TAIYO
POWER AND STORAGE

Parc Solar Caenewydd, Swansea

Archaeological Field Evaluation:

Development of National Significance in the Renewable Energy Sector
Full Re-Consultation before Applying for Planning Permission

On behalf of **Taiyo Power & Storage Limited**

October 2023 | P21-2998

ARCHAEOLOGY WALES

Archaeological Field Evaluation:

Parc Solar Caenewydd, Llewitha, Swansea

January 2023

Report No. 2153

By

Jerry B Bond

REGISTERED ORGANISATION CIfA

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Contents

Figures

Plates

Summary

In October 2022 Archaeology Wales was commissioned by Heritage Archaeology on behalf of Taiyo Power & Storage Limited (henceforth – 'the Applicant') to carry out an Archaeological Field Evaluation on land at land to the south of Swansea Road, Llewitha, Swansea centred on NGR SS 60208 96928.

The evaluation was carried out in accordance with a Written Scheme of Investigation (Archaeology Wales 2022, Appendix II), which was approved in advance by the Glamorgan-Gwent Archaeological Trust in their capacity as archaeological advisors to Swansea Council. The evaluation comprised the excavation of 30 trenches carried out in two phases. The eastern most area was evaluated in November 2022 and the western area in December 2022. The trenches measured 1.8m in width and 30m in length.

A geophysical survey was carried out by Magnitude Surveys (Wilkinson 2022). The survey identified possible archaeological activity in the north of the site with the indication of enclosures present just to the south of the A484. Other features noted were evidence of agricultural activity such as field boundaries, ridge and furrow and modern ploughing as well as anomalies linked to the known industrial uses. The evaluation trenches were located to identify the cause of the anomalies in the geophysical survey results. The results of the evaluation revealed very little archaeological evidence of occupation or other forms of activity on the site.

The evaluation trenches revealed a site which has been extensively drained throughout its history, especially since the industrial period. From finds of linear ditches and gullies as well as field/land drains including some with ceramic and plastic pipes, and the more common stone filled drains, it is obviously a site with a history of waterlogging, flooding and standing water and this was in evidence during the fieldwork.

No evidence of Roman activity was revealed during the evaluation. No finds were recovered to provide direct dating of features, but the majority of the features are likely to be post-medieval or modern in date. The changes in land drain types, from clay through to plastic indicates continued use of the field for agricultural purposes during this time.

All work conformed to Standards and Guidance for Archaeological Field Evaluation (CIfA 2020) and Standards and Guidance for Archaeological Artefact and Environmental Collection, Documentation Conservation and Research (CIfA 2020).

Crynodeb

Ym mis Hydref 2022, comisiynwyd Archaeology Wales gan Heritage Archaeology ar gyfer Taiyo Power & Storage Limited ('yr ymgeisydd' – o hyn ymlaen) I gario allan mantoliad cae archeolegol ar dir i'r dde o Swansea Road, Llewitha, Abertawe wedi'i chanoli ar NGR SS 60208 96928.

Wnaeth y mantoliad cynnwys 30 ffos wedi'i chario allan mewn dau gyfnod. Cafodd yr ardal ddwyreiniol ei werthuso yn Dachwedd 2022 ar ardal orllewinol yn Rhagfyr 2022. Mesurodd y ffosydd yn 1.8m lled a 30m hyd.

Cafodd arolwg geoffisegol ei gario allan gan Magnitude Surveys (Wilkinson 2022). Wnaeth yr arolwg nodi archeolegaeth posib i'r gogledd y safle gyda'r arwydd o diroedd caeedig i'r dde o'r A484. Nodweddion arall a nodwyd oedd tystiolaeth o weithgareddau amaethyddol fel terfynau caécaeau, grwn a rhych a rhigoli modern, a hefyd anomaleddau wedi'i chysylltu â'r defnydd diwylliannol. Roedd y ffosydd wedi'i lleoli er mwyn adnabod beth oedd yn achosi'r anomaleddau yn ganlyniadau'r arolwg geoffiseg. Wnaeth canlyniadau'r mantoliad nodi ond ychydig o dystiolaeth am alwedigaeth neu weithgareddau arall ar y safle.

Wnaeth y mantoliad dadlennu safle sydd wedi'i ddraenio'n helaeth yn ystod ei hanes, yn enwedig yn ystod y cyfnod diwydiannol. Gyda'r darganfod o ffosydd a chyliau llinol, a hefyd draenau cae/tir yn cynnwys rhai ceramig a phibellau plastig a'r draenau wedi'i llenwi a cherrig mwy cyffredin, mae'n amlwg fod y safle gyda hanes o dyfrlawni, llwyfoddi a dŵr sefyll, ac roedd tystiolaeth o hyn yn y gwaeth maes.

Ni chafodd unrhyw dystiolaeth o weithgareddau Rhufeinig ei nodi yn ystod y mantoliad. Doedd dim darganfyddiadau, felly gall y nodweddion a nodwyd ond yn gallu cael ei dyddio gan gydweddiad a does dim byd er mwyn i'r awdur rhoi unrhyw oedran iddynt. Mae cronoleg a awgrymwyd ar gyfer y draenau, mae'r rhai cynharaf yw'r rhai gyda phibellau clai ac yn hwyrach 'to yw'r rhai gyda phibellau plastig.

Wnaeth y Gwaith I gyd gydymffurfio i'r safonau a Chyfarwyddiadau ar gyfer Mantoliadau Cae Archeolegol (CIfA 2020) a'r Safonau a Chyfarwyddiadau am y Casgliad Arteffact ac Amgylcheddol, Dogfennaeth Cadwraeth ac Ymchwil (CIfA 2020).

