fragments of medieval or post medieval ridge and furrow are visible as earthworks on historical air photos. The lidar imagery indicates that these earthworks have now been levelled.	
F60	Fragments of medieval or post medieval ridge and furrow are visible as earthworks on historical air photos. The lidar imagery indicates that these earthworks have now been levelled.	

Parcel	Description	HER
F61	Ridge and furrow, a section of plough headland, both of possible medieval date and a post medieval dew pond are visible as earthworks on historical air photos. The lidar imagery indicates that the plough headland survives as a very low earthwork but the plough ridges have been levelled.	
F62	Ridge and furrow and a section of plough headland, both of possible medieval date are visible as earthworks on historical air photos. The lidar imagery indicates that the plough headland survives as a very low earthwork but the plough ridges have been levelled.	
F63	Possible medieval plough headlands are visible as low earthworks on lidar imagery. Portions of these headlands are marked by fields boundaries on the OS map of 1885.	
F64	Ridge and furrow and a plough headland, both of possible medieval date are visible as earthworks on historical air photos. The lidar imagery indicates that the plough headland survives as a low earthwork but the plough ridges have been levelled.	
F65	Medieval ridge and furrow and plough headlands and a post medieval field boundary are visible as earthworks on historical air photos. The lidar imagery indicates that the plough headland and field boundary survive as low earthworks but the plough ridges have been levelled.	
F66	Medieval or post medieval ridge and furrow and post medieval field boundaries are visible as earthworks on historical air photos and lidar imagery respectively. The lidar imagery indicates that the plough ridges have been levelled but the field boundaries, which were extant in the 1940s, survive as low earthworks.	
F67	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos. The lidar imagery indicates that the plough ridges have been levelled.	
F68	A post medieval field boundary, which was extant in the 1940s, is visible as a low earthwork on lidar imagery.	
100	Medieval ridge and furrow and plough headlands are visible as earthworks on historical air photos. The lidar imagery indicates that the plough headlands survive as low earthworks but the plough ridges have been levelled.	
101	A post medieval field boundary, which was extant in the 1940s, is visible as a low earthwork on lidar imagery.	
102	Possible field boundaries and small rectilinear enclosures are visible as faint and indistinct cropmarks on recent air photos. These features may be of Iron Age or Roman date.	
103	A medieval plough headland, medieval or post medieval ridge and furrow and a post medieval field boundary are visible on historical air photos. The lidar imagery indicates that the headland survives as a low earthwork but the other features have been levelled.	
104	A medieval plough headland and medieval or post medieval ridge and furrow are visible as earthworks on historical air photos, the plough headland was marked by a later field boundary at that time. The lidar imagery indicates that the headland survives as a low earthwork but the plough ridges have been levelled.	
105	Medieval or post medieval ridge and furrow and post medieval field boundaries are visible on historical air photos. The lidar imagery indicates that the eastern half of the ridge and furrow has been levelled but the western half is well preserved and the other features survive as low earthworks.	
106	Medieval or post medieval ridge and furrow, a possible plough headland and post medieval narrow ridge and furrow are visible as earthworks on historical air photos. Most of these features have now been levelled but the plough headland is detectable as a very low earthwork on the lidar imagery.	
107	A section of a likely medieval plough headland and a fragment of medieval or post medieval ridge and furrow are visible as a low earthwork on lidar imagery and as soilmarks on historical air photo respectively. This survey did not observe the cropmarked features recorded by the NMP Project (MLI52489) on any of the air photos examined.	
108	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
109	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	

Parcel	Description	HER
110	A section of a post medieval flood defense bank is visible as an earthwork on historical air photos and on lidar imagery. This feature is depicted on the OS map of 1885 and it continues into parcels 111 and 233.	MLI52488
111	A short section of a likely post medieval flood defense bank is visible as an earthwork on historical air photos and on lidar imagery. This feature is depicted on the OS map of 1885 and it continues into parcels 110 and 233.	MLI52488
112	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
113	Ditches and banks are visible as earthwork and cropmarks on air photos and on lidar imagery. A narrow bank, flanked by small ponds runs along the eastern edge of this parcel. These features are depicted on the OS map of 1885 and the bank is likely to be the remains of a post medieval flood defence. These features stood as earthworks in the 1940s but have now been levelled. The L-shaped cropmarked ditch to the west is the remains of post medieval field boundary which was extant in the 1940s. Between the two there are short cropmarked ditches of uncertain origin.	MLI52488
114	A substantial embankment, possibly a post medieval flood defence, is visible as an earthwork on the lidar imagery.	
115	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
116	Fragments of medieval or post medieval ridge and furrow are visible as earthworks on historical air photos and on lidar imagery.	
117	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
118	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
119	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
120	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
121	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
122	A ditch of uncertain date is visible as a cropmark on air photos.	
123	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
124	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
125	A linear feature and several small discrete features are visible as cropmarks on air photos. The linear feature runs north to south through this parcel and continues northward beyond the survey area and southward into 126. In this parcel it is defined by a rather indistinct and irregular swathe of slower ripening crop with an area of parching along its centre. These cropmarks are likely to reflect variations in the superficial geology which comprises sand and gravel overlain by ribbons of alluvium in this area. However in the absence of other evidence an archaeological origin cannot be discounted and they may indicate a trackway of later prehistoric or Roman date. West of this feature there are two small circular features and a swathe of small round pits. Again these may have archaeological significance but are more likely to be of natural origin. On the eastern margins of the linear feature there is a rectilinear enclosure measuring 22x11m and a second similar but incomplete enclosure to the south. Elsewhere to the east there is a large hollow and an adjacent arrangement of pits, discrete pits and a possible rectilinear enclosure. The enclosures and pits may be of later prehistoric or Roman date.	MNT15983

Parcel	Description	HER
126	A multiple ditch boundary, a long sinuous linear feature, small circular features, other ditches and fragments of ridge and furrow are visible as cropmarks. The boundary comprises three ditches and runs east to west through this parcel and continues westward into 128 and eastward into 155. The more northerly of the three ditch appears to coincide with a field boundary that was still extant in 1946 but it is possible that this boundary has its origins in the later prehistoric period. The sinuous linear feature continues into 125. In this field it comprises two converging and sinuous arms defined by short irregular cropmarks that suggest pits, slots and short ditches. This feature has been described as a 'curvilinear enclosure' (MNT15983) but as suggested in 125 is perhaps more likely reflect variations in the superficial geology. If this feature is of archaeological origin it may be the remains of later prehistoric trackways. There are small square and circular features on the margins of this feature, again probably but not certainly of natural in origin.	MNT15983
127	Two sides of a possible rectilinear enclosure, a circular pond or hollow, faint traces of a multiple ditch boundary, other short ditches and ridge and furrow are visible as cropmarks on air photos. The putative enclosure is defined by a broad ditch and may be of Iron Age or Roman date. The circular feature lies within the enclosure ditches but may not be related. The multiple ditch boundary comprises three faint ditches running south-east to north-west through this field but it continues north-westward through 130 and 131, mostly as a single broad ditch. This boundary may be of later prehistoric date.	
128	A multiple ditch boundary and perpendicular and parallel field boundaries and other ditches are visible as cropmarks. The boundary continues westward from 126 and may be of later prehistoric origin. The field boundaries running perpendicular and parallel to the boundary may be of similar or later date. The origins of the other ditches in this parcel are uncertain.	
129	A trackway, field boundaries and small hollow are visible as cropmarks on air photos. The double ditched trackway appears to merge with the triple ditched boundary in 128 and it continues into 131. It may be of later prehistoric or Roman date. The hollow is rectilinear in plan and may be the remains of a small post medieval quarry pit.	MNT4983
130	A section of a multiple ditch boundary of likely later prehistoric origin and a short section of a likely medieval or post medieval field boundary are visible as cropmark. The boundary is represented by two or three narrow ditches and a broader ditch in this section and continues eastward into 127 and westward into 131. The field boundary continues westward into 131.	MNT4983
131	From north to south this parcel intersects a medieval or post medieval field boundary, a section of later prehistoric boundary, tripled ditched in the neighbouring field but a single ditch here, a possible Iron Age or Roman field boundary, and trackways flanked by fields and enclosures on either side of a palaeochannel, also of likely Iron Age or Roman date.	MNT4983
132	A trackway flanked by enclosures runs north to south-west along the eastern edge of this parcel. To the west and angular corner defined by up to three ditches may indicate the north-west corner of a rectilinear enclosure that has been truncated by the railway line. These features may be of Iron Age or Roman date. The ditch oriented east to west is likely to be a post medieval field boundary and the lidar imagery shows a low bank aligned north-west to south-east, which may be a heavily truncated plough headland.	MNT4983
133	A section of possible field boundary or trackway and a rectilinear enclosure are visible as cropmarks. These features may be of Iron Age or Roman date.	MNT4983
134	Two ditches are visible as faint cropmarks on air photos. The short more southerly ditch appears to coincide with a field boundary that is depicted on the OS map of 1885. The other may be associated with the Iron Age or Roman field system observed in 136 to the west.	
135	Medieval or post medieval ditches that may have marked the northern edge of an earlier and wider Outgang Road are visible as cropmarks on air photos. This is a continuation of the feature observed in 141.	

Parcel	Description	HER
136	Complex cropmarks are visible in this parcel. Most suggest a coaxial field system with trackways and associated rectilinear enclosures. These features are likely to be of Iron Age or Roman date. In the south-west quadrant of the field some photos show more ephemeral soilmarks and cropmarks. These marks suggest a broad ditched enclosure with patches of parching within the 'ditch' and robber trenches at it is north-east corner suggestive of levelled structural remain, however it is perhaps more likely that these features are natural or geological origin.	MNT4983
137	Complex perpendicular arrangements of ditches are visible as cropmarks on air photos. Most of these are likely to be trackways and boundaries in a coaxial field system of Iron Age or Roman dates. The field system continued northward beyond the survey area, southward into 138 and eastward into 136. Also present in this parcel are long post medieval field boundaries that cut obliquely across the earlier field system and run parallel or perpendicular to the extant field boundaries.	MNT4983
138	Trackways and field boundaries in a coaxial field system are visible as cropmarks on air photos. These features are likely to be of Iron Age or Roman date and they continue into 137 and 136.	MNT4983
139	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
140	Two possible Iron Age or Roman field boundaries are visible as cropmarks on air photos. They continue eastward into the field system observed in 141.	
141	Complex cropmarks are visible in this parcel. Most suggest rectilinear enclosures within a coaxial field system. These features are likely to be of Iron Age or Roman date. A broad linear ditch runs parallel to and approximately 25m north of the Outgang Road. Chapman's 1794 map indicates that the road widened in this area and this ditch may have marked it's northern boundary. It is flanked by a large rectangular area of slower ripening crop, which may indicate a shallow quarry.	MNT4983
142	A scarp slope runs east to west and parallel to Outgang Road through this parcel and into 143 to the east and 232 to the west. This section is depicted as a field boundary on the OS map of 1885, but Chapman's map of 1794 indicates that Outgang Road was wider at that time. This scarp may indicate the southern edge of the Outgang Road and be a counter part to a feature described in 135 and 141.	MNT4983
143	A short section of a scarp slope runs east to west and parallel to Outgang Road through this parcel and into 142 and 232 to the west. This section is depicted as a field boundary on the OS map of 1885, but Chapman's map of 1794 indicates that Outgang Road was wider at that time. This scarp may indicate the southern edge of the Outgang Road and be a counter part to a feature described in 135 and 141.	
144	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
145	Ditches of uncertain date are visible as cropmarks on air photos.	
146	Two small groups of fragmentary cropmarks are visible on air photos. The more southerly cropmarks suggest a rectilinear enclosure and hut circle, which may be of Iron Age or Roman date. The more northerly comprises short ditches of unknown date.	
147	Medieval or post medieval ridge and furrow is visible as earthworks and two ditches and a irregular curvilinear disturbance are visible as cropmarks on air photos. The ridge and furrow had been levelled on more recent images. The ditches are near parallel to similar features observed in 149 and may be the remains of Iron Age or Roman field boundaries. The curvilinear feature may be the remains of an enclosure but is perhaps more likely to be of natural or superficial origin.	
148	Medieval or post medieval ridge and furrow is visible as earthworks on historical air photos but has now been levelled.	
149	Possible Iron Age or Roman field boundaries, medieval or post medieval ridge and furrow, a post medieval field boundary and several possible post medieval quarry pits are visible as cropmarks on air photos. The ridge and furrow survive as earthworks in the 1940s but has since been levelled.	

