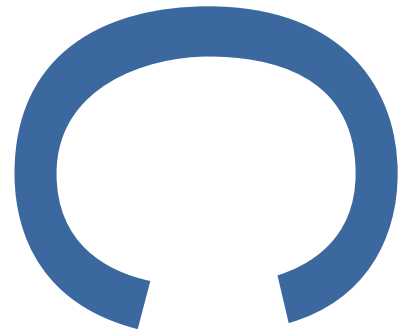


**LAND NORTH-WEST OF
ELECTRICITY SUBSTATION, WEIRS
DROVE, BURWELL,
CAMBRIDGESHIRE**

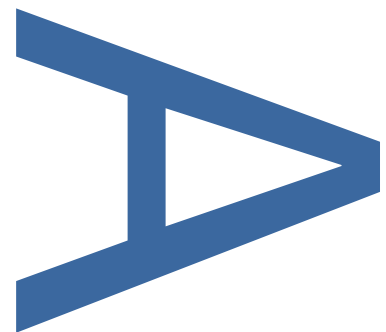


**AN ARCHAEOLOGICAL
EVALUATION**



**LOCAL PLANNING AUTHORITY: EAST
CAMBRIDGESHIRE DISTRICT COUNCIL**

**PLANNING APPLICATION NUMBERS:
17/02205/FUL**



PCA REPORT NO: 14292

SITE CODE: ECB6268

PRE-CONSTRUCT ARCHAEOLOGY

LAND NORTH-WEST OF ELECTRICITY
SUBSTATION, WEIRS DROVE, BURWELL,
CAMBRIDGESHIRE

AN ARCHAEOLOGICAL
EVALUATION

Quality Control

Pre-Construct Archaeology Ltd	
Project Number	K6716
Report Number	R14292

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Land North-West of Electricity Substation, Weirs Drove, Burwell, Cambridgeshire: Archaeological Evaluation

Local Planning Authority: East Cambridgeshire District Council

Planning Reference: 17/02205/FUL

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ABSTRACT

An archaeological trial trench evaluation was carried out on land north-west of the existing electricity substation at Weirs Drove, Burwell, Cambridgeshire, CB25 0BP (Ordnance Survey National Grid Reference (NGR) TL 5812 6702) between the 26th and 29th October 2020. The trial trenching followed air photographic transcription and reassessment and a geoarchaeological borehole survey (Cambridgeshire Event Nos ECB6266 and 6267).

Trial trenches were positioned to investigate the apparent cropmark of a palaeochannel, potentially a former watercourse, as well as providing a representative sample of other areas of the site.

The 'palaeochannel' could only be identified in one trench (Trench 5), where it was found to contain extremely sterile clayey chalk deposits very similar in character to the natural geology. The feature could not be discerned in any of the other trenches targeting its cropmark. Based on its morphology and the sterility of its fills, the 'palaeochannel' is interpreted as a Pleistocene or earlier geological feature.

The evaluation recorded small ditches in the south and north-west of the site (Trenches 8, 9 and 2). These did not produce any datable finds, but their size and form suggest a drainage or other agricultural function.

The east of the site contained a small number of natural features. Trench 1, in the north-west corner of the site, contained a desiccated peaty layer filling a shallow hollow. There may formerly have been a shallow pool or basin here, at the point where The Weirs watercourse turns from a south–north to a west–east alignment. No datable material was present.

Based on the evaluation results, the site appears never to have been a focus for settlement or other intensive activity. Its archaeological potential and significance are therefore considered to be low, and its land-use history adequately characterised by the evaluation.

1 INTRODUCTION

- 1.1 Pre-Construct Archaeology (PCA) was commissioned by Pigeon Investment Management Limited, on behalf of Cambridge Power Limited, to undertake a programme of archaeological evaluation on land north-west of the existing electricity substation at Weirs Drove, Burwell, Cambridgeshire, CB25 0BP (Ordnance Survey National Grid Reference (NGR) TL 5812 6702; Figure 1; Plate 1; hereafter referred to as 'the site'), in advance of development.
- 1.2 The development for which planning permission has been granted is the construction of a 49.9MW battery storage facility, bridge and associated infrastructure on the 0.61ha 'Area 1' site (East Cambridgeshire District Council Planning Ref. 17/02205/FUL). The evaluation also encompassed an adjoining 0.73ha parcel of land directly to the east (Area 2), which is also under the Applicant's control and may provide scope for future expansion.
- 1.3 The site is located in an area of high archaeological potential, situated in a known multi-period landscape and bounded on two sides by Weirs Drove, a known focus of past human activity, as evidenced by the density of findspots and cropmarks in the locality (e.g. Cambridgeshire Historic Environment Record (CHER) references 06736, 02190, CB14759 and MCB23990). Less than 300m east of the site are earthworks including a hollow-way and field boundaries (CHER 11378), indicative of activity west of the present village, including what was believed until recently to be the site of a medieval house platform (CHER 11380). However, recent archaeological excavation in its vicinity has revealed evidence for activity spanning the late Anglo-Saxon to later medieval period, including an infilled former lode and embankment, quayside and storage warehouse (Schofield 2019). This artificial waterway appears to extend westwards towards the present site. To the south-east are possible remains of the medieval priory of St John (CHER 06864). Archaeological investigations 500m to the north-east, at Myrtle Drive, revealed evidence of medieval and post-medieval settlement (CHER ECB2446, ECB2443). In addition, archaeological investigations to the south-east, off Low Road, have revealed evidence of Roman occupation (CHER 11989).

- 1.4 The evaluation was carried out in accordance with a Written Scheme of Investigation (WSI) prepared by Tom Woolhouse of PCA (Woolhouse 2020), in response to an Archaeological Brief written by Kerry Hopper of Cambridgeshire Historic Environment Team (CHET; Hopper 2020) and subsequent advice from Kasia Gdaniec of CHET (email dated 03/06/2020).
- 1.5 The CHET Brief also required an air photographic transcription and reassessment for the site and surrounding area, and a geoarchaeological borehole survey of the site, in order to identify any potential archaeological or palaeoenvironmental features and assist with positioning the trial trenches to best investigate the site's archaeological potential. The reports on these surveys are included as appendixes to this document (Appendices 4 and 5, respectively) and, where relevant, are referenced in the main text. Each survey has a unique CHER Event Number: ECB6266 (air photographic transcription), ECB6267 (geoarchaeological boreholes) and ECB6268 (trial trenching).
- 1.6 The aim of the evaluation was to determine the location, date, extent, character, condition and quality of any archaeological remains on the site, to assess the significance of any such remains in a local, regional, or national context, as appropriate, and to assess the potential impact of the development proposals on the site's archaeology.
- 1.7 A total of nine evaluation trenches, comprising two 20m, two 30m, two 40m and three 50m long trenches (2m wide), totalling 330m of linear trenches, were excavated and recorded (Figure 2). A 10m x 8m extension was added to Trench 5 in order to expose more of the potential palaeochannel and allow space for a sondage to be dug into it. The trenches provided a 5% sample of the site. Trenches were positioned to target the cropmark of the possible palaeochannel, as well as providing a representative sample of all other areas of the site that might be impacted by groundworks associated with the development. The positions of several high voltage electricity lines also had to be factored into the layout of trenches.
- 1.8 This report describes the results of the evaluation and aims to inform the design of an appropriate archaeological mitigation strategy. Following Transfer of Title,

the site archive will be deposited at the Cambridgeshire Archaeology Archive. The site's digital archive will be deposited with the Archaeology Data Service or another publicly accessible CoreTrustSeal certified repository upon completion of the archaeological programme.

- 1.9 Pre-Construct Archaeology has been commissioned by Pigeon Investment Management Limited on behalf of Cambridge Power Limited to prepare this Archaeological Evaluation Report for Land North-West of Electricity Substation, Weirs Drove, Burwell, Cambridgeshire, referred to hereafter as 'the site'. This report has been prepared for the benefit of Pigeon and Cambridge Power Limited and the contents should not be relied upon by others without the express written authority of PCA. If any unauthorised third party makes use of this report they do so at their own risk and PCA owes them no duty of care or skill.

2 SITE LOCATION, GEOLOGY AND TOPOGRAPHY

2.1 Site Location (Figure 1)

2.1.1 Burwell is a large village on the south-eastern edge of the Cambridgeshire Fens, 16km north-east of Cambridge and 7km north-west of Newmarket. The site is just west of the present-day village. It is bounded by Weirs Drove, a surfaced minor road, to the west and north, agricultural land to the east, and the existing electricity substation to the south. It is currently arable agricultural land with a total area of approximately 1.35ha (Area 1: 0.61ha; Area 2: 0.73ha).

2.2 Geology

2.2.1 The site is located on West Melbury Marly Chalk. No superficial geological deposits are recorded in the area (British Geological Survey 2020), though the possible presence of former watercourses on the site, as indicated by cropmarks/ soilmarks (Deegan 2020; Appendix 4; Figure 3), suggested potential for surviving silt, peat and/or other water-lain deposits, particularly within negative ('cut') features.

2.3 Topography

2.3.1 The site is flat and is at an elevation of approximately 3m above Ordnance Datum (OD). The landscape slopes down very gradually to the north-west, into Burwell Fen. Until large-scale efforts to drain the Cambridgeshire Fens began in the early 17th century, the site would have been located on the edge of the wet fen, to the west, and the higher, drier ground, to the east. The position of the fen edge fluctuated between the Mesolithic and medieval period, as a result of changes in sea level and drainage patterns.

2.3.2 Fen-edge locations, such as this, were frequently chosen for settlements and other activity, particularly during prehistory due to the wide range of natural resources available. This is shown by the archaeological remains of prehistoric and Roman-period activity found on the former fen edge/ in association with former watercourses at several sites in the locality, including CHER MCB17708 and MCB24147.

2.3.3 The site was thought to also have potential to contain remains of artificial former

watercourses/ water management features associated with Burwell's role as a Fenland port in the medieval and, potentially, Roman periods (CHER MCB27337, 06829; Schofield 2019).

3 ARCHAEOLOGICAL BACKGROUND

3.1 General

- 3.1.1 The following archaeological background is taken from a 1km radius search of the Cambridgeshire Historic Environment Record (CHER) carried out on 19th February 2020.

3.2 Prehistoric (c. 800,000 BC–AD 42)

- 3.2.1 Around 700m south-west of the site, archaeological evaluation at Stanford Park has found a focus of Mesolithic and Early Neolithic activity on the former fen edge, consisting of Mesolithic and Early Neolithic struck flint, animal bone and Early Neolithic pottery found in the upper levels of a series of natural features, including a peat-filled follow. A curvilinear ditch of possible Early Neolithic date, an undated ditch and two undated postholes were also recorded (CHER MCB24147).
- 3.2.2 A Neolithic axe has been found 300m north of the site (CHER 02190) and a find of a Mesolithic tranchet axe is also recorded from this area (CHER 06477). Other prehistoric sites and finds in the wider landscape around the site include a Mesolithic tranchet axe and broadly contemporary flints found in Hallard's Fen, 900m west of the site (CHER 06731, 06732), a scatter of worked flints found during the Fenland Survey, 800m south of the site (CHER 04337), a Neolithic polished axe found during ditch-clearing in the fen, 800m south-west of the site (CHER 06439), a Neolithic retouched flint blade found in a garden 600m north-east of the site (CHER MCB17752) and a Middle Bronze Age dagger found 1km south of the site, in Burwell Fen (CHER 06459).
- 3.2.3 Archaeological evaluation 1km south of the site, to the north-west of 60 Reach Road, found an infilled former river/ stream channel which contained Late Neolithic–Early Bronze Age struck flint and burnt flint, with finds from the upper deposits indicating that the channel remained open into the Roman period. The partially articulated remains of at least two individuals were found buried along the southern edge of the channel; one returned a radiocarbon date in the Late Iron Age (CHER MCB17708).

3.2.4 Around 600m north-east of the site, small-scale investigation around the spot where a Roman metalwork hoard was discovered found evidence of Late Neolithic to Early Bronze Age occupation, though no clear evidence of structures (CHER 06736a) were identified. Possible Iron Age ditches and enclosures were also recorded, with further, probably related, boundaries visible as cropmarks in the surrounding area (CHER 06736b). Poorly dated, but possibly Iron Age, pits have been recorded during archaeological monitoring 300m to the south-east of the current site, at 106 Low Road (CHER CB14590). A Late Iron Age (late-1st-century BC to mid-1st-century AD) ditch was recorded, together with medieval features, in a recent evaluation at The Hall, Abbey Close, 700m south-east of the site (CHER MCB27193). Excavations at Kingfisher Drive, 700m north-east of the site, found pits and postholes, possibly forming structures, associated with a small number of struck flints (CHER MCB18147).

3.2.5 Overall, chance finds and evidence from localised fieldwork in the landscape around the site show widespread prehistoric occupation and other activity in the area from at least the Mesolithic period, both in the former fen, where occupation may have been focused close to former watercourses and other bodies of water, and on the drier ground of the fen edge.

3.3 Roman (c. AD 43–410)

3.3.1 A hoard of up to eighteen late Roman (early-4th-century) bronze vessels was discovered 600m north-east of the site during bulldozing of a 'natural' knoll in 1967 (CHER 06736). Trial-trenching in the surrounding area revealed several phases of ditches, at least one of them Iron Age (see above) and one Roman, together with pottery and building debris indicating occupation between at least the 2nd and 4th centuries AD. Ditches and Roman pottery have been recorded just to the east of this site (CHER 06479).

3.3.2 Archaeological evaluation and excavation 450m east of the site, at Low Road, recorded a dense concentration of features, including ditches, gullies, pits and a possible trackway; a small quantity of Roman and some Middle Iron Age pottery was found in association, the low quantities of chronologically diagnostic

finds suggest that the area was peripheral to any settlement (CHER 11989). Just to the south-east of this, a wide scatter of Roman occupation debris is known to extend under the site of Burwell Castle; a Roman decorated lead tank was found there in the mid-20th century (CHER 06807). Further evidence of Roman settlement was found during excavation of the Anglo-Saxon cemetery on the east side of the village in the 1920s; the excavation recorded a large quarry pit containing Roman pottery, box flue tile and roof tiles, burnt stone, animal bones and traces of wood and charcoal (CHER 06764a).

- 3.3.3 Evidence of agricultural and industrial activity during the Roman period, comprising two ditches, a possible 2nd- to 3rd-century pond, and a pit filled with fuel ash slag was found during the investigations north-west of 60 Reach Road, 1km south of the present site (CHER MCB17708). Molluscan evidence indicates an environment of short-turfed grassland; a rising water table seems to have led to the site being abandoned in the late Roman period. A chance find of a possibly Roman shale spindle whorl is recorded nearby (CHER CB14756)
- 3.3.4 Overall, the distribution of Roman sites and finds in the landscape around the site suggests the presence of a Roman-period settlement some 600–700m south-east of the site, towards the centre of the modern village, potentially with another settlement of some status around 600m to the north, on the fen edge. The distribution of known sites and findspots no doubt reflects a fieldwork bias. However, the absence of sites in the former fen probably also indicates that the water table was too high for settlement or other intensive activity in that area by the Roman period.

3.4 Anglo-Saxon (c. AD 410–1066)

- 3.4.1 Recorded sites and finds of Anglo-Saxon date in Burwell are exclusively to the south-east of the present site. The most significant site, approximately 1km south-east, is Burwell's Anglo-Saxon cemetery, which was discovered during lime extraction in the 1880s and was excavated between 1925 and 1931 (CHER 06764). The cemetery included at least 150 inhumations, the majority probably of late-6th- to 7th-century date, and most of them likely to be Christian. Nine

hundred metres south-east of the site, a late Saxon silver penny of King Eadred (AD 946–55) was found in Spring Close (CHER CB14760). The aforementioned shale spindle whorl found 900m south of the site (CHER CB14756) could be Anglo-Saxon rather than Roman.

3.5 Medieval (c. AD 1066–1540)

- 3.5.1 The distribution of known medieval sites in Burwell is focused on the present-day village and has a strongly north–south linear distribution. However, this may have more to do with the principal focus of modern development and related opportunities for archaeological investigation than the medieval settlement pattern.
- 3.5.2 Approximately 900m north of the site is Burwell Lode (CHER MCB8229). Burwell was a fenland port from at least the medieval period. The lode is probably originally of Roman origin but has been deepened and widened several times. Most trade used the lode until the railway came in the mid-19th century. Many of the properties in the Causeway, Newnham and North Street, backing onto The Weirs waterway, had docks in the form of small inlets, which can still be seen today. Several buildings survive, including a two-storey granary of massive construction with buttresses, now derelict (CHER MCB16583).
- 3.5.3 A medieval Walsingham-type lead pilgrim’s ampulla has been found just 100m north of the present site (CHER CB14759). Earthworks of a medieval building platform, 0.3m high and measuring 19m x 7m, survive 300m directly east of the current site (CHER 11380; Schofield 2019, see below). There is an irregular platform of similar height to the west and an incomplete raised enclosure just beyond this. Three hundred metres south-east of the site, the mainly 17th-century Tunbridge Farm, on the site of the medieval manor of St Omers, may include the north cross-wing of an earlier house; the building complex occupies a largely-infilled moat of presumed medieval date (CHER 01121). Just south-east of this, and around 500m south-east of the current site, Parsonage Farm and its outbuildings are said by Pevsner to incorporate the remains of the Priory of St John, built c. 1100. However, the evidence for this assertion is not known

and other sources describe the building in question as a secular building with 14th-century origins (CHER 06864). Remains of a moat at The Hall, 500m south-east of the site, are also likely to be medieval. Archaeological monitoring in 2004 found that part of the moat had been infilled with demolition material from clunch outbuildings that used to stand within the enclosure, but no dating evidence was found; one small ditch contained a 13th–14th-century potsherd (CHER 01122; MCB20020). Further archaeological evaluation at the site in 2019 found that the layer immediately sealing the moat fill contained 16th-/17th-century pottery; the terminus of a medieval (12th–14th-century) ditch was also recorded (CHER MCB27193). The Hall farmhouse itself incorporates a surviving medieval cross-wing (CHER 01122a).