1. Introduction

1.1.1. Archaeology Wales has been appointed by Taiyo Power & Storage Limited (herein referred to as "the Applicant") to undertake an archaeological evaluation for a proposed Non-EIA[1] utility-scale solar and battery storage facility on land fronting the A484 and Swansea Road (B4560) at Gowerton, Swansea. It will deliver a host of landscape, biodiversity, soil and hydrological enhancements, including measures to strengthen habitat connectivity through this part of the valley, the creation of green buffer zones and public right of ways improvements. The development is called 'Parc Solar Caenewydd'.

1.1.2. This archaeological field evaluation report is being published to accompany a pre-application consultation carried out under Articles 8 and 9 of the Development of National Significance (Procedure) (Wales) Order 2016.

1.1.3. In October 2022 Archaeology Wales (henceforth - AW) was commissioned by Heritage Archaeology on behalf of Taiyo Power & Storage Limited (herein referred to as "the Applicant") to carry out an Archaeological Field Evaluation on land to the south of Swansea Road, Llewitha, Swansea; centred on NGR SS 60208 96928 (Figure 1).

1.1.4. The evaluation was carried out in accordance with a Written Scheme of Investigation (Archaeology Wales 2022, Appendix II), which was approved in advance by the Glamorgan-Gwent Archaeological Trust in their capacity as archaeological advisors to Swansea Council.

1.1.5. The evaluation comprised the excavation of 30 trenches which measured 30m in length and 1.8m in width (Figure 2).

1.1.6. The field work was carried out under the supervision of Dan Moore and Jessica Woolley with assistance from Jerry Bond, Jim Toseland, Daniel Morgan and Rachel Willmot. The project was managed by Charley James-Martin (MCIfA – AW Project Manager).

2. Site Description and Archaeological Background

2.1. Location, Topography, and Geology

2.1.1. The proposed development site is an area of mostly pasture bounded by residential and industrial estates. Within the bounds of the development lies Penyfodau Fawr Farm and the southern part of the development area is traversed by the Afon Llan. The site is bounded to the north by the B4560, Swansea Road that links Fforestfach to Gorseinon (Figure 1).

[1] *On 17 August 2022, Planning & Environmental Decision Wales adopted its Environmental Impact Assessment (EIA) Screening Direction. The Welsh Ministers direct that the development is not EIA development within the meaning of the Regulations*

2.1.2. The underlying geology comprises sandstone in the north with the addition of mudstone and siltstone to the south of the Grovesend Formation. This is overlain by superficial deposits of Devensian Till at the north and alluvium comprising clay, silt, sand and gravel at the south of the site (BGS 2022).

2.2. Archaeological and Historic Background

2.2.1. A desk-based assessment was carried out by Pegasus Group (Pratt 2022). This report highlighted the potential for Roman activity within the development area. This report notes that Swansea Road, to the north of the site, was the route of a Roman road linking forts at Loughor and Neath (RR60d-04). The buried remains of two Roman practice camps were located at Carn Goch Common c.100m north of the site (00381w, 00382w) and at Stafford Common c.370m west of the site (00221w). Various coins were also found within the vicinity.

2.2.2. The desk based assessment also indicated that evidence of land use may be present dating from the medieval periods through to the early post-medieval most and that this is likely agricultural in nature.

2.2.3. Documented remains of post-medieval date within the boundary included Penyfodau Fawr farmhouse dating from the 19th century. There was also evidence for industrial activity in the form of the Penclawdd Canal and a leat. There is the potential for buried remains of the tramway and mineral railway as well as structures relating to these and the mining activity shown on the historic mapping.

2.2.4. A geophysical survey was carried out by Magnitude Surveys (Wilkinson 2023) in accordance with methodology agreed with GGAT. The survey identified possible archaeological activity in the north of the site with the indication of enclosures present just to the south of the A484. Other features noted included evidence of agricultural activity, such as field boundaries, ridge and furrow and modern ploughing, as well as anomalies linked to the known industrial uses.

3. Methodology

3.1.1. The work was undertaken to meet the levels required by the Chartered Institute for Archaeologists in their *Standard and Guidance for Archaeological Field Evaluation* (2020). The trenching was agreed, via the approved WSI, with GGAT.

3.1.2. The work was carried out in two phases: Phase 1 involved the excavation of Trenches 1-14, which were located within Fields 1-3 (Figure 2 and 3); Phase 2 included the excavation of Trenches 15-30 in Fields 13-15 (Figure 2 and 3).

3.1.3. The excavations were carried out by a tracked 360-degree excavator using a toothless ditching bucket. The entire process was monitored by a suitably trained archaeologist.

3.1.4. Any archaeological remains encountered were cleaned, excavated where appropriate, and recorded through the use of proforma recording sheets, scale drawings, photography, and GPS.

3.1.5. All deposits were recorded by means of a continuous context numbering system and recorded on pro-forma context sheets. Sections and plans of the excavation were photographed using a 12MP digital camera. All works were undertaken in accordance with current Health and Safety legislation.

4. Results

Figures 4-7

4.1. Overview

4.1.1. The evaluation consisted of 30 evaluation trenches excavated across two areas. The trenches were machine dug to the top of any archaeological features or the geological natural layers, whichever was reached first. All trenches measured 30m long and 1.8m wide, unless otherwise stated, individual depths are provided for each trench below.

