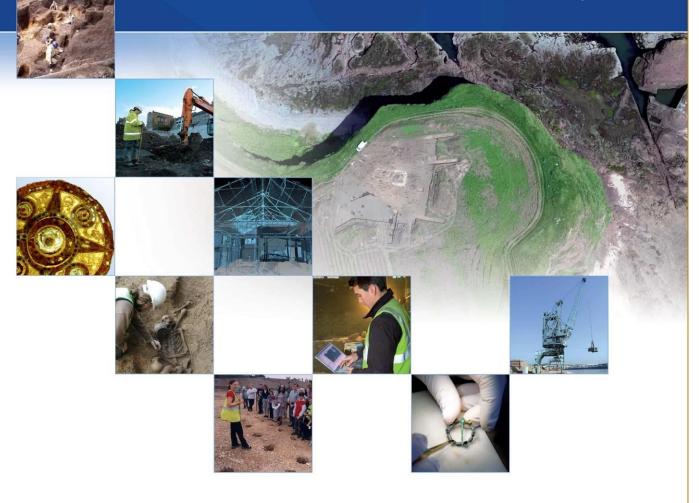
Glöyn byw |Butterfly Solar Farm, Land to the North of the B5426, Wrexham

Archaeological Trial Trench Evaluation Written Scheme of Investigation

National Grid Reference Number: SJ 33700 45600

AOC Project No: 53255

Date: August 2025





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Archaeological Trial Trench Evaluation Written Scheme of Investigation

On Behalf of: Axis

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National Grid References (NGR): SJ 33700 45600 (centre)

AOC Project No: 53255

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1 Introduction

- 1.1 This Written Scheme of Investigation (WSI) has been prepared by AOC Archaeology Group on behalf of AXIS PED Ltd ('the client'). It details the methodology for undertaking archaeological trial trench evaluation at the proposed site of the Glöyn Byw | Butterfly Solar Farm on land to the north of the B5426, near Wrexham. This document has been produced with reference to both desk-based research and geophysical survey data, produced by AOC Archaeology, within the Historic Environment Chapter of the Environmental Statement supporting a planning application for the proposed development (AOC 2025b).
- 1.2 The archaeological work will be undertaken in accordance with this WSI and the requirements of nationally recognised archaeological guidance, including the professional standards issued by the Chartered Institute for Archaeologists (CIfA) (specifically the Standard for Archaeological Excavation (ClfA 2023a) and the Universal guidance for archaeological excavation (ClfA 2023b)).
- 1.3 The programme of works outlined here is in keeping with the policies outlined in current planning policy and guidance which are underpinned by a statutory framework provided by the Historic Environment (Wales) Act 2023, the Town and County Planning Act 1990 and Planning Wales Act 2015. The implication of these Acts with regard to government planning policy are described within Chapter 6 (Distinctive and Natural Places – The Historic Environment) of the Planning Policy Wales (PPW) (Welsh Government 2024, 129-134) and in Technical Advice Note (TAN) 24: The Historic Environment (Welsh Government 2017). The scope of the evaluation will be agreed, prior to commencing the works, with the Planning Archaeologist, Heneb: Clwyd-Powys Archaeology.

2 **Site Description**

- 2.1 The proposed development site is located to the north of the B5426, c. 2.4 km to the south of Wrexham within the administration of Wrexham County Borough Council ('the Council' or 'WCBC'), (hereafter the 'Site' – Figure 1).
- 2.2 The Site covers an area of c.130 hectares (ha). The proposed development area is divided into three principal areas referred to as the Western, Central and Eastern Array Areas which will be referred to as the 'WAA', 'CAA' and 'EAA' respectively.
- 2.3 The WAA covers approximately 21ha and comprises agricultural fields bound by hedgerows, some of which contain mature trees. The WAA is located to the immediate east of the A483, approximately 1km to the east of Johnstown.
- 2.4 The CAA covers approximately 66ha and comprises agricultural fields bound by hedgerows, some of which contain mature trees. The CAA is accessible from Marchweil Hall Road which runs centrally across the area, which is divided into four distinct parcels, two to the west of Marchwiel Hall Road and two to the east. Narrow areas of woodland, designated as Ancient Woodland, are located to the east of the area which follow minor watercourses.
- 2.5 The EAA covers approximately 43ha and comprises agricultural fields bound by hedgerows, some of which contain mature trees. An area of woodland, approximately 30m in width and 350m in length, is located centrally within the EAA, this woodland is not designated as Ancient Woodland. Two blocks of Ancient Woodland are found adjacent to the boundary of the EAA, forming part of land associated with Gerwyn Hall. Kiln Lane, a minor road, forms the northern boundary of the EAA.
- 2.6 The British Geology Survey (BGS) records the bedrock geology beneath the WAA as being a mudstone on the Etruria Formation, a sedimentary bedrock which formed between 319 and 308 million

years ago during the Carboniferous period. The bedrock geology recorded beneath the CAA is a mix of mudstones, sandstones and conglomerates of the Salop Formation, a sedimentary bedrock which formed between 309.5 and 272.3 million years ago during the Carboniferous and Permian periods. The bedrock geology recorded beneath the EAA is a sandstone of the Kinnerton Sandstone Formation, a sedimentary bedrock which formed between 252.2 and 247.1 million years ago during the Triassic period (BGS, 2025).

2.7 The superficial deposits recorded by the BGS across the Site include Diamicton Devensian Till, a sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period, beneath the WAA, CAA and northern half of the EAA, with the southern parts of the EAA being recorded as sand and gravel river terrace deposits which formed between 2.588 million years ago and the present during the Quaternary period (BGS 2025).

3 Archaeological and Historical Background

3.1 The archaeological background below is drawn from the desk-based assessment of the site undertaken in 2025 (AOC 2025b). The assessment covered all known heritage assets within 1km of the site boundary (the 'study area') in order to help identify the potential for direct impacts upon known heritage assets, and in order to predict whether any similar hitherto unknown archaeological remains are likely to survive within the Site and thus be impacted by the Proposed Development.

Prehistoric

- 3.2 In Wales the Palaeolithic and Mesolithic periods covered a long-time span, which included the first record of early Neanderthals at Pontnewydd Cave and the first appearance of Anatomically Modern Humans, concluding with the almost complete demise of hunter-gatherer-fisher communities in the early Holocene. Throughout this period the human presence was influenced by the glacial-interglacial cycle and the accompanying climatic and environmental changes (Gibson, 2003). The effects of the last glaciation have apparently removed much evidence for an earlier human presence in all but a few exceptional sites (Gibson, 2003). The closest known early occupation evidence comes from Porth-y-Waen in Shropshire from which a barbed antler spearpoint dated to 11,390 +_BP is considered to represent casual hunting loss (Aldhouse-Green 2000, 22). The paucity of early prehistoric activity in the area around the Site is reflected in the HER as there are no assets dating to the Palaeolithic and Mesolithic periods.
- 3.3 The earliest prehistoric activity dates to the Neolithic period and is represented by a stone hand axe, located c. 92m to the southwest of the WAA. The hand axe measures 16cm in length and 6cm wide and originated from the Penzance area in Cornwall. Generally, neolithic activity in this region of Wales is represented by isolated finds of stone axe heads (see Lynch 2000, 47) and is poor in comparison to other areas of the country in terms of Neolithic material culture (Gibson, 2003).
- 3.4 The Bronze Age period is well represented within the HER, with 11 Scheduled Monuments dating to this period within the 5km of the Site. These include nine round barrows, and two round cairns. Burial and ceremonial sites are arguably the most archaeologically visible remains of this period within the surrounding area of the Site. Barrows and cairns in particular litter the upland areas while ring-ditches frequently punctuate aerial photographs of lowland environments (Gibson, 2003) such as Croes Foel ring ditches, located c. 560m northwest of the WAA, and Royton Ring-ditch, located c. 567m southeast of the EAA.
- 3.5 The HER also records several enclosures identified as cropmarks in the Royston area, located c.715m southeast of the EAA, and a findspot, located c. 650m southwest of the WAA, comprising a blade fragment of a late Bronze Age small, socketed axe.

- 3.6 Geophysical survey within the EAA revealed a possible ring ditch with a diameter of around 15m, suggesting it is funerary in nature rather than settlement. The feature remains undated but is size and form are consistent with ring ditches elsewhere in the study area (see above). A range of linear and curvilinear anomalies of uncertain date and form that are also possibly of archaeological interest were found in close association with the possible ring ditch.
- 3.7 Overall, there is judged to be a Medium potential for previously undiscovered prehistoric assets to be found within the Site.

Roman

- 3.8 The Site sits within an area characterised by a lack of obvious signs of Romanity in its settlement pattern, however, military remains are all too obvious, testifying to a seemingly protracted presence (Davies, 2003). The absence of settlement is also represented within the HER with only 11 assets being attributed to this period, all comprising findspots.
- 3.9 Given there are no Roman heritage assets recorded within the Site itself and no Roman assets other than findspots located within the 1km Study Area, there is considered to be a Low potential for previously undiscovered Roman archaeological remains within the Site.

Early Medieval to Medieval

- 3.10 The history of east and northeast Wales has inevitably been influenced by a geographical position straddling the English lowlands (Cheshire, Shropshire and Herefordshire) and the uplands of Wales. This natural divide is clearly relevant to early medieval activity in the area and is integral to our understanding of the transition from Roman imperial control to British regional kingdoms and also to the evolving relationship of Anglo-Saxon and British political groups from the 7th century onwards. That later phase of political and economic change ultimately leading to the creation Offa's Dyke (and Wat's Dyke which together form the largest archaeological monument complex in Britain (Hill 2000). Offa's Dyke is widely considered to be an eighth-century work associated with Offa, King of Mercia (AD 757-796) (Hill and Worthington 2003). The Dyke was carefully placed in the landscape with the aim of maximising its visibility when seen from the west and realising its surveillance potential from the east (Ray and Bapty 2016).
- 3.11 The line of Wat's Dyke crosses the Site, running north-south across the connection route east of the WAA. Sections of this monument are Scheduled, including the Section extending from Middle Sontley to Black Brook Bridge, which extends c. 4m into the Site boundary on the northern side of the connection route. Wat's Dyke is considered to be an 8th-century boundary marker, which possibly separated the Kingdom of Mercia and the kingdoms of Wales, and varied survival along its length potentially reflects differences in preservation and original scale of construction (Brown, 2024).
- 3.12 The line of Offa's Dyke also crosses the Site, running north-south across the western end of the connection route. This earthwork is also considered to be early medieval and survives as a substantial bank and ditch along much of its length. No surface remains of the dyke are recorded within the Site itself, although the Pentre-Bychan Hall Section, extending 540m south from Bron-Wylfa is Scheduled and extends to within c. 9m of the Site boundary (Brown, 2024).
- 3.13 Geophysical survey within land parcel W2 within the WAA revealed an oval enclosure with internal features on a local high spur overlooking Black Brook and the course of Wat's Dyke to the east of the survey area. North and west of this probable enclosure linear anomalies were identified which are consistent with boundaries or field systems of undetermined date. Their relationship to the enclosure is unclear and ultimately these features remain undated but the clear visible relationship with Wat's Dyke raises the possibility that they are of medieval origin.