Parcel	Description	HER
150	A short section of possible Iron Age or Roman field boundary and a possible enclosure are visible as cropmarks on historical air photos. The field boundary continues into 149. These features have now been destroyed.	
151	Two trackways, ridge and furrow, field boundaries and a pond and a possible earlier trackway are visible as cropmarks and earthworks on air photos. These features are in a field to the south of Torksey Ferry Road. Chapman's 1794 map indicates that the road took a more sinuous route between Rampton and Torksey at that time and the more northerly trackway maybe the remains on this route. This trackway continues westward towards Rampton in 229 and there may be traces of it 153. In this parcel this trackway is abutted to the south by ridge and furrow and field boundaries. These features and the pond may be of medieval or post medieval origin. The field boundaries, plough furrows and pond appear to cut across the second trackway, which runs near perpendicular to and 80m south of the first. This trackway may have earlier origins.	MNT6166
152	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
153	The remains of either a plough headland or a former course of the Torksey Ferry Road is visible as a very low earthwork on lidar imagery. There is further evidence of this route in 151 and 229.	
154	No features of archaeological origin were identified on the air photos and lidar imagery examined for this survey.	
155	A later prehistoric multiple ditch boundary, field boundaries, a curvilinear enclosure, ditches and pits, are visible as cropmarks on air photos. The multiple ditch boundary continues into 126.	MNT15983
200	Medieval or post medieval ridge and furrow is visible as earthworks on air photos taken in 1980. Lidar imagery indicates that these earthworks have now been levelled.	MLI54010
201	Fragmentary ditches of unknown origin and purpose are visible as cropmarks on air photos.	
202	Fragmentary ditches of unknown origin and purpose are visible as cropmarks on air photos.	
203	The remains of infilled water channel of likely post medieval date is visible as a shallow earthwork on the lidar imagery. This ditch was extant in the 1940s.	
204	This parcel lies to the west and north west of the Roman settlement at Littleborough. It contains some cropmarks and low earthworks (now levelled) but most of these appear to be the remains of medieval or post medieval ridge and furrow and post medieval ridge field boundaries, drainage ditches, a possible quarry pit. Several of the field boundaries are depicted on the OS map of 1885 and some were still extant in the 1940s. The historical air photos also show a short section of low spread bank seemingly cut by the Mother Drain. Riley et al report that Clark excavated a cobbled road surface east of the drain in 1954 (1995 262). It is possible that the bank, now levelled, is a continuation of that road.	
205	Possible post medieval drainage ditches are visible as earthworks on historical air photos. The lidar imagery suggest that they have now been levelled.	
206	A Roman roadside settlement overlain by medieval or post medieval ridge and furrow and, further south, a possible waterchannel of unknown date are all visible as cropmarks on air photos. The road runs north-west to south-east as is abutted by north and south by a series of ditches to form a regular arrangement of plots or enclosures. There are a large number of pits distributed across these enclosures. The putative water channel runs between the settlement and an extant channel. The ridge and furrow runs perpendicular to the road and on almost the same orientation as the Roman ditches so the latter may be recut or obscure by the plough furrows.	MNT6183

Parcel	Description	HER
207	Indistinct cropmarks of a possible Iron Age or Roman field system and medieval or post medieval ridge and furrow and plough headlands are visible as cropmarks and earthworks respectively on air photos. The ridge and furrow and plough headlands stood as earthworks on air photos taken in the 1940s and the lidar imagery suggest that only the plough headlands survive and these are very low. The putative Iron Age and Roman features are revealed by cropmarks on recent Google Earth imagery.	MLI116360 , MLI52472
208	Medieval or post medieval plough headlands and ridge and furrow are visible as earthworks on historical air photos and on lidar imagery. The lidar imagery indicates that plough ridges have been levelled but the headlands survive as low earthworks.	
209	The remains of a post medieval field boundary that may have originated as a medieval plough headland is visible as a very low earthwork on lidar imagery. The field boundary was depicted on the OS map of 1885.	
210	The remains of a post medieval field boundary that may have originated as a medieval plough headland is visible as a very low earthwork on lidar imagery. The field boundary was depicted on the OS map of 1885.	
211	Multi period cropmarks and earthworks are visible on air photos and lidar imagery. The cropmarks in the western side of this parcel are fragmentary and indistinct. They appear to indicate an arrangement of ditches and a possible enclosure, possibly of Iron Age or Roman date. The lidar imagery shows the low remains of two medieval or post medieval plough headlands running south-west to north-east and the older air photos shows these were abutted or cut by ridge and furrow. Long ditches running north to south through the middle of this parcel and their adjacent dew ponds are likely to be of post medieval date.	MLI51369, MLI54011
212	A Roman fort, a possible roadside settlement and traces of ridge and furrow are visible as cropmarks on air photos and low earthwork banks are visible on the lidar imagery. The fort, which is scheduled (List Entry no. 1004935), lies on the edge of the low cliff that runs along the western edge of this parcel and overlooks the flood plain. It comprises two ditches on three sides, with the fourth side open to the cliff edge. A slight narrowing of the ditches along the eastern side may indicate the location of an entrance. Several short ditches run perpendicular to the Littleborough Road. This area has been interpreted as the location of Roman settlement, based on the combined evidence of the cropmarks, geophysical survey, field walking and metal detecting (Worrell 1997 177-178). Linear cropmarks suggestive of medieval or post medieval ridge and furrow run east to west across the parcel. Two of the low earthwork banks run east to west across the parcel and may be the remains of post medieval field boundaries, the third clips the north-east corner and may be a medieval or post medieval plough headland.	MLI51369, MLI54200
213	Fragments of medieval or post medieval ridge and furrow and a post medieval field boundary are visible as earthworks on historical air photos and on lidar imagery respectively. The field boundary may have also marked the southern edge of a previously wider Littleborough Road on its approach to the river bank.	
214	Two short undated ditches are visible as cropmarks on air photos.	
215	A fragment of medieval ridge and furrow and post medieval narrow ridge and furrow are visible as earthworks and cropmarks on historical air photos.	
216	Several linear features, possible trackways and groups of pits are visible as cropmarks. Two broad and slightly irregular ditches curve north to south just to the west of this parcel. The ditch to the west coincides with a field boundary depicted on the OS map of 1885 which is slightly anomalous to the very straight and regular field ditches that characterise this area. The other seems to follow the curve of the waterchannel that lies 350m to the east. The short sections of double ditched trackway may be of Iron Age or Roman date. The date and function of other features is not known.	
217	A post medieval field boundary is visible as a cropmark on recent air photos and is depicted on the OS map of 1885.	

Parcel	Description	HER
218	Cropmarks indicating the route of Southbank Lane run along the southern edge of this parcel. The lane was still extant on air photos taken in the 1940s. The lidar imagery suggests a low bank runs along the southern edge of the lane, perhaps indicating a medieval plough headland. Other ditches in this field are mostly the remains of field boundaries that were also still extant in the 1940s, but some may be part of a broad trackway that is more clearly defined where it continues in 219.	MNT4981
219	Iron Age or Roman settlement, trackways and field boundaries are visible as cropmarks on air photos. This includes a number of conjoined rectilinear enclosure with small internal and corner enclosures. The cropmarked double ditch trackway running along the northern edge of this parcel is the remains of a now redundant section of Craikbank Lane, which was extant on air photos taken in the 1940s. This trackway is of medieval or post medieval origin.	MNT4981
220	Post medieval and undated ditches and a possible quarry pits are visible as cropmarks on air photos. The north to south aligned ditch bisecting this parcel is a post medieval field boundary that was still extant in the 1940s. The long ditch running along the north side of Broad Lane probably marked the edge of that road when it was a wider route than it is now, as shown on Chapman's map of 1794.	
221	Ditches of uncertain date and a post medieval field boundary are visible as cropmarks on air photos.	MNT4982
222	Ditches and a small curvilinear enclosure of uncertain date and a post medieval field boundary are visible as cropmarks on air photos.	MNT4983
223	Three low banks are visible on lidar imagery, these are the remains of post medieval field boundaries.	
224	Post medieval narrow ridge and furrow is visible as earthworks on historical air photos. The lidar imagery indicates that these earthworks have now been levelled.	
225	A fragment of medieval or post medieval ridge and furrow is visible as earthworks on lidar imagery.	
226	Cropmarks pertaining to the Iron Age and Roman settlement excavated at Moor Pool Close, Rampton in 1999-2000 are visible on air photos taken in 1991 (Knight 200 Fig 4). These features have now been destroyed by quarrying.	MNT15344
227	Short ditches and circular hollows are visible as cropmarks on air photos. The date and purpose of these features is now known.	
228	Post medieval field boundaries are visible as cropmarks and low earthworks on air photos and on lidar imagery.	
229	A scarp slope and ditch may indicate the former position of Torkey Ferry Road.	
230	Post medieval ridge and furrow is visible as earthworks on lidar imagery in Long Nursery woods.	
231	Two medieval or post medieval plough headlands, possible field boundaries and pits are visible as earthworks on lidar imagery in Burton Wood.	
232	A scarp slope runs east to west and parallel to Outgang Road through this parcel and into 142 and 143 to the east. It is depicted as an earthwork on the OS map of 1885, but Chapman's map of 1794 suggests that Outgang Road was wider at that time. This scarp may mark the southern edge of the Outgang Road. There are traces of medieval or post medieval ridge and furrow to the south of this scarp slope.	
233	A short section of a likely post medieval flood defense bank and possible ponds are visible as earthworks on historical air photos and on lidar imagery. This bank is depicted on the OS map of 1885 and it continues into parcels 111 and 110.	MLI52488
234	Post medieval flood defences and a possible pond are visible as earthworks on historical air photos. Lidar imagery suggest that the embankments are still upstanding but the pond has been filled in.	MLI52488

Appendix 4 Historic England Archive and CUCAP list of air photos examined

Historic England Archive

The Engine House, Fire Fly Avenue, Swindon SN2 2EH. Enquiry reference no. AP 132472. The Specialist Collection (mostly oblique) and Vertical Collection air photos listed below were consulted at the Archives 22nd to 24th and 29th March 2022. The 'Digital colour' images were examined on screen via APEX WEBSITE LINK and digital copies were obtained of those marked *. All other photographs were available to view as prints at the Archive.