Table 1: Trench Summary

Trench	Area	Dimensions	Orientation	Plan	Section	Content
1	1	L:30m x W:1.8m x D:0.55m	NW-SE	Figure 4		Single undated pit [1003] feature
2	1	L:30m x W:1.8m x D:0.50m	N-S	Figure 4		Archaeologically sterile
3	1	L:30m x W:1.8m x D:0.55m	WNW-ESE	Figure 4	Figure 6	Two linear features [3003} and [3008], [3008] was recut by [3005]
4	1	L:30m x W:1.8m x D:0.42m	WNW-ESE	Figure 4		Single linear feature [4003]
5	1	L:30m x W:1.8m x D:0.7m	NE-SW	Figure 4		Archaeologically sterile
6	1	L:30m x W:1.8m x D:0.58m	NE-SW	Figure 4		Archaeologically sterile
7	1	L:30m x W:1.8m x D:0.5m	E-W	Figure 4		Archaeologically sterile
8	1	L:30m x W:1.8m x D:0.6m	N-S	Figure 4		Archaeologically sterile
9	1	L:30m x W:1.8m x D:0.4m	N-S	Figure 4	Figure 6	Three linear features [9002], [9006] and [9008]

10	1	L:30m x W:1.8m x D:0.4m	ENE-WSW	Figure 4		Single linear feature [10005]
11	1	L:30m x W:1.8m x D:0.4m	NNW-SSE	Figure 4		Archaeologically sterile
12	1	L:30m x W:1.8m x D:0.54m	N-S	Figure 4		Archaeologically sterile
13	1	L:30m x W:1.8m x D:0.65m	NE-SW	Figure 4		Single linear feature [13003]
14	1	L:30m x W:1.8m x D:0.64m	N-S	Figure 4		Two linear features [14002] and 14004]
15	2	L:27m x W:1.8m x D:0.4m	NE-SW	Figure 5		Single linear feature [15002]
16	2	L:30m x W:1.8m x D:0.5m	NE-SW	Figure 5		Archaeologically sterile
17	2	L:28m x W:1.8m x D:0.45m	NW-SE	Figure 5	Figure 7	Single linear feature [17003]
18	2	L:30m x W:1.8m x D:0.2m	N-S	Figure 5		Archaeologically sterile
19	2	L:30m x W:1.8m x D:0.3m	NNW-SSE	Figure 5		Archaeologically sterile
20	2	L:30m x W:1.8m x D:0.57m	NE-SW	Figure 5		Archaeologically sterile
21	2	L:30m x W:1.8m x D:0.4m	NE-SW	Figure 5		Archaeologically sterile
22	2	L:30m x W:1.8m x D:0.4m	NE-SW	Figure 5		Archaeologically sterile
23	2	L:30m x W:1.8m x D:0.5m	NE-SW	Figure 5	Figure 7	Five linear features noted [23002], [23004], [23010], [23006] and [23008]
24	2	L:30m x W:1.8m x D:0.48m	SE-NW	Figure 5		Archaeologically sterile
25	2	L:30m x W:1.8m x D:0.6m	E-W	Figure 5		Three irregular pit like features [25002], [25004] and [25006]. All

						considered to be natural in origin
26	2	L:30m x W:1.8m x D:0.55m	N-S	Figure 5	Figure 7	Four linear features [26003], [26005], [26006]and [26007]. [26006] and [26007] are considered to be stone filled field drains.
27	2	L:30m x W:1.8m x D:0.4m	N-S	Figure 5		Archaeologically sterile
28	2	L:30m x W:1.8m x D:0.7m	E-W	Figure 5		A possible boundary ditch [28005] and two field drains [28002] and [28007], and the fourth; field drain [28003] cut boundary ditch [28005].
29	2	L:30m x W:1.8m x D:0.61m	E-W	Figure 5		Archaeologically sterile
30	2	L:30m x W:1.8m x D:0.62m	N-S	Figure 5	Figure 7	A ditch [30003] and a land drain [30002].

4.2. Trench 1 (Plate 1)

4.2.1. Trench 1 was located at the eastern end of the site, close to the eastern boundary in Field 1. It was aligned northwest-southeast and measured 30m long, 1.8m wide, with a maximum depth of 0.55m. It was targeted across the junction of two linear features and one oval feature. No sign of the former was noted, but the oval feature correlates with pit [1003] identified at the southern end of the trench.

4.2.2. Two layers of natural (1001) and (1002) were identified, with the former across the trench, whilst the latter was only visible in the excavation of pit [1003], which is discussed below.

4.2.3. Layer (1002) was a mid-yellow brown with grey mottling, sandy (30%) clay (70%) layer with subrounded stones up to 0.2m in size and a thickness of more than 0.15m. This was the lower of the two natural layers, with the mottling possibly indicative of seasonal waterlogging.

4.2.4. Overlying (1002) was (1001), a mid-yellow brown, sandy clay with a thickness of 0.15m.

4.2.5. Cutting the (1001), was a single feature [1003]; half of a circular or oval pit located against the southwest baulk of the trench. it measured 1.4m wide, 0.4m deep and1.6m long, as excavated, with a concave profile. It contained three fills, the earliest being (1006), above which was (1004) followed by (1005).

4.2.6. Deposit (1006) was the primary fill of pit [1003]. It was a moderately compact, mid-brown-yellow sandy clay with a thickness of 0.04m. It contained moderately frequent quantities of sub angular stones with an average size of less than 0.1m.

4.2.7. Above (1006) was (1004); a moderately firm, dark brown-black sandy clay loam with a thickness of 0.15m with possible burnt material within it.

4.2.8. The upper fill of the pit was deposit (1005); a moderately compact, mid-grey-brown with orange mottling and red fleck, sandy clay loam. It measured 0.2m in thickness and contained moderately frequent sub angular stones with an average size of less than 0.05m.

4.2.9. The uppermost deposit in Trench 1 was the extant topsoil layer (1000); a mid-dark grey-brown clayey silt with a thickness of 0.25m.

4.3. Trench 2 (Plate 2)

4.3.1. Trench 2 was located centrally in the southern half of Field 1. It was aligned north-south, was 30m long, 1.8m wide, with a depth of 0.5m. Trench 2 was targeted across two sections of the same curvilinear feature that was targeted in Trench 1; however no features were noted within this trench.