- 3.5.4 Nine hundred metres south-east of the site, directly west of St Mary’s Church, are the remains of Burwell Castle (CHER 01775), which started to be built in the mid-12th century as part of a string of defences constructed by royal forces to contain the rebel Earl of Essex, Geoffrey de Mandeville, who had seized the Isle of Ely. The site also incorporates the remains of an earlier settlement supplanted by the castle and part of a later manorial complex, with a chapel and fishponds, belonging to Ramsey Abbey. The castle was not completed, construction apparently having been abandoned following a failed attack by de Mandeville’s forces in which he received a fatal arrow wound. Archaeological monitoring at 22 Spring Close, nearby, recorded a medieval pit (CHER MCB19561).
- 3.5.5 Around 900m east-south-east of the present site, near to the Anglo-Saxon cemetery, is the possible site of St Andrew’s Church (CHER 06721).
- 3.5.6 The Causeway, a low ridge/ bank between the High Street and North Street (CHER 06733), parallel to the existing road of the same name, probably originated as a headland within Burwell’s common fields, and developed into a road when North Street developed, possibly in the late medieval period.
- 3.5.7 Archaeological evaluation and excavation at Brown’s Yard/ Myrtle Drive, 400m north-east of the present site, found ditches, pits and postholes spanning the 12th to 16th centuries (CHER MCB17397, ECB2443, ECB2446). A sequence

of parallel boundary ditches were recorded, originating in the 12th/13th centuries. Two possible timber-framed buildings were identified along the street frontage, characterised by narrow slots and postholes of possible medieval date. These buildings predated the 17th-century stone-built cottage that occupied the street frontage until recently. Other recorded features included intercutting pits and ditches, dating from the 12th to 16th/17th centuries. Evaluation and excavation at Kingfisher Drive, 750m north-east of the present site, found medieval and post-medieval remains including structures that may have been a fish tank and a dovecote, as well as a barn or other outbuildings, boundary ditches, quarry pits and a spur lode apparently joining onto The Weirs, to the west (CHER MCB17940). A few hundred metres east of this, fragments of medieval stonework have been found in the garden of Burwell House (CHER 06481a).

3.6 Post-Medieval and Modern (c. AD 1541–present)

- 3.6.1 Earthworks of a hollow-way and possible raised platform survive 300m east of the site (CHER 11378). Post-medieval and undated features, including a large 17th-century plot boundary ditch, a pit, and structural features comprising postholes and a possible sill beam slot, were found during archaeological monitoring at 106 Low Road, 350m south-east of the present site (CHER CB14590). The plot boundary may delineate the curtilage of the neighbouring Tunbridge Farm.
- 3.6.2 The buildings, spur lode and associated remains found in excavations 750m north-east of the site, at Kingfisher Drive (discussed above), spanned the medieval and post-medieval periods (CHER MCB17940). The excavated remains at Brown's Yard (see above), 500m north-east of the site, extended up to at least the 17th century (CHER MCB17397).
- 3.6.3 There are numerous surviving post-medieval buildings of note in Burwell, including the Queen's Arms Inn, 800m north-east of the site, which was completed in 1587 (CHER 06480), a nearby 19th-century former Methodist chapel (CHER MCB22057), the 18th- to 19th-century Burwell House (CHER06481) and its associated park and gardens (CHER 12334), and the

originally 17th-century Anchor Inn (CHER MCB22077). Other buildings, since demolished, are known from 19th-century maps of the village, including several around 600m east of the site, such as a former blacksmith's shop (CHER MCB22060), lock-up (CHER MCB22061), school-house (CHER MCB22062) and public reading room (CHER MCB22076), all shown on the 1885 Ordnance Survey map.

- 3.6.4 Tunbridge Farm, 300m south-east of the site, is predominantly of 17th-century date, but includes the northern cross-wing of an earlier house (CHER 01121). Parsonage Farm, 500m south-east of the site, includes barns and outbuildings which are suggestive of some kind of industrial/ warehouse function during the 16th century. The main house predominantly dates from around 1600, with later alterations, but probably incorporates elements of an earlier, medieval, building (CHER 06863).

3.7 Undated

- 3.7.1 The Weirs, the watercourse which forms the western boundary of Area 1, is of unknown date. There are, or were, at least 23 basins or canals of various sizes extending from The Weirs, in an eastward direction, towards the houses on the west side of North Street. Most of them have been filled in and their original form, and their date, are unclear (CHER MCB27337). The basins that survive are no more than 30 yards long and 10–15 yards wide and are likely to have been docks for barges/ lighters used in the Fenland water trade. The two best-preserved basins are both near the end of Burwell Lode, 800m north-east of the current site. The eighteen surviving canals (CHER 06829) are probably a fraction of the original number; they consist of long, narrow watercourses extending eastwards from the Weir towards the barns and farm buildings on the west side of the village. They vary from 50–200 yards long and were probably typically not more than 4–6 yards wide. Their size suggests that these canals were probably not used for long-distance fen trade, but rather as access ways for punts or small boats bringing sedge, rushes, turf, peat and crops from the fen to the village.
- 3.7.2 Three hundred metres north-east of the site is The Hythe, a former public wharf

(CHER 06402) extending from the fen edge at The Weirs to the north end of Low Road, and bounded by watercourses for barges. The date of construction of the Hythe and its period of use are unknown.

3.7.3 Around 500m south-west of the site are undated cropmarks of a probable trackway and possible enclosure on the parish boundary between Reach and Burwell (CHER MCB23990). A number of other undated cropmarks/ soilmarks are recorded on land around 400m south-east of the site (CHER 06465, 09243). Fragments of clunch building stone were found in the vicinity when former pasture was ploughed for the first time in 1985 (CHER 06864a). This may relate to the buildings at Parsonage Farm, which have been suggested as the site of the medieval priory of St John (CHER 06864).

3.8 Archaeological Investigation South of 76 Low Road (ECB5527; Schofield 2019)

3.8.1 Recent archaeological evaluation, geophysical and topographical survey 250m east of the present site, on land south of 76 Low Road, investigated earthworks previously thought to be a medieval house platform (CHER 11380). The evaluation found that the platform was in fact associated with both settlement and industrial activity during the medieval period, and that it lay directly adjacent to a previously unrecorded water channel or lode, possibly an artificial watercourse. The site appears to have been a medieval quay or dock associated with Burwell's role as a Fenland port during the medieval period. The channel/lode appears to head westwards towards the present site, The Weirs watercourse and the former fen. Pottery from the site suggests a main period of activity spanning the later 12th to 14th centuries, with a lower level of Saxo-Norman to early medieval activity (Anderson in Schofield 2019, 27–29).

3.8.2 The trial trenching at 76 Low Road also found residual Neolithic and Early Bronze Age struck flint and pottery, suggesting low-level prehistoric activity, as well as several Iron Age ditches containing pottery and animal bone.

3.8.3 Area excavation at 76 Low Road had just been completed at the time of the Weirs Drove evaluation. As well as excavating and recording the medieval lode, quayside and several phases of a large warehouse-type building, the

excavation found evidence of prehistoric activity, including a number of Neolithic pit-wells exploiting a natural springhead (one of which contained an apparently placed deposit of a handaxe), and an Iron Age settlement enclosure.

3.9 Air Photographic Assessment (ECB6266; Deegan 2020; Appendix 4)

- 3.9.1 Air photographic transcription and reassessment focused on the site and its immediate surroundings. The assessment identified cropmarks of a possible later prehistoric boundary and a potential Iron Age or Roman enclosure in the field directly east of the site (features AP5 and AP6).
- 3.9.2 On land north-east of the site, long ditches extending east–west between Low Road and The Weirs were interpreted as remnants of a medieval strip field system (AP9 and AP11); one has an associated possible building platform. A number of parallel water channels heading eastwards from The Weirs watercourse (AP12) towards Low Road (AP8, AP10, AP21, AP22, AP23, AP24 and AP26) are visible on LiDAR imagery. As well as forming field boundaries/drainage channels, these could be former narrow waterways running between the fen and medieval/ post-medieval quays set back from the Low Road frontage.
- 3.9.3 Cropmark ditches just east of the site (AP3) and to the south-west, on the far side of The Weirs (AP17), correspond with field boundaries shown on the 1886 Ordnance Survey map. These are likely to have late post-medieval origins.
- 3.9.4 Cropmark ditches AP2 and AP7 were interpreted as possible post-medieval field boundaries, although they are not depicted on the 1886 OS map. However, based on recent aerial photographs, service plans and CAT-scanning of the site before the borehole survey and trenching, AP2 is now known to indicate the position of a recently installed underground 33kv electricity cable. Similarly, the origins of the short cropmark 'ditches' recorded as AP4, AP13, AP16, AP19 and AP25 are not known, but it is possible that some or all of them are caused by buried land drains.
- 3.9.5 AP1, AP14 and AP15 were considered likely to be the remains of one or more palaeochannels. They comprise very shallow earthwork depressions flanked

by low banks. Some of the Google Earth images show cropmarks and earthworks corresponding with these vestigial earthworks. British Geological Survey mapping indicates the presence of peat deposits associated with the position of AP15. These palaeochannels appear to be parts of a wide system of drainage that ran across the fen towards the river Cam prior to large-scale drainage.

3.9.6 One of these apparent palaeochannels, AP1, loops in a wide meander across both areas of the present site, entering Area 2 from the south-east, extending north-westwards, then turning gradually west and south-west across the central part of Area 1 before exiting the site. This palaeochannel appears to take the form of a shallow earthwork depression flanked by slightly higher ground on its north (AP14) and south sides. It is not clear whether AP1 directly joins the clearer AP15 palaeochannel in Burwell Fen, to the west. The overall impression based on morphology was of a meandering infilled former river channel.

3.10 Geoarchaeological Survey (ECB6267; Batchelor and Lincoln 2020; Appendix 5)

3.10.1 A geoarchaeological borehole survey was carried out on the site. The broad aims were to clarify the sedimentary sequences on the site, establish any evidence for former palaeochannels traversing the site, and make recommendations for any further work (if necessary). Specific objectives were to establish the presence, depth and character of the apparent cropmark palaeochannel and identify its potential for preserved palaeoenvironmental evidence.

3.10.2 The survey comprised two crossing transects of boreholes, numbering 45 in total, sunk at regular 5m intervals across the site. The interval between the boreholes was selected as appropriate to pick up/ not miss subsurface features of the size suggested by the cropmark. Transects were positioned to test the cropmark palaeochannel while avoiding the overhead and underground electricity lines.

3.10.3 The marly chalk bedrock was encountered at shallow depth in 41 of the boreholes, directly beneath thin topsoil (generally c. 0.30m thick). In the

remaining 4 boreholes (T1/BH01, T1/BH12, T1/BH15 and T2/BH10), the bedrock and topsoil were separated by thin (<0.5m) deposits of inorganic and, in two boreholes (T1/BH01 and T1/BH15), organic alluvium. There appeared to be little relationship between the topography of the bedrock chalk, and presence/ thickness of the alluvial deposits, compared with the projected position of the palaeochannel. No significant variations in the topography of the weathered bedrock surface were identified that could potentially be indicative of deep palaeochannel(s). However, due to the shallow nature of the alluvial deposits, it was considered possible that the sequences had been truncated or otherwise impacted by recent drainage and ploughing. As such, the limited alluvial deposits could be the remnants of more widespread deposits associated with the fenland edge or from former shallow palaeochannel(s).

- 3.10.4 Those sequences containing the alluvial deposits were highlighted as having the greatest geoarchaeological and palaeoenvironmental potential. These were located along the boundary between Areas 1 and 2 and close to The Weirs. However, on the basis of the borehole evidence, this potential was not thought to be high, since the deposits were thin, highly humified, and infiltrated by modern rooting. As such, further work was only recommended if better-preserved deposits were encountered during the trial-trenching.

4 METHODOLOGY

4.1 General

- 4.1.1 The archaeological evaluation comprised two 2m x 20m trial trenches, two 2m x 30m trial trenches, two 2m x 40m trial trenches and three 2m x 50m trial trenches, totalling 330m of trenches and providing a 5% sample of the 1.35ha site (Figure 2). Trenches were targeted to investigate cropmarks/ soilmarks identified by the air photographic assessment (Figure 3) and areas of potential alluvial deposits seen in the boreholes, while also avoiding 33kv underground and 11kv overhead electrical cables. The alluvial deposits encountered in boreholes close to the boundary between the two areas could not be tested due to proximity to these buried cables. Other trenches were positioned to test apparently 'blank' areas on the cropmark survey, while others were distributed evenly across the remainder of the site in order to provide a representative sample of the whole development area.
- 4.1.2 Trench locations were agreed with the client and CHET prior to commencement of the evaluation; no significant changes to the proposed trench layout were made during the fieldwork. Trench 5 was extended to expose more of a large geological feature and allow space for a sondage to be dug into it.

4.2 Excavation Methodology

- 4.2.1 Ground reduction during the evaluation was carried out using a 14 ton 360° tracked mechanical excavator fitted with a smooth-bladed ditching bucket, operating under close archaeological supervision. Topsoil and other overburden of low archaeological value was removed in shallow, even, spits down to the level of the undisturbed natural geological deposits where potential archaeological features could be observed and recorded. No archaeologically significant features or deposits were present above the level of the natural geological horizon.
- 4.2.2 Exposed surfaces were cleaned by trowel and hoe as appropriate and all further excavation was undertaken manually using hand tools.

4.3 Recording and Finds Recovery

- 4.3.1 The limits of excavations, heights above Ordnance Datum and the locations of archaeological features and interventions were recorded using a Geomax GPS rover unit with RTK differential correction, giving three-dimensional accuracy of 20mm or better.
- 4.3.2 Deposits or the removal of deposits judged by the excavating archaeologist to constitute individual events were each assigned a unique record number (often referred to within British archaeology as 'context numbers') and recorded on individual pre-printed forms. Archaeological processes recognised by the deposition of material are signified in this report by round brackets (thus), while events constituting the removal of deposits are referred to here as 'cuts' and signified by square brackets [thus]. Where more than one slot was excavated through an individual feature, each intervention was assigned additional numbers for the cutting event and for the deposits it contained (these deposits within cut features being referred to here as 'fills'). The record numbers assigned to cuts, deposits and groups are entirely arbitrary and in no way reflect the chronological order in which events took place. All features and deposits excavated during the evaluation are listed in Appendix 2.
- 4.3.3 Metal-detecting was carried out during the topsoil and subsoil stripping and throughout the excavation process. Archaeological features and spoil heaps were scanned by metal-detector periodically. No objects were found.
- 4.3.4 High-resolution digital photographs were taken of all relevant features and deposits and were used to keep a record of the excavation process.

4.4 Sampling Strategy

- 4.4.1 Discrete features were half-sectioned, photographed, and recorded by a cross-section scaled drawing at an appropriate scale (1:10, 1:20 or 1:50).
- 4.4.2 Linear features were investigated by means of slots across their widths measuring at least 1m. Where stratigraphic relationships between features could not be clearly discerned in plan, relationship slots were excavated in order to determine inter-feature relationships; these were recorded as part of the GPS

survey and noted on the relevant context sheets.

4.5 Environmental Sampling

4.5.1 No bulk environmental samples were taken due to a lack of suitable features.

4.6 Bucket Sampling

4.6.1 In order to characterise the artefact content of the ploughsoil and other overburden deposits on the site, 90 litres of soil from the topsoil and subsoil (where present) horizons was hand-sorted at the ends of each trench and at the mid-point of each 50m trench. No finds were present.

5 QUANTIFICATION OF ARCHIVE

5.1 Paper Archive

Context register sheets	1
Context sheets	10
Section register sheets	1
Sections at 1:10 & 1:50	10
Trench record sheets	9
Photo register sheets	2

5.2 Digital Archive

Digital photos	85
GPS survey files	4
Digital plans	1
Access database	1

5.3 Physical Archive

5.3.1 None.

6 ARCHAEOLOGICAL RESULTS

6.1 Overview (Figures 2 and 3)

- 6.1.1 The results of the archaeological trenching are described below, with all technical data relating to individual features and deposits tabulated in Appendix 2 and details of the deposit sequence within each trench presented in Appendix 3.
- 6.1.2 Features and deposits within each trench are first divided into feature type, before being described in ascending numerical cut order. The archaeological features and deposits were sealed by the topsoil or subsoil (where present), unless otherwise stated.
- 6.1.3 The principal result of the fieldwork was the identification of a geological feature corresponding with the position of the cropmark 'palaeochannel' in one trench. No evidence of this feature could be seen in the other trenches positioned to target the palaeochannel. The feature did not contain any artefactual material and its fill was a largely homogeneous compact chalky clay/ clayey chalk, almost indistinguishable from the surrounding bedrock. It is considered most likely to be a Pleistocene or earlier geological feature. Although the ground within and directly around the site is gently undulating, the slight rises and falls in the ground surface do not correspond with the position of the cropmark palaeochannel.
- 6.1.4 Other small, undated, ditches were also identified and excavated. The general scarcity of features, and complete absence of finds in any of the features, or in the overburden, indicates that the site has never been a focus for settlement or other intensive activity.
- 6.1.5 As indicated by the borehole survey, the subsurface deposits at the site consisted, almost uniformly, of shallow ploughsoil/ topsoil (101), 0.27–0.40m deep, directly overlying the marly chalk natural geology (102). The only exception was in the north end of the Trench 1, where the topsoil sealed a thin degraded clayey peat layer (107) overlying the chalk.

6.2 Blank Trenches (Plates 6, 10 and 11)

6.2.1 Three trenches, Trenches 4, 6 and 7, contained no archaeologically significant features or deposits.

6.3 Trench 1 (Figure 2; Plate 2)

6.3.1 Trench 1 did not contain any archaeological features. However, the northern half of the trench contained a thin (0.22m deep) clayey peat deposit (107) below the topsoil and above the natural chalk (Figure 4, Section 9). The presence/survival of this layer corresponds with a slight hollow in the natural chalk and indicates consistently waterlogged ground in this corner of the site adjacent to The Weirs watercourse. Deposit (107) can be identified with the deposits of organic and inorganic alluvium recorded in Borehole T1/BH01.

6.4 Trench 2 (Figure 2; Plate 3)

6.4.1 Trench 2 contained two parallel small linear features.

6.4.2 Ditch [202] was linear in plan with gently sloping sides and a flat base, measuring 2m+ in length, 1.28m in width and 0.18m in depth (Figure 4, Section 6). The single fill (201) consisted of dark brownish-grey desiccated peat, which contained no finds.

6.4.3 Ditch [204] was linear in plan with moderately sloping sides and a concave base, measuring 2m+ in length, 0.46m in width and 0.09m in depth. The single fill (203) consisted of dark greyish-brown desiccated peat, which contained no finds.

6.5 Trench 3 (Figure 2; Plate 4)

6.5.1 Trench 3 contained one natural feature.

6.5.2 Natural Feature [104] (Plate 5) was irregular in plan with gently sloping sides and an uneven base, measuring 1.3m in length, 0.4m in width and 0.2m in depth. The single fill (103) consisted of dark greyish-brown desiccated peat, which contained no finds.