Photo reference	Film and frame number		Date	Film type	
SK 8078 / 5	NMR 28469	/ 11	01 AUG 2013	Digital colour	35 mm
SK 8078 / 6	NMR 28469	/ 12	01 AUG 2013	Digital colour	35 mm
SK 8078 / 7	NMR 28469	/ 13	01 AUG 2013	Digital colour	35 mm
SK 8079 / 1	INV 19406	/ 13A	25 AUG 1996	Colour neg	35 mm
SK 8079 / 5	NMR 17596	/ 01	20 JUL 2001	Colour slide	35 mm
SK 8079 / 6	NMR 17596	/ 02	20 JUL 2001	Colour slide	35 mm
SK 8079 / 7	NMR 17606	/ 01	20 JUL 2001	Black & white	70mm,120,220
SK 8079 / 8	NMR 17606	/ 02	20 JUL 2001	Black & white	70mm,120,220
SK 8079 / 9	NMR 17606	/ 03	20 JUL 2001	Black & white	70mm,120,220
SK 8079 / 10	NMR 17606	/ 04	20 JUL 2001	Black & white	70mm,120,220
SK 8079 / 11	NMR 17606	/ 05	20 JUL 2001	Black & white	70mm,120,220
SK 8079 / 12	NMR 28469	/ 09	01 AUG 2013	Digital colour	35 mm
SK 8079 / 13	NMR 28469	/ 10	01 AUG 2013	Digital colour	35 mm
SK 8079 / 14	NMR 28469	/ 14	01 AUG 2013	Digital colour	35 mm
SK 8079 / 15	NMR 28469	/ 15	01 AUG 2013	Digital colour	35 mm
SK 8080 / 1	DNR 427	/ 3	21 JUN 1970	Black & white	35 mm
SK 8080 / 2	DNR 427	/ 4	21 JUN 1970	Black & white	35 mm
SK 8080 / 3	DNR 427	/ 5	21 JUN 1970	Black & white	35 mm
SK 8080 / 5	DNR 870	/ 9	02 JUL 1976	Black & white	35 mm
SK 8080 / 6	DNR 870	/ 12	02 JUL 1976	Black & white	35 mm
SK 8080 / 7	DNR 866	/ 63	29 JUN 1976	Black & white	70mm,120,220
SK 8080 / 8	DNR 866	/ 64	29 JUN 1976	Black & white	70mm,120,220
SK 8080 / 9	DNR 866	/ 65	29 JUN 1976	Black & white	70mm,120,220
SK 8080 / 10	DNR 866	/ 66	29 JUN 1976	Black & white	70mm,120,220
SK 8080 / 11	DNR 866	/ 67	29 JUN 1976	Black & white	70mm,120,220
SK 8080 / 12	DNR 865	/ 1	29 JUN 1976	Black & white	35 mm
SK 8080 / 13	DNR 865	/ 2	29 JUN 1976	Black & white	35 mm
SK 8080 / 14	DNR 865	/ 3	29 JUN 1976	Black & white	35 mm
SK 8080 / 15	DNR 865	/ 4	29 JUN 1976	Black & white	35 mm
SK 8080 / 19	DNR 1557	/ 27	27 JUL 1979	Black & white	35 mm
SK 8080 / 28	JAP 19333	/ V111	09 JUL 1996	Colour slide	35 mm
SK 8080 / 29	JAP 19333	/ V112	09 JUL 1996	Colour slide	35 mm
SK 8080 / 30	JAP 19333	/ V113	09 JUL 1996	Colour slide	35 mm
SK 8081 / 2	DNR 427	/ 11	21 JUN 1970	Black & white	35 mm
SK 8081 / 3	DNR 870	/ 4	02 JUL 1976	Black & white	35 mm
SK 8081 / 4	DNR 870	/ 5	02 JUL 1976	Black & white	35 mm
SK 8081 / 5	DNR 870	/ 6	02 JUL 1976	Black & white	35 mm
SK 8081 / 6	DNR 870	/ 7	02 JUL 1976	Black & white	35 mm
SK 8081 / 8	DNR 865	/ 6	29 JUN 1976	Black & white	35 mm
SK 8081 / 11	DNR 865	/ 10	29 JUN 1976	Black & white	35 mm
SK 8081 / 12	DNR 865	/ 12	29 JUN 1976	Black & white	35 mm
SK 8081 / 13	DNR 865	/ 13	29 JUN 1976	Black & white	35 mm
SK 8082 / 4	NMR 20269	/ 09	28 JUN 2005	Colour neg	35 mm
SK 8082 / 5	NMR 20269	/ 10	28 JUN 2005	Colour neg	35 mm
SK 8082 / 6	NMR 20269	/ 11	28 JUN 2005	Colour neg	35 mm
SK 8082 / 7	NMR 20321	/ 15	28 JUN 2005	Digital colour	35 mm
SK 8082 / 8	NMR 20297	/ 05	28 JUN 2005	Colour neg	70mm,120,220
SK 8082 / 9	NMR 20297	/ 06	28 JUN 2005	Colour neg	70mm,120,220
SK 8178 / 1	NMR 1830	/ 073	24 JUL 1980	Black & white	70mm,120,220
SK 8178 / 2	NMR 1830	/ 075	24 JUL 1980	Black & white	70mm,120,220
SK 8178 / 3	NMR 1830	/ 080	24 JUL 1980	Black & white	70mm,120,220
SK 8178 / 4	DNR 2423	/ 06	18 JUL 1990	Black & white	35 mm
SK 8178 / 5	DNR 2423	/ 07	18 JUL 1990	Black & white	35 mm

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SK 8178 / 6	DNR 2423	/ 08	18 JUL 1990	Black & white	35 mm
SK 8178 / 7	DNR 2423	/ 09	18 JUL 1990	Black & white	35 mm
SK 8178 / 8	DNR 2423	/ 10	18 JUL 1990	Black & white	35 mm
SK 8178 / 9	DNR 2423	/ 11	18 JUL 1990	Black & white	35 mm
SK 8178 / 10	DNR 2423	/ 12	18 JUL 1990	Black & white	35 mm
SK 8178 / 11	NMR 1830	/ 074	24 JUL 1980	Black & white	70mm,120,220
SK 8178 / 12	NMR 1830	/ 076	24 JUL 1980	Black & white	70mm,120,220
SK 8178 / 13	NMR 1830	/ 077	24 JUL 1980	Black & white	70mm,120,220
SK 8178 / 14	NMR 1830	/ 081	24 JUL 1980	Black & white	70mm,120,220
SK 8178 / 15	NMR 1830	/ 082	24 JUL 1980	Black & white	70mm,120,220
SK 8178 / 28	HEA 29953	/ 011	26 AUG 2016	Digital colour	35 mm
SK 8178 / 29	HEA 29953	/ 012	26 AUG 2016	Digital colour	35 mm
SK 8179 / 2	JAP 1187	/ 28	02 SEP 1972	Black & white	35 mm
SK 8179 / 3	NMR 1830	/ 078	24 JUL 1980	Black & white	70mm,120,220
SK 8179 / 4	DNR 866	/ 57	29 JUN 1976	Black & white	70mm,120,220
SK 8179 / 5	NMR 1830	/ 079	24 JUL 1980	Black & white	70mm,120,220
SK 8179 / 6	NMR 17284	/ 29	29 JUN 1999	Colour slide	35 mm
SK 8179 / 7	INV 19549	/ 01A	30 AUG 1998	Colour neg	35 mm
SK 8179 / 8	INV 19549	/ 02A	30 AUG 1998	Colour neg	35 mm
SK 8179 / 9	INV 19549	/ 03A	30 AUG 1998	Colour neg	35 mm
SK 8179 / 10	INV 19549	/ 04A	30 AUG 1998	Colour neg	35 mm
SK 8179 / 11	INV 19549	/ 05A	30 AUG 1998	Colour neg	35 mm
SK 8179 / 12	INV 19552	/ 23	14 MAR 1999	Colour neg	35 mm
SK 8179 / 13	INV 19552	/ 24	14 MAR 1999	Colour neg	35 mm
SK 8179 / 22	NMR 27943	/ 17	04 MAR 2014	Digital colour	35 mm
SK 8179 / 23	NMR 27943	/ 18	04 MAR 2014	Digital colour	35 mm
SK 8179 / 24	NMR 27943	/ 19	04 MAR 2014	Digital colour	35 mm
SK 8179 / 25	NMR 27943	/ 20	04 MAR 2014	Digital colour	35 mm
SK 8179 / 26	HEA 29953	/ 001	26 AUG 2016	Digital colour	35 mm
SK 8179 / 27	HEA 29953	/ 002	26 AUG 2016	Digital colour	35 mm
SK 8179 / 28	HEA 29953	/ 003	26 AUG 2016	Digital colour	35 mm
SK 8179 / 29	HEA 29953	/ 004	26 AUG 2016	Digital colour	35 mm
SK 8179 / 30	HEA 29953	/ 005	26 AUG 2016	Digital colour	35 mm
SK 8179 / 31	HEA 29953	/ 006	26 AUG 2016	Digital colour	35 mm
SK 8179 / 32	HEA 29953	/ 007	26 AUG 2016	Digital colour	35 mm
SK 8179 / 33	HEA 29953	/ 008	26 AUG 2016	Digital colour	35 mm
SK 8179 / 34	HEA 29953	/ 009	26 AUG 2016	Digital colour	35 mm
SK 8179 / 35	HEA 29953	/ 010	26 AUG 2016	Digital colour	35 mm
SK 8179 / 36	HEA 29953	/ 013	26 AUG 2016	Digital colour	35 mm
SK 8179 / 37	HEA 29953	/ 014	26 AUG 2016	Digital colour	35 mm
SK 8179 / 38	HEA 29953	/ 015	26 AUG 2016	Digital colour	35 mm
SK 8179 / 39	HEA 29953	/ 016	26 AUG 2016	Digital colour	35 mm
SK 8179 / 40	HEA 29953	/ 017	26 AUG 2016	Digital colour	35 mm
SK 8179 / 41	HEA 29953	/ 018	26 AUG 2016	Digital colour	35 mm
SK 8179 / 42	HEA 29953	/ 019	26 AUG 2016	Digital colour	35 mm
SK 8179 / 43	HEA 29953	/ 020	26 AUG 2016	Digital colour	35 mm
SK 8179 / 44	HEA 29953	/ 021	26 AUG 2016	Digital colour	35 mm
SK 8179 / 45	HEA 29953	/ 022	26 AUG 2016	Digital colour	35 mm
SK 8179 / 46	HEA 29953	/ 023	26 AUG 2016	Digital colour	35 mm
SK 8180 / 1	JAP 1187	/ 11	02 SEP 1972	Black & white	35 mm
SK 8180 / 2	DNR 870	/ 10	02 JUL 1976	Black & white	35 mm
SK 8180 / 3	DNR 870	/ 11	02 JUL 1976	Black & white	35 mm
SK 8180 / 4	DNR 870	/ 13	02 JUL 1976	Black & white	35 mm
SK 8180 / 5	DNR 866	/ 62	29 JUN 1976	Black & white	70mm,120,220
SK 8180 / 6	DNR 2401	/ 6	26 JUL 1986	Black & white	35 mm
SK 8180 / 7	DNR 2401	/ 7	26 JUL 1986	Black & white	35 mm
SK 8180 / 10	NMR 20269	/ 14	28 JUN 2005	Colour neg	35 mm
SK 8180 / 11	NMR 20269	/ 15	28 JUN 2005	Colour neg	35 mm
SK 8180 / 12	NMR 20269	/ 16	28 JUN 2005	Colour neg	35 mm
SK 8180 / 13	NMR 20269	/ 17	28 JUN 2005	Colour neg	35 mm
SK 8180 / 14	NMR 20321	/ 19	28 JUN 2005	Digital colour	35 mm
SK 8180 / 15	NMR 20321	/ 20	28 JUN 2005	Digital colour	35 mm
SK 8180 / 16	NMR 20321	/ 21	28 JUN 2005	Digital colour	35 mm
SK 8180 / 17	NMR 20297	/ 11	28 JUN 2005	Colour neg	70mm,120,220
SK 8180 / 18	NMR 20297	/ 12	28 JUN 2005	Colour neg	70mm,120,220
SK 8180 / 19	NMR 20297	/ 13	28 JUN 2005	Colour neg	70mm,120,220
SK 8180 / 20	NMR 20551	/ 43	11 JUL 2006	Digital colour	35 mm
SK 8180 / 21	NMR 20551	/ 44	11 JUL 2006	Digital colour	35 mm
SK 8180 / 22	NMR 20551	/ 45	11 JUL 2006	Digital colour	35 mm