4.3.2. The deepest layer encountered was natural deposit (2002); a moderately firm, mid-yellow brown with grey mottling, sandy (30%) clay (70%). The deposit contained inclusions of moderately frequent rounded and sub angular stones with an average size of less than 0.2m and had a thickness of more than 0.05m.

4.3.3. Overlying (2002) was (2001), the upper natural layer, a pale yellow brown sandy (20%) clay with a thickness of 0.25m. Overlying this layer was the extant topsoil layer (2000); a mid-dark grey-brown clayey silt with a thickness of 0.2m.

4.4. Trench 3 (Plate 3, Figure 6)

4.4.1. Trench 3 was located just to the west of the centre of Field 1. It was aligned west-northwest to east-southeast and was 30m long, 1.8m wide and 0.55m deep. Trench 3 was targeted across the line of two linears; one aligned southwest-northeast and the other aligned north-south. Two linear features were recorded: [3003] and [3008] which was recut by [3005].

4.4.2. The earliest layer encountered was the natural clay (3002), an orange with grey mottling sandy clay with rounded stone inclusions and was more than 0.05m thick. Above this deposit was natural layer (3001); an orange-yellow sandy clay with a thickness of 0.3m.

4.4.3. Within Trench 3 were three linear features, all identified as ditches. Two of them cut

natural layer (3001). One of them was subsequently recut by the third ditch.

4.4.4. Cutting deposit (3001), the westernmost feature was ditch [3003], which was orientated on a north-south alignment. It was 1.6m wide and had a depth of 0.37m and a length of more than 1.8m. The ditch contained a single fill (3004), which comprised a moderately firm, mid-dark brown-grey silty clay loam with occasional small angular stones within it.

4.4.5. To the east of this feature was [3008]; a linear ditch also aligned roughly north-south. It was 0.8m wide and 0.4m deep and was more than 1.8m long. It contained a single fill (3007); a moderately firm, mid-grey-brown silty clay with inclusions of occasional rounded stones/cobbles and it was truncated on its western side by ditch [3005].

4.4.6. Ditch [3005] was a linear ditch aligned north-south, with a width of 1.8m and a depth of 0.4m and was more than 1.8m long. It was filled by (3006) a loose to moderately firm, dark grey-brown silty clay. The ditch was interpreted as a recut of ditch [3008].

4.4.7. Overlying these features was the extant topsoil (3000) a mid-dark grey-brown silty clay loam with a thickness of 0.2m.

4.5. Trench 4 (Plate 4)

4.5.1. Trench 4 was located in the north-eastern corner of the site, it was aligned west-northwest to east-southeast and measured 30m long, 1.8m wide with a depth of 0.42m. Trench 4 targeted two linear features that were also targeted in Trench 1 and 3. The westernmost feature encountered was most likely one of those which was seen in Trench 3 however the feature leading from Trench 1 was not noted.

4.5.2. The lower natural layer was a mid-orange/yellow with grey mottling sandy clay (4002) and a thickness of more than 0.05m. Overlying this was natural layer (4001); a mid-orange/yellow sandy clay with a thickness of 0.18m.

4.5.3. Cutting (4001) was [4003], a linear ditch aligned north-south. It was 1.65m wide with a depth varying from 0.42-0.57m and a length of more than 1.8m. It contained a single fill (4004) a moderately firm, dark grey-brown sandy clay loam.

4.5.4. The uppermost deposit was the extant topsoil layer (4000); a mid-dark grey-brown sandy clay with occasional small, rounded stones, which was 0.42m thick.

4.6. Trench 5 (Plate 5)

4.6.1. Trench 5 was located in the northwest corner of Field 1. It was aligned southwest-northeast and was 30m long, 1.8m wide with a depth of 0.7m. Trench 5 was targeted across two northwest-southeast aligned linear features, however no features were noted within the trench.

4.6.2. Trench 5 contained four layers, the earliest being natural deposit (5002). which was a yellow-orange sandy clay with moderate quantities of stones and was more than 0.05m thick. Above (5002) was natural layer (5001) a yellow/orange sandy clay with a thickness of 0.4m with very occasional small stones within it. Overlying this was

deposit (5003), a grey sandy clay with a thickness of 0.1m. The uppermost deposit was (5000), the extant topsoil layer, a firm dark grey-brown clay loam with a thickness of 0.2m.

4.7. Trench 6 (Plate 6)

4.7.1. Trench 6 was located in the west of Field 1. It was aligned southwest-northeast, measured 30m long with a width of 1.8m and a depth of 0.58m. Trench 6 was targeting a possible junction of two features at its west end, and at its east end, a possible pit. No features were noted within this trench.

4.7.2. The earliest layer encountered was natural sandy clay (6002); a firm, orange deposit with grey mottling, with occasional small and medium sized stones, which was more than 0.08m in thickness.

4.7.3. Above this was natural layer (6001); an orange/yellow sandy clay with very occasional small and medium stones, measuring 0.09m thick. Above (6001) was (6003), a mid-brownish grey sandy clay, measuring 0.16m thick, which possibly represented a plough soil interface layer.

4.7.4. Overlying (6003) was deposit (6000), the extant topsoil, described as a mid-dark grey-brown sandy clay with a thickness of 0.25m.

4.8. Trench 7 (Plate 7)

4.8.1. Trench 7 was located in the northeast of Field 2, it was aligned approximately east-west, was 30m long, 1.8m wide and 0.5m deep. No features were noted.

4.8.2. The deepest layer encountered was the lower natural layer (7002), a firm, mid-brown-yellow sandy clay. It was 0.05m thick and contained moderately frequent quantities of sub rounded stones with an average size of less than 0.1m. Overlying this deposit was natural layer (7001), which was a firm, mid-brown-yellow sandy clay with a thickness of 0.15m and contained very occasional small stones.