- 3.14 The pattern of rural settlement around the Site is primarily characterised by dispersed farmsteads with few nucleated medieval settlements; villages tend to mostly be post-medieval and linear in form (Dyfed Archaeology 2004). Evidence of the remains of former medieval and post-medieval villages which were later abandoned are relatively common throughout Wales and are collectively known as Deserted Rural Settlements (DRS) (Roberts 2006). Most of these were abandoned following enclosure in the later post-medieval period, although some survived into the 20th century (ibid.). Whilst there are no DRS's recorded within the Site, there is a possible DRS site recorded through aerial photography located c.380m north of the CAA.
- 3.15 Further evidence of Medieval settlement is most clearly represented by a notable concentration of moated sites. These include the Scheduled Monuments of Cadwgan Hall Mound (DE131), located c. 930m northwest of the WAA, comprising the remains of a motte and ditch, Erddig Mound & Bailey Castle (DE017), located c.2.1km north of the CAA, comprising the remains of an earthen motte and associated bailey occupying the plateau of a glacial spur above the floor of the Clywedog Valley, and a moated Site near Groesfoel Farm (DE193), located c.580m northwest of the WAA, comprising the remains of a well-preserved medieval moated homestead, lying on fairly low land.
- 3.16 It has long been recognised that the region around the Site supports an impressive and diverse range of agrarian landscapes (Silvester, 2003). Such landscapes are underpinned by successive episodes of land use, the creation and subsequent modification of fields, of enclosures, of boundaries, of tracks, of watercourses and of buildings. Many of these landscapes are of, or at least have their origins in, the medieval era (Silvester, 2003).
- 3.17 Given that the early medieval features of Wat's Dyke and Offa's Dyke both run through the Site across the connection route east of the WAA, and across the western end of the connection route, respectively there is considered to be a High potential for previously undiscovered early medieval archaeological remains within the Site, and particularly within these areas.
- 3.18 Two possible clay extraction pits of potential medieval origin recorded within the Site, located within the EAA. These features are also shown on historical maps and given 19th-century OS maps show similar features within the CAA and WAA, there is considered a High potential for previously undiscovered medieval archaeological remains within the Site.

Post-medieval

- There is a considerable post-medieval presence within the Site and 1km Study Area. A large portion 3.19 of these assets are related to the agricultural use of the landscape. The post-medieval period in Britain in general saw rapid changes in the national socio-economic climate, particularly relating to the shift from an agricultural economy to an industrial one in the 18th and 19th centuries, and this is also represented in the HER with a number of assets relating to industries such as brick working and mining, as evidenced on the maps of the Site created during the post-medieval period.
- 3.20 Early pre-Ordnance Survey maps of the Site tend to be schematic and lacking in detail, although they do give some idea of the nature of settlement in the surrounding area. An extract from Blaeu's 1644 map shows the approximate location of the Site, Wrexham is shown as an enclosed settlement with smaller satellite settlements to the south such as 'Bers', now Bersham located to the northwest of the Site, and 'Markwiell', now Marchwiel, located to the northeast of the Site, both of which are located along the river Dee which is shown as a prominent feature in the landscape. Another prominent feature is Offa's Dyke which is depicted as a large earthwork towards the western extent of the Site. The map also shows wooded areas further to the south and to the north of Wrexham, the latter named 'Common Wood, and mountainous terrain is evident to the west of the Site. Later maps produced between the late 17th and early 19th centuries show a similar level of detail of the Site and surrounding landscape.

- 3.21 The Tithe map of 1840 and its accompanying records (National Archive: IR 29/50/1, IR 29/49/86, and IR 29/49/39) indicates that the WAA was largely occupied by mixed agricultural land, composed of arable and pastureland in the mid-19th century. The cable route which runs across this area predominantly covers the line of the road network still in use today, except towards the southwestern corner of the Site where what is now High St and Bangor Road are yet to be connected. The CAA covers 25 land parcels which is also documented as mixed arable and pastureland. The extent of the CAA avoids historically depicted buildings to the north of this area, two of which are labelled as 'Street y bwch' and 'Groves', however within the Site boundary to the south of the area a now demolished cottage and garden is depicted on the Tithe map. The EAA is illustrated as enclosing the southern extent of 'Gerwenfawr' which appears to be a substantial, courtyard farm associated with large ponds. The EAA is also recorded as mixed agricultural land across 11 field parcels, including two plantations located either side of a large pond feature.
- 3.22 The Ordnance Survey (OS) maps of the late 19th century show the Site and surrounding landscape in more detail, although the 1879 OS maps show little change across the Site itself. Wat's Dyke is also clearly marked on a roughly north-south alignment and located c.230m to the east of the WAA, marked as 'Wat's Dyke, the remains of'.
- 3.23 The 1879 OS map shows little change to the field parcels which cover the CAA, except one field boundary which has been removed from what was three parcels located on land adjacent to the 'The Groves' farm buildings to the northwest of the area. Another farm building is now depicted just beyond the Site boundary to the south of the CAA which is labelled 'Plas Fron' and an area of plantation located centrally within the CAA is also now shown to extend partially within the development area. Across the CAA 15 pond features are also depicted. The ponds appear to be abundant on areas of clay soils, and where they survive, are now valuable assets for wildlife (WLCG, 2007). The 1879 OS map shows little change within the EAA except for the removal of a field boundary towards the north extent of the area and the addition of a pond feature, located towards the northwest extent of the area, and two paths which meander across the Site on a roughly northwest-southeast orientation are located towards the west and eastern extremities of the EAA.
- 3.24 The area around the Site is defined by its fieldscapes, and dispersed farms of medieval and later origin which are set within an irregular field system with ancient and more recent hedged boundaries. The area is dominated by a larger number of small farm complexes and minor country houses of late medieval or post medieval date (LANDMAP 2017).
- 3.25 Whilst the maps and HER data primarily show the Site as being agricultural in nature, settlement activity within the 1km Study Area grew from the 19th and 20th century mining and industry, particularly to the west of the Site around the villages of Johnstown, Rhosllanerchrugog, and Rhostyllen. This is represented in the HER in the form of several documented several colliery sites which necessitated the development of a supporting railway networks. These rail networks included the North Wales Mineral Extension Railway (opened in 1846), which is orientated roughly north south and runs through the centre of the WAA, which was built to serve industry at Ruabon and Acrefair.
- 3.26 Overall, the historic maps and HER data show that the Site remained in agricultural use throughout the post-medieval period. Therefore, whilst there is a High potential for previously unrecorded postmedieval archaeology to be present within the Site, it is most likely to be associated with the cottage and garden identified within the CAA, or agricultural in nature, such as pre-existing field boundaries, pond features or ridge and furrow, and therefore of Low significance.

Modern

- 3.27 The maps of the 20th century show very little change within the Site. The 1914 OS map shows two field boundaries have been removed from the north and south extents of the WAA, and the pond feature identified on the 1879 OS map has now been removed. Within the CAA one field boundary has been removed from the southwest extent of the area, and one pond feature has been removed from the north extent. The cottage and garden identified on the 1840 Tithe map has now also been demolished. The EAA is almost unchanged from the 1879 OS map, although the plantation areas located to the west are now labelled 'The Belt', and an area associated with courtyard farm Gerwyn-Fawr, to the immediate northeast of the Site, is now labelled 'Pond Plantation'.
- 3.28 No significant changes in the landscape took place until 1987 when the A483 was officially opened, which now defines the west extent of the WAA. By the late 20th century most of the ponds identified across the CAA have been removed, as well as four field boundaries to the northern and southern extents of this area. The only identifiable changes within the EAA are the removal of three field boundaries, with four mature trees seemingly marking the location of one of the boundaries located to the southwest extent of the area, and two footpaths identified on previous maps have also been removed.
- 3.29 Overall, the paucity of modern heritage assets in the Site suggests that there is a Low potential for previously undiscovered modern remains to be present within the Site. A crash site is recorded within the EAA, although archaeological remains associated with the loss of this aircraft are not confirmed as present at this location and no evidence was visible during the walkover survey. However, remains may be present in the vicinity. The remains of this aircraft are designated as a Controlled Site under the Protection of Military Remains Act 1986. The Act makes it an offence to interfere with the wreckage of any crashed, sunken or stranded military aircraft without a licence.

Geophysical Survey

- 3.30 AOC Archaeology Group undertook a geophysical survey of the proposed development site between 05/07/2024 and 27/11/2024 (AOC 2025a). The presence of crops of varying stages of growth within the survey period as well as wet ground conditions resulted in the use of three different data collection methods being employed for this survey. Fluxgate gradiometer survey data was collected using three different systems: 69.84ha collected using a SENSYS cart system, 50.84ha collected with a Bartington 601-2 handheld system, and 15.06ha collected using a Bartington hand-pushed cart system.
- 3.31 The geology of the survey area produced strong anomalies in response to human activity, as evidenced by the strong anomalies related to ploughing in the western part of the survey area. This tendency combined with noise related to green waste in the central and eastern parts of the survey area has reduced confidence in the interpretation of the data as it is likely that weaker anomalies have been masked by these stronger enhancements. However, as the survey has successfully identified anomalies of archaeological interest in all three survey blocks, as well as known features attested on historic maps, it is unlikely that substantial archaeological remains have gone undetected by the surveys.
- 3.32 In the western block, a probable oval enclosure of roughly 95m by 75m has been identified on a spur of higher ground overlooking Black Brook and the course of Wat's Dyke, which pass this survey block to the east. Anomalies interpreted as possible field systems or further enclosures have been identified to the north and west of this feature. There are also potential internal features within the hilltop enclosure.

- 3.33 In the central survey area, there are isolated linear anomalies interpreted as possible portions of boundaries or enclosures of uncertain date.
- 3.34 In the eastern survey block, a possible ring ditch has been identified with a diameter of around 15m, suggesting it is funerary in nature rather than settlement. There are linear and curvilinear anomalies of uncertain date and form that are also possibly of archaeological interest in close association with this anomaly.
- 3.35 Historical features such as former boundaries and tracks have also been identified in all three survey blocks, and in the central and eastern areas there are a high number of former ponds, likely to be related to marl pits, throughout the survey area.
- 3.36 Ridge and furrow cultivation marks are also present in all three areas, but especially prominent in the western block; this is likely to be a result of differential survival due to differences in subsequent land use, rather than a reflection of the actual distribution of medieval arable fields.
- 3.37 The conclusions drawn from the 2024 geophysical survey are a subjective assessment of collected datasets. The success of a geophysical survey in identifying archaeological remains can be heavily influenced by several factors, including geology, seasonality, field conditions and the properties of the features being detected. It is important to note that the geophysical interpretation may only reveal certain archaeological features and not produce a complete plan of all of the archaeological remains within a survey area.

4 **Scope of Works**

- 4.1 It is proposed to excavate 205 evaluation trenches across the Site covering a total area of 20,260m² (a 2% sample of the total development area). The trenching plan will be split across the three distinct areas of the Site with Trenches 1 to 34 in the WAA (covering an area of 3,240m²), Trenches 35 to 82 and 84 to 136 in the CAA (covering an area of 10,020m²) and Trenches 137 to 194, 199 to 205 and 210 to 214 in the EAA (covering an area of 7,000m²). Sixteen previously proposed trenches (Trench Numbers 83, 195 to 198, 206 to 209 and 215 to 221) have been removed from the trench plan due to design and layout changes to the Scheme (i.e. that they would no longer be within the redline boundary or a proposed development area).
- 4.2 Details of the proposed trenches are outlined by area in the tables below and illustrated on Figures 2 to 4. These trenches have been positioned to avoid known services (both overhead and below ground, utilising a 10m buffer), to target anomalies identified within the geophysical survey and to provide additional coverage where targeted trenching would not result in a 2% sample of the proposed development area.