6.6 Trench 4 (Figure 2; Plate 6)

6.6.1 Trench 4 did not contain any archaeological features or deposits.

6.7 Trench 5 (Figures 2 and 3; Plate 7)

6.7.1 Trench 5 contained the only possible evidence of the cropmark palaeochannel, visible as a fractionally yellower and more clayey deposit in comparison to the surrounding white marly chalk natural geology. This deposit was present in the northern 30m of the trench. The trench was extended to allow the safe excavation of a sondage into the 'palaeochannel' [115] at an approximately central point across its width (Plate 8). The feature was found to be 1.7m deep from the stripped surface of the chalk (Plate 9; Figure 4, Section 8), with a sterile and homogeneous compact yellowish-/greyish-white clayey chalk fill (114) almost indistinguishable from the natural geology and similar in hardness to a mudstone. The composition of the feature's fill does not fit well with identification as a water-lain deposit infilling a former watercourse. No finds were present.

6.8 Trench 6 (Figure 2; Plate 10)

6.8.1 Trench 6 did not contain any archaeological features or deposits. The cropmark palaeochannel extended through Trench 6 but no evidence of a feature or any variation in the natural geology could be discerned. The stripped surface of the marly chalk was uniformly white and compact along the full length of the trench.

6.9 Trench 7 (Figure 2; Plate 11)

6.9.1 Trench 7 was blank, containing no archaeologically significant features or deposits. A test sondage was excavated at the trench's east end in order to test the composition and depth of the exposed marly chalk and see whether any deposits filling the putative palaeochannel (the apparent course of which extended through Trench 7) were present. The sondage revealed only the weathered upper levels of the chalk bedrock.

6.10 Trench 8 (Figure 2; Plate 12)

6.10.1 Trench 8 contained one linear feature.

6.10.2 Ditch [106] was linear in plan with moderately sloping sides and an uneven base, measuring 2m+ in length, 0.7m in width and 0.15m in depth (Figure 4, Section 2). The single fill (105) consisted of dark brown desiccated peat, which contained no finds.

6.11 Trench 9 (Figure 2; Plate 13)

- 6.11.1 Trench 9 contained a possible ditch or furrow and two pits.
- 6.11.2 Ditch or furrow [113] was linear in plan with gently sloping sides and a concave base, measuring 2m+ in length, 0.5m in width and 0.03m in depth (Figure 4, Section 5). The single fill (112) consisted of mid-brown clayey peat, which contained no finds.
- 6.11.3 Pit [109] was square in plan with steep sides and an uneven base, measuring 0.3m in length, 0.3m in width and 0.06m in depth. The single fill (108) consisted of dark greyish-brown clayey peat, which contained no finds. The shape of the feature and the appearance of its fill suggest a modern date.
- 6.11.4 Pit [111] was oval(?) in plan with gently sloping sides and an uneven base, measuring 1m+ long, 0.8m wide and 0.2m deep. The single fill (110) consisted of a mid-brown peaty clay, which contained no finds.

7 DISCUSSION

7.1 Palaeochannel

- 7.1.1 The apparent 'palaeochannel' visible on air photographs of the site could only be identified in Trench 5; the other trenches positioned to investigate the feature did not find any trace of it. The sondage excavated into the feature in Trench 5 found that its fill consisted of extremely sterile clayey chalk, almost indistinguishable in colour, composition and consistency to the surrounding geological deposits.
- 7.1.2 The lack of any organic component and the extremely compact, 'mudstone'-like composition of the palaeochannel deposits, together with the absence of associated artefacts, suggest that this feature is of considerable age, at least Pleistocene or earlier. Although the cropmark has a meandering morphology in plan, consistent with identification as a former river channel, its apparent course was not confirmed by the results of the evaluation and a hydrological origin does not seem likely.
- 7.1.3 A review of the cropmark mapping and LiDAR imagery (Deegan 2020, figures 2 and 3; Appendix 4) suggests that the apparent palaeochannel on the site may not, in fact, join up with the more distinct, peat-filled, palaeochannel to the west, in Burwell Fen (AP15 on the cropmark mapping and interpretation). Instead, it could be interpreted as heading south-west and southwards and merging into an area of rather indistinct and very slight topographical variations which are morphologically more consistent with geological features than as parts of a dendritic river system. Despite the site's fen-edge location and the associated likelihood of palaeochannels or other former wetland features being present, the cropmark visible on air photos would appear to be a geological rather than hydrological feature.
- 7.1.4 The feature is therefore provisionally interpreted as a geological variation, perhaps arising from glacial scarring or periglacial weathering of the upper levels of the chalk bedrock at some time between the chalk's formation in the Cretaceous Period (101–94 million years BP) and the beginning of the Holocene, c. 12,000 BP. Dr Rob Batchelor (QUEST; University of Reading)

concurs with this interpretation.

7.2 Features

7.2.1 The few small features recorded across the site indicate a very low level of past human activity. This evidence was limited to isolated occurrences of pit-digging in Trench 9, and small ditches or furrows in Trenches 2, 8 and 9, probably drainage or other agricultural features. None of these features contained any artefacts; nor were any finds seen in the overburden during machining of the trenches or bucket-sampling of the topsoil.

7.3 Peat Deposits

7.3.1 A layer of subsoil, consisting of degraded and desiccated clayey peat, was identified in the northern half of Trench 1. This deposit is likely to derive from the adjacent Weirs watercourse, possibly reflecting the former presence of a shallow pool or wider channel at the point where the watercourse turns from a south–north to west–east alignment. The fills of the various small ditches/ furrows on the site contained similar dark, degraded peaty material, reflecting generally wet ground conditions.

8 CONCLUSIONS

- 8.1 The principal result of the evaluation was the investigation of the cropmark 'palaeochannel' in Trench 5. The evaluation suggests that this feature is geological, rather than hydrological, in origin, and that it is likely to be of considerable age (i.e. pre-Holocene). No dating evidence was present and there were no associated deposits with any potential for palaeoenvironmental sampling and reconstruction.
- 8.2 The general scarcity of archaeological features across the site and the complete absence of artefacts either within cut features or in the plough-soil suggests that the site has never been a focus for settlement or other intensive activity.
- 8.3 Historic settlement in Burwell is likely to have been focused a few hundred metres to the east, on the slightly higher, drier ground, with Low Road marking the approximate edge of the area suitable for occupation and other intensive land-use. The seasonally wet land skirting the fen edge, including the site, was perhaps predominantly utilised as pasture. Former river courses and other wetland features in Burwell Fen certainly formed localised focuses for human activity during prehistory and the Roman period, but contrary to the cropmark evidence, there is no below-ground evidence of a former river channel on this site.
- 8.4 Based on the evaluation results, the archaeological potential and significance of the site appear to be low, and adequately characterised by the evaluation. Decisions about the need for any further mitigation at the site will be made by the planning authority, taking advice from Cambridgeshire Historic Environment Team.

9 ACKNOWLEDGEMENTS

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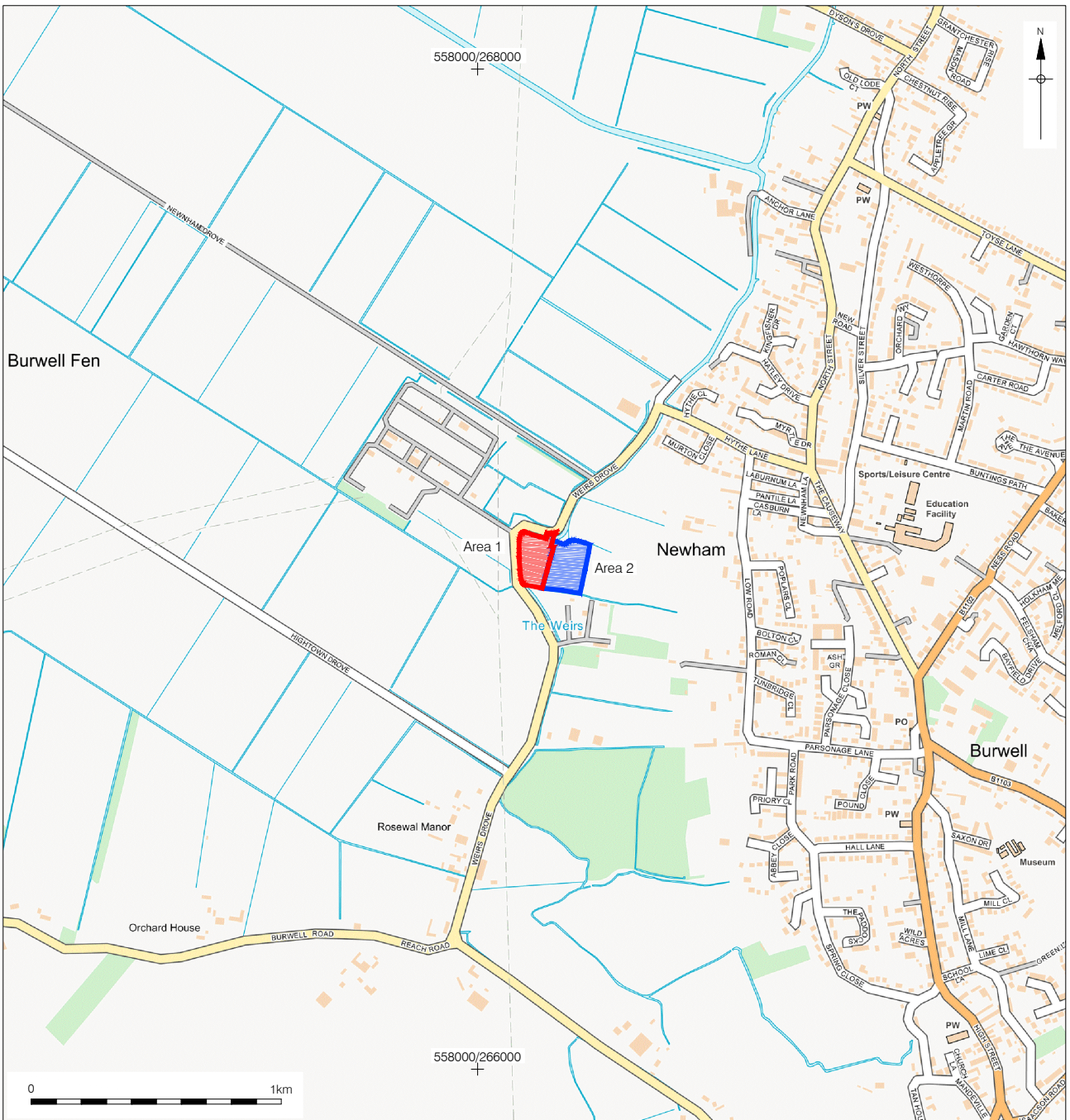
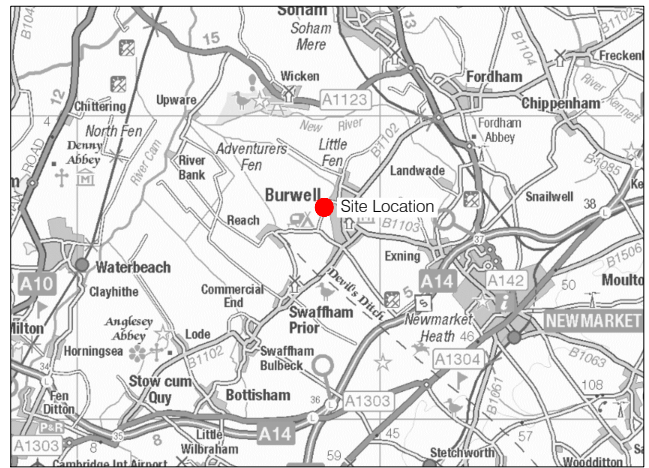
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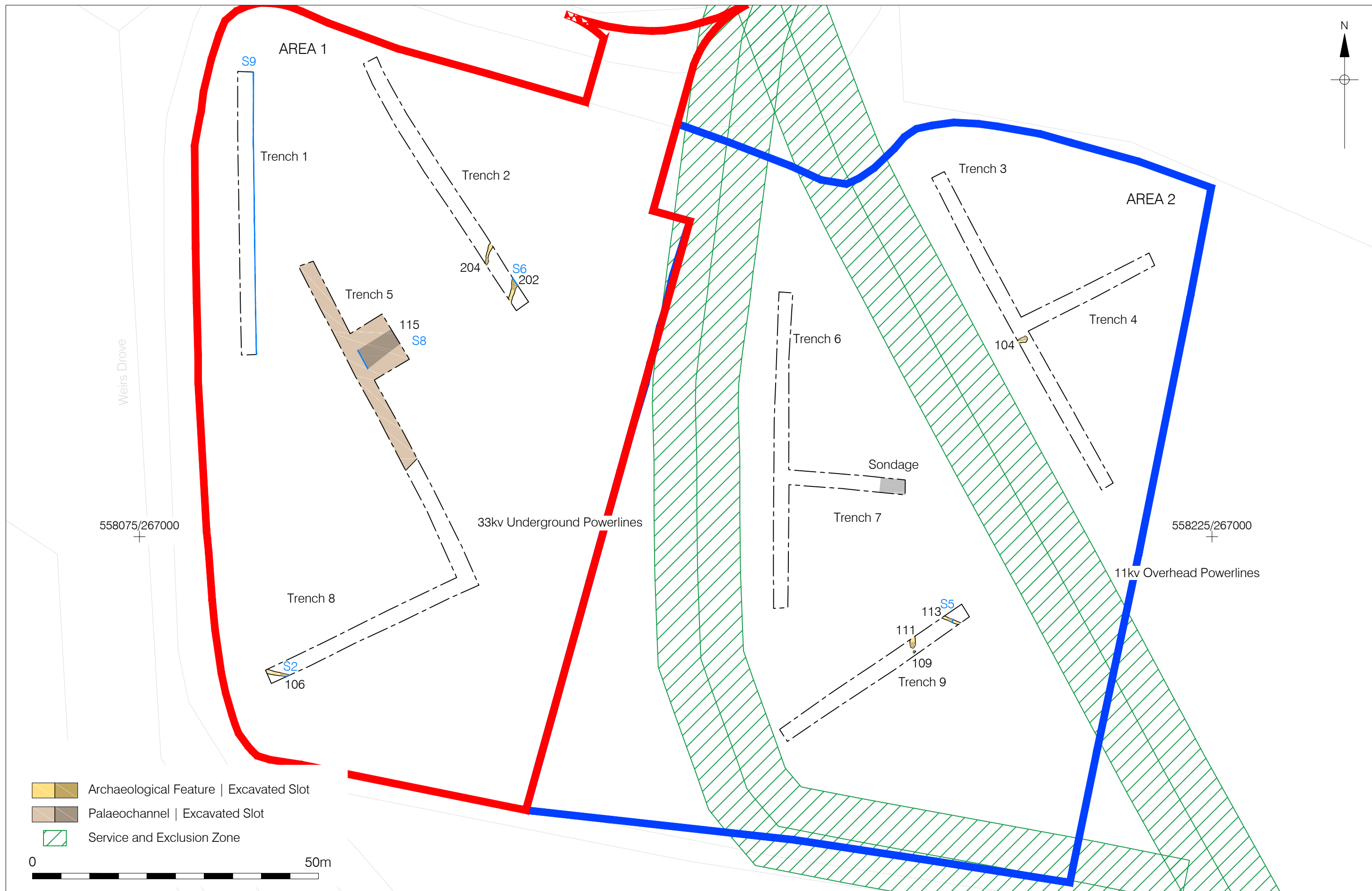
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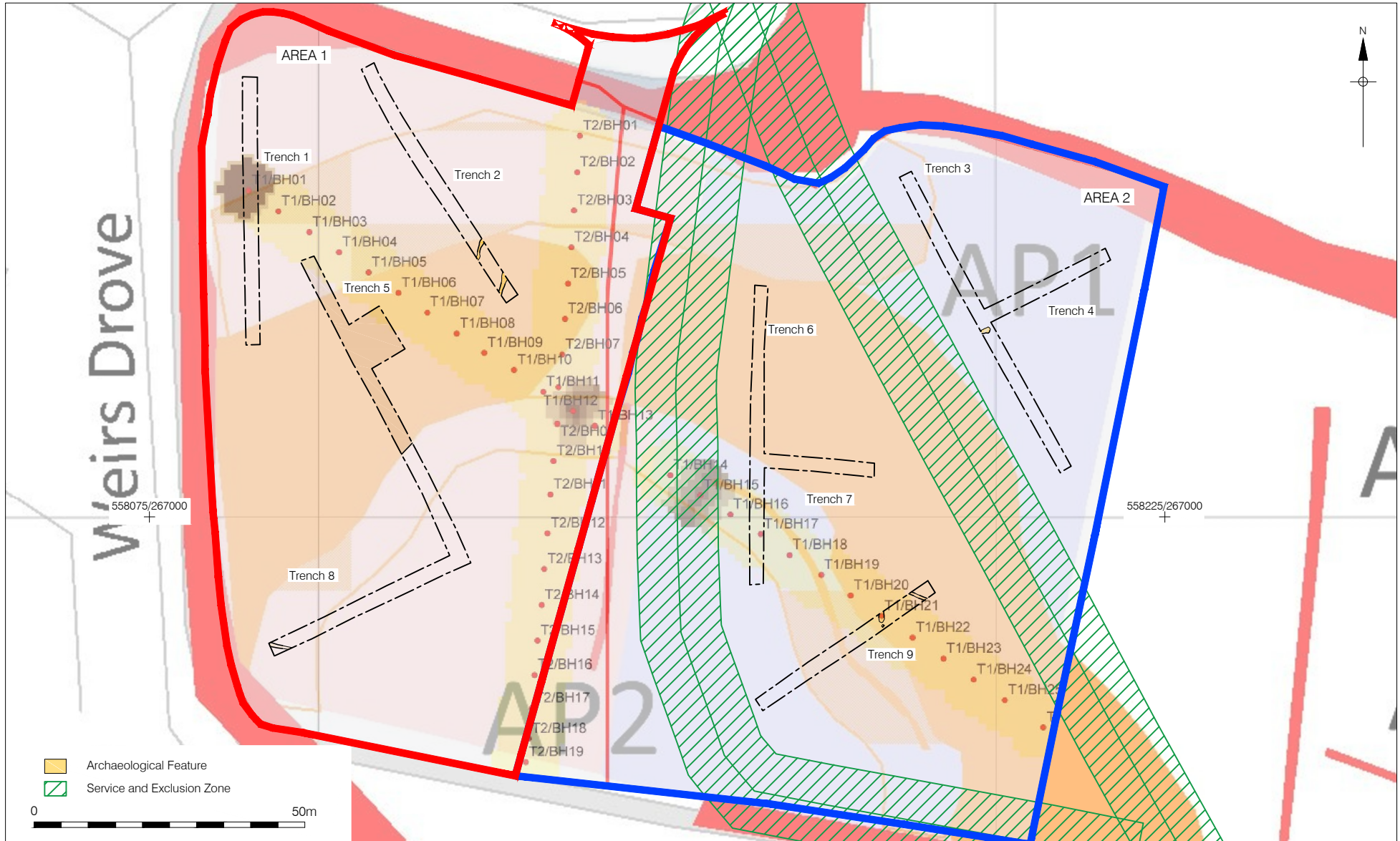
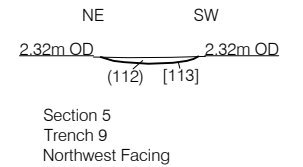
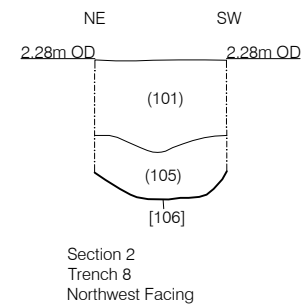
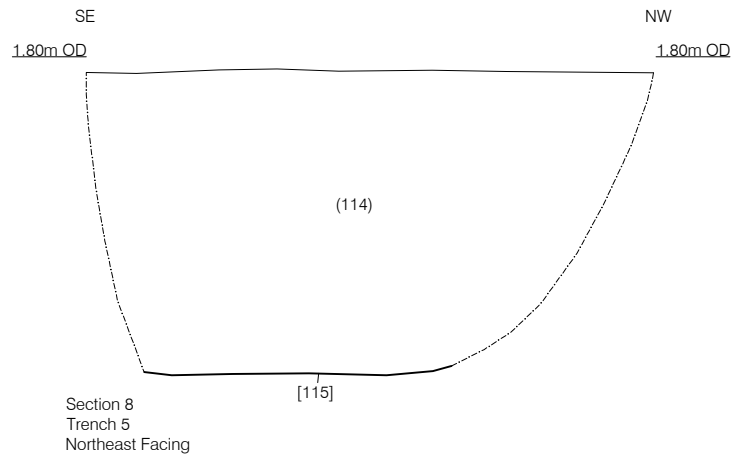
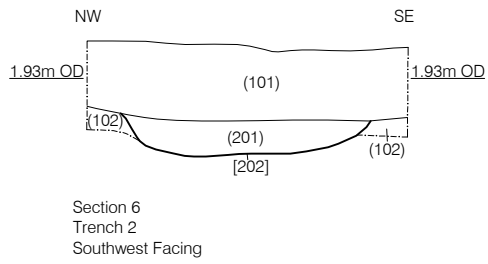
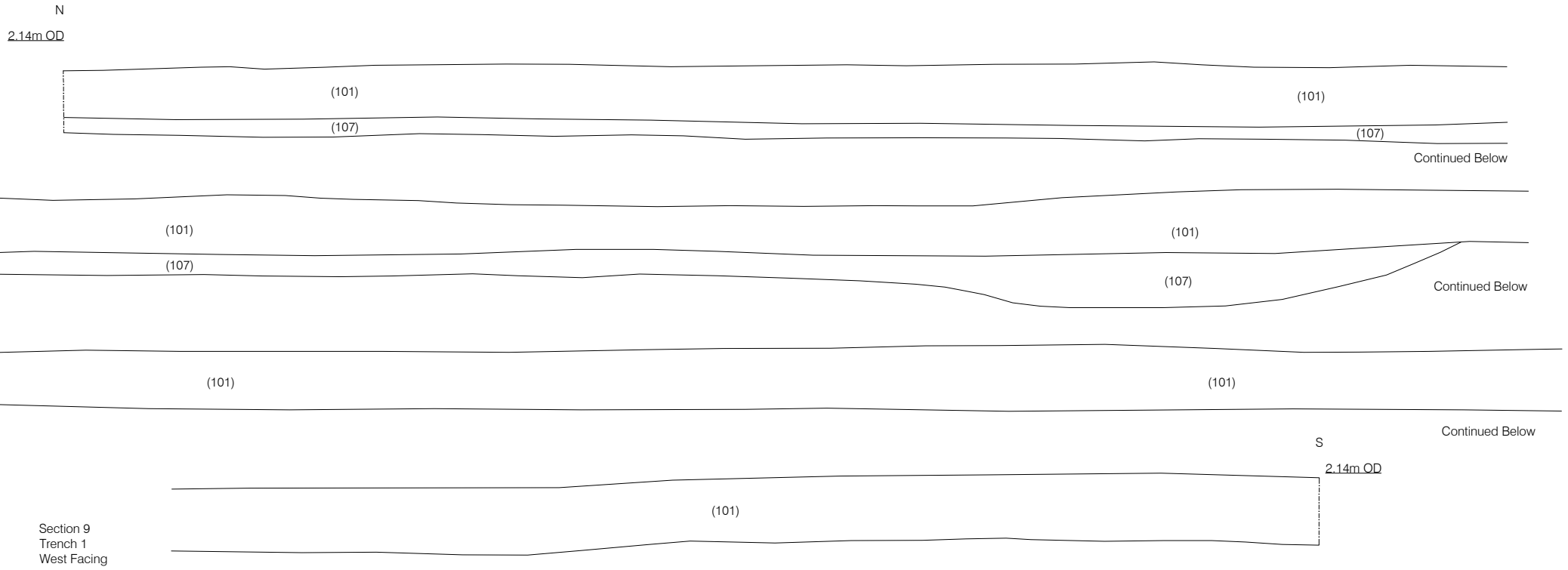