4.8.3. The uppermost deposit was the extant topsoil layer (7000) a mid-grey-brown clayey silt with a thickness of 0.3m.

4.9. Trench 8 (Plate 8)

4.9.1. Trench 8 was located centrally within Field 2 and was aligned north-south. It was 30m long, 1.8m wide and 0.6m deep. Trench 8 was located to target an east-west aligned linear feature at its southern end, though no features were noted within it.

4.9.2. The deepest natural layer encountered was (8002). It was described as a mid-brown-yellow sandy clay with a thickness of more than 0.05m and very occasional contained sub rounded stones. Overlying was a similar deposit (8001), described as a mid-brown-yellow sandy clay with a thickness of 0.25m with no stones present.

4.9.3. Overlying (8001) was the extant topsoil layer (8000), which was a mid-grey-brown clayey silt with a thickness of 0.3m.

4.10. Trench 9 (Plate 9, Figure 6)

4.10.1. Trench 9 was located in the west of Field 2 and was aligned north-south. It was 30m long and 1.8m wide with a depth of 0.4m. Trench 9 targeted three east-west aligned linear features. Three ditches were noted within this trench as well as a possible posthole.

4.10.2. The natural (9001) was a compact, mottled grey and yellow silty clay with occasional small and medium sized subrounded and angular stones and it was more than 0.08m thick.

4.10.3. Cutting [9001] in the northern half of the trench against the western baulk was a posthole [9004]. It was circular in plan with a concave profile, 0.2m wide, 0.15m deep and 0.8m long and contained a single fill (9005); a moderately compact, mid-greyish brown clayey silt with no stones noted.

4.10.4. Truncating (9005) on its northern side was an east-west aligned ditch [9002], it was 1.05m wide, 0.2m deep and more than 1.8m long and had moderately steep sides and a flattish base. The ditch contained a single fill (9003); a moderately compact, mid-dark grey-brown clayey silt with occasional small and medium sized rounded stones.

4.10.5. To the south of [9002], a second east-west linear ditch feature was located [9006]. It had a steeply sloping northern side and u-shaped base. the southern side had been later truncated. It measured 0.85m wide with a depth of 0.05m and was more than 1.8m long. It contained a single fill (9007), a soft, wet, mid-brownish grey clayey silt with burnt roots noted.

4.10.6. Truncating (9007) on its southern side was the cut [9008] for a plastic drainpipe, it appears to have been excavated and backfilled rapidly as its three fills were fairly mixed with two deposits laying across its base. On its southern side was deposit (9009); a moderately firm, mid-greyish brown, clay silt with aggregate stones and the plastic pipe. To the north was (9011); also described as a moderately firm, mid-greyish brown, clay silt. Overlying both deposits was (9010) a moderately firm, mid-greyish brown, clay silt with very occasional sub angular stones and burnt roots.

4.10.7. Overlying (9010) and (9003) was the extant topsoil layer (9000); a moderately loose, dark grey-brown clay loam with a thickness of 0.2-0.3m

4.11. Trench 10 (Plate 10)

4.11.1. Trench 10 was located in the west of Field 2, it measured 30m long, 1.8m wide and 0.4m deep and aligned west-southwest to east-northeast. Trench 10 was positioned to target two north-south aligned features. The trench revealed a ditch at the western end and a stony deposit/spread toward its eastern end.

4.11.2. The lower natural layer (10003) was a firm, yellow-orange sandy clay with a thickness of more than 0.05m and it contained moderate quantities of rounded stones.

4.11.3. Above this was an upper subsoil layer (10002); a firm, yellow-orange sandy clay with a thickness of 0.25m and it was noted that it contained no stones but was otherwise the same as (10003).

4.11.4. Within the eastern half of the trench, overlying deposit (10002), a spread (10004) of grey silty clay with frequent stones was noted. It was 3.5m wide and spanned the width of the trench.

4.11.5. Toward the western end of the trench, cutting deposit (10002), was a linear ditch [10005]. It was 0.4m wide, 0.18m deep and was more than 1.m long. The ditch was aligned northeast-southwest, with sloping sides and a concave base. It contained a single fill (10006); a compact, mid-brown silty clay with a thickness of 0.18m and no stones noted as being present within it.

4.11.6. The uppermost deposit was the extant topsoil layer (10001); a dark brown clay loam with a thickness of 0.1m.

4.12. Trench 11 (Plate 11)

4.12.1. Trench 11 was located in the north of Field 3. It was aligned north-northwest to south-southeast and measured 30m long, 1.8m wide and 0.4m deep. Trench 11 targeted an east-west linear and the edge of a larger anomaly. No features were encountered within this trench.

4.12.2. The natural (11001)_was a firm, mottled pale yellow and pale grey-brown silty clay, with a thickness of more than 0.06m and containing frequent rounded stones. Overlying was the extant topsoil layer (11000); a moderately loose, mid-dark grey-brown silty loam with a thickness of 0.34m.

4.13. Trench 12 (Plate 12)

4.13.1. Trench 12 was located centrally to Field 3 and was aligned north-south. It was 30m long and 1.8m wide, with a depth of 0.54m. Trench 12 targeted two east-west linears and was located between two larger possible features. No features were noted within this trench.

4.13.2. The natural (12001) was a firm, mottled pale yellow and pale grey-brown silty clay with a thickness of more than 0.3m and containing frequent rounded stones. Overlying was the extant topsoil layer (12000); a moderately loose, mid-dark grey-brown silty loam with a thickness of 0.24m.