Western Array Area Proposed Trenches

Trench	Size	Justification	Field
Number	(m^2)		Number
1	100	Investigate possible archaeology and unclear geophysical anomalies	W1
2	60	Investigate possible archaeology geophysical anomalies	W1
3	100	Investigate possible archaeology geophysical anomalies	W1
4	100	Investigate possible archaeology and unclear geophysical anomalies	W1
5	100	Investigate area with no geophysical anomalies in eastern part of field	W1
6	100	Investigate probable and possible archaeology geophysical anomalies	W2
7	100	Investigate probable and possible archaeology geophysical anomalies	W2

8	100	Investigate probable and possible archaeology geophysical anomalies	W2
9	100	Investigate probable and possible archaeology geophysical anomalies	W2
10	100	Investigate unclear geophysical anomalies	W2
11	100	Investigate probable and possible archaeology geophysical anomalies	W2
12	100	Investigate unclear geophysical anomalies	W2
13	60	Investigate unclear geophysical anomalies	W2
14	100	Investigate unclear geophysical anomalies	W2
15	60	Investigate unsurveyed area (may be scrubland and impossible)	W2
16	100	Investigate possible archaeology geophysical anomalies	W4
17	100	Investigate clear area (contains R+F geophysical anomalies)	W5
18	100	Investigate clear area (contains R+F geophysical anomalies)	W6
19	100	Investigate clear area (contains R+F geophysical anomalies)	W5
20	60	Investigate unclear geophysical anomalies	W5
21	100	Investigate geological geophysical anomalies	W7
22	100	Investigate geological geophysical anomalies	W7
23	100	Investigate unclear/geological geophysical anomalies	W7
24	100	Investigate unclear/geological geophysical anomalies	W7
25	100	Investigate unclear geophysical anomalies	W7
26	100	Investigate possible and unclear archaeology geophysical anomalies	W7
27	100	Investigate unclear/geological geophysical anomalies	W7
28	100	Investigate clear area (contains R+F geophysical anomalies)	W7
29	100	Investigate possible and unclear archaeology geophysical anomalies	W7
30	100	Investigate possible and unclear archaeology geophysical anomalies	W7
31	100	Investigate possible and unclear archaeology geophysical anomalies	W7
32	100	Investigate clear area (contains R+F geophysical anomalies)	W7
33	100	Investigate geological geophysical anomalies	W7
34	100	Investigate clear area (contains R+F geophysical anomalies)	W7

Central Array Area Proposed Trenches

Trench	Size	Justification	Field
Number	(m ²)		Number
35	100	Investigate geological geophysical anomaly	C1
36	60	Investigate unclear geophysical anomaly	C1
37	100	Investigate clear area (contains R+F geophysical anomalies)	C2
38	100	Investigate clear area (contains R+F geophysical anomalies)	C2
39	60	Investigate unclear geophysical anomaly	C1
40	60	Investigate clear area	C2
41	100	Investigate clear area (contains R+F geophysical anomalies)	C3
42	100	Investigate clear area (contains R+F geophysical anomalies)	C3
43	100	Investigate possible and unclear archaeology geophysical anomalies	
44	100	Investigate possible and unclear archaeology geophysical anomalies	
45	100	Investigate clear area (contains R+F geophysical anomalies)	
46	100	Investigate geological geophysical anomalies (and R+F geophysical anomalies)	
47	100	Investigate geological and unclear geophysical anomalies	C3
48	100	Investigate geological geophysical anomaly	
49	100	Investigate historic geophysical anomalies (and R+F geophysical anomalies)	
50	100	Investigate clear area (contains R+F geophysical anomalies)	
51	100	Investigate clear area (contains R+F geophysical anomalies)	

52	100	Investigate clear area (contains R+F geophysical anomalies)	C3	
53	100	Investigate historic geophysical anomalies (and R+F geophysical	C3	
		anomalies)		
54	100	Investigate clear area		
55	100	Investigate possible archaeology geophysical anomalies		
56	100	Investigate possible and unclear archaeology geophysical anomalies	C14	
57	100	Investigate clear area	C14	
58	100	Investigate possible and unclear archaeology geophysical anomalies	C14	
59	100	Investigate possible and unclear archaeology geophysical anomalies	C14	
60	100	Investigate possible and unclear archaeology geophysical anomalies	C14	
61	100	Investigate possible and unclear archaeology geophysical anomalies	C14	
62	100	Investigate possible and unclear archaeology geophysical anomalies	C14	
63	100	Investigate possible and historic archaeology geophysical anomalies	C14	
64	100	Moved from C12 (wildflower meadow proposed). Investigate clear area	C15	
65	100	Investigate possible and historic archaeology geophysical anomalies	C12	
66	100	Investigate possible and unclear archaeology geophysical anomalies	C13	
67	100	Investigate possible and unclear archaeology geophysical anomalies	C13	
68	100	Investigate clear area	C13	
69	100	Investigate unclear geophysical anomalies	C11	
70	100	Investigate clear area	C11	
71	100	Investigate possible and unclear archaeology geophysical anomalies	C16	
72	100	Investigate possible and historic archaeology geophysical anomalies	C16	
73	100	Investigate possible and unclear archaeology geophysical anomalies	C16	
74	100	Investigate possible and unclear archaeology geophysical anomalies	C16	
75	100	Investigate possible and unclear archaeology geophysical anomalies	C15	
76	100	Investigate possible and unclear archaeology geophysical anomalies	C15	
77	100	Investigate possible and historic archaeology geophysical anomalies	C15	
78	100	Investigate possible and unclear archaeology geophysical anomalies	C15	
79	100	Investigate possible and unclear archaeology geophysical anomalies	C15	
80	100	Investigate possible and unclear archaeology geophysical anomalies	C15	
81	100	Investigate possible and unclear archaeology geophysical anomalies	C15	
82	100	Investigate clear area (contains R+F geophysical anomalies)	C15	
83	0	Removed from Scheme as no longer within redline boundary	C12	
84	100	Investigate possible and unclear archaeology geophysical anomalies	C15	
85	100	Investigate possible and unclear archaeology geophysical anomalies	C15	
86	100	Investigate probable archaeology geophysical anomalies	C4	
87	100	Investigate possible and unclear archaeology geophysical anomalies	C4	
88	100	Investigate possible and unclear archaeology geophysical anomalies	C5	
89	100	Investigate possible and unclear archaeology geophysical anomalies	C5	
90	100	Investigate possible and unclear archaeology geophysical anomalies	C5	
91	100	Investigate possible and unclear archaeology geophysical anomalies Investigate possible and historic archaeology geophysical anomalies		
92	100	Investigate possible and instolic archaeology geophysical anomalies		
93	100	Investigate possible and unclear archaeology geophysical anomalies Investigate possible and unclear archaeology geophysical anomalies		
94	100	575 1		
95	100	Investigate possible and unclear archaeology geophysical anomalies	C5	
96	100	Investigate possible and historic archaeology geophysical anomalies	C8	
97	100	Investigate possible and unclear archaeology geophysical anomalies	C6	
98	100	Investigate possible and unclear archaeology geophysical anomalies	C6	
99	100	Investigate possible and unclear archaeology geophysical anomalies	C5	
100	100	Investigate possible and unclear archaeology geophysical anomalies	C8	
100	100	mivestigate possible and unicidal archaeology geophysical anomalies	00	

101	100	Investigate possible and unclear archaeology geophysical anomalies (area of ferrous spiking)	C6
102	100	Investigate possible and unclear archaeology geophysical anomalies (area of ferrous spiking)	C6
103	100	Investigate possible and unclear archaeology geophysical anomalies (area of ferrous spiking)	
104	100	Investigate possible and unclear archaeology geophysical anomalies	C8
105	100	Investigate possible and unclear archaeology geophysical anomalies	C7
106	100	Investigate possible and unclear archaeology geophysical anomalies	C6
107	100	Investigate possible and unclear archaeology geophysical anomalies (area of ferrous spiking)	C6
108	100	Investigate possible and unclear archaeology geophysical anomalies	C8
109	100	Investigate possible and unclear archaeology geophysical anomalies	C7
110	100	Investigate possible and historic archaeology geophysical anomalies	C7
111	100	Investigate possible and unclear archaeology geophysical anomalies (area of ferrous spiking)	C6
112	100	Investigate clear area (contains R+F geophysical anomalies)	C8
113	100	Investigate possible and unclear archaeology geophysical anomalies	C8
114	100	Investigate possible and unclear archaeology geophysical anomalies	C7
115	100	Investigate probable archaeology geophysical anomalies	C9
116	100	Investigate probable archaeology geophysical anomalies	
117	100	Investigate possible and unclear archaeology geophysical anomalies	
118	100	Investigate possible and unclear archaeology geophysical anomalies Co	
119	100	Investigate possible and unclear archaeology geophysical anomalies	C8
120	100	Investigate probable archaeology geophysical anomalies	C4
121	100	Investigate probable archaeology geophysical anomalies	C4
122	100	Investigate probable archaeology geophysical anomalies	C9
123	100	Investigate possible and historic archaeology geophysical anomalies	C9
124	100	Investigate possible and unclear archaeology geophysical anomalies	C9
125	100	Investigate possible and unclear archaeology geophysical anomalies	C9
126	100	Investigate probable archaeology geophysical anomalies	C9
127	100	Investigate probable archaeology geophysical anomalies	C9
128	100	Investigate possible and unclear archaeology geophysical anomalies	C9
129	100	Investigate clear area	C10
130	100	Investigate possible and unclear archaeology geophysical anomalies	C10
131	100	Investigate possible and historic archaeology geophysical anomalies	C10
132	100	Investigate possible and unclear archaeology geophysical anomalies	C10
133	100	Investigate clear area	C10
134	100	Investigate clear area	C10
135	100	Investigate possible and unclear archaeology geophysical anomalies	C10
136	100	Investigate probable archaeology geophysical anomalies	C10

Eastern Array Area Proposed Trenches

Trench	Size	Justification	Field
Number	(m^2)		Number
137	100	Investigate possible and unclear archaeology geophysical anomalies	E2
138	100	Investigate possible and unclear archaeology geophysical anomalies	E2
139	100	Investigate possible and unclear archaeology geophysical anomalies	E2
140	100	Investigate clear area	E2

141	100	Investigate clear area	E2
142	100	Investigate clear area	E2
142	100		E2 E2
		Investigate clear area	
144	100	Investigate clear area	E1
145	100	Investigate possible and unclear archaeology geophysical anomalies	E2
146	100	Investigate clear area	E2
147	100	Moved from section of E3 which is no longer within redline boundary. Investigate clear area	E2
148	100	Investigate possible and unclear archaeology geophysical anomalies. This trench is located in the general area of a potential aircraft crash site, though it is unclear how accurately its location has been documented.	E4
149	100	Moved from section of E3 which is no longer within redline boundary. Investigate clear area	E2
150	100	Investigate clear area	E1
151	100	Investigate probable archaeology geophysical anomalies	E1
152	100	Investigate probable archaeology geophysical anomalies	E1
153	100	Investigate clear area	E1
154	100	Investigate clear area	E1
155	100	Investigate possible and unclear archaeology geophysical anomalies	E1
156	100	Investigate possible and unclear archaeology geophysical anomalies	E2
157	100	Investigate possible and unclear archaeology geophysical anomalies	E2
158	100	Investigate steal area Investigate probable archaeology geophysical anomalies	E1
159	100	Investigate probable archaeology geophysical anomalies	E1
160	100	Investigate probable archaeology geophysical anomalies Investigate possible and unclear archaeology geophysical anomalies	E1
	100		E1
161		Investigate probable archaeology geophysical anomalies	
162	100	Investigate probable archaeology geophysical anomalies	E1
163	100	Investigate probable archaeology geophysical anomalies	E1
164	100	Investigate possible and unclear archaeology geophysical anomalies	E1
165	100	Investigate possible and historic archaeology geophysical anomalies	E1
166	100	Investigate probable and historic archaeology geophysical anomalies	E1
167	100	Investigate probable archaeology geophysical anomalies	E1
168	100	Investigate probable archaeology geophysical anomalies	E1
169	100	Investigate probable archaeology geophysical anomalies	E1
170	100	Investigate clear area (contains R+F geophysical anomalies)	E1
171	100	Investigate clear area (possible drains)	E3
172	100	Investigate clear area (possible drains)	E3
173	100	Moved from section of E3 which is no longer within redline boundary. Investigate clear area (possible drains).	E3
174	100	Investigate clear area (possible drains)	E3
175	100	Moved from section of E3 which is no longer within redline boundary. Investigate clear area (possible drains).	E3
176	100	Moved from section of E3 which is no longer within redline boundary. Investigate clear area.	E3
177	100	Moved from section of E3 which is no longer within redline boundary. Investigate clear area.	E3
178	100	Moved from section of E3 which is no longer within redline boundary.	E4
179	100	Investigate possible and unclear archaeology geophysical anomalies Moved from section of E3 which is no longer within redline boundary.	E4
119	100	Investigate possible and unclear archaeology geophysical anomalies	L 4
180	100	Investigate clear area (possible ferrous). This trench is located in the general area of a potential aircraft crash site, though it is unclear how accurately its location has been documented.	E4
181	100	Investigate clear area. This trench is located in the general area of a potential aircraft crash site, though it is unclear how accurately its location has been documented.	E4