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SK 8180 / 23	NMR 20551	/ 46	11 JUL 2006	Digital colour	35 mm
SK 8180 / 24	NMR 20551	/ 47	11 JUL 2006	Digital colour	35 mm
SK 8181 / 1	JAP 1187	/ 5	02 SEP 1972	Black & white	35 mm
SK 8181 / 2	JAP 1187	/ 6	02 SEP 1972	Black & white	35 mm
SK 8181 / 3	JAP 1187	/ 7	02 SEP 1972	Black & white	35 mm
SK 8181 / 4	JAP 1187	/ 8	02 SEP 1972	Black & white	35 mm
SK 8181 / 5	DNR 865	/ 9	29 JUN 1976	Black & white	35 mm
SK 8181 / 6	DNR 865	/ 11	29 JUN 1976	Black & white	35 mm
SK 8181 / 7	DNR 2401	/ 2	26 JUL 1986	Black & white	35 mm
SK 8181 / 8	DNR 2401	/ 3	26 JUL 1986	Black & white	35 mm
SK 8181 / 9	DNR 2401	/ 4	26 JUL 1986	Black & white	35 mm
SK 8181 / 10	DNR 2401	/ 5	26 JUL 1986	Black & white	35 mm
SK 8181 / 11	DNR 1170	/ 60	09 JUL 1977	Black & white	70mm,120,220
SK 8181 / 12	DNR 1170	/ 61	09 JUL 1977	Black & white	70mm,120,220
SK 8181 / 13	DNR 1170	/ 62	09 JUL 1977	Black & white	70mm,120,220
SK 8181 / 14	DNR 1170	/ 63	09 JUL 1977	Black & white	70mm,120,220
SK 8181 / 15	DNR 1170	/ 64	09 JUL 1977	Black & white	70mm,120,220
SK 8181 / 16	DNR 2365	/ 0	17 JUL 1984	Black & white	35 mm
SK 8181 / 17	DNR 2365	/ 1	17 JUL 1984	Black & white	35 mm
SK 8181 / 18	DNR 2365	/ 2	17 JUL 1984	Black & white	35 mm
SK 8181 / 19	DNR 2365	/ 3	17 JUL 1984	Black & white	35 mm
SK 8181 / 20	DNR 1557	/ 28	27 JUL 1979	Black & white	35 mm
SK 8181 / 23	NMR 20269	/ 12	28 JUN 2005	Colour neg	35 mm
SK 8181 / 24	NMR 20269	/ 13	28 JUN 2005	Colour neg	35 mm
SK 8181 / 25	NMR 20321	/ 17	28 JUN 2005	Digital colour	35 mm
SK 8181 / 26	NMR 20321	/ 18	28 JUN 2005	Digital colour	35 mm
SK 8181 / 27	NMR 20297	/ 07	28 JUN 2005	Colour neg	70mm,120,220
SK 8181 / 28	NMR 20297	/ 08	28 JUN 2005	Colour neg	70mm,120,220
SK 8181 / 29	NMR 20297	/ 09	28 JUN 2005	Colour neg	70mm,120,220
SK 8181 / 30	NMR 20297	/ 10	28 JUN 2005	Colour neg	70mm,120,220
SK 8182 / 1	NMR 1830	/ 083	24 JUL 1980	Black & white	70mm,120,220
SK 8182 / 2	NMR 1830	/ 084	24 JUL 1980	Black & white	70mm,120,220
SK 8182 / 3	NMR 1830	/ 085	24 JUL 1980	Black & white	70mm,120,220
SK 8182 / 4	NMR 1830	/ 086	24 JUL 1980	Black & white	70mm,120,220
SK 8182 / 5	NMR 12086	/ 23	22 JUL 1991	Colour slide	35 mm
SK 8182 / 6	JAP 19333	/ V109	09 JUL 1996	Colour slide	35 mm
SK 8182 / 8	NMR 17584	/ 41	05 JUL 2001	Black & white	70mm,120,220
SK 8182 / 9	NMR 17584	/ 42	05 JUL 2001	Black & white	70mm,120,220
SK 8182 / 10	NMR 17584	/ 43	05 JUL 2001	Black & white	70mm,120,220
SK 8182 / 11	NMR 17584	/ 44	05 JUL 2001	Black & white	70mm,120,220
SK 8182 / 12	NMR 17571	/ 37	05 JUL 2001	Colour slide	35 mm
SK 8182 / 13	NMR 17573	/ 02	05 JUL 2001	Colour slide	35 mm
SK 8182 / 14	NMR 17573	/ 03	05 JUL 2001	Colour slide	35 mm
SK 8182 / 15	NMR 17573	/ 04	05 JUL 2001	Colour slide	35 mm
SK 8182 / 16	NMR 17573	/ 05	05 JUL 2001	Colour slide	35 mm
SK 8182 / 17	NMR 17573	/ 06	05 JUL 2001	Colour slide	35 mm
SK 8182 / 18	NMR 20321	/ 16	28 JUN 2005	Digital colour	35 mm
SK 8182 / 19	NMR 20297	/ 02	28 JUN 2005	Colour neg	70mm,120,220
SK 8182 / 20	NMR 20297	/ 03	28 JUN 2005	Colour neg	70mm,120,220
SK 8182 / 21	NMR 20297	/ 04	28 JUN 2005	Colour neg	70mm,120,220
SK 8183 / 1	DNR 2364	/ 14	17 JUL 1984	Black & white	35 mm
SK 8183 / 2	DNR 2364	/ 15	17 JUL 1984	Black & white	35 mm
SK 8279 / 3	HEA 28714	/ 049	15 JUN 2015	Digital colour	35 mm
SK 8282 / 1	DNR 427	/ 6	21 JUN 1970	Black & white	35 mm
SK 8282 / 2	NMR 886	/ 209- 212	01 AUG 1975	Black & white	70mm,120,220
SK 8282 / 3	NMR 886	/ 213- 216	01 AUG 1975	Black & white	70mm,120,220
SK 8282 / 4	JAP 940	/ 32	16 JUN 1974	B&W copy clr	35 mm
SK 8282 / 5	JAP 940	/ 33	16 JUN 1974	B&W copy clr	35 mm
SK 8282 / 6	JAP 941	/ 3	16 JUN 1974	B&W copy clr	35 mm
SK 8282 / 7	JAP 941	/ 5	16 JUN 1974	B&W copy clr	35 mm
SK 8282 / 8	DNR 518	/ 3	15 JUN 1974	Black & white	35 mm
SK 8282 / 9	DNR 518	/ 4	15 JUN 1974	Black & white	35 mm
SK 8282 / 10	DNR 518	/ 5	15 JUN 1974	Black & white	35 mm
SK 8282 / 11	CAP 8245	/ 47	19 JUL 1954	Black & white	Unknown
SK 8282 / 12	CAP 8245	/ 48	19 JUL 1954	Black & white	Unknown
SK 8282 / 13	DNR 866	/ 58	29 JUN 1976	Black & white	70mm,120,220
SK 8282 / 14	DNR 866	/ 59	29 JUN 1976	Black & white	70mm,120,220