4.14. Trench 13 (Plate 13)

4.14.1. Trench 13 was located centrally to southern area of Field 3. It was aligned southwest-northeast and measured 30m long, 1.8m wide, with a depth of 0.65m. Trench 13 targeted a northwest-southeast linear feature, which aligned with a feature noted within this trench.

4.14.2. The lower natural (13002) was a mid-brownish-yellow, silty clay with a thickness of

more than 0.08m. It contained very occasional small sub angular stones. Above was a further natural layer (13001); a soft, mid-greyish yellow sandy clay with a thickness of 0.07m and no stones within it.

4.14.3. Cutting natural layer (13001) was [13003]; a linear ditch aligned northwest-southeast. It was 1m wide, 0.56m deep and more than 2.2m long. It contained a single fill (13004), which was a soft, dark greyish brown clay silt with occasional small and medium sized sub angular stones.

4.14.4. The uppermost deposit, overlying (13004), was the extant topsoil layer (13000) a soft, dark greyish brown clay silt with a thickness of 0.5m. It contained occasional small sub rounded stones.

4.15. Trench 14 (Plate 14)

4.15.1. Trench 14 was located in the south-east area of Field 3, it was aligned north-south, was 30m long, 1.8m wide with a depth of 0.64m. Trench 14 targeted the same linear feature seen in Trench 13, as well as the southern edge of a larger anomaly at its northern end. Two linear features were noted across the trench but there was no indication of the larger feature to the north.

4.15.2. The deepest layer encountered was a natural deposit (14001); a firm, mid-brownish yellow, silty clay with a thickness of more than 0.4m which contained moderately frequent small sub angular stones.

4.15.3. Cutting the natural were two linear ditch features: [14002] aligned east-west across the trench; and to its north was [14004], which was also aligned east-west across the trench.

4.15.4. The southern ditch [14002] was 1.1m wide, 0.15m deep and more than 1.8m long. It had straight sides with a steep slope and a flattish but irregular base. It contained a single fill (14003); a soft, dark greyish brown clay silt with very occasional, small sub angular stones.

4.15.5. The northern ditch [14004] was 1.08m wide, 0.16m deep and was more than 1.8m long. It was steeply sloped on the south with a shallower slope on the north, whilst its base was flat. It contained a single fill (14005); a moderately firm, mid-greyish brown clay silt and it contained infrequent quantities of small sub angular stones with a size of up to 0.1m.

4.15.6. Overlying (14003) and (14005) was the extant topsoil layer (14000); a mid-grey-brown silty loam with a thickness of 0.25m, containing very occasional small stones.

4.16. Trench 15 (Plate 15)

4.16.1. Trench 15 was located centrally at the southern tip of Field 14. It was aligned southwest-northeast. Due to nearby services this trench was shortened by 3m on its eastern side. It had a width of 1.8m and it was machined to a depth 0.4m. Trench 15 targeted two sections of a curvilinear feature though this was not identified within

the trench, whilst a modern copper water pipe was noted.

4.16.2. The natural (15001) was a moderately firm, mid-brownish yellow silty clay with a thickness of more than 0.14m.

4.16.3. Cutting the subsoil was feature [15002]; a cut for a modern 0.1m diameter copper pipe with a surviving length of more than 2m, which was a defunct water pipe.

4.16.4. The uppermost was the extant topsoil layer (15000), a moderately firm, mid-greyish brown, clay silt, with a thickness of 0.26m.

4.17. Trench 16 (Plate 16)

4.17.1. Trench 16 was located centrally and to the north of Field 14, it was aligned southwest-northeast with a length of 30m, a width of 1.8m and a depth of 0.5m. Trench 16 targeted at least three intercutting linear features, though none were encountered during the excavations.

4.17.2. The natural (16001) was a firm, pale brownish yellow sandy clay with occasional bedrock outcrops and it was more than 0.18m thick. Overlying this was the extant topsoil (16000), a soft, mid-grey-brown silty loam with a thickness of 0.32m.

4.18. Trench 17 (Plate 17, Figure 7)

4.18.1. Trench 17 was located centrally in Field 14, it was aligned northwest-southeast with a length of 28m (shortened due to services), a width of 1.8m and a depth of 0.45m. Trench 17 targeted two linear features and across a larger anomaly. The northernmost linear was encountered, though no indication of the other two possible features was encountered.

4.18.2. The natural (17001) was a moderately firm, mid-brownish yellow silty clay, with a thickness of more than 0.18m.

4.18.3. Cutting the natural was a shallow and irregular drainage ditch [17002]. It was aligned southwest-northeast across the trench toward its northern end. The cut was 0.4m wide with a depth of 0.35m and was more than 1.8m in length. It contained a single fill (17003); a soft, mid-grey-brown silty clay with charcoal flecks. It had a width of 0.4m and a maximum thickness of 0.35m and a length of more than 1.8m.

4.18.4. Overlying (17003) was the extant topsoil layer (17000); a mid-grey-brown clay silt loam with a depth of 0.26m.

4.19. Trench 18 (Plate 18)

4.19.1. Trench 18 was located in the west of Field 14 and was aligned north-south, it was 30m long with a width of 1.8m and a depth of 0.2m. Trench 18 targeted two possible linear features and a larger anomaly, no features were encountered within the trench.

4.19.2. The earliest layer encountered was the natural bedrock (18002) located across the

southern third of the trench. Overlying the bedrock to the north was natural layer (18001); a moderately firm, pale orange-brown silty clay with a thickness of more than 0.05m. Overlying (18001) was the extant topsoil layer (18000); a soft, very dark brown silty loam with a thickness of 0.15m.

4.20. Trench 19 (Plate 19)

4.20.1. Trench 19 was located in in the western half of Field 15 and was aligned north-northwest to south-southeast. It was 30m long with a width of 1.8m and had an excavated depth of 0.3m. Trench 19 targeted two linear anomalies, neither of which were noted within the excavated trench.