182	100	Investigate possible and unclear archaeology geophysical anomalies. This	E4
		trench is located in the general area of a potential aircraft crash site, though	
100	400	it is unclear how accurately its location has been documented.	E4
183	100	Investigate clear area (contains R+F geophysical anomalies)	
184	100	Investigate possible and unclear archaeology geophysical anomalies. This	E4
		trench is located in the general area of a potential aircraft crash site, though it is unclear how accurately its location has been documented.	
185	100	Investigate possible and unclear archaeology geophysical anomalies	E3
186	100	Investigate clear area (contains R+F geophysical anomalies)	E3
187	100	Investigate clear area	E3
188	100	Investigate possible and unclear archaeology geophysical anomalies	E3
189	100	Investigate possible and unclear archaeology geophysical anomalies	E3
190	100		E3
		Investigate clear area	
191	100	Investigate clear area	E3
192	100	Investigate clear area	E3
193	100	Investigate possible and unclear archaeology geophysical anomalies	E5
194	100	Investigate possible and unclear archaeology geophysical anomalies	E5
195	0	Removed from Scheme as E6 no longer within redline boundary	E6
196	0	Removed from Scheme as E6 no longer within redline boundary	E6
197	0	Removed from Scheme as E6 no longer within redline boundary	E6
198	0	Removed from Scheme as E6 no longer within redline boundary	E6
199	100	Investigate clear area	E4
200 100 Investigate clear area		E4	
201	100	100 Investigate possible and unclear archaeology geophysical anomalies	
202	100	Investigate possible and historic archaeology geophysical anomalies	E5
203	100	Investigate clear area	E5
204	100	Investigate probable archaeology geophysical anomalies	E5
205	100	Investigate clear area (contains R+F geophysical anomalies). This trench is	E4
		located in the general area of a potential aircraft crash site, though it is	
		unclear how accurately its location has been documented.	
206	0	Removed from Scheme as E6 no longer within redline boundary	E6
207	0	Removed from Scheme as E6 no longer within redline boundary	E6
208	0	Removed from Scheme as E6 no longer within redline boundary	E6
209	0	Removed from Scheme as E6 no longer within redline boundary	E6
210	100	Investigate probable archaeology geophysical anomalies	E5
211	100	Investigate possible and unclear archaeology geophysical anomalies	E5
212	100	Investigate clear area	E5
213	100	Investigate possible and unclear archaeology geophysical anomalies	E5
214	100	Investigate probable archaeology geophysical anomalies	E5
215	0	Removed from Scheme as E6 no longer within redline boundary	E6
216	0	Removed from Scheme as E6 no longer within redline boundary	E6
217	0	Removed from Scheme as E6 no longer within redline boundary	E6
218	0	Removed from Scheme as E6 no longer within redline boundary	E6
219	0	Removed from Scheme as E6 no longer within redline boundary	E6
220		Removed from Scheme as E6 no longer within redline boundary	
	0		E6
221	0	Removed from Scheme as E6 no longer within redline boundary	E6

- 4.3 The archaeological works and subsequent post-excavation work will conform to current best archaeological practice and local and national standards and guidelines:
 - ALGAO Advice Note for Post-excavation Assessment (2015)

- Chartered Institute for Archaeologists Standard for Archaeological Excavation (2023a)
- Chartered Institute for Archaeologists Universal Guidance for Archaeological Excavation (CIfA 2023b)
- Chartered Institute for Archaeologists Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (CIfA 2020a)
- Chartered Institute for Archaeologists Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (CIfA 2020b)
- Chartered Institute for Archaeologists Code of Conduct (CIfA 2022)
- English Heritage Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation (English Heritage 2011)
- Historic England Waterlogged Wood: Guidelines on the Recovery, Sampling, Conservation and Curation of Waterlogged Wood (Historic England 2010)
- Historic England Management of Archaeological Projects (Historic England 2015)
- Historic England The Role of the Human Osteologist in an Archaeological Fieldwork Project (Historic England 2018a)
- Historic England Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation (Historic England 2018b)
- Historic England Animal Bones and Archaeology: Recovery to Archive (Historic England 2019)
- Museum of London Archaeological Site Manual (MoLAS 1994)
- Portable Antiquities Scheme. Code of Practice for Responsible Metal Detecting in England and Wales (2017)
- RESCUE & ICON First Aid for Finds (RESCUE & ICON 2001)
- United Kingdom Institute for Conservation Conservation Guidelines No.2 (UKIC 1983)
- United Kingdom Institute for Conservation Guidance for Archaeological Conservation Practice (UKIC 1990)
- 4.4 A unique site code will be assigned for the project and will be used as the site identifier for all records produced.
- 4.5 A copy of the approved WSI will be held on site along with a detailed site risk assessment (RAMS). All site staff will be made aware of and will have reviewed all documents.
- 4.6 The local Planning Archaeologist (PA) from Heneb: Clwyd -Powys Archaeology will be advised in writing two weeks in advance of the proposed start date of the works and will be invited to monitor the works.

Unexpectedly significant or complex discoveries

4.7 Should there be, in the professional judgement of the senior archaeologist on site, unexpectedly significant or complex discoveries during the excavation which warrant more detailed recording, AOC Archaeology will contact the client immediately with the relevant information and work will cease on site until a suitable additional mitigation strategy is agreed. This strategy will be agreed between the PA, the client and AOC Archaeology.

5 **Aims**

- 5.1 The aim of the archaeological evaluation is to gather sufficient information to establish the presence/absence, character, extent, state of preservation, date and significance of any archaeological remains within the proposed development area, and to inform further archaeological mitigation strategies should they be necessary.
- 5.2 The specific aims are to:
 - Locate, record, characterise, and determine the extent of any surviving sub-surface archaeological remains;
 - Excavate and record identified archaeological features and deposits to a level appropriate to their extent and significance;
 - Report the results of the fieldwork and place them within their local and national context; and
 - Produce a comprehensive site archive and a descriptive and interpretive report.
- The specific research objectives of the archaeological evaluation are to: 5.3
 - Investigate, characterise and date the potential archaeological features identified through topographical and geophysical survey;
 - assess the impact of the proposed development on any surviving archaeological remains at the site.
- 5.4 The results of the evaluation may also inform broader research initiatives outlined in The Research Framework for the Archaeology of Wales (Archaeoleg, 2024) which assesses the current state of archaeological knowledge in Wales, including Clwyd. The framework has compiled a series of research aims and priorities both for specific periods and for wider cross-period themes.
- 5.5 The following specific research areas of the framework have been identified in response to the potential of the Glöyn Byw | Butterfly Solar Farm:
 - How extensive is the survival of deposits containing both archaeological and environmental evidence for the Palaeolithic and Mesolithic Periods?
 - What can palaeoenvironmental evidence reveal about Neolithic settlement practices, particularly on sites where there is little or no material culture?
 - Why do we find so little settlement evidence for the later Neolithic and early Bronze Age? Are any of the circular anomalies identified witihn the geophysical survey data related to activity from these earlier periods?
 - What do we know about the wider landscape, field systems, land use patterns in the Iron Age?
 - There is a paucity of evidence for Roman activity within the Study Area. Are any of the anomalies identified within the geophysical survey Roman in date? This could help address the problem of the invisibility of rural settlements from the Roman period .
 - Identify and confirm potential early medieval sites, particularly secular settlement evidence (that could be related to Wat's Dyke and Offa's Dyke).
 - Further work is required to develop a better understanding of the Dyke systems in Wales (investigation of potentially related featrues may allow this).

6 **Methodology**

- 6.1 A Project Officer or Project Supervisor will manage the on-site day-to-day operations and will update the York Office Operations Manager on a daily basis regarding results and programme. This information will be fed back to the client. Field staff will be suitably trained and experienced archaeologists who are CSCS certified. Site inductions and tool box talks will be provided to all staff working on the site.
- 6.2 Prior to commencing fieldwork the client will furnish AOC with up-to-date service and utilities information for the area of investigation. AOC will then liaise with utilities and service providers, undertake any relevant site visits and set up any required service protection.
- 6.3 A detailed Risk Assessment Method Statement (RAMS) will then be prepared and approved by our external Health and Safety consultant. The RAMS will be submitted to the client for review before the commencement of the site works. A qualified First Aider will be present on site at all times.
- 6.4 It is assumed that the client will have addressed all significant programme constraints prior to the start of fieldwork, including ecological and environmental constraints and landowner access issues. Once on site, AOC staff will visually inspect the site prior to the commencement of any machine excavation, including the examination of any available exposures. A photographic record will be made of the excavation areas prior to excavation as a record of existing ground conditions. All areas of excavation will be scanned with a Cable Avoidance Tool (CAT) before excavation; this work will be undertaken by a qualified and competent person.
- 6.5 Static welfare facilities will be provided for the duration of the evaluation which will include canteens, toilets, fresh water supplies and anti-bacterial hand sanitiser. These facilities will be available for all staff, subcontractors, consultants and visitors.
- 6.6 The excavation areas will be accurately located using survey-grade GPS (Trimble R8) equipment. All surveys will be accurately tied into the Ordnance Survey National Grid and Ordnance Datum Newlyn heights.
- 6.7 The excavation areas will initially be excavated using a tracked mechanical excavator fitted with a toothless ditching bucket down to the first archaeological horizon or to the natural substrate, whichever is encountered first. All machining will be conducted under the direct supervision of an appropriately qualified and experienced archaeologist.
- 6.8 Topsoil and subsoil will be kept separate and will be stored in separate spoil heaps adjacent to the excavation areas.
- 6.9 The maximum safe working depth of the excavation will be determined by the on-site Project Officer or Project Supervisor in consultation with the relevant AOC Project Manager and will be based on an assessment of the depth of the excavation, the type of soils or fill material present, the weather conditions and the proximity of the excavation to highways, buildings, plant and machinery. Where appropriate and practicable, excavation area edges will be stepped to ensure safe access and egress.
- 6.10 Following completion of the initial machine excavation, further excavation will be undertaken by hand, although mechanical equipment may be used to remove some deposits or structural elements if required and with the agreement of the PA.
- 6.11 Exposed surfaces will be cleaned in order to assist the identification of any features. Exposed archaeological deposits and features will then be excavated in an archaeologically controlled manner.
- 6.12 The excavation sampling policy will be as follows, unless otherwise agreed with the PA:

- a 100% sample will be taken of all stake holes;
- a 50% sample will be taken of all post holes;
- a 50% sample will be taken of all pits with a diameter of up to 1m;
- a minimum 25% sample will be taken of pits with a diameter of over 1.5m; this should include a complete section across the pit to recover its full profile;
- a minimum 20% sample will be taken of all linear and curvilinear features less than 5m in length, each excavated section to be 1m in length;
- a minimum 10% sample will be taken of all linear and curvilinear features greater than 5m in length, each excavated section to be 1m in length;
- · Deposits at junctions (and interruptions) in linear features will be excavated to determine the relationships between the different components;
- All linear terminal ends will be excavated;
- Any in situ building remains will be fully recorded for the extent that they are exposed; brick and stone samples may be taken if potentially diagnostic of date or function; and
- Significant features will be 100% excavated, if required by the NYCPA.
- 6.13 A full written, drawn and photographic record will be made of all features revealed during the course of the archaeological evaluation, including representative sample trench sections at an appropriate scale. A record of the full sequence of all archaeological deposits as revealed in the trenches will be produced. Plans will be completed at a scale of 1:50 or 1:20 (as appropriate), with section drawings at a scale of 1:10 or 1:20 (as appropriate). All recording will be undertaken to meet the standards and requirements of the Archaeological Field Manual (MOLAS 1994). Records will be produced using proforma context sheets compatible with those published by the Museum of London (MOLAS 1994). Written descriptions, comprising both factual and interpretive elements, will be recorded.
- All site drawings will be accurately tied into the Ordnance Survey National Grid and Ordnance Datum 6.14 Newlyn heights using survey-grade GPS surveying equipment.
- 6.15 A full photographic record will be maintained using a digital SLR camera capturing data in RAW and JPEG formats. This will illustrate archaeological features and deposits in detail and in a broader context. In addition, appropriate record photographs will be taken to illustrate work in progress.
- 6.16 All identified finds and artefacts will be collected and retained. A discard policy will be agreed with the PA following the post-excavation assessment stage of the project. Where required, suitable specialists will be employed during fieldwork to advise, date or excavate significant finds or features.
- 6.17 All finds will be bagged according to their context, and significant finds will be allocated a recorded finds number and their positions surveyed individually. Finds requiring further analysis, excavation or conservation will be lifted and packed using suitable archival standard storage materials and assessed in a relevant conservation laboratory.
- 6.18 Finds will be exposed, lifted, cleaned, conserved, marked, bagged and stored in accordance with the guidelines set out in United Kingdom Institute for Conservation's Conservation Guidelines No. 2 and the CIfA guidelines Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (2020a).
- 6.19 If required, conservation will be undertaken by approved conservators in line with the First Aid for Finds guidelines (Watkinson and Neal 1998). In accordance with the procedures outlined in Historic England's MoRPHE PPN3 (2008), all iron objects, a selection of non-ferrous artefacts (including all

- coins), and a sample of any industrial debris relating to metallurgy will be X-radiographed before assessment.
- 6.20 All finds of gold and silver will be moved to a safe place. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the artefacts from theft or damage. All finds of gold and silver, and associated objects, will be reported to the coroner according to the procedures relating to the Treasure Act 1996 (and the act's amendments of 2003 and 2023), after discussion with the client and the PA.
- 6.21 Should features of national importance and possibly of schedulable quality be observed, fieldwork will cease until the remains have been inspected by the PA and the appropriate Cadw Regional Inspector of Ancient Monuments.
- 6.22 The client, the coroner and the PA will be informed if human remains are found. Disturbance of human skeletal remains will be kept to a minimum. Any human remains encountered will be accurately recorded in plan and, where appropriate, will be examined in situ by a palaeopathologist, but no further investigation will occur and the remains will be covered and protected.
- 6.23 Removal of human remains will only take place under appropriate government and environmental health regulations, in compliance with the Burial Act 1857 and after obtaining a Section 25 exhumation licence from the Ministry of Justice.
- 6.24 The palaeoenvironmental sampling strategy will comprise the removal of bulk samples from securely sealed and hand-excavated contexts, excepting those with excessive levels of residuality or those with minimal 'soil' content (such as building rubble). Bulk samples will comprise a representative 40 litre sample. However, where a context does not yield 40 litres of material, smaller samples will be taken (generally the maximum amount of material that it is practicable to collect). Bulk samples will be used to recover a sub-sample of charred macroplant material, faunal remains and artefacts. Suitable deposits will also be sampled for industrial residues. If buried soils or other deposits are encountered, column samples may be taken for micromorphological and pollen analysis. Environmental material will be stored in controlled environments and environmental and soil specialists will be consulted during the course of the work if necessary.
- 6.25 Waterlogged organic materials will be dealt with in line with Historic England's guidance documents Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation (2018) and Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood (2010).
- 6.26 The recovery of material suitable for radiocarbon, archaeomagnetic and/or dendrochronological dating will be sought, as appropriate. Sampling of this nature will be agreed in discussion with the client, the PA and the appropriate Environmental Specialists. If sufficient dates are obtainable the use of Bayesian analysis will be considered for a suite of dates.
- 6.27 On completion of all archaeological excavation and recording, and following approval from the PA, the trenches will be backfilled. Topsoil and subsoil will be reinstated separately but no engineered reinstatement will be undertaken. A photographic record of the backfilled trenches will be made.

Reporting

6.28 An assessment report outlining the results of the archaeological evaluation will be produced. The report will assess the stratigraphic sequence, and the significance and extent of any archaeological features identified. The potential of any retrieved artefacts and soil samples for further analysis will also be considered.

- 6.29 The report will be prepared in accordance with the 2015 ALGAO guidance for post-excavation assessment (ALGAO 2015), and will contain the following:
 - · A concise non-technical summary (in both Welsh and English) of the results of the work, and its aims and objectives;
 - A frontispiece including the site code/project number, planning reference number, dates when the fieldwork took place and a full National Grid Reference;
 - An introduction, including a site description, background on the development, details of the local topography and geology, and the reasons for the archaeological work;
 - An account of the aims and objectives of the work;
 - An account of the methodology and equipment used;
 - A clear exposition of the results of the work, the structural sequence and the dates, forms and functions of the features identified; specialist assessment reports will be reproduced as Appendices to the report and the results of the assessments will be considered and incorporated into the main body of the results;
 - A discussion which places the results of the work into the broader historical, regional and national context, and which assesses site phasing and the quality and significance of the remains encountered;
 - Specialist assessments of the artefacts recovered including an assessment of their potential for further analysis and study, and recommendations for retention / discard and illustration (where appropriate), in line with national guidelines;
 - Specialist assessments of the environmental and industrial samples taken, with a view to their potential for subsequent study;
 - · Recommendations for further analysis;
 - An integrated concordance table that details every context and correlates them to group, number, finds, samples taken and the potential for palaeoenvironmental analysis and radiocarbon dating;
 - All text will be cross-referenced with plans, photographs and other illustrative material;
 - Illustrations will include: a site location plan; an overall site plan accurately identifying the location of the trenches; individual trench plans at a suitable scale, as excavated, indicating the location of all archaeological features; plans and sections at an appropriate scale showing features, deposits and the extent of the identified archaeology;
 - Photographic records of selected archaeological features and finds;
 - A description of the site archive and the name of the institution with which it will be deposited;
 - References and bibliography of all sources used;
 - Archiving arrangements.
- 6.30 A draft copy of the final report will be provided to the client, local planning authority and the PA for comment within a timescale provisional on the extent and character of the finds and samples recovered. The final version of the report will be provided to the client, local planning authority and the PA within three weeks of receiving any comments.
- 6.31 Digital copies of the final report will be submitted to OASIS to allow the results of the work to be accessible on-line to the wider archaeological community and general public. The OASIS form will be appended to the post-excavation assessment report.

- 6.32 The report and all project data will be submitted for inclusion in the Heneb: Clwyd-Powys Archaeology Historic Environment Record (CPA HER).
- 6.33 AOC Archaeology will use the following specialists to assess archaeological finds and ecofacts:

Palaeobotany	Ciara Clake PhD (AOC)
Metalwork / Vitrified Material	Dawn McLaren PhD (AOC)
Coarse Stone	Dawn McLaren PhD (AOC)
Environmental	Jackaline Robertson (AOC)
Wood	Anne Crone PhD (AOC)
Glass	Andrew Morrison (AOC)
Ceramic Building Material	Sandra Garside-Neville (External)
Human Bone	Alex Johnson (AOC)
Soil Micromorphology	Lynne Roy MSc (AOC)
Conservation	Gretel Evans ACR (AOC)
Lithics	Rob Engl (AOC)
Ceramics	lan Rowlandson (external)
Ceramics	Chris Cumberpatch (external)
Ceramics	Ruth Leary (external)

Archiving

- 6.34 AOC Archaeology will contact the recipient museum (Wrexham County Borough Museum & Archives) in advance of commencing any fieldwork to determine the preparation, ownership and deposition of the archive and finds, and obtain a museum accession number.
- 6.35 The Chartered Institute of Archaeologists (CIfA 2015d) and the Society of Museum Archaeologists (SMA 1993) recommend that finds are publicly accessible and that landowners donate archaeological finds to a local museum. The landowner will be encouraged to transfer ownership of the finds to the receiving museum. A Deed of Transfer will be drawn up by the recipient museum which the landowner will be asked to sign.
- 6.36 The archive will contain all the data collected during the archaeological evaluation, including all digital and paper records, finds and environmental samples. It will be quantified, ordered, indexed and internally consistent. Adequate resources will be provided during fieldwork to ensure that all records are checked and internally consistent.
- 6.37 Archive consolidation will be undertaken immediately following the conclusion of fieldwork and will include the following work:
 - the site record will be checked, cross-referenced and indexed as necessary;
 - all retained finds will be cleaned, conserved, marked and packaged in accordance with the requirements of the recipient museum;
 - all retained finds will be assessed and recorded using pro-forma recording sheets, by suitably qualified and experienced staff. Initial artefact dating will be integrated within the site matrix;

- all retained environmental samples will be processed by suitably experienced and qualified staff.
- 6.38 The CIFA Archive Selection Toolkit, or similar process, will be used in the compilation of the archive and explicitly documented.
- 6.39 The archive will conform to guidelines described in Management of Research Projects in the Historic Environment (MoRPHE), Historic England 2015a, the ClfA's Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives (ClfA, 2020b) and The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales 2017 (NPAAW, 2017).
- 6.40 The archive will be assembled and prepared in line with the recommendations provided in Historic England's MoRPHE Project Planning Note 3: Archaeological Excavation (PPN3) (2008), ALGAO's Advice Note for Post-excavation Assessment (2015) and in accordance with the Guidelines for the preparation of Excavation Archives for long-term storage (United Kingdom Institute for Conservation, 1990) and the Standards in the museum care of archaeological collections (Museums and Galleries Commission 1994). Provision will be made for the stable storage of paper records and their long-term storage.

7 **Capability Statement**

- 7.1 AOC Archaeology was established in 1991 and is a Chartered Institute for Archaeologists (CIfA) Registered Organisation offering a full range of archaeological expertise, advice and services, from a network of offices across the UK, including Edinburgh, London, Leeds and York.
- 7.2 We offer an exceptional portfolio of services that makes the most effective use of the company's skills, specialised knowledge and experience and is based on key expert services including archaeological survey and excavation, consultancy and heritage management, buildings recording, geophysical survey and geomatics, laser scanning, post-excavation analysis and conservation, and community archaeological services.
- 7.3 Our in-house expertise also includes sedimentology, soil micromorphology, soil chemistry, dendrochronology, palaeobotany, palynology, faunal analysis, osteoarchaeology, artefact conservation and analysis, building materials and lithics.
- 7.4 AOC have a strong association with other highly regarded organisations and individuals and we can cover the entire spectrum of artefact and ecofactual analysis. AOC Archaeology has a well-equipped conservation laboratory that offers practical conservation and artefact care for archaeological material.

8 **Quality Assurance and Standards**

- 8.1 AOC Archaeology is an accredited ISO 9001:2015 organisation and a Registered Archaeological **Organisation** with the ClfA, operating to nationally agreed guidelines, processes and procedures. These are set within a framework that endeavours to carry out the required work and submit the final report in a manner that meets the client's specific needs, providing quality assurance throughout the project and for the end product.
- 8.2 AOC Archaeology conforms to the standards of professional conduct outlined in the CIfA Code of Conduct, the CIfA Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology, the ClfA Standard and Guidance for Desk Based Assessments, Field Evaluations etc., as well as the British Archaeologists and Developers Liaison Group Code of Practice.