Figure 3
All Features Plan on Aerial Photograph Interpretation and Borehole Transects
1:800 at A4



12 APPENDIX 1: PLATES



Plate 1: The site, view south-west towards Weirs Drove



Plate 2: Trench 1, view south showing clayey peat (107) in trench edges



Plate 3: Trench 2, view north-west with Ditches [202] and [204] in foreground



Plate 4: Trench 3, view north-west



Plate 5: Trench 3, Natural Feature [104], view south-east



Plate 6: Trench 4, view north-east



Plate 7: Trench 5, view north-west



Plate 8: Trench 5, view north-east: sondage into geological Feature [115]



Plate 9: Trench 5, sondage into geological Feature [115], view south-east



Plate 10: Trench 6, view north



Plate 11: Trench 7, view west (test sondage into natural chalk in foreground)



Plate 12: Trench 8, view south-west



Plate 13: Trench 9, view south-west

13 APPENDIX 2: CONTEXT INDEX

Context List										
Context No	Cut	Trench	Type	Category	Length (m)	Width (m)	Depth (m)	Section	Additional Sections	Description
101	0	0	Layer	Topsoil	0	0		9	10	Loose, dark brownish-grey clayey peat
102	0	0	Layer	Natural	0	0		9	10	Moderate, light yellowish-grey clayey chalk
103	104	3	Fill	Treethrow	0.4	1.3	0.2	1		Loose, dark greyish-brown peat
104	104	3	Cut	Treethrow	0.4	1.3	0.2	1		Irregular in plan, gentle sides, uneven base
105	106	8	Fill	Ditch	1.3	0.7	0.15	2		Loose, dark brown peat
106	106	8	Cut	Ditch	1.3	0.7	0.15	2		Linear in plan, moderate sides, uneven base
107	0	1	Layer	Subsoil	0	0		9	10	Loose, dark brown peat
108	109	9	Fill	Pit	0.3	0.3	0.06	3		Loose, dark greyish-brown clayey peat
109	109	9	Cut	Pit	0.3	0.3	0.06	3		Square in plan, steep sides, flat base
110	111	9	Fill	Pit	1	0.8	0.2	4		Moderate, mid-brown peaty-clay
111	111	9	Cut	Pit	1	0.8	0.2	4		Sub-circular in plan, gentle sides, uneven base
112	113	9	Fill	Ditch	1.8	0.5	0.03	5		Loose, mid-brown, clayey-peat
113	113	9	Cut	Ditch	1.8	0.5	0.03	5		Linear in plan, gentle sides, concave base
114	115	5	Fill	Natural	8	4	1.7	8		Compact, yellowish- or greyish-white, clayey chalk
115	115	5	Cut	Natural	8	4	1.7	8		Linear, sides not seen, flattish base
201	202	2	Fill	Ditch	1	1.28	0.18	6		Loose, dark brownish-grey peat
202	202	2	Cut	Ditch	1	1.28	0.18	6		Linear in plan, gentle sides, flat base
203	204	2	Fill	Ditch	0.8	0.46	0.09	7		Loose, dark greyish-brown peat

Context List										
Context No	Cut	Trench	Type	Category	Length (m)	Width (m)	Depth (m)	Section	Additional Sections	Description
204	204	2	Cut	Ditch	0.8	0.46	0.09	7		Linear, moderate sides, concave base

Trench	1	End 1	End 2
Alignment	N-S	Topsoil thickness (m) 0.4	0.38
Trench length (m)	40	Subsoil thickness (m) 0.22	0
Max machine depth (m)	0.75	Natural depth (m OD) 0.75	0.43

Summary of archaeological features

N/A

Context	Cut	Type	Category	Length (m)	Width (m)	Depth (m)	Description
107	0	Layer	Subsoil	0	0		Loose, dark brown peat

Trench	2	End 1	End 2
Alignment	NW-SE	Topsoil thickness (m) 0.38	0.4
Trench length (m)	40	Subsoil thickness (m) 0	0
Max machine depth (m)	0.47	Natural depth (m OD) 0.45	0.47

Summary of archaeological features

Two ditches

Context	Cut	Type	Category	Length (m)	Width (m)	Depth (m)	Description
201	202	Fill	Ditch	1	1.28	0.18	Loose, dark brownish-grey peat
202	202	Cut	Ditch	1	1.28	0.18	Linear in plan, gentle sides, flat base
203	204	Fill	Ditch	0.8	0.46	0.09	Loose, dark greyish-brown peat
204	204	Cut	Ditch	0.8	0.46	0.09	Linear, moderate sides, concave base

Trench	3	End 1	End 2
Alignment	NW-SE	Topsoil thickness (m) 0.34	0.38
Trench length (m)	50	Subsoil thickness (m) 0	0
Max machine depth (m)	0.4	Natural depth (m OD) 0.39	0.4

Summary of archaeological features

One natural feature

Context	Cut	Type	Category	Length (m)	Width (m)	Depth (m)	Description
103	104	Fill	Treethrow	0.4	1.3	0.2	Loose, dark greyish-brown peat
104	104	Cut	Treethrow	0.4	1.3	0.2	Irregular in plan, gentle sides, uneven base

Trench	4		End 1	End 2
Alignment	NE-SW	Topsoil thickness (m)	0.32	0.33
Trench length (m)	20	Subsoil thickness (m)	0	0
Max machine depth (m)	0.4	Natural depth (m OD)	0.37	0.4

Summary of archaeological features

N/A

Context	Cut	Type	Category	Length (m)	Width (m)	Depth (m)	Description
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Trench	5	End 1	End 2
Alignment	NW-SE	Topsoil thickness (m) 0.36	0.33
Trench length (m)	50	Subsoil thickness (m) 0	0
Max machine depth (m)	0.43	Natural depth (m OD) 0.39	0.39

Summary of archaeological features

One natural feature

Context	Cut	Type	Category	Length (m)	Width (m)	Depth (m)	Description
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Trench	6	End 1	End 2
Alignment	N-S	Topsoil thickness (m) 0.27	0.33
Trench length (m)	50	Subsoil thickness (m) 0	0
Max machine depth (m)	0.37	Natural depth (m OD) 0.36	0.37

Summary of archaeological features

N/A

Context	Cut	Type	Category	Length (m)	Width (m)	Depth (m)	Description
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Trench	7	End 1	End 2
Alignment	E-W	Topsoil thickness (m) 0.32	0.33
Trench length (m)	20	Subsoil thickness (m) 0	0
Max machine depth (m)	1.2	Natural depth (m OD) 0.39	1.2

Summary of archaeological features

N/A

Context	Cut	Type	Category	Length (m)	Width (m)	Depth (m)	Description
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Trench	8	End 1	End 2
Alignment	NE-SW	Topsoil thickness (m) 0.34	0.38
Trench length (m)	30	Subsoil thickness (m) 0	0
Max machine depth (m)	0.42	Natural depth (m OD) 0.4	0.42

Summary of archaeological features

One ditch

Context	Cut	Type	Category	Length (m)	Width (m)	Depth (m)	Description
105	106	Fill	Ditch	1.3	0.7	0.15	Loose, dark brown peat
106	106	Cut	Ditch	1.3	0.7	0.15	Linear in plan, moderate sides, uneven base

Trench	9	End 1	End 2
Alignment	NE-SW	Topsoil thickness (m) 0.32	0.27
Trench length (m)	30	Subsoil thickness (m) 0	0
Max machine depth (m)	0.39	Natural depth (m OD) 0.39	0.38

Summary of archaeological features

One ditch and two pits

Context	Cut	Type	Category	Length (m)	Width (m)	Depth (m)	Description
108	109	Fill	Pit	0.3	0.3	0.06	Loose, dark greyish-brown clayey peat
109	109	Cut	Pit	0.3	0.3	0.06	Square in plan, steep sides, flat base
110	111	Fill	Pit	1	0.8	0.2	Moderate, mid-brown peaty-clay
111	111	Cut	Pit	1	0.8	0.2	Sub-circular in plan, gentle sides, uneven base
112	113	Fill	Ditch	1.8	0.5	0.03	Loose, mid-brown, clayey-peat
113	113	Cut	Ditch	1.8	0.5	0.03	Linear in plan, gentle sides, concave base



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Air Photo and LiDAR
Mapping and Interpretation
Land North-West of Electricity Substation
Weirs Drove, Burwell
Cambridgeshire

August 2020
Project number 2021003
Undertaken by Alison Deegan BSc MCIfA

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Commissioned by

**Pre-Construct Archaeology Ltd
Central Office
The Granary Rectory Farm
Brewery Road
Pampisford
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CB22 3EN**

Summary

This is a report on the interpretation and mapping of archaeological features from existing air photographs for Land North-West Of Electricity Substation, Weirs Drove, Burwell, Cambridgeshire.

This survey examined aerial imagery delivered online by Google Earth and Bing and imagery generated from Environment Agency LiDAR data. The Historic England Archive is closed at the time of writing due to the Covid-19 situation and no air photos from its collection have been available for examination.

This survey has identified possible cropmark evidence of a later prehistoric boundary and an Iron Age or Roman period enclosure. Earthworks indicative of medieval or post medieval boundaries and a tentative building platform have been recorded, as has a network of water channels linked to The Weir. Other cropmarks and earthworks of later and unknown origin have also been mapped and documented.

This work was commissioned from Alison Deegan, 6 Wain Close, South Milford, Leeds LS25 5AH by Pre-Construct Archaeology Ltd, Central Office, The Granary Rectory Farm, Brewery Road, Pampisford, Cambridgeshire, CB22 3EN. This work is supplied in digital format and the above named party may manipulate and/or reproduce the work as it wishes, 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.

Cambridgeshire HER Event no: ECB6266.

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Figure 2 Landscape context of the Survey Area shown on a hill-shaded relief model of the Environment Agency 1m LiDAR data (DTM).

Figure 3 Overview of results of the air photo and LiDAR survey of Land North-West of the Electricity Substation, Weirs Drove, Burwell, Cambridgeshire.

1 Introduction

1.1 Client details

1.1.1 This survey, using existing air photo and LiDAR sources, was commissioned by Pre-Construct Archaeology Ltd, Central Office, The Granary Rectory Farm, Brewery Road, Pampisford, Cambridgeshire, CB22 3EN.

1.2 Specification

1.2.1 This work was commissioned in response to sections 2.5 of the Cambridgeshire Brief for Archaeological Evaluation for Land North West of Electricity Sub-Station, Weirs Drove, Burwell (Planning Application 17/02255/FUL), dated 5th March 2020.

1.3 The Survey Area (see Figure 1)

1.3.1 This air photo and LiDAR survey covers Area 1 and Area 2, the site of a proposed battery storage facility, and a further area of land under the client's control (respectively), and surrounding land.

1.3.2 The Survey Area is centred at 558120, 267017 (TL58120 67017) and covers approximately 28 hectares.

1.3.3 Area 1 and Area 2 have been under an arable regime in recent years, the wider Survey Area encompasses parts of other arable fields, small grazing plots bound by mature hedgerow, an electricity sub-station east of Weirs Drove and a larger facility on the west side of the road.

1.3.4 The bedrock geology is West Melbury Marly Chalk Formation – Chalk and there are some localised peat deposits (BGS Viewer).

1.3.5 The Survey Area falls very gently from approximately 5m OD in the east to less than 2m OD in the west (see Figure 2). It is located on the edge of the fenland named as Burwell Fen and Hallard's Fen on the Ordnance Survey map of 1886. Weirs Drove follows a substantial watercourse known as The Weirs. The Weirs marks the approximate divide between the higher ground to the east and the drained fen to the west.

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

2 Methodology

2.1 Data sources

2.1.1 The digital aerial images delivered online by Google Earth and Bing Maps were examined on

screen.

- 2.1.2 LiDAR data at 1m resolution was obtained from the Environment Agency. Both the Digital Terrain Model and the Digital Surface Model were examine and this data provided in geotiff format.
- 2.1.3 The air photo collections held by the Historic England Archive (HEA) were not available for consultation at the time of this survey, due to the Covid-19 situation.
- 2.1.4 The Cambridge University Collection of Aerial Photographs was closed at the time of this survey and its photographs could not be examined.
- 2.1.5 Lists of the individual image datasets examined for this project are provided in Appendix 3.