4.20.2. The natural (19001) was a firm, pale yellow-brown sandy clay with a thickness of more than 0.15m. Overlying this was (19000); the extant topsoil layer. It was a moderately firm, mid-grey-brown clay silt with a thickness of 0.15m.

4.21. Trench 20 (Plate 20)

4.21.1. Trench 20 was located in the west of Field 15. It was aligned southwest-northeast with a length of 30m, a width of 1.8m and a depth of 0.57m. Trench 20 targeted two northwest-southeast aligned linear anomalies and a larger anomaly. No features were noted within the trench but a large bedrock outcrop at the north-eastern end was likely the cause of the geophysical survey results.

4.21.2. The natural (20001) was a soft mid-yellow-brown sandy clay with a thickness of more than 0.22m. It had a bedrock outcrop at the northern end.

4.21.3. Overlying the natural was the extant topsoil layer (20000); a soft, dark greyish brown clay silt with very occasional small stones. which was 0.35m thick.

4.22. Trench 21 (Plate 21)

4.22.1. Trench 21 was located in the north of Field 15. It was aligned southwest-northeast with a length of 30m, a width of 1.8m and a depth of 0.4m. Trench 21 targeted a northwest-southeast aligned linear anomaly, of which there was no evidence found within the trench.

4.22.2. The natural (21001) was a moderately firm, yellow-grey sandy clay with a thickness of more than 0.1m. Above was the extant topsoil layer (21000); a moderately firm, mid-grey-brown clayey silt with a thickness of 0.3m.

4.23. Trench 22 (Plate 22)

4.23.1. Trench 22 was located in the northern area of Field 15. It was aligned southwest-northeast and was 30m long with a width of 1.8m and a depth of 0.4m. Trench 22 targeted northwest-southeast aligned anomalies at either end of the trench though no signs of these were encountered within the trench.

4.23.2. The natural (22001) was a firm, pale yellow-brown sandy clay with a thickness of

more than 0.1m. Above was the extant topsoil layer (22000), a moderately firm, mid-grey-brown clay silt with a thickness of 0.3m.

4.24. Trench 23 (Plate 23, Figure 7)

4.24.1. Trench 23 was located in the southwestern area of Field 13. It was aligned southwest-northeast, with a length of 30m, a width of 1.8m and a depth of 0.5m. Trench 23 targeted two northwest-southeast aligned linear features at either end. Five features were recorded within the trench.

4.24.2. The natural (23001) was a firm, grey and yellow clay with a thickness of more than 0.1m. Cut through this deposit were four linear features, one being later truncated by a fifth linear.

4.24.3. Located in the southern corner of the trench was [23002]; a shallow linear gully with concave sides and a flat base. It was aligned southwest-northeast, with a width of 0.33m, a depth of 0.14m and ran for a length of more than 5m. It contained a single fill (23003); a moderately firm, mid-brownish grey clay silt with occasional small angular stones.

4.24.4. Located to the northeast of [23002] was [23004]; a linear gully with concave sides and a flat base, it was aligned roughly parallel to [23002] and was 0.25m in width, with a depth of 0.05m and ran for more than 4m. It contained a single fill (23005); a moderately firm, mid-grey-brown silty clay with very occasional very small stones (smaller than 0.05m).

4.24.5. To the north and located centrally to the trench was [23010]; a linear gully aligned northwest-southeast across the trench. It was a shallow feature, with concave sides and a flat base, measuring 0.4m wide, with a depth of 0.06m and a length of more than 1.8m. It contained a single fill (23011); a moderately firm, mid-brownish grey silty clay with infrequent very small sub angular stones (0.05m).

4.24.6. To the northwest was [23006], a slightly curving linear ditch measuring 1.78m wide, with a depth of 0.09m. It had straight shallow sides and a shallow curved base and it was more than 1.8m long. It contained a single fill (23007); a soft, dark greyish brown sandy silt, and it contained very occasional medium sized stones (limestone).

4.24.7. Cutting deposit (23007) was a further gully [23008] on the same alignment as [23006]. This feature had concave sides and a relatively flat base. It was 0.5m wide with a depth of 0.1m and was more than 1.8m in length, aligned northwest-southeast. It contained a single fill (23009); a soft, dark grey-brown sandy silt, with occasional medium sized stones (limestone).

4.24.8. The uppermost deposit was the extant topsoil layer (23000); a moderately firm, mid--grey-brown silty clay with a thickness of 0.4m.

4.25. Trench 24 (Plate 24)

4.25.1. Trench 24 was located centrally in the southern area of Field 13, it was aligned

northwest-southeast, with a length of 30m, a width of 1.8m and a depth of 0.48m. Trench 24 targeted three linear anomalies, none of which were encountered within the trench.

4.25.2. The natural (24001) was a firm, yellow and grey clay with a thickness of more than 0.2m. Overlying this was the extant topsoil (24000); a moderately firm, mid-grey-brown silty clay, with a thickness of 0.28m.

4.26. Trench 25 (Plate 25)

4.26.1. Trench 25 was located directly to the north of Trench 24 within Field 13. It was aligned east-west with a length of 30m, a width of 1.8m and a depth of 0.6m. Trench 25 targeted three north-south linear anomalies. No linear features were noted within the trench but three irregular pit like features were recorded.

4.26.2. The natural (25001) was a mid-orange-yellow silty clay with occasional large stones and a thickness of more than 0.25m.

4.26.3. Cutting the natural were three irregular pit like features: [25002], [25004] and [25006].

4.26.4. Within the western half was [25002]; an irregular oval shaped pit with a long narrow extension to the east and irregular sides and base. It was aligned east-west and was 2.1m long, with a width at its widest point of 0.6m and a depth of 0.15m. It contained a single fill (25003); a friable, mid-brown-grey with orange mottling, silty clay with very occasional charcoal flecks. This feature was considered to be of a natural origin, most likely a root bowl.