9 Health and Safety

- 9.1 AOC Archaeology maintains the highest standards of health and safety, both on-site and in our premises, and a copy of our Health and Safety Policy can be supplied on request. The project outlined in this WSI will be carried out in accordance with safe working practices and under the defined Health and Safety Policy. A site specific Risk Assessment Method Statement (RAMS) will be prepared prior to the commencement of the fieldwork.
- 9.2 Health and Safety will take priority over all other requirements. A conditional aspect of all archaeological work is both safe access to the area of work and a safe working environment.
- 9.3 The Construction (Design and Management) Regulations 2015 (CDM) may apply to the archaeological work depending on whether contractors other than the archaeological team are present on the site.
- 9.4 Where AOC Archaeology is not the main contractor on site, the main contractor's Risk Assessment will have primacy over the AOC Archaeology document given that:
 - The main contractors' risk assessment takes account of AOC Archaeology's working practices and does not compromise normal and safe archaeological procedure as set out in the WSI and Risk Assessment.
 - AOC Archaeology is notified of the full suite of hazards present prior to arriving on site.
 - There is a proper induction and monitoring process in place and AOC Archaeology staff have been through this process.
 - There is no significant conflict between AOC Archaeology health and safety procedures and those proposed by the main contractor.
 - AOC Archaeology is made aware of new threats or hazards as they arise.
- 9.5 Where archaeological work is carried out at the same time as the work of other contractors, regard will be taken of any reasonable additional constraints that these contractors may impose.
- 9.6 The client will provide any available service plans for the site prior to the commencement of fieldwork. AOC Archaeology will use Cable Avoidance Tools to identify any services in the specific locations being excavated.
- 9.7 Staff present on site will be required to wear the appropriate Personal Protective Equipment (PPE), which will be issued as necessary.
- 9.8 Where previous works have identified the presence of contaminated ground, AOC Archaeology must be notified of the nature and extent of the contamination in advance of the fieldwork and given guidance as to the appropriate Health and Safety precautions required.

10 Insurance

10.1 AOC Archaeology holds Employers Liability Insurance, Public Liability Insurance and Professional Indemnity Insurance to the following amounts. Copies of certificates for the following insurance can be provided on request.