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SK 8282 / 15	DNR 866	/ 60	29 JUN 1976	Black & white	70mm,120,220
SK 8282 / 16	DNR 866	/ 61	29 JUN 1976	Black & white	70mm,120,220
SK 8282 / 17	DNR 863	/ 31	29 JUN 1976	Black & white	35 mm
SK 8282 / 18	DNR 863	/ 32	29 JUN 1976	Black & white	35 mm
SK 8282 / 19	DNR 863	/ 33	29 JUN 1976	Black & white	35 mm
SK 8282 / 20	DNR 863	/ 34	29 JUN 1976	Black & white	35 mm
SK 8282 / 21	DNR 863	/ 35	29 JUN 1976	Black & white	35 mm
SK 8282 / 22	DNR 863	/ 36	29 JUN 1976	Black & white	35 mm
SK 8282 / 23	DNR 2401	/ 8	26 JUL 1986	Black & white	35 mm
SK 8282 / 24	DNR 2401	/ 9	26 JUL 1986	Black & white	35 mm
SK 8282 / 25	NMR 4358	/ 19	23 JUN 1989	Black & white	35 mm
SK 8282 / 26	NMR 4358	/ 21	23 JUN 1989	Black & white	35 mm
SK 8282 / 27	NMR 4358	/ 22	23 JUN 1989	Black & white	35 mm
SK 8282 / 28	NMR 4358	/ 23	23 JUN 1989	Black & white	35 mm
SK 8282 / 29	NMR 4518	/ 12	29 JUN 1989	Colour slide	35 mm
SK 8282 / 30	NMR 4518	/ 13	29 JUN 1989	Colour slide	35 mm
SK 8282 / 31	NMR 4518	/ 14	29 JUN 1989	Colour slide	35 mm
SK 8282 / 32	NMR 4518	/ 15	29 JUN 1989	Colour slide	35 mm
SK 8282 / 33	DNR 1557	/ 30	27 JUL 1979	Black & white	35 mm
SK 8282 / 34	DNR 1557	/ 31	27 JUL 1979	Black & white	35 mm
SK 8282 / 35	NMR 12114	/ 57	22 JUL 1991	Black & white	70mm,120,220
SK 8282 / 36	NMR 12114	/ 58	22 JUL 1991	Black & white	70mm,120,220
SK 8282 / 37	NMR 12114	/ 59	22 JUL 1991	Black & white	70mm,120,220
SK 8282 / 38	NMR 12114	/ 60	22 JUL 1991	Black & white	70mm,120,220
SK 8282 / 39	NMR 12114	/ 61	22 JUL 1991	Black & white	70mm,120,220
SK 8282 / 40	NMR 12086	/ 22	22 JUL 1991	Colour slide	35 mm
SK 8282 / 41	NMR 12086	/ 24	22 JUL 1991	Colour slide	35 mm
SK 8282 / 42	NMR 12086	/ 25	22 JUL 1991	Colour slide	35 mm
SK 8282 / 43	JAP 19333	/ V107	09 JUL 1996	Colour slide	35 mm
SK 8282 / 44	JAP 19333	/ V108	09 JUL 1996	Colour slide	35 mm
SK 8282 / 45	JAP 19333	/ V110	09 JUL 1996	Colour slide	35 mm
SK 8282 / 46	INV 19404	/ 01A	10 AUG 1996	Colour neg	35 mm
SK 8282 / 47	INV 19404	/ 02A	10 AUG 1996	Colour neg	35 mm
SK 8282 / 48	INV 19404	/ 03A	10 AUG 1996	Colour neg	35 mm
SK 8282 / 49	INV 19404	/ 04A	10 AUG 1996	Colour neg	35 mm
SK 8282 / 50	INV 19404	/ 05A	10 AUG 1996	Colour neg	35 mm
SK 8282 / 51	INV 19404	/ 06A	10 AUG 1996	Colour neg	35 mm
SK 8282 / 52	INV 19404	/ 07A	10 AUG 1996	Colour neg	35 mm
SK 8282 / 53	INV 19404	/ 08A	10 AUG 1996	Colour neg	35 mm
SK 8282 / 54	INV 19405	/ 02	11 AUG 1996	Colour neg	35 mm
SK 8282 / 55	INV 19405	/ 03	11 AUG 1996	Colour neg	35 mm
SK 8282 / 56	INV 19405	/ 04	11 AUG 1996	Colour neg	35 mm
SK 8282 / 57	INV 19405	/ 05	11 AUG 1996	Colour neg	35 mm
SK 8282 / 58	INV 19405	/ 06	11 AUG 1996	Colour neg	35 mm
SK 8282 / 59	INV 19405	/ 07	11 AUG 1996	Colour neg	35 mm
SK 8282 / 60	INV 19406	/ 09A	25 AUG 1996	Colour neg	35 mm
SK 8282 / 61	INV 19406	/ 10A	25 AUG 1996	Colour neg	35 mm
SK 8282 / 62	INV 19406	/ 11A	25 AUG 1996	Colour neg	35 mm
SK 8282 / 63	INV 19410	/ 29	30 MAR 1997	Colour neg	35 mm
SK 8282 / 67	NMR 17578	/ 00	20 JUL 2001	Colour neg	35 mm
SK 8282 / 68	NMR 17578	/ 01	20 JUL 2001	Colour neg	35 mm
SK 8282 / 69	NMR 17821	/ 07	20 JUN 2003	Colour neg	35 mm
SK 8282 / 70	NMR 17821	/ 08	20 JUN 2003	Colour neg	35 mm
SK 8282 / 71	NMR 17821	/ 09	20 JUN 2003	Colour neg	35 mm
SK 8282 / 72	NMR 20321	/ 11	28 JUN 2005	Digital colour	35 mm
SK 8282 / 73	NMR 20321	/ 12	28 JUN 2005	Digital colour	35 mm
SK 8282 / 74	NMR 20321	/ 13	28 JUN 2005	Digital colour	35 mm
SK 8282 / 75	NMR 20297	/ 01	28 JUN 2005	Colour neg	70mm,120,220
SK 8282 / 76	NMR 28038	/ 23	22 JUN 2010	Digital colour	35 mm
SK 8282 / 77	NMR 28038	/ 24	22 JUN 2010	Digital colour	35 mm
SK 8282 / 78	NMR 28469	/ 01	01 AUG 2013	Digital colour	35 mm
SK 8282 / 79	NMR 28469	/ 02	01 AUG 2013	Digital colour	35 mm
SK 8282 / 80	NMR 28469	/ 03	01 AUG 2013	Digital colour	35 mm
SK 8282 / 81	NMR 28469	/ 04	01 AUG 2013	Digital colour	35 mm
SK 8380 / 1	NMR 1961	/ 083	08 JUL 1981	Black & white	70mm,120,220
SK 8380 / 2	NMR 1961	/ 084	08 JUL 1981	Black & white	70mm,120,220
SK 8380 / 4	HEA 28714	/ 053	15 JUN 2015	Digital colour	35 mm
SK 8381 / 1	DNR 2401	/ 10	26 JUL 1986	Black & white	35 mm
SK 8381 / 3	NMR 17815	/ 00	20 JUN 2003	Colour neg	35 mm

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SK 8381 / 8	NMR 28313	/ 06	23 JUL 2012	Digital colour	35 mm
SK 8381 / 9	NMR 28313	/ 07	23 JUL 2012	Digital colour	35 mm
SK 8381 / 10	NMR 28313	/ 08	23 JUL 2012	Digital colour	35 mm
SK 8382 / 1	DNR 427	/ 7	21 JUN 1970	Black & white	35 mm
SK 8382 / 2	CAP 8245	/ 73	24 JUL 1954	Black & white	Unknown
SK 8382 / 3	CAP 8245	/ 74	24 JUL 1954	Black & white	Unknown
SK 8382 / 4	CAP 8245	/ 75	24 JUL 1954	Black & white	Unknown
SK 8382 / 5	CAP 8245	/ 76	24 JUL 1954	Black & white	Unknown
SK 8382 / 6	CAP 8245	/ 77	24 JUL 1954	Black & white	Unknown
SK 8382 / 7	CAP 8245	/ 79	24 JUL 1954	Black & white	Unknown
SK 8382 / 8	CAP 8245	/ 80	24 JUL 1954	Black & white	Unknown
SK 8382 / 11	DNR 2364	/ 9	16 JUL 1984	Black & white	35 mm
SK 8382 / 12	DNR 2364	/ 10	16 JUL 1984	Black & white	35 mm
SK 8382 / 13	NMR 12114	/ 62	22 JUL 1991	Black & white	70mm,120,220
SK 8382 / 14	NMR 12114	/ 63	22 JUL 1991	Black & white	70mm,120,220
SK 8382 / 15	NMR 12114	/ 64	22 JUL 1991	Black & white	70mm,120,220
SK 8382 / 16	NMR 12086	/ 26	22 JUL 1991	Colour slide	35 mm
SK 8382 / 17	NMR 12086	/ 27	22 JUL 1991	Colour slide	35 mm
SK 8382 / 18	INV 19405	/ 12	11 AUG 1996	Colour neg	35 mm
SK 8382 / 19	INV 19413	/ 10	20 APR 1997	Colour neg	35 mm
SK 8382 / 20	INV 19413	/ 11	20 APR 1997	Colour neg	35 mm
SK 8382 / 21	INV 19413	/ 12	20 APR 1997	Colour neg	35 mm
SK 8382 / 22	INV 19413	/ 13	20 APR 1997	Colour neg	35 mm
SK 8382 / 23	INV 19413	/ 14	20 APR 1997	Colour neg	35 mm
SK 8382 / 24	INV 19416	/ 28A	08 JUN 1997	Colour neg	35 mm
SK 8382 / 27	NMR 17911	/ 09	22 JUL 2003	Black & white	70mm,120,220
SK 8382 / 28	NMR 17911	/ 10	22 JUL 2003	Black & white	70mm,120,220
SK 8382 / 29	NMR 17895	/ 06	22 JUL 2003	Colour neg	35 mm
SK 8382 / 30	NMR 17895	/ 07	22 JUL 2003	Colour neg	35 mm
SK 8382 / 31	NMR 17895	/ 08	22 JUL 2003	Colour neg	35 mm
SK 8382 / 32	NMR 17895	/ 09	22 JUL 2003	Colour neg	35 mm
SK 8382 / 33	NMR 20321	/ 14	28 JUN 2005	Digital colour	35 mm
SK 8382 / 40	NMR 28313	/ 09	23 JUL 2012	Digital colour	35 mm
SK 8382 / 41	HEA 28921	/ 025	12 AUG 2016	Digital colour	35 mm
SK 8382 / 42	HEA 28921	/ 026	12 AUG 2016	Digital colour	35 mm
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SK 8383 / 2	NMR 1863	/ 445	31 OCT 1980	Black & white	70mm,120,220
SK 8383 / 3	PLE 2969	/ 29	04 AUG 1979	Black & white	35 mm
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SK 8383 / 11	NMR 1863	/ 449	31 OCT 1980	Black & white	70mm,120,220
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SK 8384 / 6	PLE 2969	/ 26	04 AUG 1979	Black & white	35 mm
SK 8384 / 7	PLE 2969	/ 27	04 AUG 1979	Black & white	35 mm
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SK 8581 / 6	NMR 28335	/ 34	06 SEP 2012	Digital colour	35 mm

Sortie number	Library number	Camera position	Frame number	Date	Scale 1:
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RAF/CPE/UK/1880	540	FS	2290	06 DEC 1946	10000
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RAF/CPE/UK/1880	540	RS	4290	06 DEC 1946	10000
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RAF/CPE/UK/2009	597	FP	1067	16 APR 1947	9800
RAF/CPE/UK/2009	597	FP	1068	16 APR 1947	9800
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RAF/CPE/UK/2009	597	FS	2066	16 APR 1947	9800
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RAF/CPE/UK/2009	597	RP	3068	16 APR 1947	9800
RAF/CPE/UK/2009	597	RP	3069	16 APR 1947	9800
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RAF/CPE/UK/2009	597	RP	3071	16 APR 1947	9800
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RAF/CPE/UK/2009	597	RS	4095	16 APR 1947	9800
RAF/CPE/UK/2009	597	RS	4096	16 APR 1947	9800
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RAF/CPE/UK/2012	609	FP	1105	16 APR 1947	9800
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RAF/541/35	873	RS	4471	19 MAY 1948	10750
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MAL/77005	6946	V	66	27 FEB 1977	2500
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MAL/73007	7067	V	82	24 FEB 1973	15000
MAL/73007	7067	V	83	24 FEB 1973	15000
MAL/73007	7067	V	84	24 FEB 1973	15000
MAL/76072	8177	V	255	20 SEP 1976	2500
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MAL/76072	8177	V	259	20 SEP 1976	2500
OS/68218	9283	V	257	14 JUN 1968	7500
OS/68218	9283	V	258	14 JUN 1968	7500
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OS/68218	9283	V	260	14 JUN 1968	7500
OS/68218	9283	V	296	14 JUN 1968	7500
OS/68218	9283	V	297	14 JUN 1968	7500
OS/68218	9283	V	298	14 JUN 1968	7500
OS/68218	9283	V	299	14 JUN 1968	7500
OS/68218	9283	V	300	14 JUN 1968	7500
OS/78067	9980	V	156	28 MAY 1978	7600
OS/78068	9981	V	40	28 MAY 1978	7600
OS/71149	10122	V	4	03 MAY 1971	7500
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OS/71149	10122	V	48	03 MAY 1971	7500
OS/71149	10122	V	49	03 MAY 1971	7500
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OS/73327	10376	V	469	18 JUN 1973	7500
OS/85244	13075	V	214	15 JUL 1985	5000
OS/85244	13075	V	215	15 JUL 1985	5000
OS/88245	13351	V	5184	06 AUG 1988	7700
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OS/88245	13351	V	5188	06 AUG 1988	7700
OS/91158	13851	V	3	14 AUG 1991	7500
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OS/91158	13851	V	82	14 AUG 1991	7500
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OS/91158	13851	V	84	14 AUG 1991	7500
OS/91158	13851	V	85	14 AUG 1991	7500
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OS/91158	13851	V	88	14 AUG 1991	7500
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MAL/77033	14047	V	235	11 OCT 1977	2500
OS/92325	14116	V	51	26 MAY 1992	7500
MAL/61478	21271	V	91877	30 JUN 1961	11000
MAL/61478	21271	V	91878	30 JUN 1961	11000
MAL/61478	21271	V	91901	30 JUN 1961	11000
MAL/61478	21271	V	91902	30 JUN 1961	11000
MAL/61478	21271	V	91903	30 JUN 1961	11000

Cambridge University Collection of Air Photos.