2.2 **Image capture, rectification and mapping**

- 2.2.1 The various digital captures from the Google Earth and Bing imagery were rectified to ground control points derived from the LiDAR imagery and map data supplied by the client.
- 2.2.2 Image transformation was undertaken using the Bradford Aerial Photographic Rectification Programme, AERIAL5.36. Archaeological features were mapped to a scale of 1:2500 in detail and accuracy. 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.
- 2.2.3 The LiDAR data was processed through the Relief Visualisation Toolbox (RVT) 1.3 to produce multi-direction hill shade, simple local relief and local dominance models (see Appendix 2).
- 2.2.4 All of the georeferenced photographs and LiDAR images were then collated in MAPINFO Professional 19 where the archaeological features were digitised, with reference back to the original source material.
- 2.2.5 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 **Assessment of the data sources**

- 3.1.1 The Environment Agency 1m resolution LiDAR data was available for the whole of the Survey Area.
- 3.1.2 At the time of writing the Historic England Archive (HEA) was closed due to the Covid-19 situation. No search of this collection for the Survey Area has been undertaken but it will hold at least historical coverage of the site from several different years. It may also contain more recent air photos taken specifically for archaeological purposes.

3.1.3 Google Earth images, captured on several occasions between 1999 to 2018, and the undated Bing image are available for the Survey Area. Although not taken specifically for archaeological purposes some of this imagery does show soilmarks, cropmarks and earthworks of potential archaeological significance.

3.2 Overview of the survey data

3.2.1 The results of this survey are catalogued in Appendix 4 by archaeological feature or groups of archaeological features. The mapping is reproduced in Figure 3 at a scale of 1:2500. This report is presented in conjunction with a digital version of the map data which can be viewed and interrogated at up to 1:2500 scale.

3.2.2 Details including type, period and sources for individual archaeological features can be accessed in the digital version of the mapping (see Appendix 5).

3.2.3 In the absence of direct archaeological evidence all attributions of date and type are open to re-interpretation.

3.2.4 The following is an overview of the mapping results and is not intended to provide an exhaustive discussion of all the features that have been mapped and recorded in the catalogue (see Appendix 4). The following prefixes are used:

AP for monuments or groups of monuments mapped and recorded for this survey

MCB denotes a record in the Cambridge Historic Environment Record

3.3 Features of natural origin

3.3.1 **AP1**, **AP14** and **AP15** are likely to be the remains of one or more palaeochannels. They comprise very shallow earthwork depressions, flanked by very low banks. Some of the Google Earth images show cropmarks and earthworks corresponding with these vestigial earthworks. The BGS Viewer indicates the presence of peat **AP15**. These palaeochannels appear to be part of a large system of drainage that ran across the fen towards the River Cam prior to widescale drainage (see Figure 2).

3.4 Prehistoric and Roman period

3.4.1 There is a possible Iron Age or Roman period enclosure visible 150m east of Area 2 (**AP6**). It is associated with two boundary ditches.

3.4.2 Less than 100m east of Area 2 there is tentative evidence for a prehistoric boundary comprising a ditch and pit alignment (**AP5**). This feature may be of prehistoric or Roman date.

3.5 Medieval and Post medieval periods

- 3.5.1 Long ditches running between The Weirs and Low Road, on the north-east edge of the Survey Area (**AP11**) and to the rear of the Poplars on Low Road (**AP9**) are likely to be the remains of boundaries between narrow medieval strip field. On the OS map of 1886 this pattern of land division was still highly legible north of the Survey Area, between The Hythe and Goose Hall. South of The Hythe some of the boundaries had already been removed to create larger fields by that date.
- 3.5.2 A shallow rectilinear depression associated with these field boundaries (**AP11**) may be the site of a former building. Like the building platform investigated south of 76 Low Road (**MCB11380**) this feature is set back from Low Road.
- 3.5.3 Most elements of **AP9** and **AP11** that are visible on the sources consulted lie outside of the Survey Area and they are not projected to run toward Area 1 and Area 2.
- 3.5.4 The Weirs watercourse (**AP12**, **MCB27337**) runs approximately south-west to north-east through the Survey Area. The date of this feature is uncertain but is identified as Head lode in early documents and as The Weirs from the 1670s (<https://www.british-history.ac.uk/vch/cambs/vol10/pp334-341#fnn12>). In the mid 17th century the creation of Burwell Lode linked The Weirs to Reach Lode, which in turn joined the River Cam. The Weirs and Burwell Lode join outside of the Survey Area.
- 3.5.5 The Weirs watercourse (**AP12**) makes abrupt direction changes around Area 1. This could indicate the existence of a pre-existing feature but it is perhaps more likely that it is caused by the canalisation of a natural stream meander.
- 3.5.6 The Weirs forms a spine from which several other water channels run eastward towards Low Lane (**AP8**, **AP10**, **AP21**, **AP22**, **AP23**, **AP24** and, **AP26**). Most are at least partially obscured by extant hedgerows but they are visible as earthworks on the LiDAR DTM imagery. They all end short of Low Lane, and it is evident that some sections have been filled in.
- 3.5.7 There is a small basin on The Weirs where it intersections with the water channel that runs along the north side of Area 1 and Area 2 (**AP8**).
- 3.5.8 The cropmarked ditches recorded in **AP3**, just to the west of Area 2 and **AP17**, west of The Weirs, correspond with field boundaries that are depicted on the OS map of 1886. These are likely to have late post medieval origins.

3.6 Undated and modern features

- 3.6.1 The cropmark **AP20**, which was visible on 2008 photography, was caused by a temporary road surface laid to access a pylon in the previous year.
- 3.6.2 **AP2**, and **AP7** may, like **AP3** be field boundaries of late post medieval origin, but as they are not

shown on the OS map of 1886 it is likely that they had been removed by that date.

- 3.6.3 The origins of the short cropmarked ditches recorded in **AP4**, **AP13**, **AP16**, **AP19** and **AP25** are not known but it is possible that some or all of these caused by buried land drains.
- 3.6.4 It is not known if **AP18** is a cropmark of purely superficial origin or if it is indicative of a buried archaeological ditch.

4 **Concluding remarks**

- 4.1.1 Features of possible later prehistoric and/or Roman date have been identified east of Area 2. It is possible that the activity associated with these features extended further westward towards the edge of the fen and thus into the Phase 1 and 2 areas.
- 4.1.2 Elements of the medieval or post medieval system of waterways linked to The Weirs run along the northern and southern edges of Area 1 and Area 2, including a possible pond or basin.
- 4.1.3 The results of this survey and previous activity suggest that medieval and post settlement and activity was concentrated along Low Lane but that land between the lane and The Weirs may have been divided into long strip fields and used for cultivation.
- 4.1.4 There are limitations to this method of remote prospection, particularly with the lack of access to the HEA air photos at this time. Although the LiDAR imagery provides a comprehensive and detailed record of even the shallowest of earthworks it does not reveal those features that have been completely levelled before the date of LiDAR capture. It is possible that earlier air photos held by HEA may reveal now-levelled earthworks. Similarly the HEA collection may contain photos showing cropmarks that are not visible on either the Google Earth or Bing imagery.
- 4.1.5 The absence of evidence for archaeological remains in any part of the Survey Area is not proof of absence.

Appendix 1 Archaeology from black and white and colour air photographs

Air photographs 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 terrain models, including the details of surviving archaeological earthworks, to be generated at spatial resolutions of between 25cm and 2 metres. The LiDAR data is supplied by the Environment Agency as a gridded geotiff. This can be manipulated to produce a series of different visualisations. Those considered most appropriate to this survey were:

Multi-direction hill shade model – surface is illuminated by a direct light from multiple directions to reveal features in most alignments.

Simple local relief model – removes large scale landforms so only small scale features, including archaeological earthworks remain.

Local dominance models - visualization of a DEM shows relative dominance to an observer, it is higher for local protrusions and lower for local depressions.

(See the RVT manual (https://iaps.zrc-sazu.si/sites/default/files/rvt_2.2.1_0.pdf) for more details and also Crutchley and Crow (2018).

Appendix 3 Sources consulted

Digital imagery and datasets

The following resources were consulted between 7th and 14th August 2020.

Resource & Link/Source	Date (s)	Description and comment
Google Earth http://earth.google.com	31/12/1999 14/04/2003 31/12/2003 12/05/2007 31/12/2007 20/09/2008 05/06/2010 03/05/2011 15/09/2012 09/04/2015 14/04/2015 03/07/2018	Full coverage. Images were accessed and examined on screen.
Bing maps http://www.bing.com/maps	Date unknown	Aerial imagery, full coverage.
Environment Agency https://environment.data.gov.uk/DefraDataDownload/?Mode=survey	Composite data	1m LiDAR DTM & DSM combined, full coverage

Appendix 4 Catalogue of features (see Figure 3)

Reference	Central NGR	Type(s)	Period(s)	Description of features
AP1	TL5815 6702	PALAEOCHANNEL	UNCERTAIN	The LiDAR imagery shows a very shallow depression arcing across Area 1 and Area 2. It is flanked by slightly higher ground to the north and south. These very low earthworks correspond with alternative bands of lighter and darker toned soils and cropmarks on some of the Google Earth air photos. These are likely to be the remains of a palaeochannel. AP14 and AP15 are likely to be continuations of this feature or similar features. (1-3) 1 Environment Agency 1m DTM 2 GE03/07/2018 3 GE14/04/2003
AP2	TL5814 6699	DITCH	UNCERTAIN	A cropmarked ditch is visible on some of the Google Earth imagery in Area 1. It is aligned near north to south and visible over a distance of 40m. It is one of a series of parallel ditches that run across the same modern field unit (see AP3 , 5 and 7). The date of this ditch is not known, unlike AP3 it is not depicted on the OS map of 1886. (1-2) 1 GE03/07/2018 2 Ordnance Survey 6 Inch map 1886
AP3	TL5824 6698	FIELD BOUNDARY	POST MEDIEVAL	A cropmarked ditch of is visible on some of the Google Earth imagery, east of Area 2. It is oriented near north to south and visible over a distance of 70m. This ditch coincides with a field boundary depicted on the OS map of 1886. (1-3) 1 GE03/07/2018 2 GE31/12/2007 3 Ordnance Survey 6 Inch map 1886
AP4	TL5828 6694	DITCH	UNCERTAIN	Two ditches of uncertain date are visible as cropmarks on some Google Earth imagery east of Area 2. These features are aligned near east to west and are 33m and 46m long (1) 1 GE03/07/2018

Reference	Central NGR	Type(s)	Period(s)	Description of features
AP5	TL5830 6696	DITCH PIT ALIGNMENT	LATER PREHISTORIC	A cropmarked linear and a row of rectangular features are visible on the 2018 Google Earth imagery, approximately 90m east of Area 2. These cropmarks suggest a ditch and a pit alignment. The ditch is aligned near north to south and flanked to the west by the 5 rectilinear pits. The largest pit measures 10x5m. There are very faint traces of cropmarks in the same location on the 1999 Google Earth imagery, which suggests that these cropmarks are not superficial in origin (ie not caused by double seeding or uneven application of fertiliser). These features may be the remains of a later prehistoric boundary. (1-2) 1 GE03/07/2018 2 GE31/12/1999
AP6	TL5835 6696	RECTILINEAR ENCLOSURE BOUNDARY DITCH	IRON AGE ROMAN	The 2018 Google Earth imagery shows faint cropmarks approximately 150m east of Area 2. These cropmarks suggest the presence of a double-ditched rectilinear enclosure and associated boundary ditches. Internally the enclosure measures 35m long but it is incomplete and its width is not known. The distance between the inner and outer ditch is approximately 3m. One of the ditches projects eastward from then north-east corner of the enclosure, the other, which is up to 2.5m wide, runs parallel to the eastern side of the enclosure These features may be of Iron Age or Roman date. (1) 1 GE03/07/2018
AP7	TL5838 6695	DITCH	UNCERTAIN	A cropmarked ditch is are visible on 2018 Google Earth imagery. It is aligned near north to south and is similar to AP2 and AP3 . It is visible over a distance of 70m and it intersects the two ditches recorded in AP6 . The date of this ditch is uncertain, unlike AP3 it is not depicted on the OS map of 1886. (1-2) 1 GE03/07/2018 2 Ordnance Survey 6 Inch map 1886

Reference	Central NGR	Type(s)	Period(s)	Description of features
AP8	TL5823 6704	WATER CHANNEL	MEDIEVAL POST MEDIEVAL	The LiDAR imagery indicates that the field boundary running along the northern edge of Phase 2 and further eastward comprises a substantial earthwork ditch. This probable water channel can be traced, with gaps, between The Weirs and Low Road. This ditch is linked to The Weirs water channel (AP12) and joins it where the latter widens slightly into a small pond or basin. (1) 1 Environment Agency 1m DTM
AP9	TL5839 6702	FIELD BOUNDARY	MEDIEVAL POST MEDIEVAL	Two parallel ditches are visible as earthworks on the LiDAR imagery and as earthworks and cropmarks on some Google Earth imagery. These features are visible over a distance of 130m and they are run perpendicular to Weirs Drove and Low Road. These ditches may have been the boundaries between narrow strip fields of medieval or post medieval origin. 1 Environment Agency 1m DTM 2 GE31/12/2007 3 GE14/04/2003
AP10	TL5822 4612	WATER CHANNEL	MEDIEVAL POST MEDIEVAL	The LiDAR imagery indicates that a short section of a field boundary that runs between Weirs Drove and Low Road comprises a substantial earthwork ditch. This probable water channel runs into The Weirs (AP12). (1) 1 Environment Agency 1m DTM
AP11	TL5838 6714	BOUNDARY DITCH HOLLOW BUILDING PLATFORM	MEDIEVAL POST MEDIEVAL	A perpendicular arrangement of ditches and a hollow are visible as very low earthworks in the field to the south of Murton Close. The long elements run between Weirs Drove and Low Road, possibly defining long strips of land. The shorter elements appear to sub-divide these plots. The rectangular hollow may be the remains of a sunken building platform. These features may be of medieval or post medieval origin. (1-2) 1 Environment Agency 1m DTM 2 GE31/12/1999

Reference	Central NGR	Type(s)	Period(s)	Description of features
AP12 MCB27337	TL5809 6707	WATER CHANNEL	MEDIEVAL POST MEDIEVAL	The water channel known as The Weirs can be traced as a broad earthwork ditch on the LiDAR imagery. It takes a slightly meandering route north to south. A significant detour around the western edge of the Phase 1 area may suggest the presence of a significant pre-existing feature, although it may alternatively reflect the canalisation of an earlier meandering stream. There is a slight widening of the water channel at TL 5817 6706, on the north edge Area 1 and Area 2. Several other broad ditches link with The Weirs (see AP8, AP10, AP20, AP21, AP22, AP23 and AP24). (1) 1 Environment Agency 1m DTM
AP13	TL5810 6733	DRAINAGE DITCH	POST MEDIEVAL 20TH CENTURY	A cropmarked ditch is visible on the 2018 Google Earth imagery. It is aligned north-east to south-west and visible over a distance of 95m. This ditch is located on the lower lying ground west of The Weirs and may be a drainage ditch of late post medieval or 20th century date. (1) 1 GE03/07/2018
AP14	TL5799 6700	PALAEOCHANNEL	UNCERTAIN	A low earthwork is visible in a narrow field to the west of the Phase 1 site. It appears to be a continuation of the palaeochannel described in AP1 . (1) 1 Environment Agency 1m DTM
AP15	TL5770 6702	PALAEOCHANNEL	UNCERTAIN	The LIDAR imagery shows a broad curving depression extending westward from the western edge of the Survey Area. It is flanked by a light rise along its southern edge. Some of the Google Earth images show cropmarks and soilmarks corresponding with these vestigial earthworks. These are likely to be the remains of a palaeochannel. (1-3) 1 Environment Agency 1m DTM 2 GE20/09/2008 3 GE14/04/2015
AP16	TL5796 6693	DITCH	UNCERTAIN	A short cropmarked ditched is visible on 2018 Google Earth imagery. It is visible over a distance of 42m and is aligned north-west to south-east. (1) 1 GE03/07/2018

Reference	Central NGR	Type(s)	Period(s)	Description of features
AP17	TL5799 6683	FIELD BOUNDARY	POST MEDIEVAL	A perpendicular arrangement of straight ditches is visible on some Google Earth imagery. Most of the features correspond with field boundaries that are depicted on the OS map of 1886. (1-4) 1 GE20/09/2008 2 GE12/31/2003 3 GE31/12/2007 4 Ordnance Survey 6 Inch map 1886
AP18	TL5802 6685	DITCH ENCLOSURE	UNCERTAIN	A broad curving cropmark is visible in the field to the west of the electricity sub-station. It curves around the south-west corner of the base of an electricity pylon. It is only visible on the 2018 Google Earth imagery (of the images consulted for this project) so it is possible that it is of superficial origin, eg caused by the movement of farm machinery around the pylon. If it does indicate a ditch of archaeological origin then it may be part of an enclosure. (1) 1 GE03/07/2018
AP19	TL5808 6679	DRAINAGE DITCH	POST MEDIEVAL 20TH CENTURY	Short ditches are visible as cropmarks on some Google Earth imagery. These are likely to be the remains of field drains of late post medieval or 20th century origin. (1-2) 1 GE03/07/2018 2 GE20/09/2008
AP20	TL5806 6690	ACCESS ROAD	21ST CENTURY	The 2008 Google Earth imagery shows a broad cropmark in the field to the west of the electricity sub-station and Weirs Drove. It runs southward from the road to the pylon. This cropmark is directly associated with a temporary access road to the pylon that was active and in use on the 2007 Google Earth imagery. It is included in this catalogue to prevent its misidentification as a feature of archaeological significance. (1-2) 1 GE20/09/2008 2 GE31/12/2007
AP21	TL5829 6672	WATER CHANNEL FIELD BOUNDARY	MEDIEVAL POST MEDIEVAL	The LiDAR imagery shows that the field boundary running from The Weir, north of Newhall Farm and towards Low Road is largely comprised of a broad ditch. This probable water channel is linked to The Weir. It may be of medieval or post medieval date. (1) 1 Environment Agency 1m DTM

Reference	Central NGR	Type(s)	Period(s)	Description of features
AP22	TL5829 6679	WATER CHANNEL FIELD BOUNDARY	MEDIEVAL POST MEDIEVAL	The LiDAR imagery shows that the field boundary running from The Weirs towards Low Road and its junction with Tunbridge Close is largely comprised of a broad ditch. This probable water channel is linked to The Weir. It may be of medieval or post medieval date. (1) 1 Environment Agency 1m DTM
AP23	TL5820 6684	WATER CHANNEL FIELD BOUNDARY	MEDIEVAL POST MEDIEVAL	The LiDAR imagery shows that the field boundary running from The Weirs towards Low Road along the southern edge of the electricity sub-station is partly comprised of a broad ditch. This probable water channel is linked to The Weir. It may be of medieval or post medieval date. (1) 1 Environment Agency 1m DTM
AP24	TL5829 6686	WATER CHANNEL FIELD BOUNDARY	MEDIEVAL POST MEDIEVAL	The LiDAR imagery shows a short section of broad ditch on the land to the east of the electricity sub-station. This is likely to be part of a longer ditch, probably a water channel, that is depicted on the OS 1886 map and that entered The Weirs close to AP25 . (1-2) 1 Environment Agency 1m DTM 2 Ordnance Survey 6 Inch map 1886
AP25	TL5839 6688	DITCH	UNCERTAIN	Two short ditches are visible as cropmarks in Google Earth imagery, just east of the Survey Area. These features are oriented near north to south and the longest is visible over a distance of approximately 35m. The date of these ditches is not known. (1) 1 GE03/07/2018
AP26	TL5832 6692	WATER CHANNEL FIELD BOUNDARY	MEDIEVAL POST MEDIEVAL	The LiDAR imagery shows that the field boundary running from The Weirs towards Low Road along the southern boundary of Area 1 and Area 2 largely comprises a broad ditch. This probable water channel is linked to The Weir. It may be of medieval or post medieval date. (1) 1 Environment Agency 1m DTM

Appendix 5 Structure and content of digital map dataset

All features in the MapInfo table and AUTODESK drawing files 'ASHTEAD AP_LIDAR MAPPING' are associated with the following information, where applicable.