Public Liability £20,000,000
 Employer's Liability £20,000,000
 Professional indemnity (for any single claim) £5,000,000

10.2 Full details of AOC Archaeology's insurance policies can be provided on request.

11 **Copyright and Confidentiality**

- 11.1 AOC Archaeology will retain full copyright of any commissioned reports, tender documents or other project documents under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide an exclusive licence to the client and to the Heneb: Clwyd-Powys Archaeology Historic Environment Record in all matters directly relating to the project as described in the WSI.
- 11.2 AOC Archaeology will assign copyright to the client upon written request but retains the right to be identified as the author of all project documentation and reports as defined in the Copyright, Designs and Patents Act 1988.
- 11.3 AOC Archaeology will advise the client of any such materials supplied in the course of projects which are not AOC Archaeology's copyright.
- 11.4 AOC Archaeology will respect all requirements for confidentiality regarding the client's proposals, provided that these are clearly stated. In addition AOC Archaeology undertakes to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that the client respects AOC Archaeology's and the ClfA's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

12 **Archaeological Risk Register**

- 12.1 The methodology outlined in this method statement will be met in full where reasonably practicable.
- 12.2 Any significant variations to the proposed methodology will be discussed with, and approved by, the PA.
- 12.3 The methodology has been designed to meet the aims of the project in a professional and costeffective manner. AOC Archaeology attempts to foresee all possible site-specific problems and to make allowances for these. However, there may on occasion be unusual circumstances which have the potential to affect the programme. These can include:
 - unavoidable delays due to extreme bad weather, vandalism etc.;
 - extensions to trenches or revised methodologies requested by Heneb;
 - complex structures or objects, including those in waterlogged conditions, requiring specialist removal;
 - · unforeseen Health and Safety issues;

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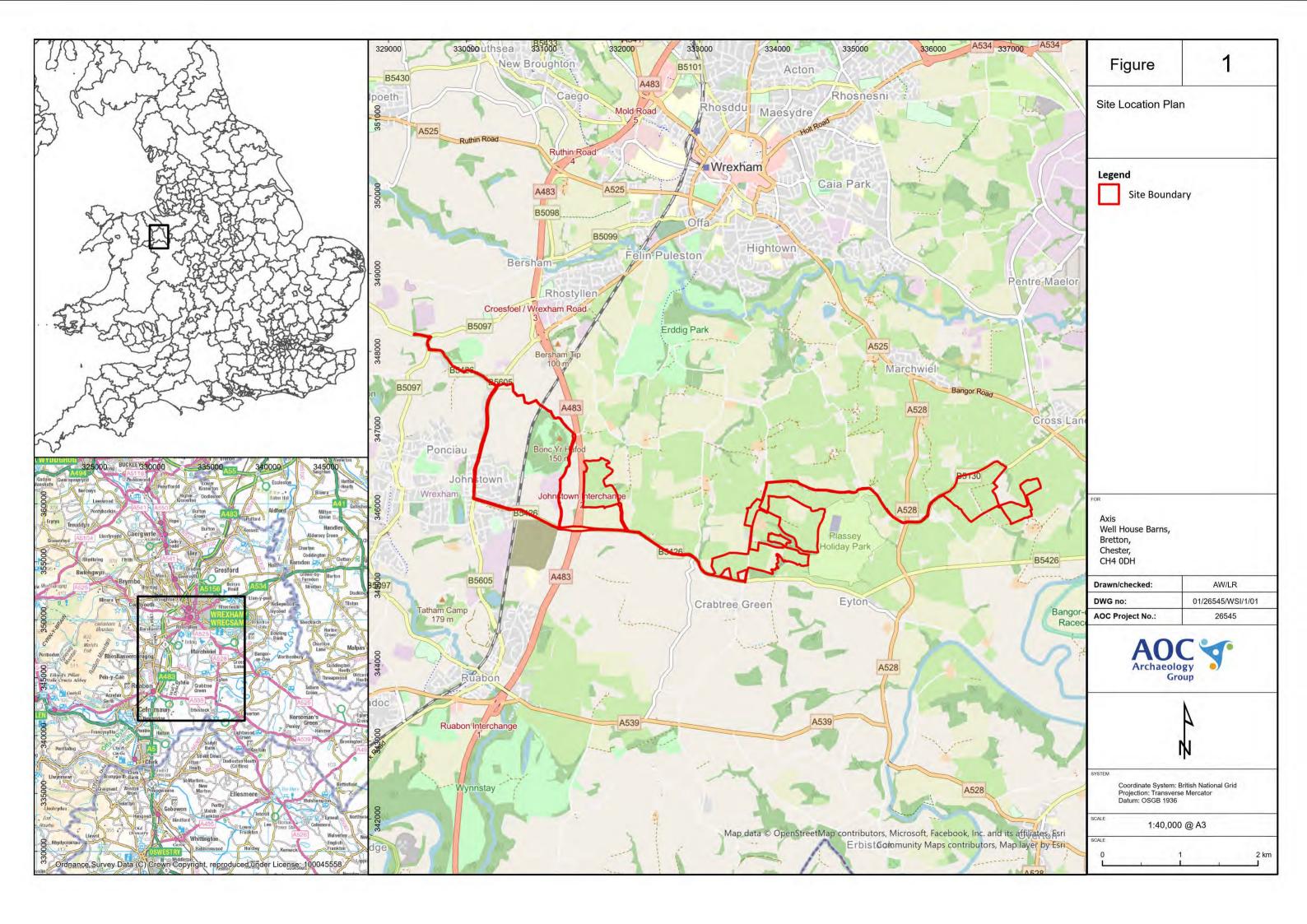
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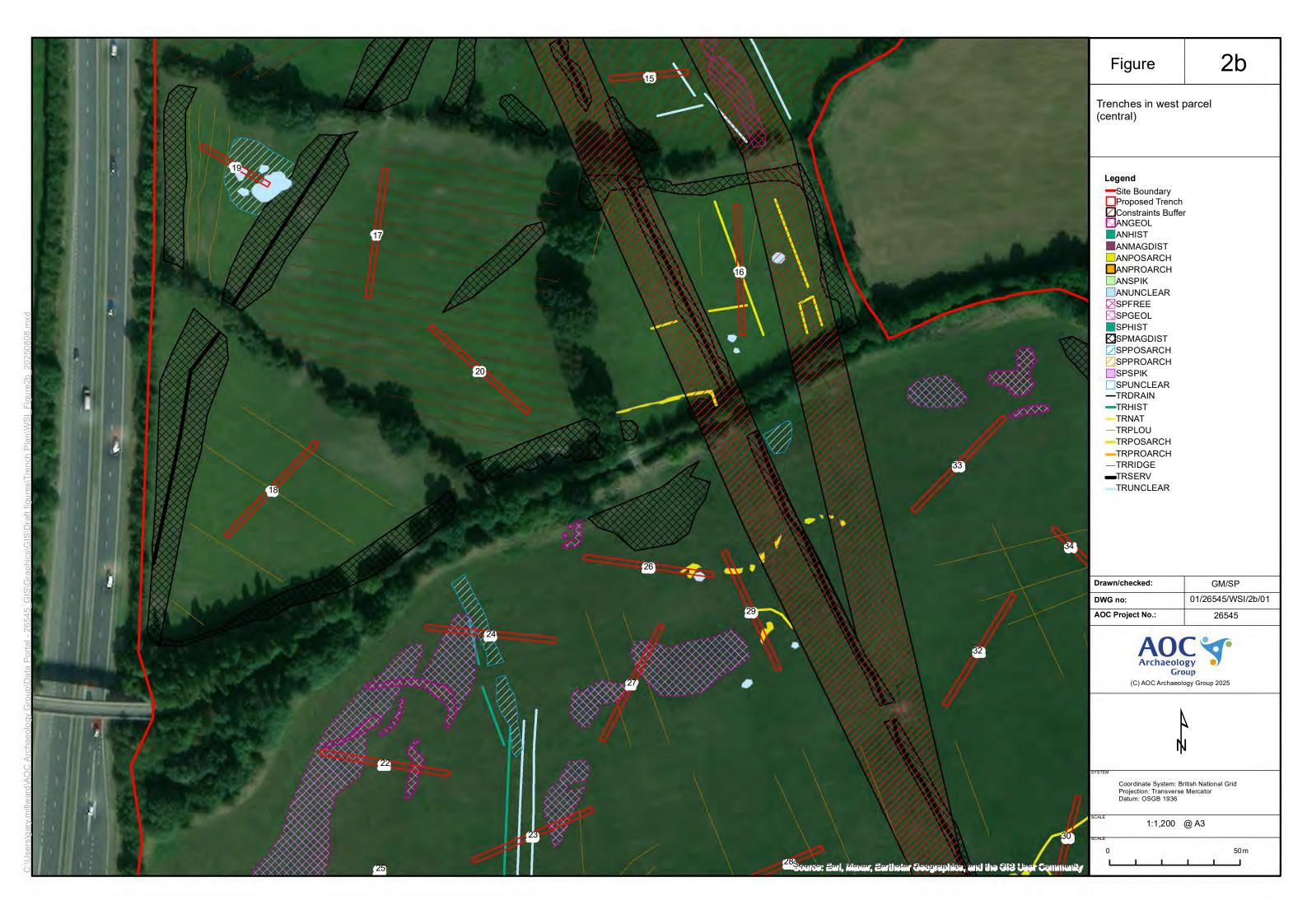
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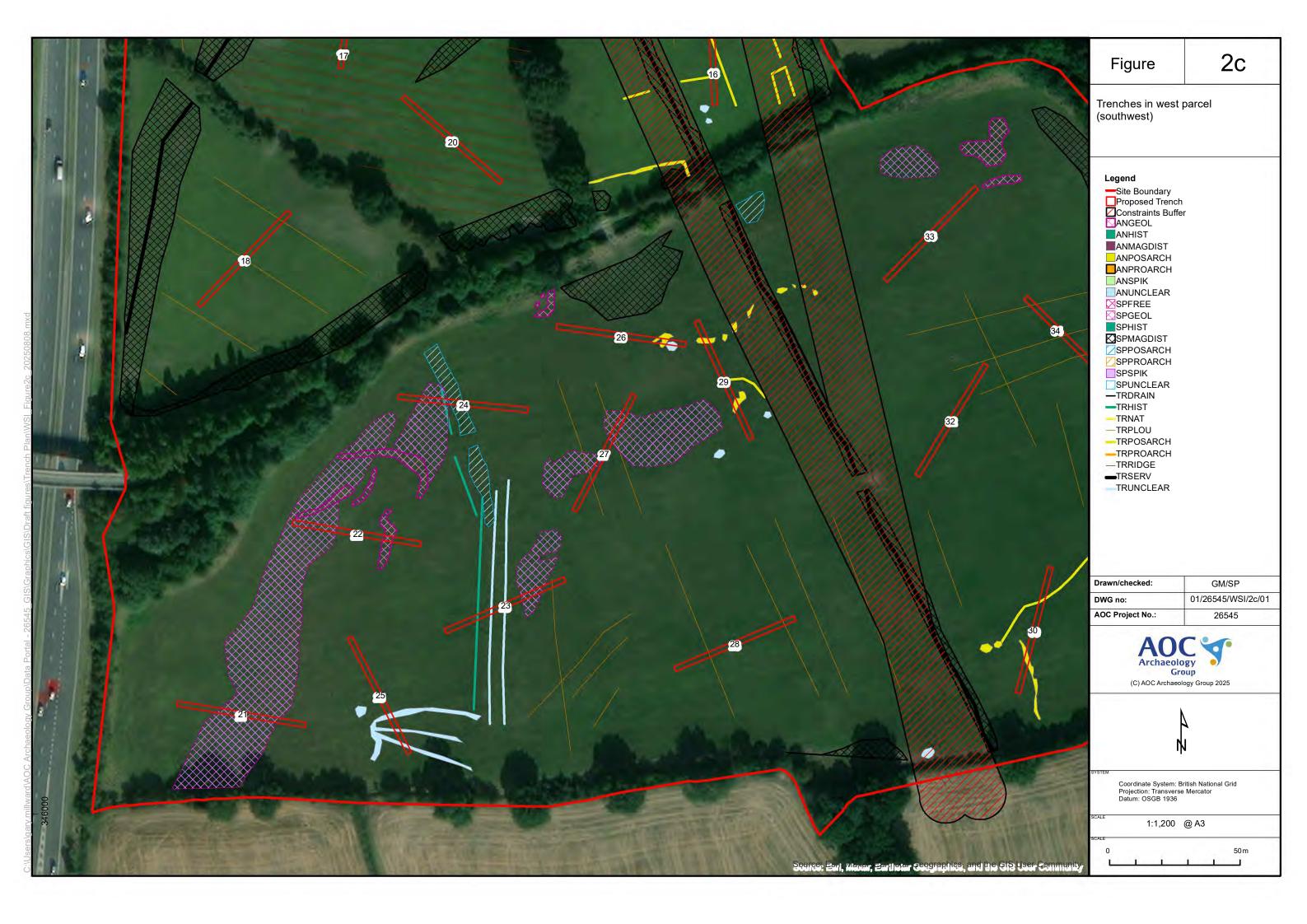
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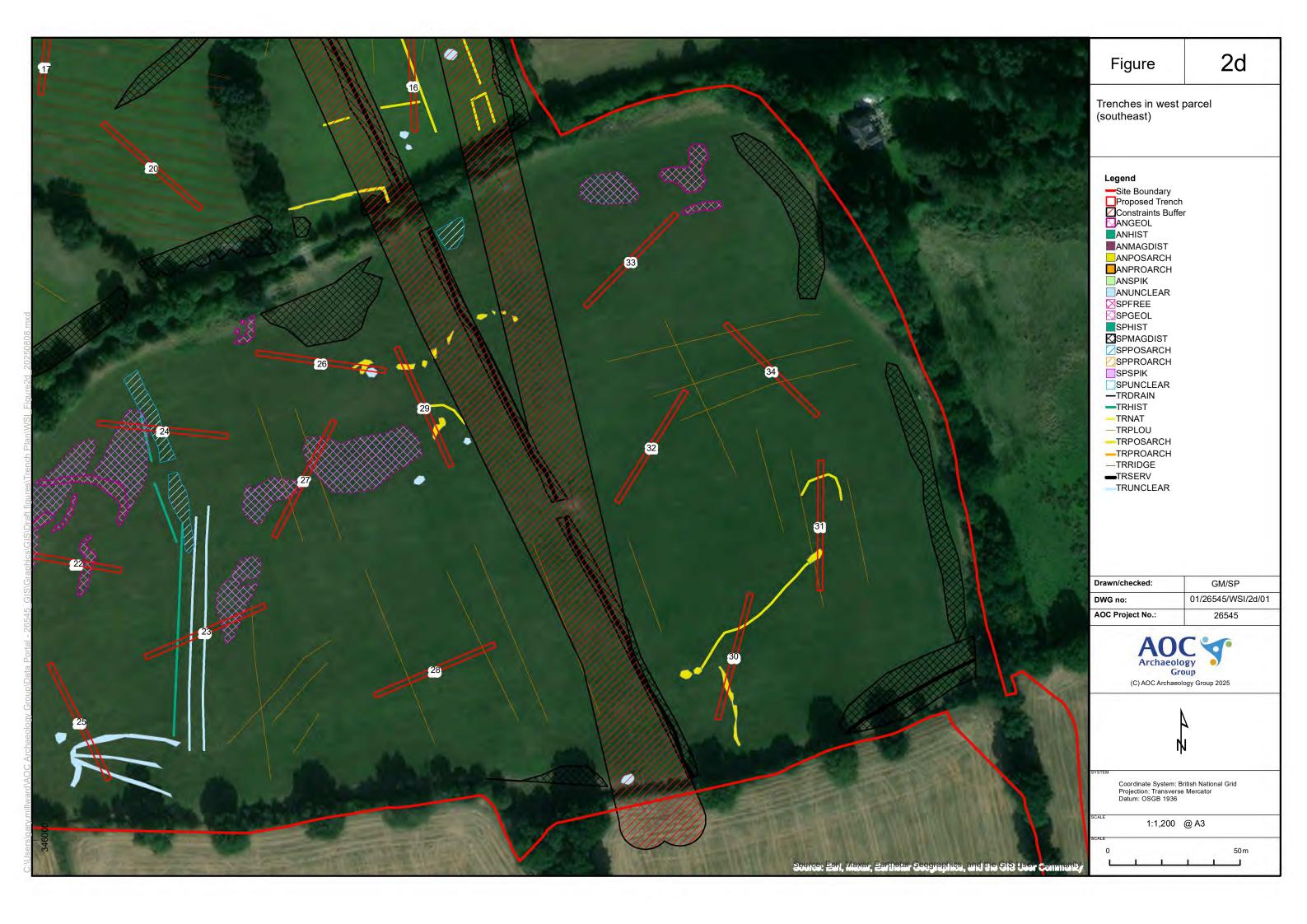