<https://www.cambridgeairphotos.com/> The following air photos were available as low resolution thumbnails and were examined on screen between 24 January and 8 April 2022.

Photo reference	Date taken
AHU25	22-Jul-63
AHU26	22-Jul-63
BQI66	11-Jul-74
BQI67	11-Jul-74
BQI68	11-Jul-74
BQU69	11-Jul-74
BQI70	11-Jul-74
BQI71	11-Jul-74
BQI72	11-Jul-74
BQI73	11-Jul-74
BQM17	20-Jul-74
BQM18	20-Jul-74
BQM19	20-Jul-74
BQM20	20-Jul-74
BQM21	20-Jul-74
BQM22	20-Jul-74
BQM24	20-Jul-74
BQQ82	23-Jul-74
BQQ83	23-Jul-74
BQQ84	23-Jul-74
BSB80	30-Jan-75
K17AH002	06-Aug-74
K17AH003	06-Aug-74

Appendix 5 Structure and content of digital map dataset

All features in the MapInfo table and ESRI shape files 'A27 ARUNDEL AP_LIDAR MAPPING' are associated with the following information, where applicable.

PARCEL	AECOM allocated land parcel reference number
LAYER	Indicates nature of feature depicted eg bank, ditch, ridge and furrow, modern etc
TYPE	Historic England Monument Type Thesaurus term
PERIOD	Period
SOURCES1	Photo reference number + date
SOURCE1EVIDENCE	Evidence (earthwork, structure, soilmark, parchmark, cropmark) as features appears on SOURCE1
SOURCES2	Photo reference number + date
SOURCE2EVIDENCE	Evidence (earthwork, structure, soilmark, parchmark, cropmark) as features appears on SOURCE2
SOURCES3	Photo reference number + date
SOURCE3EVIDENCE	Evidence (earthwork, structure, soilmark, parchmark, cropmark) as features appears on SOURCE3
HER	Historic Environment Record monument number (where applicable)

References and resources cited

- Crutchley, S and Crow, P 2009. *The Light Fantastic: Using Airborne Laser Scanning in Archaeological Surveys*. English Heritage. Swindon.
- Howard, A, Brown, A, Carey, C, Challis, K, Cooper, L, Kinsey, M & Toms, P 2008, 'Archaeological resource modelling in temperate river valleys: a case study from the Trent Valley, UK', *Antiquity*, vol. 82, no. 318, pp. 1040-1054. <http://antiquity.ac.uk/Ant/082/1040/ant0821040.pdf>
- Johnson, P 2016 *Segelocum Roman Town, Littleborough, Nottinghamshire. Report on geophysical survey conducted in December 2015*. Unpublished report TPA Report NO. 049/2016
- Jones, R J A and Evans, R 1975. 'Soil and crop marks in the recognition of archaeological site by air photography' in Wilson, D (ed) *Aerial Reconnaissance for Archaeology*. CBA Research Report 12. 1-11
- Knight, D 2000. *An Iron Age and Romano-British settlement at Moor Pool Close, Rampton, Nottinghamshire. Summary of watching brief and excavations from June 1999 to January 2000*. Trent and Peak Archaeological Unit. Unpublished report.
- Kokalj, Z and Hesse, R. 2017. *Airborne laser scanning raster data visualisation: A guide to good practice*. Založba ZRC, Ljubljana
- Mackie 1993. 'Prehistoric ditch systems at Ketton and Tixover, Rutland'. *Transaction of Leicestershire Archaeological and Historical Society*. Vol 67.
- Riley, D A, Buckland, P C, Wade, J S, Dearne, M, Hartley, B R, Hartley, K F, Kinsley, G, O' Connor, T, Clark, W B and Dickinson B 1995. 'Aerial Reconnaissance and Excavation at Littleborough-on-Trent, Notts' *Britannia* 26 253-284
- Worrell, Sally Ann 1997. 'Marton, north Lincolnshire: a Romano-British settlement in its context', Durham Theses, Durham University. Available at Durham E-Theses Online: <http://etheses.dur.ac.uk/4983/>

Digital sources (all accessed between February and 14 April 2022)

- Geology of Britain Viewer. Viewed online at <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>
- Ordnance Survey 25 inch and 6 inch scale maps. Various dates via <http://maps.nls.uk/>
- <https://historicensland.org.uk/research/results/aerial-archaeology-mapping-explorer/>
- <https://historicensland.org.uk/images-books/archive/collections/aerial-photos/>

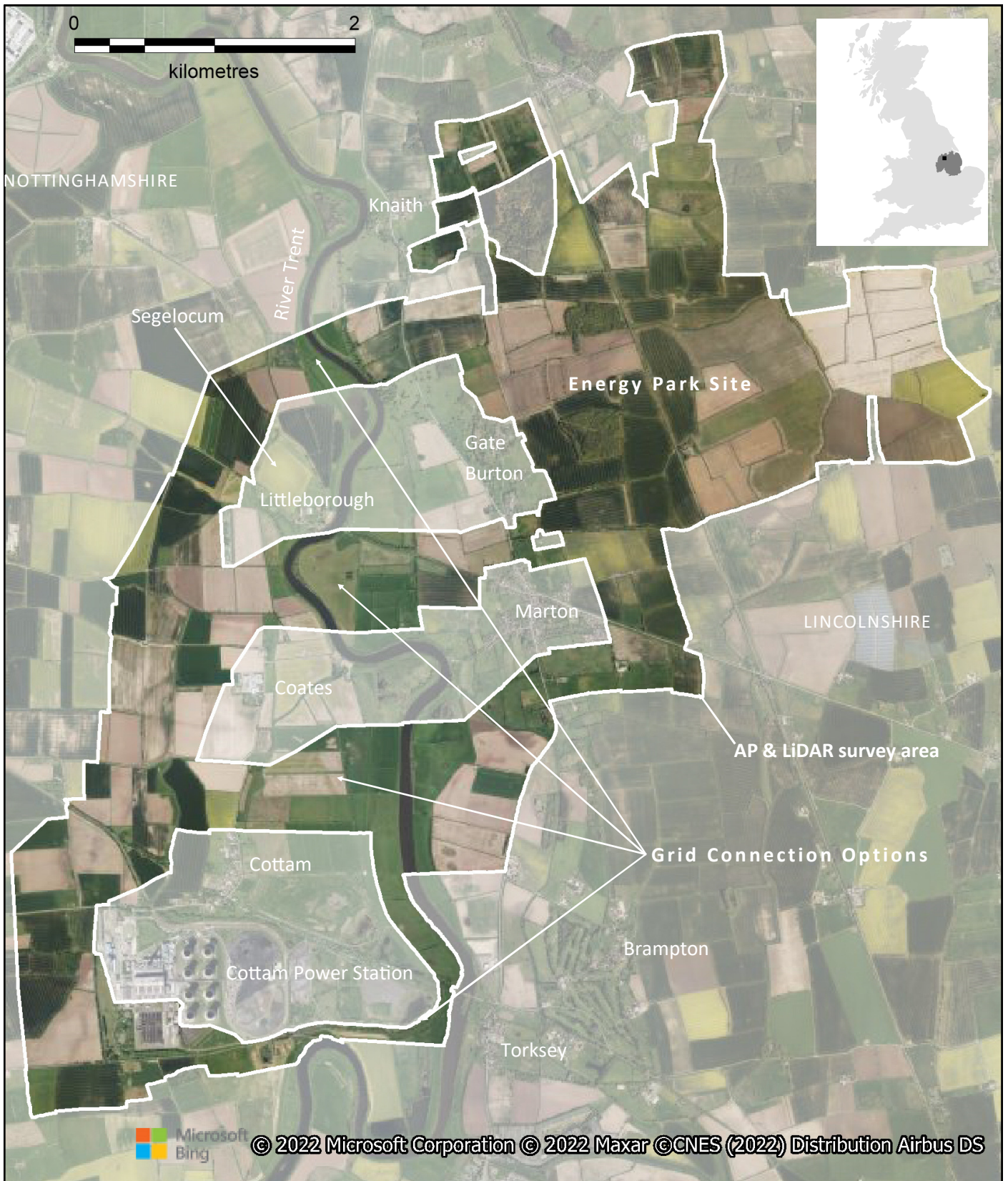


Figure 1. Location plan of the air photo & LiDAR survey area for the Gate Burton Energy Park, Nottinghamshire and Lincolnshire