APCAT	Catalogue no. (referred to by AP1 etc in the text)
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
LATEST CONDITION	Assessment of the latest condition of monument (earthwork, levelled earthwork, structure, soilmark, parchmark, cropmark, destroyed monument)
LATEST CONDITIONSOURCE	Source image for latest condition assessment
HER	Historic Environment Record Monument Number (where applicable)

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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

Digital sources (all accessed between 7th and 14th August 2020)

Geology of Britain Viewer. Viewed online at <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

Ordnance Survey Six Inch scale maps. Various dates via <http://maps.nls.uk/>

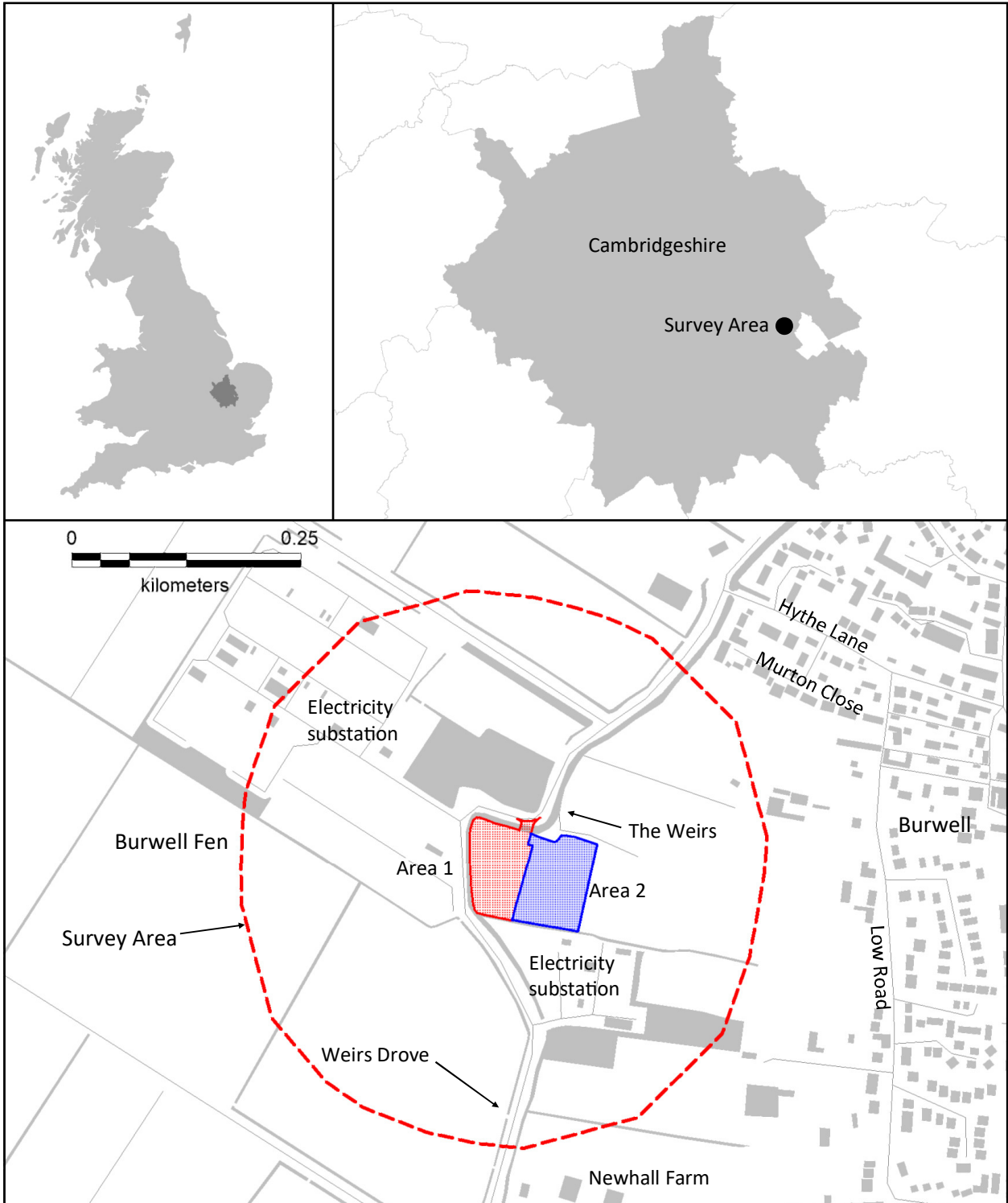


Figure 1: Location plan of the Land North-West of the Electricity Substation, Weirs Drove, Burwell, Cambridgeshire.

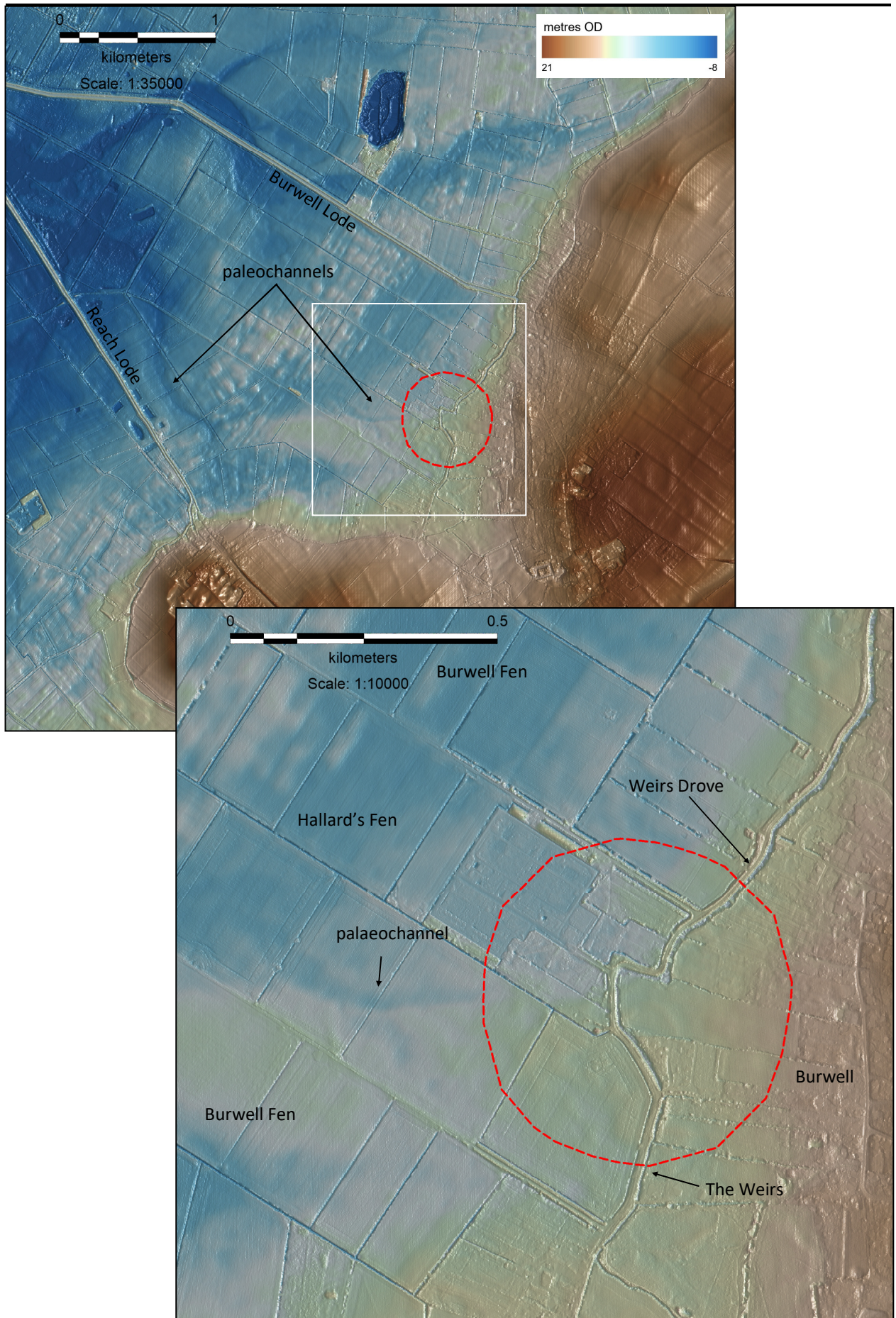


Figure 2: Landscape context of the Survey Area shown on a hill-shaded relief model of the Environment Agency 1m LiDAR data (DTM).

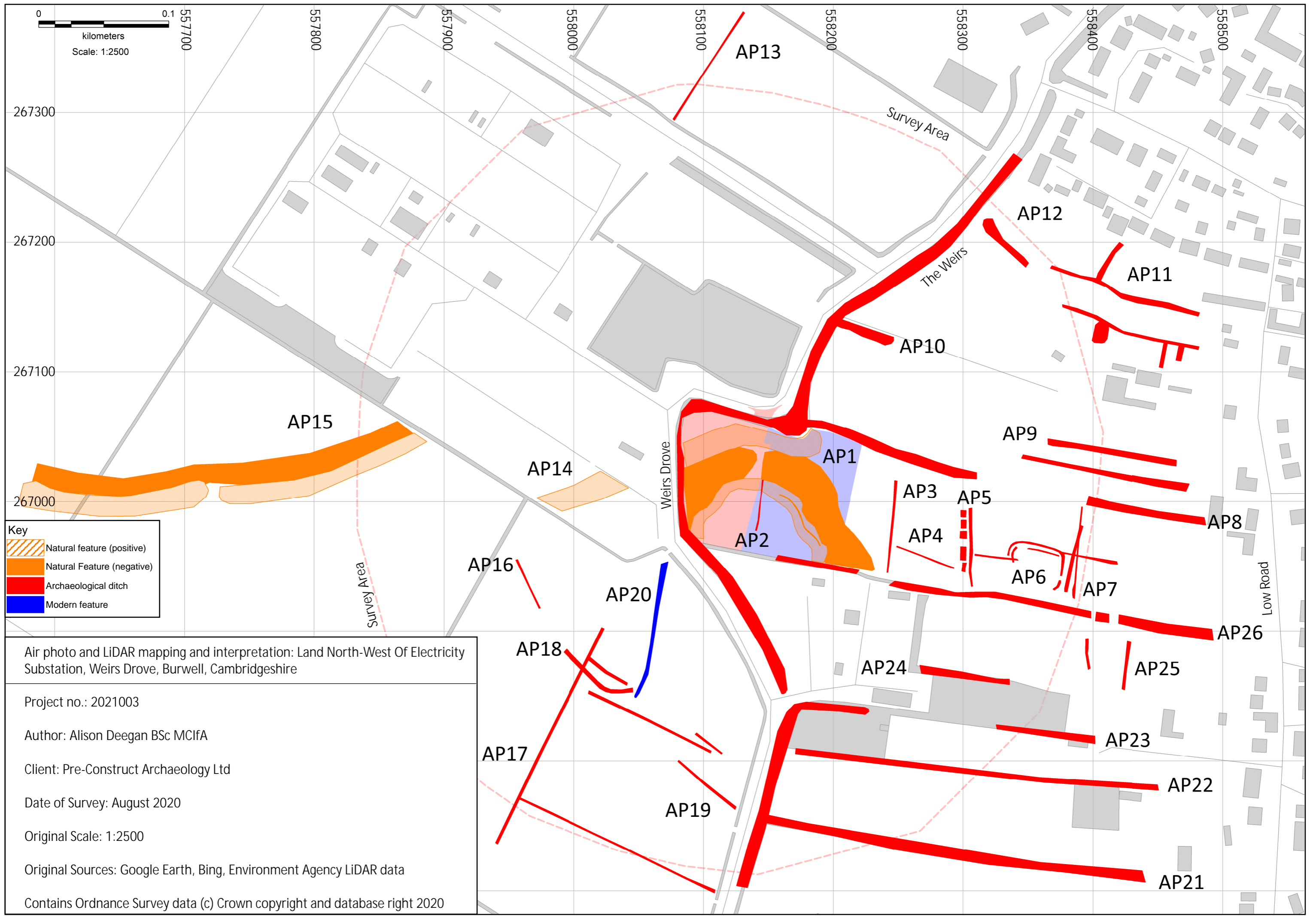


Figure 3: Overview of results of the air photo and LiDAR survey of Land North-West of the Electricity Substation, Weirs Drive, Burwell, Cambridgeshire.

Report



Geoarchaeological Survey Report: Land north-east of electricity substation Weirs Drove, Burwell, Cambridgeshire

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LAND NORTH-EAST OF ELECTRICITY SUBSTATION WEIRS DROVE, BURWELL, CAMBRIDGESHIRE

**A Report on the Geoarchaeological
Field Investigations**

NGR: TL 58221 66996

Date: 12th October 2020

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1. NON-TECHNICAL SUMMARY

A programme of geoarchaeological field investigations was undertaken on Land North-West of Electricity Substation, Weirs Drove, Burwell, Cambridgeshire in order to clarify the sedimentary sequences below the site, establish any evidence for former palaeochannels traversing the site and make recommendations for any further work (if necessary). In order to achieve these aims, a total of 45 geoarchaeological boreholes were put down across the site under the observation of a geoarchaeologist.

The results of the investigation have revealed the surface of the Bedrock Chalk above 2.3m OD in the Area 2 boreholes, and those from the eastern edge of Area 1. From there it slopes very gently downwards to <2.0m OD in a north-westerly and southerly direction across Area 2. The Bedrock is overlain directly by Top Soil in forty-one of the forty-five boreholes. In the remaining four boreholes, the Bedrock and Top Soil are separated by thin (<0.5m) deposits of inorganic and organic alluvium.

There appears to be little relationship between the topography of the Bedrock Chalk and presence/thickness of the Alluvial deposits with the projected position of the palaeochannel on the site (see section 2.1). However, due to the shallow nature of these deposits, it is possible that the sequences have been truncated or otherwise impacted by recent drainage and ploughing. As such the limited alluvial deposits may be the remnants of more widespread deposits, associated with the fenland edge or from former palaeochannel(s).

Those sequences containing the alluvial deposits have the greatest geoarchaeological and palaeoenvironmental potential, and these tend to be located at the interface between Areas 1 and 2, and closest to the Weirs. However, on the basis of the borehole evidence, this potential is not high, since the deposits are thin, highly humified, and infiltrated by modern rooting. Indeed, any form of scientific dating is likely to be problematic. As such, further work is only recommended if better preserved deposits are encountered during any archaeological evaluation that may be undertaken.

2. INTRODUCTION

2.1 Site context

This report summarises the findings of a second stage of geoarchaeological fieldwork and deposit modelling exercise undertaken on Land North-West of Electricity Substation, Weirs Drove, Burwell, Cambridgeshire (National Grid Reference: centred on TQ 58221 66996; Figures 1-3). The work was commissioned by RSK ADAS Limited. The site is located on the western side of Burwell, on the edge of Burwell Fen. It is bounded by the Weirs watercourse and Weirs Drove to the west and north-west, agricultural land to the east, and the existing substation to the south. The site is divided into two areas measuring 0.67ha (Area 1) and 0.68ha (Area 2).

The underlying bedrock geology is mapped as West Melbury Marly Chalk. No superficial deposits are mapped on the site itself, but peat outcrops sporadically beyond the southern and western boundaries of the site (<https://mapapps.bgs.ac.uk/geologyofbritain/home.html>). No geotechnical site investigation records were available for the site, but a British Geological Survey (BGS) borehole (TL56NE2) located on Weirs Drove records 1.22m of made ground overlying 0.61m peaty soil and 1.52m of grey silty sandy clay which in turn overlies natural chalk.

The site is located on the margins of Burwell Fen, which is located to the west, and higher dry ground to the east. The position of the fen edge is likely to have fluctuated throughout the prehistoric and historic period as a result of changes in sea level and drainage patterns (PCA, 2020). However, such locations are often a foci of human activity, particularly during prehistory, because of the available natural resources available. This is demonstrated by archaeological remains of prehistoric and Roman age are found in associated with fen-edge and channel margins in the nearby locality (PCA, 2020).

Furthermore, LiDAR imagery reportedly shows a shallow depression arcing across the two areas of the site and is flanked by slightly higher ground to the north and south (Deegan, 2020). These features correspond with alternative bands of lighter and darker toned soils and cropmarks on Google Earth aerial photos (see Figure 2; PCA, 2020). These features are interpreted as a likely palaeochannel, the course of which can more obviously made out beyond the eastern boundary of the site. In addition to this, a previously unrecorded water channel or lode, has been identified during recent archaeological investigations on the neighbouring 76 Low Road site to the west (Schofield, 2019), demonstrating the occurrence of these features in the nearby area.

2.2 Geoarchaeological, palaeoenvironmental and archaeological potential

Variations in the elevation and thickness of individual stratigraphic units can be significant as they represent different environmental conditions that would have existed in a given location. For example: (1) substantial variations in the surface of the Bedrock or Pleistocene Gravels are likely to represent the fen edge, or they might represent the position of former channels and bars; (2) the presence of peat or soil horizons represent former terrestrial or semi-terrestrial land-surfaces, and (3) the various alluvial units represent periods of changing fluvial conditions, possibly driven by hydrological variability (e.g. relative sea-level and/ or anthropogenic activity). Thus, by studying the

sub-surface stratigraphy across the site in greater detail, it will be possible to build a more detailed understanding of the former landscapes and environmental changes that took place across space and time, particularly when compared to other sites in the local area.