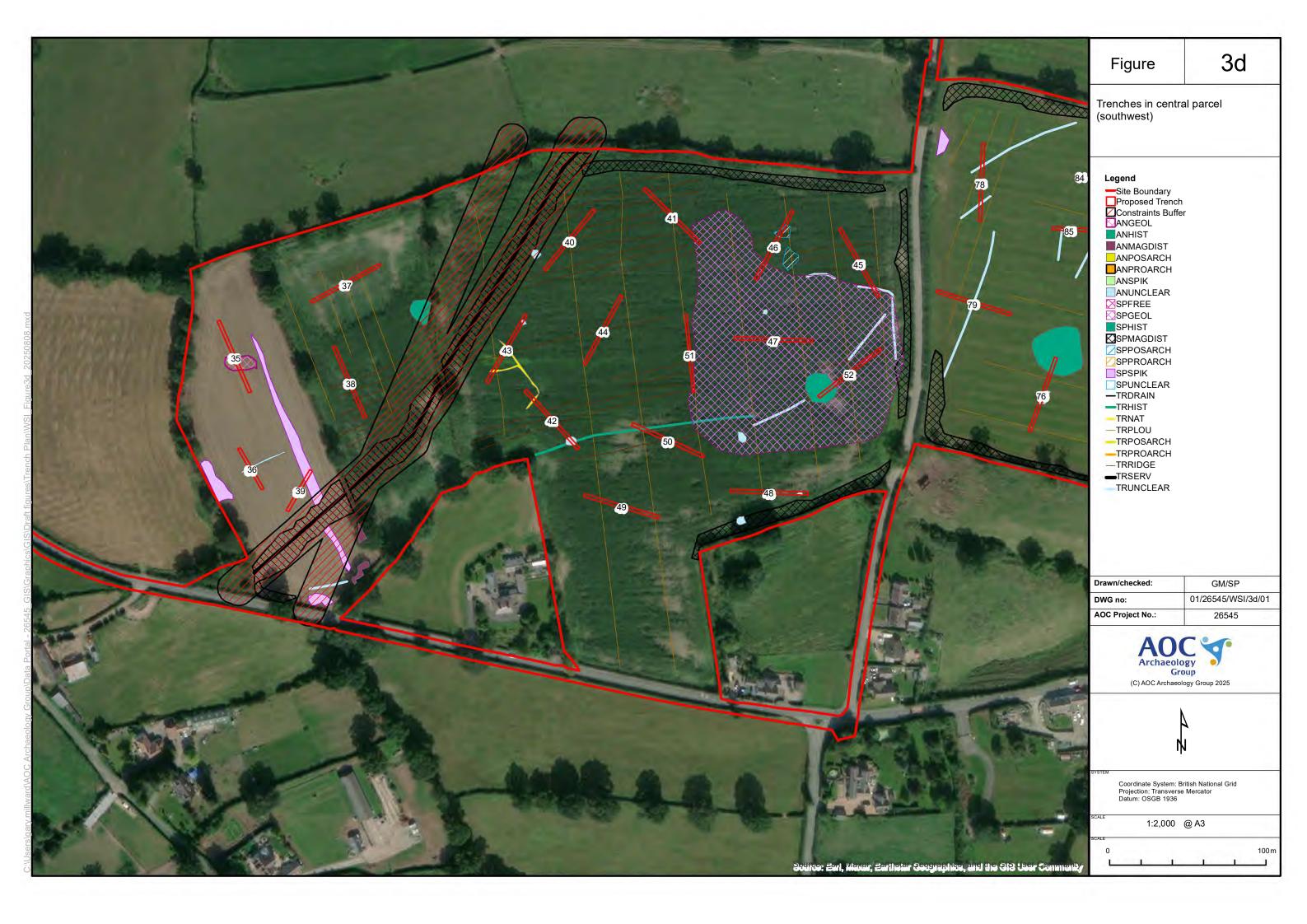




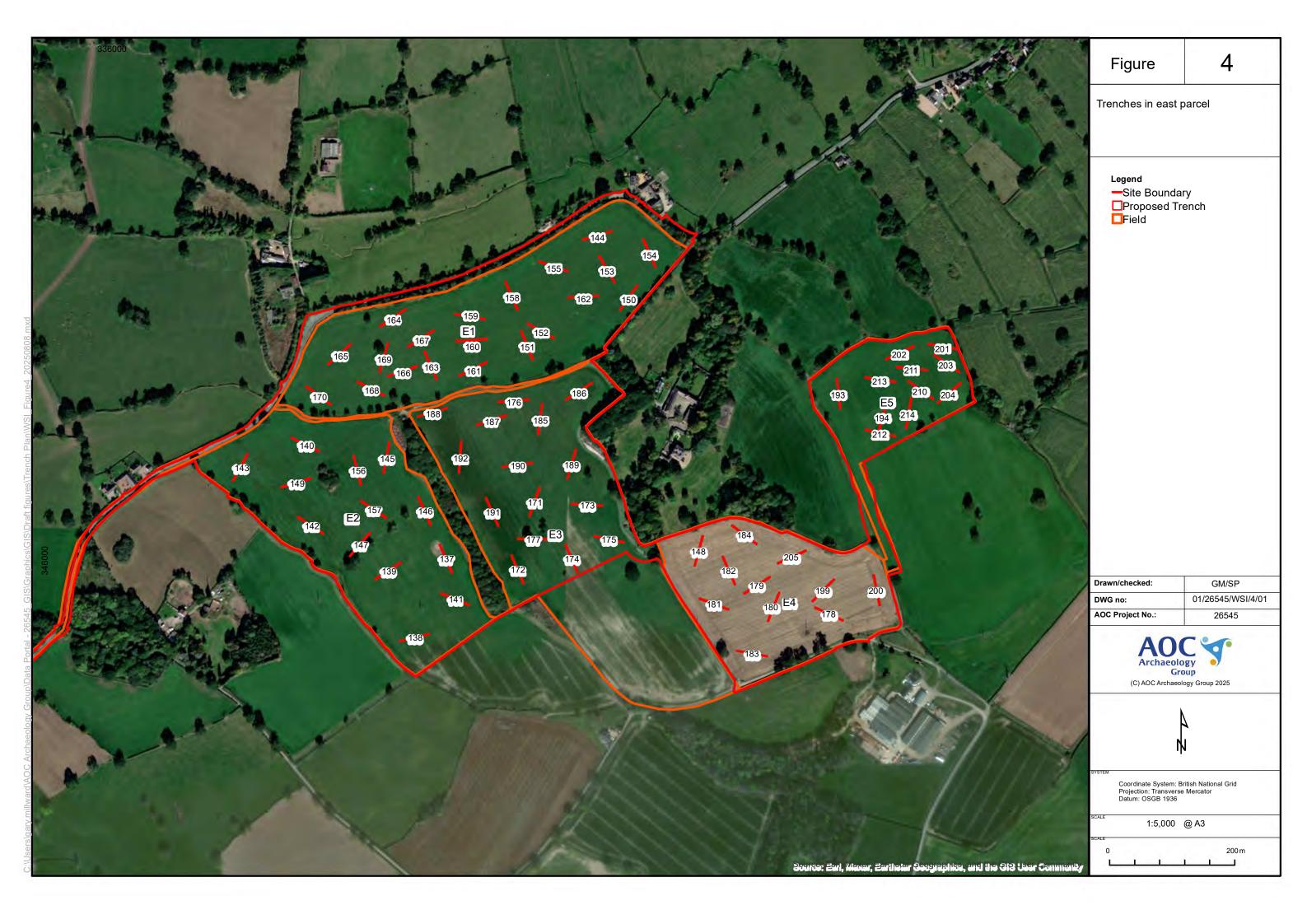




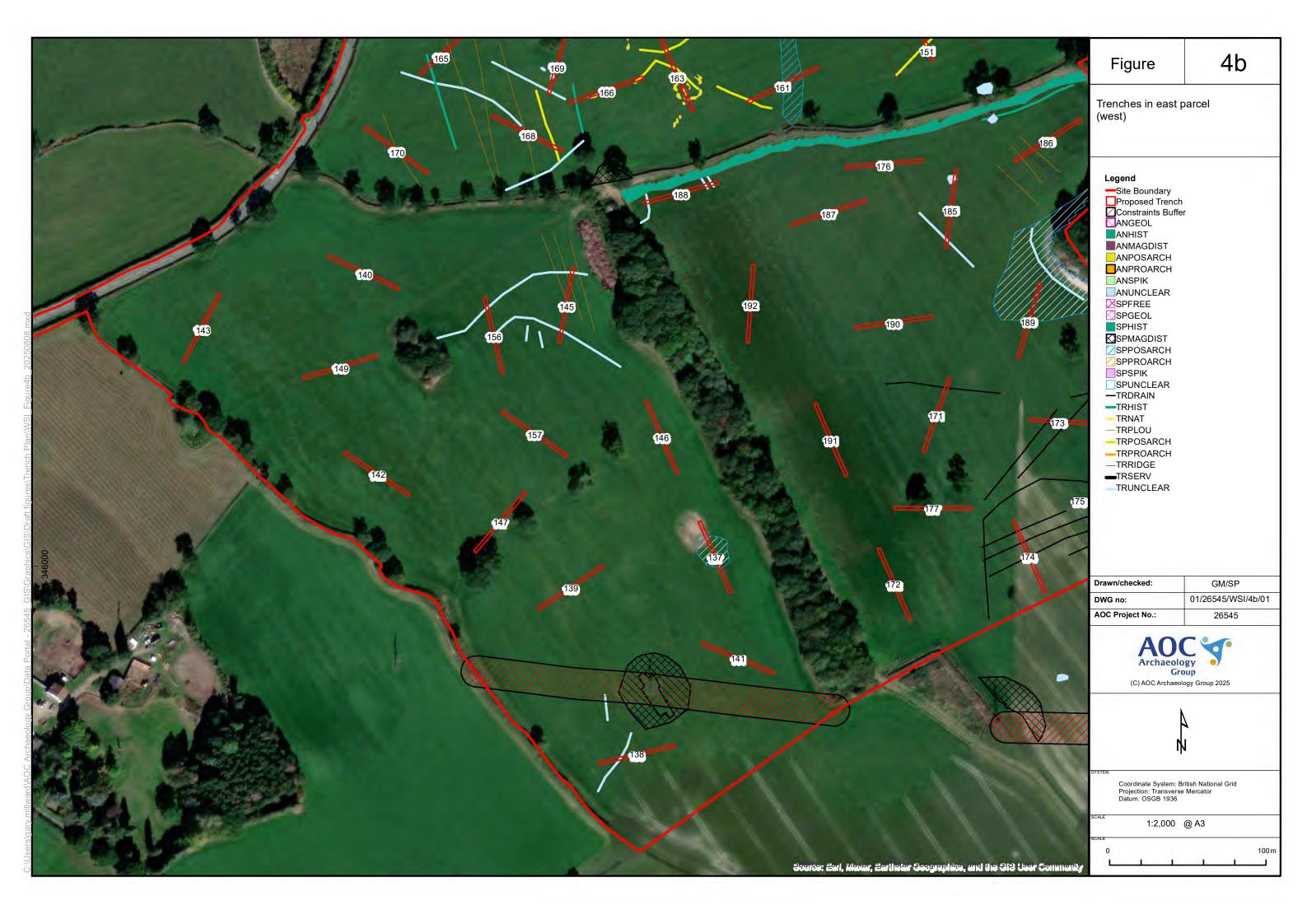


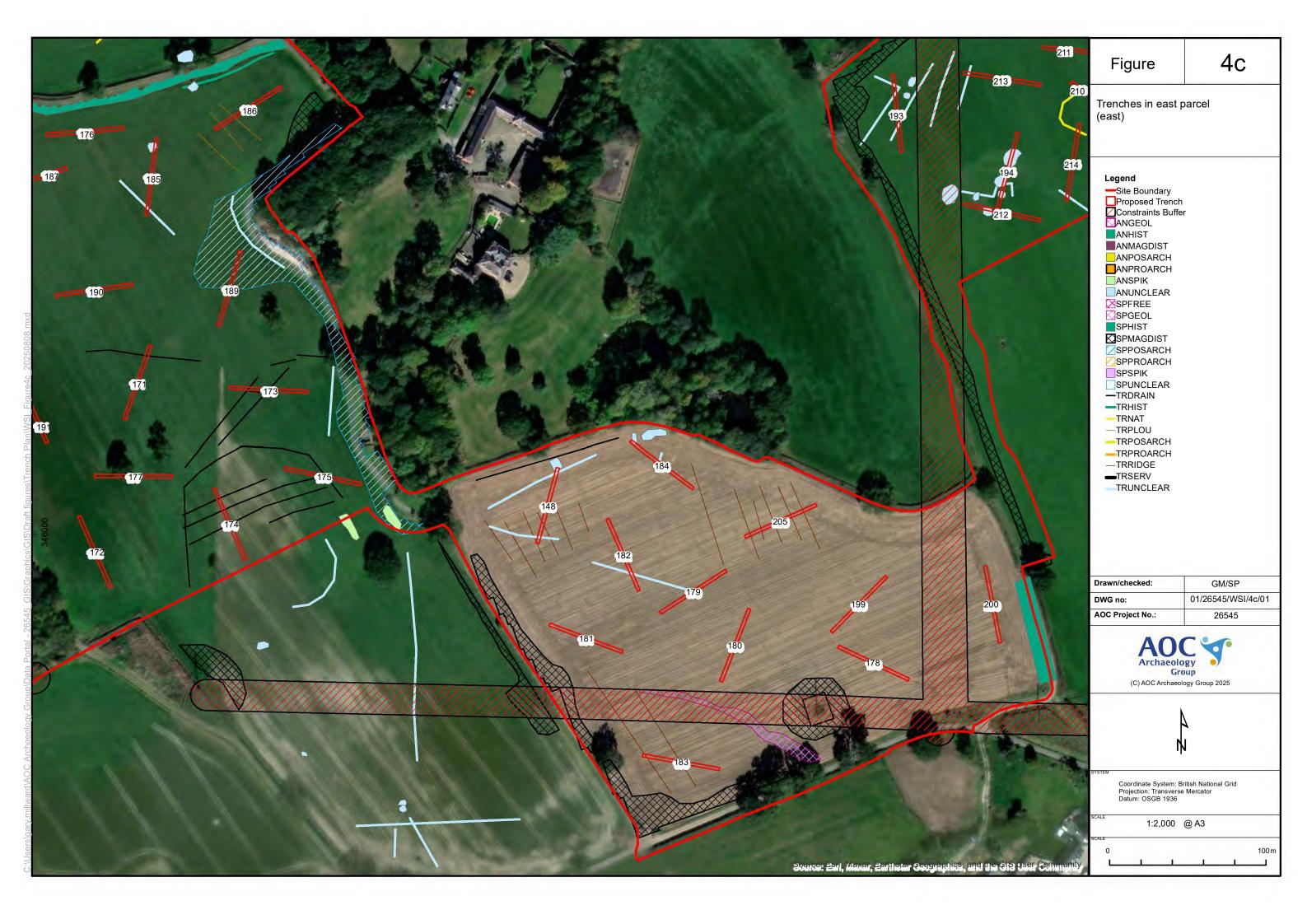




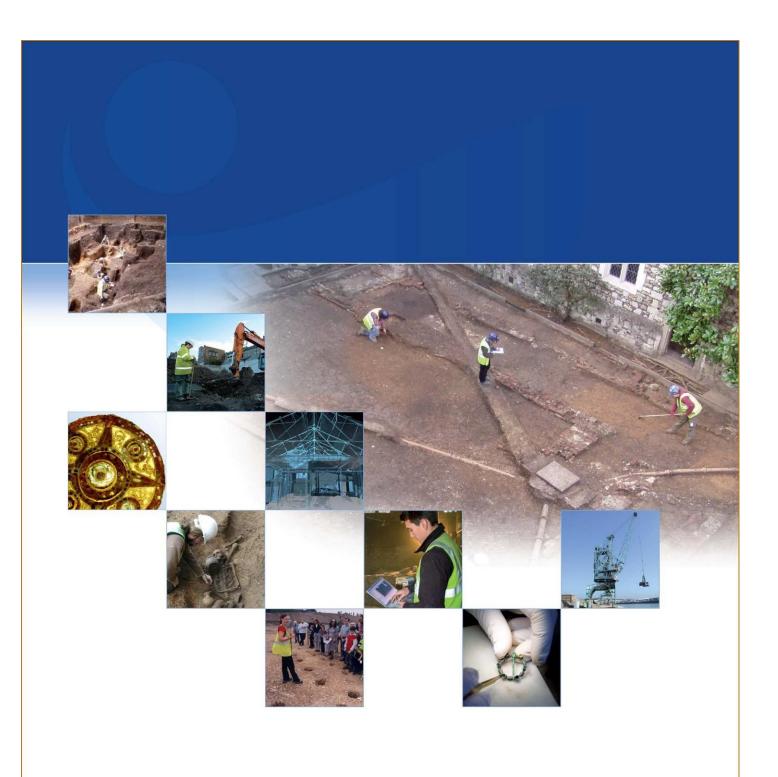














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