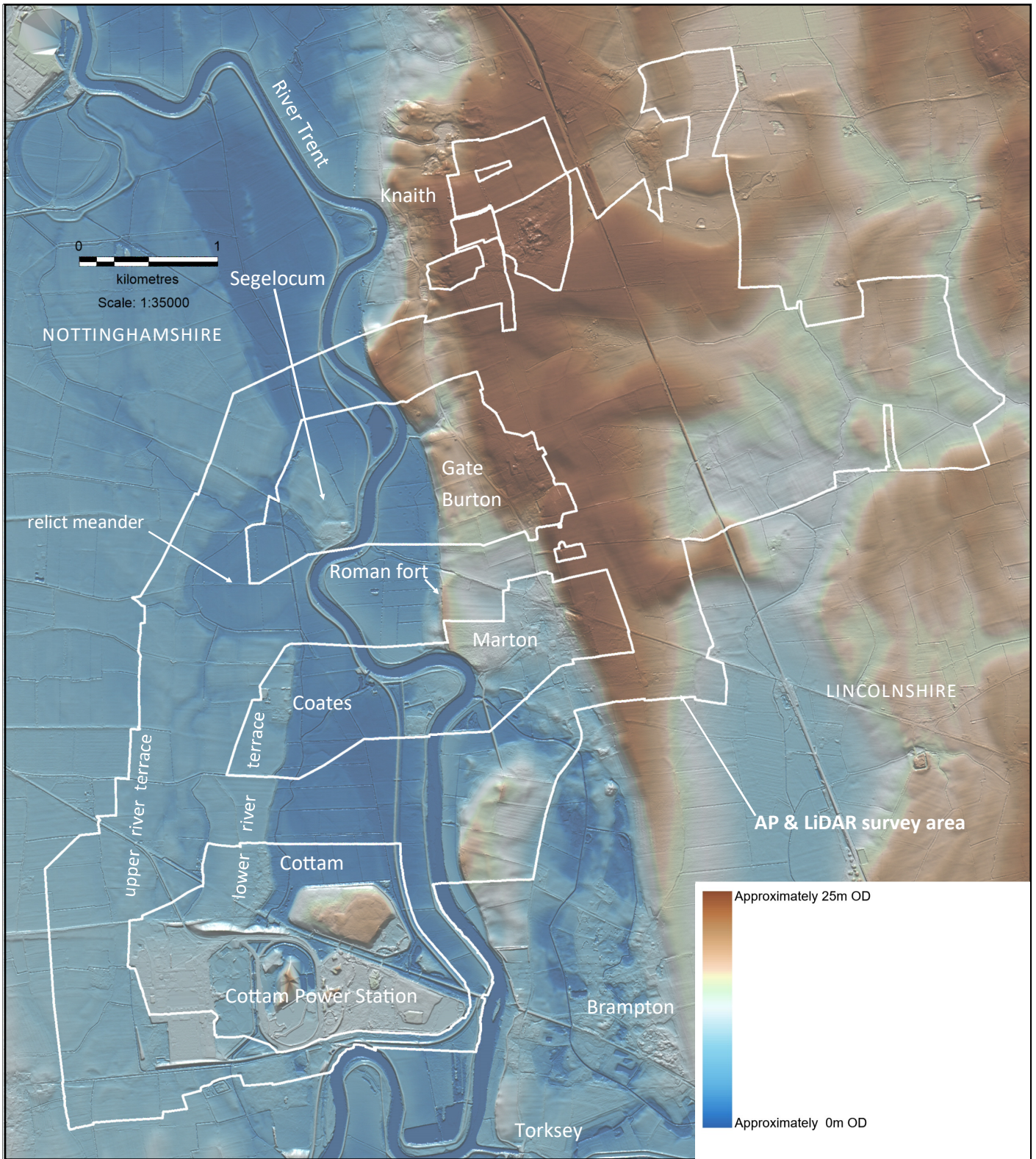


Figure 2. Hill-shade and colour relief model generated from the Environment Agency LiDAR DTM for the Gate Burton Energy Park, Nottinghamshire and Lincolnshire.

- Archaeological ditch
- Archaeological bank
- Archaeological earthwork slope
- Ridge and furrow (medieval or post medieval)
- Ridge and furrow (probable post medieval)
- Extent of vague or diffuse archaeological feature
- Natural feature
- Modern feature (drainage ditch, service trench etc)

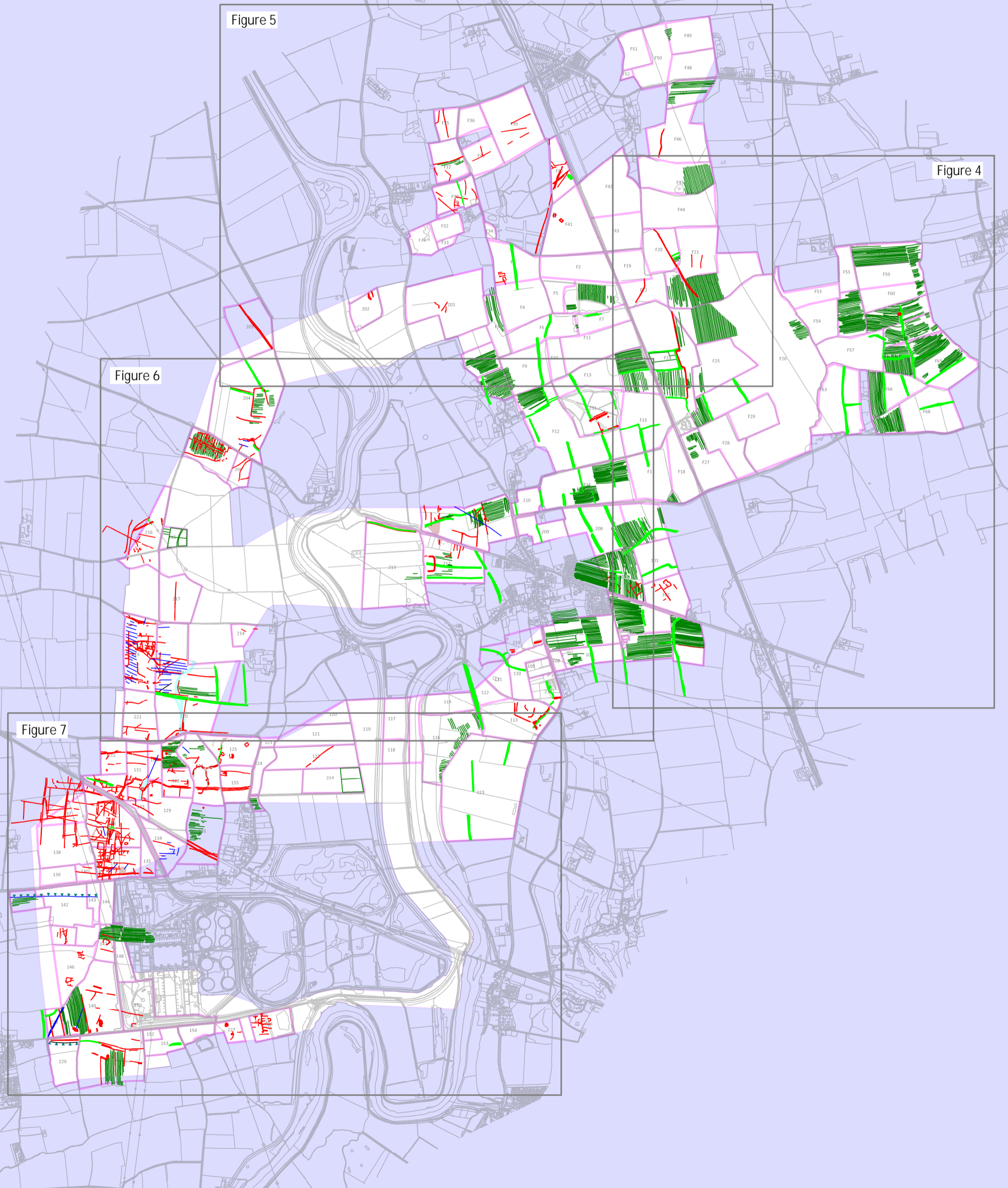


Figure 3. Overview of air photo and LiDAR mapping for the Gate Burton Energy Park.

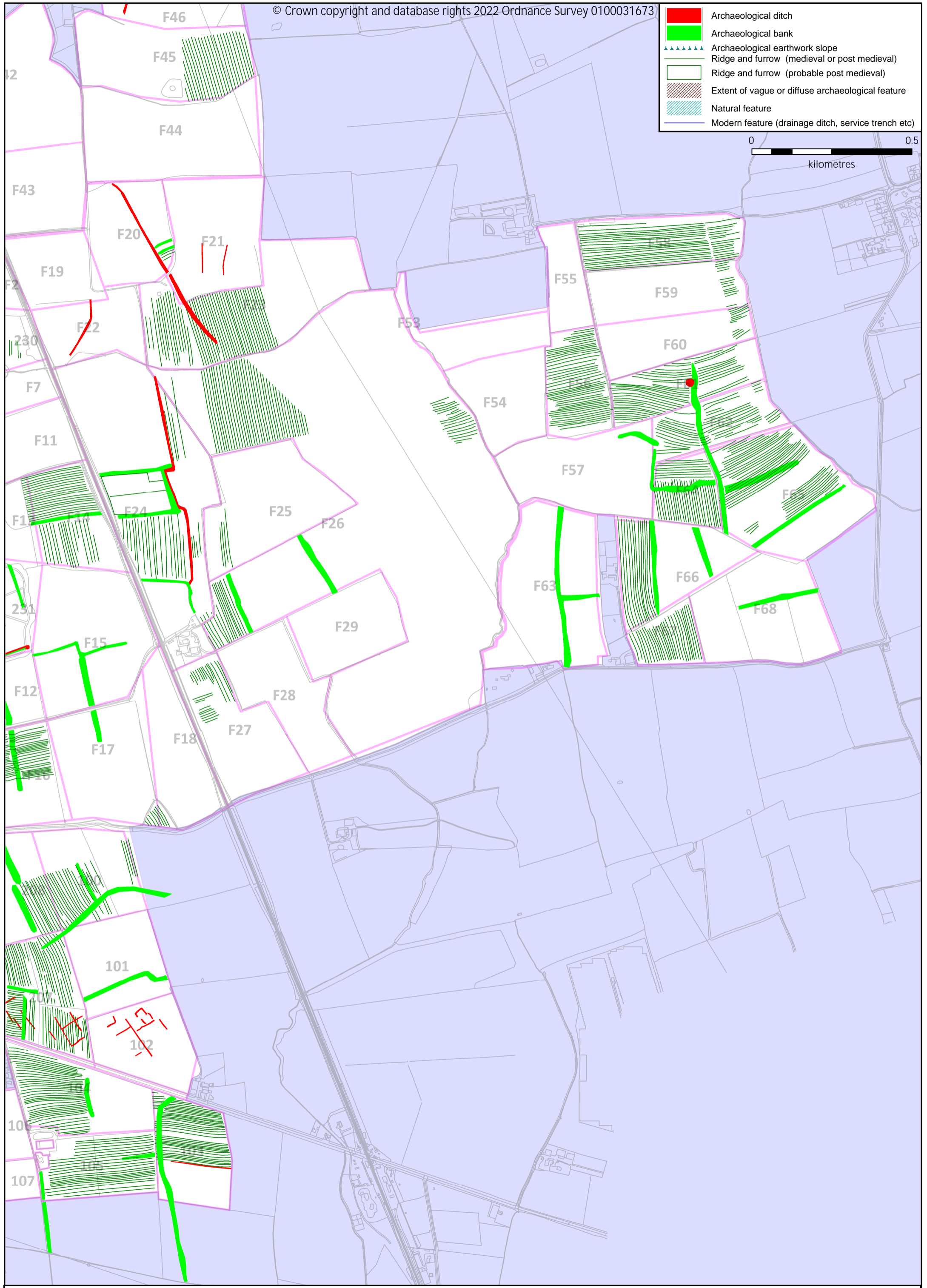
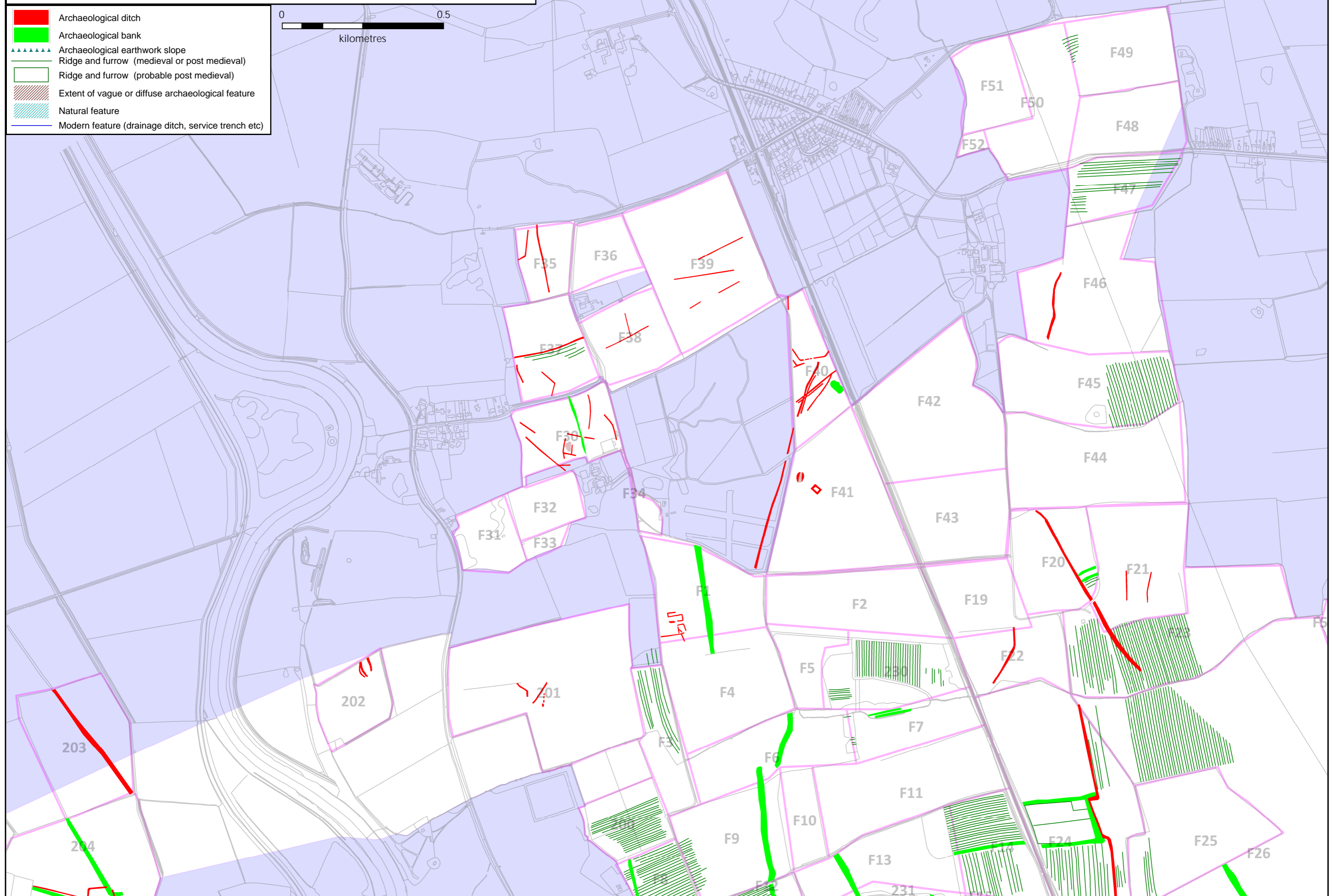