Alluvial and organic-rich sediments (in particular peat) also have high potential to provide a detailed reconstruction of past environments on both the wetland and dryland. They provide the potential to increase knowledge and understanding of the interactions between hydrology, human activity, vegetation succession and climate. Finally, areas of bedrock topography, soils and peat represent potential areas that might have been utilised or even occupied by prehistoric people, evidence of which may be preserved in the archaeological (e.g. features and structures) and palaeoenvironmental record (e.g. changes in vegetation composition). The archaeological potential of the site is outlined in greater detail within the Written Scheme of Investigation (PCA, 2020).

2.3 Aims & objectives

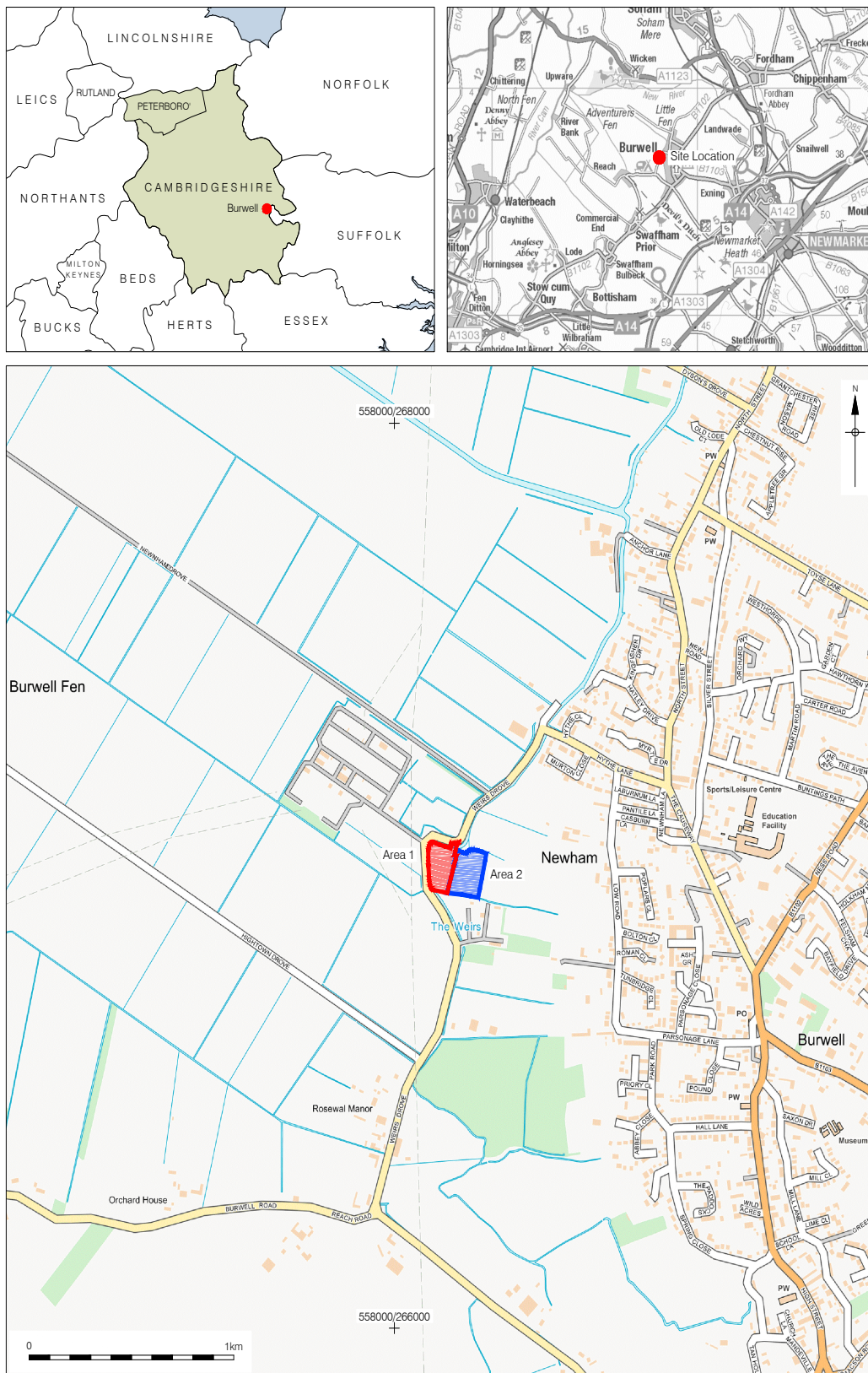
Further work is required in order to increase our knowledge and understanding of the geoarchaeological and palaeoenvironmental potential of the site. Five significant research aims relevant to the investigations at the site are outlined (ADAS, 2020; PCA, 2020):

1. To clarify the nature of the sub-surface stratigraphy across the site;
2. To identify the number, location, orientation and age of any palaeochannels or other landscape features traversing the site
3. To clarify the nature, depth and extent of any alluvium and peat deposits;
4. To investigate whether the sequences contain any artefact or ecofact evidence for prehistoric or historic human activity;
5. To investigate whether the sequences contain any evidence for natural and/or anthropogenic changes to the landscape (wetland and dryland);

In order to address the first three of these aims and establish the potential of addressing aims 4 to 5, the following objectives are proposed:

6. To recover geoarchaeological boreholes at 5m intervals along two transects across the site (see Figures 1 & 2);
7. To use the stratigraphic data from the new locations to produce a deposit model of major depositional units across the site, and
8. To provide a provisional interpretation of the landscape history of the site
9. To make recommendations for further geoarchaeological and palaeoenvironmental work

Aims 4 and 5 will be established through a program of geoarchaeological and paleoenvironmental assessment/analysis, the potential for which will be confirmed after achieving Aims 1 to 3.



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 03/11/2020 RS

Figure 1
 Site Location
 1:2,000,000, 1:250,000, 1:12,500 at A4

Figure 1: Location of Burwell site (reproduced from PCA, 2020)



Figure 2: Google Earth Image of Burwell site, showing potential cropmark/soil mark features (reproduced from PCA, 2020). These features are also highlighted within the aerial photograph & LiDAR report (Deegan, 2020)

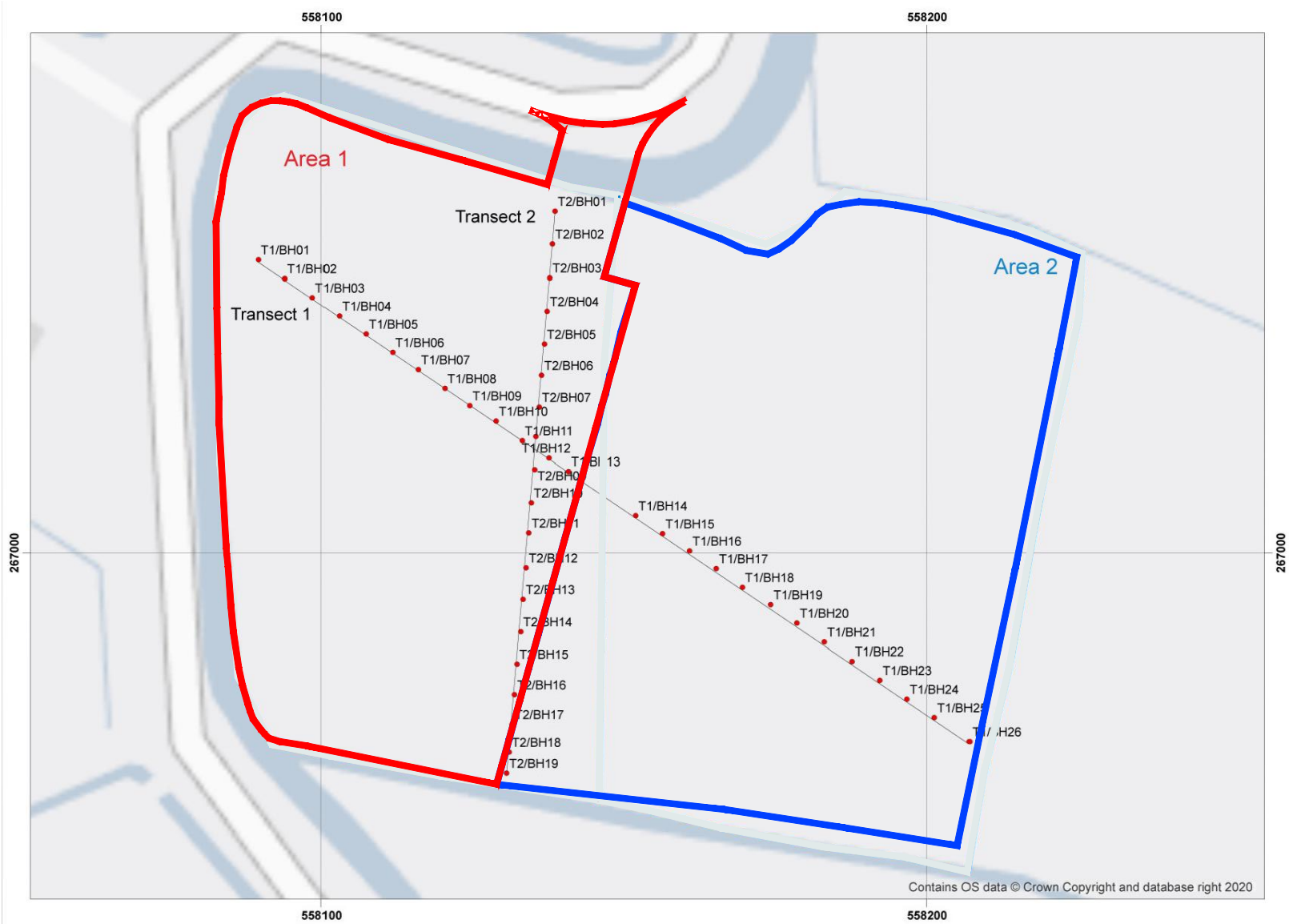


Figure 3: Location of the geoaerchaeological boreholes

3. METHODS

3.1 Field investigations

A total of forty-five boreholes were put down on the site along two transects using a window-sampling rig, and under the supervision of a geoarchaeologist. The boreholes were put down until the bedrock surface was reached in each sequence. The spatial attributes for each borehole are shown in Table 2.

3.2 Lithostratigraphic descriptions

The lithostratigraphy of the boreholes was described in the field using standard procedures for recording unconsolidated sediments, noting the physical properties (colour), composition (gravel, sand, clay, silt and organic matter) and inclusions (e.g. artefacts) (Tröels-Smith, 1955). The procedure involved: (1) cleaning the section using a trowel (where test pit access was possible) or examining the spoil from the excavations; (2) recording the physical properties, most notably colour using a Munsell Soil Colour Chart; (3) recording the composition; gravel (*Grana glareosa*; Gg), fine sand (*Grana arenosa*; Ga), silt (*Argilla granosa*; Ag) and clay (*Argilla steatoides*); and (4) recording the unit boundaries e.g. sharp or diffuse. The results of the geoarchaeological descriptions are summarised in Tables 1 and 2.

3.3 Deposit modelling

The term 'deposit modelling' describes any method used to depict the sub-surface arrangement of geological deposits, but particularly the use of computer software to create contoured maps or three-dimensional representations of contacts between stratigraphic units. Modelling of the forty-five boreholes was undertaken using RockWorks 16 geological utilities software and displayed using ArcMAP 10.5.

Sedimentological descriptions from the Thames Road records were classified into five lithostratigraphic units: (1) Top Soil, (2a) Alluvium, (2b) Organic-rich Alluvium, (3a) Weathered Bedrock, and (3b) Bedrock. Borehole transects across the site are displayed in Figures 4 & 5. Models of surface height (using an inverse distance weighted (IDW) algorithm) were generated for the combined thickness of the Alluvium and Organic-rich Alluvium (units 2a & 2b) (Figure 6).

It is important to note that how effectively deposit modelling software portrays the relief features of stratigraphic contacts or the thickness of sediment bodies depends on the number of data points (boreholes/test pits) per unit area, and the extent to which these points are evenly distributed across the area of interest. The portrayal is also affected by the significance assigned to these data points, in terms of the extent of the area around the point to which the data are deemed to apply. This can be predetermined for each data set, and in the present case the value chosen for each data point (borehole) is equivalent to a 5m radius for each model. Reliability is affected by the quality of the stratigraphic records, which in turn are affected by the nature of the sediments and/or their post-depositional disturbance during previous stages of land-use on the site. Finally, because of the 'smoothing' effect of the modelling procedure, the modelled levels of stratigraphic contacts may differ slightly from the levels recorded in borehole logs.

4. RESULTS & INTERPRETATION OF THE GEOARCHAEOLOGICAL INVESTIGATIONS

The investigations identified the presence of three major lithostratigraphic units across the site: (1) Top Soil which is present in all records, (2) Alluvium which is present in a very small number of sequences, and (3) Bedrock which is also present in all records. Because of the uniformity of the sequence, the composition of these lithostratigraphic units is described in Table 1, and their outcrop elevations are summarised in Table 2. Borehole transects are provided in Figures 4 (north-west to south-east transect 1) & 4 (north to south transect 2). The thickness of the Alluvium is modelled in Figure 6.

4.1 Bedrock

The basal lithostratigraphic unit (Unit 3) recorded in all boreholes is the West Melbury Marly Chalk, and this is divided into two sub-units. Lowermost unit 3b was described as light grey to grey consolidated bedrock. Unit 3b by contrast is the weathered bedrock surface, which is paler brown in colour and contains frequent oxidised rootlet clasts. The weathered material generally represents the top 1.0 to 1.6m of the bedrock, the surface of which is generally above 2.3m OD in the Area 2 boreholes (T1/BH14 to T1/BH26), and the boreholes from the eastern edge of Area 1 (T2/BH09 to T2/BH14). It slopes very gently downwards to <2.0m OD in a north-westerly and southerly direction towards the Weirs channel. No significant variations in the topography of the weathered bedrock surface potentially indicative of deep palaeochannel(s) were identified.

It is highlighted however, that the surface of the weathered bedrock is located very close to the surface, often within 0.3m. Since the current land use of the site is arable farming, and that both drainage and ploughing presumably takes place on a regular basis, it is likely that this has had an impact on the topography and thickness of the below ground deposits.

4.2 Alluvium

Thin deposits of silty clay inorganic alluvium with traces of gravel and vertical root channels were identified in four sequences: T1/BH01 (0.48m thick), T1/BH12 (0.50m thick), T1/BH15 (0.24m thick) and T2/BH10 (0.04m thick). In two of these sequences this overlay a dark brown organic-rich highly humified alluvium; in T1/BH01 this measured 0.14m in thickness, and in T1/BH15 it measured 0.04m in thickness.

These alluvial units are therefore both very thin and very sporadic. As above, it is possible that these deposits may have been more widespread but have subsequently been truncated by drainage and farming.

It is noted however, that three of the borehole sequences containing alluvium are located towards the centre of the site at the interface between Areas 1 and 2 (see Figure 6). It is possible therefore that they may represent the infill of former minor depressions in the weathered bedrock surface in these locations, which may or may not have been a former palaeochannel.

4.3 Top Soil

Top Soil of sandy silt with modern plant remains, roots and isolated gravel clasts represent the uppermost unit of the sequence. This is recorded in all boreholes and is generally around 0.3m thick.

5. CONCLUSIONS AND RECOMMENDATIONS

A programme of geoarchaeological field investigations was undertaken on Land North-West of Electricity Substation, Weirs Drove, Burwell, Cambridgeshire in order to clarify the sedimentary sequences below the site, establish any evidence for former palaeochannels traversing the site and make recommendations for any further work (if necessary).

The results of the investigation have revealed the surface of the Bedrock Chalk above 2.3m OD in the Area 2 boreholes, and those from the eastern edge of Area 1. From there it slopes very gently downwards to <2.0m OD in a north-westerly and southerly direction across Area 2. The Bedrock is overlain directly by Top Soil in forty-one of the forty-five boreholes. In the remaining four boreholes, the Bedrock and Top Soil are separated by thin (<0.5m) deposits of inorganic and organic alluvium.

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Table 1. Summary of the units identified in the boreholes from the Burwell site.