Figure 4. Air photo and LiDAR mapping for the eastern area of the Gate Burton Energy Park.

Figure 5. Air photo and LiDAR mapping for the northern area of the Gate Burton Energy Park.



- Archaeological ditch
- Archaeological bank
- Archaeological earthwork slope
- Ridge and furrow (medieval or post medieval)
- Ridge and furrow (probable post medieval)
- Extent of vague or diffuse archaeological feature
- Natural feature
- Modern feature (drainage ditch, service trench etc)

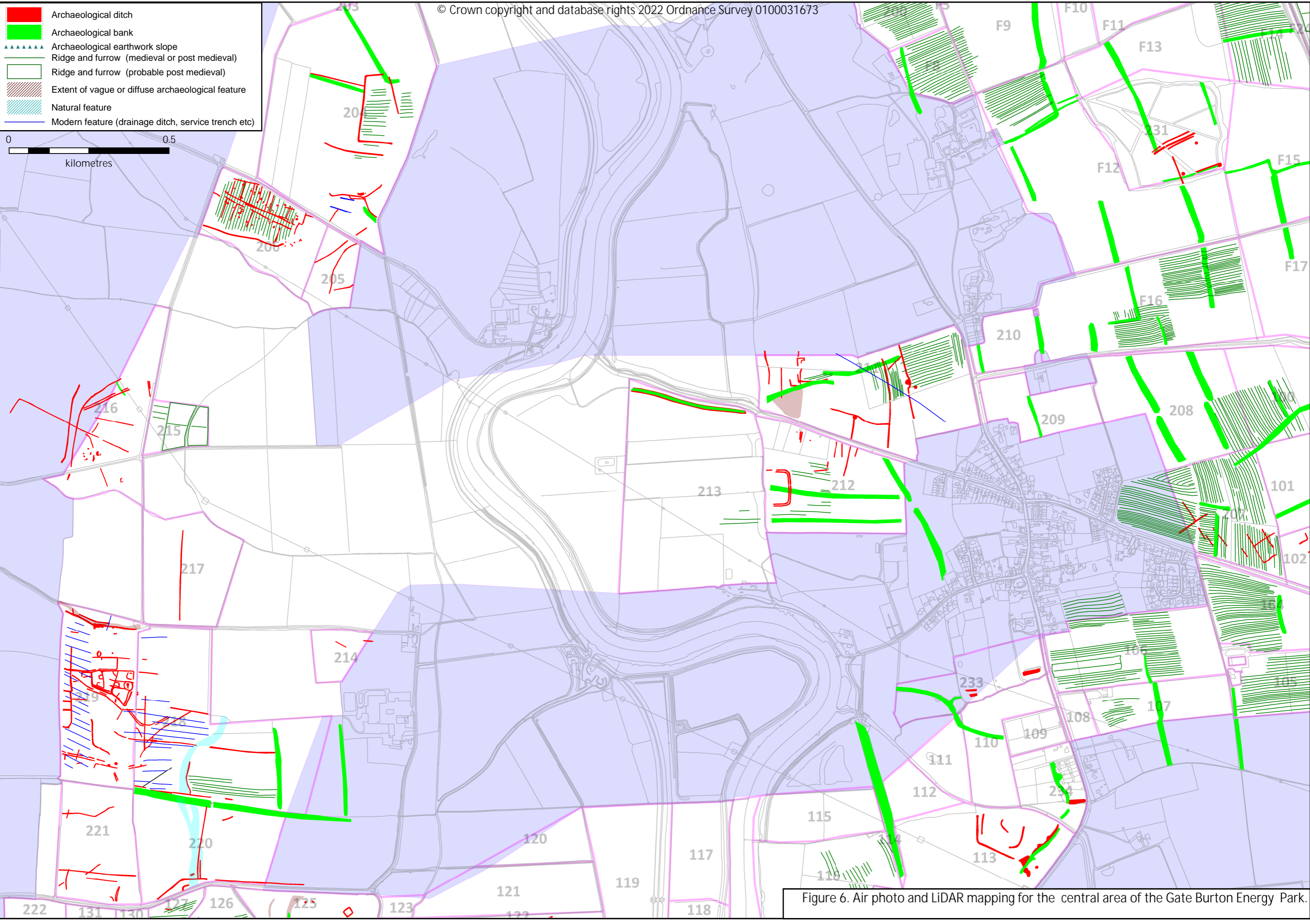
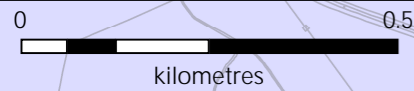


Figure 6. Air photo and LiDAR mapping for the central area of the Gate Burton Energy Park.

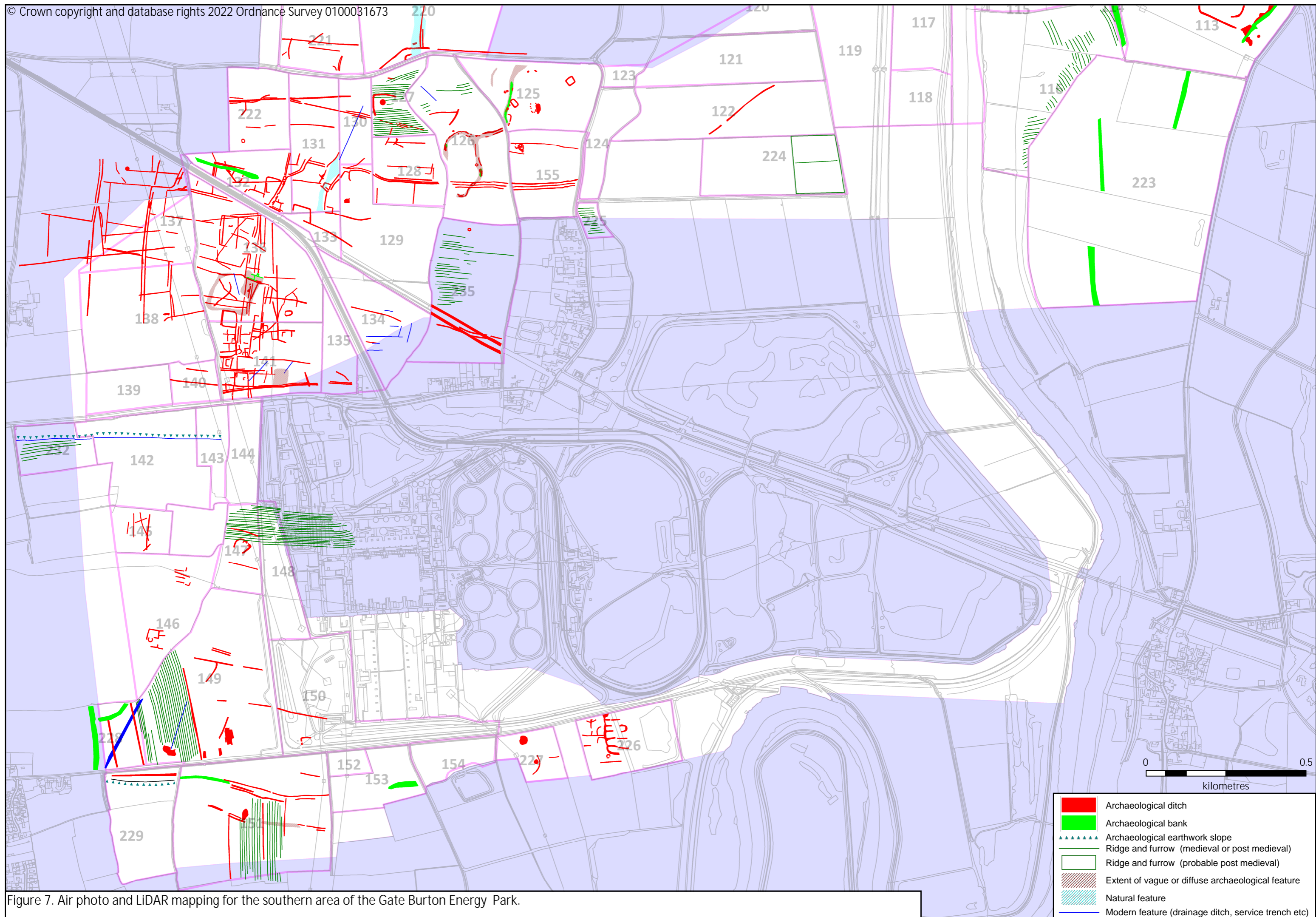


Figure 7. Air photo and LiDAR mapping for the southern area of the Gate Burton Energy Park.