Lithostratigraphic Unit	Description	Interpretation
1	10YR 4/2, Ag3 Ga1 Dg+ Sh+; Dark greyish brown sandy silt containing modern roots and isolated gravel clasts.	TOP SOIL
2a	10YR 4/1, As3 Ag1 Gg+ Dg+, Grey silty gravelly clay with vertical root inclusions.	ALLUVIUM
2b	10YR 3/1, Ag3 Sh1 Dg+, Dark brown organic-rich silt containing highly humified organic remains.	ORGANIC-RICH ALLUVIUM
3a	2.5Y 7/3; Pale brown mottled and weathered <i>cf.</i> chalk, containing oxidised rootlet casts.	WEATHERED BEDROCK
3b	5Y 7/2 to 10YR 5/1; Light grey to grey consolidated bedrock, <i>cf.</i> chalk.	BEDROCK

Table 2: Summary of the borehole records from the Burwell site. Depths listed represent the upper outcrop depth of each unit in the boreholes

Borehole	Easting	Northing	Elevation (m OD)	Total depth (m)	Top of Unit 1: Topsoil (m bgl)	Top of Unit 2a: cf. Alluvium (m bgl)	Top of Unit 2b: cf. Organic-rich alluvium (m bgl)	Top of Unit 3a: Weathered bedrock (m bgl)	Top of Unit 3b: Bedrock (m bgl)	Notes
T1/BH01	558089.654	267048.193	2.287	2.00	0.00	0.10	0.58	0.72	1.70	0.00 to 1.00 m retained
T1/BH02	558093.993	267045.105	2.442	3.00	0.00			0.30	1.67	
T1/BH03	558098.564	267042.020	2.432	3.00	0.00			0.23	1.85	
T1/BH04	558102.972	267039.036	2.449	1.00	0.00			0.27		
T1/BH05	558107.352	267036.069	2.336	3.00	0.00			0.21	1.85	
T1/BH06	558111.731	267033.036	2.367	3.00	0.00			0.26	1.35	
T1/BH07	558115.978	267030.177	2.363	3.00	0.00			0.30	1.41	
T1/BH08	558120.351	267027.049	2.341	3.00	0.00			0.26	1.45	
T1/BH09	558124.448	267024.227	2.393	3.00	0.00			0.33	1.51	
T1/BH10	558128.811	267021.661	2.403	3.00	0.00			0.28	1.32	
T1/BH11	558133.127	267018.447	2.508	3.00	0.00			0.31	1.92	
T1/BH12	558137.530	267015.574	2.630	3.00	0.00	0.26		0.76	1.64	
T1/BH13	558140.780	267013.425	2.684	3.00	0.00			0.24	1.82	
T1/BH14	558151.868	267006.169	2.802	3.00	0.00			0.27	1.82	
T1/BH15	558156.322	267003.214	2.777	3.00	0.00	0.33	0.57	0.61	1.85	0.00 to 2.00 m retained
T1/BH16	558160.786	267000.317	2.829	3.00	0.00			0.30	1.50	
T1/BH17	558165.220	266997.426	2.836	3.00	0.00			0.37	1.47	
T1/BH18	558169.515	266994.353	2.877	3.00	0.00			0.30	1.45	
T1/BH19	558174.179	266991.463	2.906	3.00	0.00			0.25	1.43	
T1/BH20	558178.559	266988.421	2.874	3.00	0.00			0.25	1.45	
T1/BH21	558183.054	266985.348	2.809	3.00	0.00			0.36	1.50	
T1/BH22	558187.676	266982.152	2.795	3.00	0.00			0.29	1.55	
T1/BH23	558192.234	266979.066	2.782	3.00	0.00			0.36	1.60	
T1/BH24	558196.712	266976.001	2.756	3.00	0.00			0.29	1.55	
T1/BH25	558201.255	266972.939	2.749	3.00	0.00			0.23	1.58	
T1/BH26	558206.967	266968.940	2.726	2.00	0.00			0.40	1.60	
T2/BH01	558138.555	267056.210	2.337	2.00	0.00			0.34	1.65	
T2/BH02	558138.135	267050.807	2.455	3.00	0.00			0.38	1.70	
T2/BH03	558137.691	267045.223	2.486	3.00	0.00			0.34	1.47	
T2/BH04	558137.263	267039.787	2.471	3.00	0.00			0.37	1.72	
T2/BH05	558136.772	267034.393	2.448	3.00	0.00			0.34	1.20	

T2/BH06	558136.330	267029.236	2.458	2.00	0.00			0.25	1.78	
T2/BH07	558135.945	267023.992	2.442	3.00	0.00			0.34	1.52	
T2/BH08	558135.381	267019.120	2.527	3.00	0.00			0.26	2.10	
T2/BH09	558135.198	267013.723	2.625	2.00	0.00			0.29		
T2/BH10	558134.612	267008.263	2.636	2.00	0.00	0.29		0.33		
T2/BH11	558134.207	267003.315	2.644	3.00	0.00			0.35	1.71	
T2/BH12	558133.766	266997.547	2.650	3.00	0.00			0.29	1.22	
T2/BH13	558133.272	266992.319	2.673	2.00	0.00			0.34		
T2/BH14	558132.879	266986.991	2.633	3.00	0.00			0.28	1.74	
T2/BH15	558132.253	266981.730	2.614	3.00	0.00			0.32	1.56	
T2/BH16	558131.842	266976.700	2.565	3.00	0.00			0.33	1.38	
T2/BH17	558131.469	266971.819	2.558	3.00	0.00			0.30	1.30	
T2/BH18	558130.989	266967.234	2.462	2.00	0.00			0.33	1.60	
T2/BH19	558130.549	266963.773	2.485	2.00	0.00			0.30	1.40	

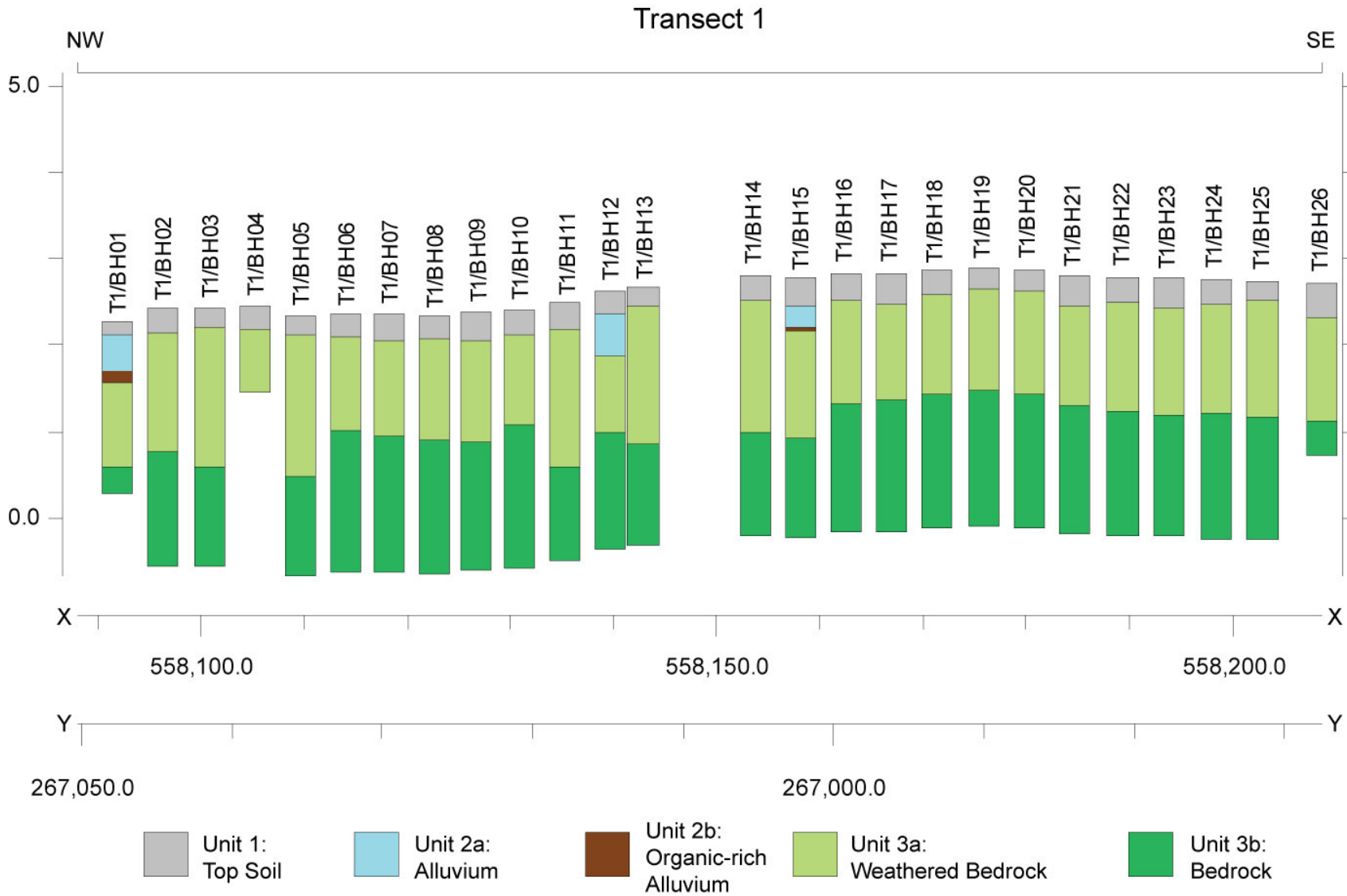


Figure 3: Lithostratigraphy of Transect 1, Burwell

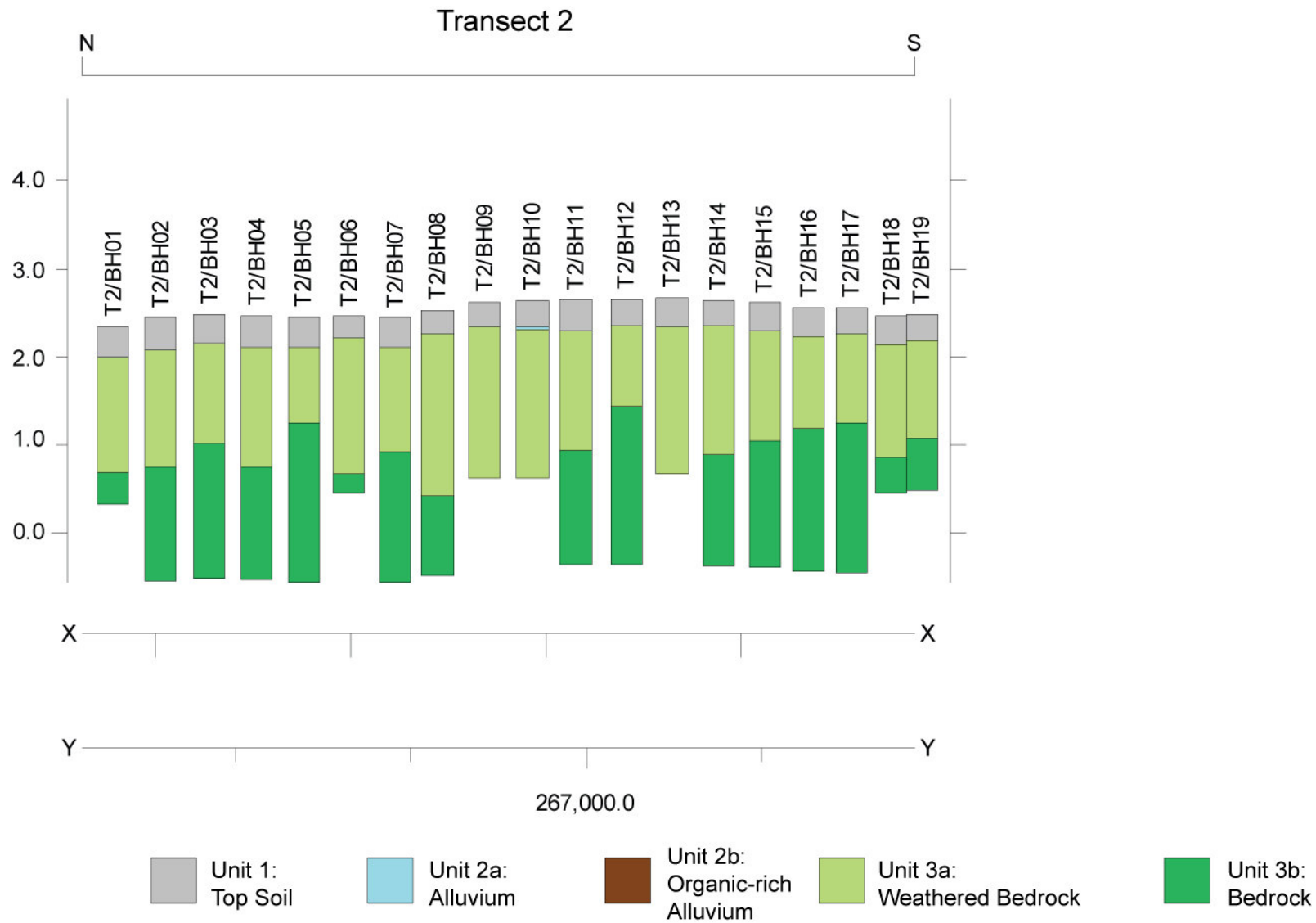


Figure 4: Lithostratigraphy of Transect 2, Burwell

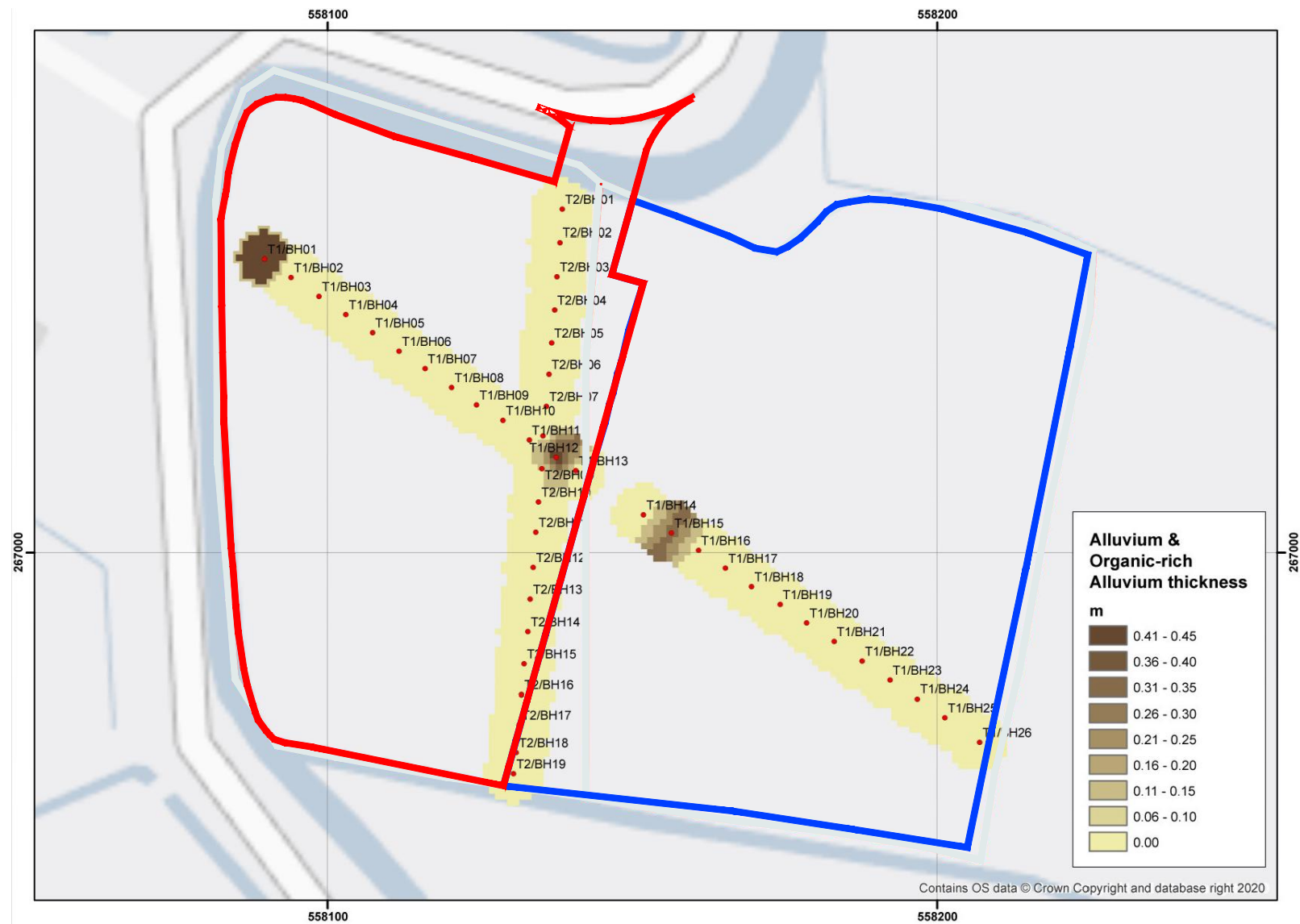


Figure 5: Thickness of the Alluvium & Organic-rich Alluvium identified across the Burwell site

6. REFERENCES

ADAS (2020) Written Scheme of Investigation for Geoarchaeological Monitoring, Burwell, Cambridgeshire. ADAS Unpublished Report, July 2020.

Deegan, A. (2020) Air Photo and LiDAR Mapping and Interpretation Land North-West of Electricity Substation, Weirs Drove, Burwell, Cambridgeshire. Unpublished Draft Report, August 2020.

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Schofield, T. (2019) *ECB 5527, Land South of 76 Low Road, Burwell, Cambridgeshire: Archaeological Evaluation, Geophysical and Topographic Surveys*. Cotswold Archaeology report no. CMBLOW001_1 (unpublished).

17 APPENDIX 6: OASIS FORM

OASIS ID: preconst1-398487

Project details

Project name Weirs Drove, Burwell Evaluation

Short description of the project An archaeological evaluation, comprising aerial photograph transcription and reassessment, geoarchaeological borehole survey and trial trenching was carried out by Pre-Construct Archaeology at Weirs Drove, Burwell, Cambridgeshire. The investigations identified a paleochannel, shown in the air photographic assessment. Upon excavation this paleochannel was extremely sterile, suggesting it was not of archaeological date. The evaluation uncovered small ditches in the south of the site (Trenches 8 and 9). The ditches did not produce datable finds assemblage, their size and form suggest they functioned to drain the area. Two further ditches within Trench 2, in the north-west of the site were similar in size to those in Trenches 8 and 9, but were parallel to each other, possibly suggesting they represent a droveway. These features were also undated. The east of the site contained a small number of natural features. Trench 1, in the north-west corner of the site was the only trench which contained any deposits apart from topsoil, which comprised a desiccated peaty layer, probably associated with Weirs Drove itself.

Project dates Start: 26-10-2020 End: 29-10-2020

Previous/future work No / Not known

Any associated project reference 17/02205/FUL - Planning Application No. codes

Type of project Field evaluation

Site status None

Current Land use Cultivated Land 2 - Operations to a depth less than 0.25m

Monument type DITCH Uncertain

Monument type PIT Uncertain

Monument type PALEOCHANNEL Uncertain

Monument type NATURAL FEATURE Uncertain

Methods & "Aerial Photography - interpretation", "Augering", "Sample

techniques Trenches", "Targeted Trenches"

Development type Electricity battery storage facility

Prompt Planning condition

Position in the planning process After full determination (eg. As a condition)

Project location

Country England

Site location CAMBRIDGESHIRE EAST CAMBRIDGESHIRE BURWELL Land north-west of electricity substation, Weirs Drove, Burwell, Cambridgeshire

Postcode CB250BP

Study area 1.35 Hectares

Site coordinates TL 5812 6702 52.278123685129 0.318033915047 52 16 41 N 000 19 04 E Point

Height OD / Depth Min: 0.37m Max: 1.2m

Project creators

Name of Organisation Pre-Construct Archaeology Limited

Project brief originator Cambridge HET

Project design originator Tom Woolhouse

Project director/manager Tom Woolhouse

Type of sponsor/funding body Commercial Developer

Name of sponsor/funding body Cambridge Power Limited

Project archives

Physical Archive Exists? No

Digital Archive
Exists? No

Paper Archive
recipient CCC County Archaeology Store

Paper Media
available "Aerial Photograph","Context sheet","Photograph","Report"

Project bibliography
1

Publication type Grey literature (unpublished document/manuscript)

Title Land North-West of Electricity Substation, Weirs Drove, Burwell,
Cambridgeshire: Archaeological Evaluation

Author(s)/Editor(s) Morgan, G.

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