4.26.5. To the east was another feature [25004]; an irregular pit like feature with diffuse irregular edges and an irregular base. It was 0.7m long with a width of 0.57m and a depth of 0.12m. It contained a single fill (25005); a pale grey clay with yellow variations. Following investigation this feature was considered to be an undulation in the natural.

4.26.6. Toward the east was another irregular feature [25006]. It was irregular in plan and sides/base and was 1.6m long with a width of 0.75m and a depth of 0.15m. It contained a single fill (25007); a fairly firm, mid-whitish grey clay containing frequent irregular small stones (0.01 to 0.1m). Following investigation this feature was considered to be an undulation in the subsoil/natural.

4.27. Trench 26 (Plate 26, Figure 7)

4.27.1. Trench 26 was located to the north of Trench 25 and was aligned north-south. It was 30m long, with a width of 1.8m and a depth of 0.55m. Trench 26 targeted a large east-west anomaly in the northern half of the trench which was not encountered, but four features were noted: two ditches and two field drains. All aligned southwest-northeast and seem to be visible on the aerial maps.

4.27.2. The natural (26001) was a firm, pale orange-brown silty clay with occasional small

stones. It was more than 0.15m thick.

4.27.3. Cutting the subsoil were four cut features: two ditches, [26002] and [26004]; and two stone filled field drains, [26006] and [26007].

4.27.4. Located at the southern end of the trench were a pair of parallel ditches running southwest-northeast aligned across the trench. The northern of the two ditches [26004] appeared to be truncated by the southern ditch [26002].

4.27.5. The northern ditch [26004] had straight, steep sides (c.65-70°), with a sharp concave base, and was 0.6m wide, 0.25m deep and more than 2m long. It contained a single fill (26005); a moderately firm, pale brownish grey silty clay.

4.27.6. The ditch to the south [26002] had straight sides with a 45° slope, a flat base, and a width of 0.75m, a depth of 0.27m and a length of more than 2m. It cut fill (26005) of [26004]. The ditch contained a single fill (26003); a fairly compact, mid-brownish grey, silty clay with very occasional small, sub angular stones.

4.27.7. Centrally to the trench were two field drains (French drains [26006] and [26007]), which were filled with sub rounded cobbles. They were 0.2m wide and more than 2m long and were aligned southwest-northeast. Both were thought to be identical in date and form.

4.27.8. The uppermost deposit was the extant topsoil (26000), a compacted, dark grey brown, clay loam, which was 0.4m thick.

4.28. Trench 27 (Plate 27)

4.28.1. Trench 27 was located centrally in the northern half of Field 13 and was aligned north-south. It was 30m long, 1.8m wide and 0.4m deep. Trench 27 targeted a large east-west linear anomaly at its southern end, which was not encountered during the excavations.

4.28.2. The natural (27001) was a firm, mottled yellow and grey clay, and was more than 0.1m thick. Above was the extant topsoil, (27000); a moderately firm, mid-grey-brown clayey silt with a thickness of 0.3m.

4.29. Trench 28 (Plate 28)

4.29.1. Trench 28 was aligned east-west and was 30m long, 1.8m wide and 0.7m deep. Trench 28 targeted a small anomaly at its eastern end. Four features were noted within that area of the trench.

4.29.2. The natural (28001) was a firm, mottled yellow and grey clay with a thickness of more than 0.32m.

4.29.3. Within this trench were four features, three of which cut the natural: a possible boundary ditch [28005] and two field drains [28002] and [28007], and the fourth; field drain [28003] cut boundary ditch [28005].

4.29.4. The ditch [28005] was aligned southwest-northeast with irregular sides. It was fairly

shallow with an irregular base and measured 1.2m wide with a depth of 0.3m and more than 2m long. It contained a single fill (28006); a soft, mid-brownish grey, clayey sand, within which were very occasional small stones.

4.29.5. Cutting deposit (28006) on its west and along the same alignment was cut [28003] of a field drain. It had irregular sides and a flat base and measured 0.5m wide with a depth of 0.2m. It was filled with (28004); a soft, mid-brownish grey sandy clay with frequent largish rectangular stones forming the fill of the drain.

4.29.6. To the east of [28005]/[28003] was a further field drain [28007]. It was aligned west-southwest to east-northeast and was filled with black aggregate/furnace waste overlying a ceramic pipe.

4.29.7. To the west of the above was [28002]; another modern field drain. It was aligned north-south and was filled with a dark grey silty clay within which were medium sized sub rectangular and rounded stones.

4.29.8. The uppermost deposit was the mid-grey-brown topsoil (28001) which had a depth of 0.38m.

4.30. Trench 29 (Plate 29)

4.30.1. Trench 29 was located in the northeast of Field 13 and was aligned east-west. It measured 30m long, 1.8m deep and had a depth of 0.61m. Trench 29 was not on any anomalies though there was one adjacent to its eastern end and another just to the north of the western end of the trench. No features were encountered within this trench.

4.30.2. The natural (29001) was a firm, grey mottled mid-orange-brown clayey sand with very occasional stones (sandstone), which was more than 0.23m thick.

4.30.3. Cutting the natural subsoil was [29002]; the cut of a modern/post-medieval field drain filled with stones and silt. It was aligned northwest-southeast and was 0.5m wide and more than 2.2m long.

4.30.4. Overlying the field drain and the uppermost deposit within the trench was the mid-grey-brown topsoil (29000).

4.31. Trench 30 (Plate 30, Figure 7)

4.31.1. Trench 30 was located in the northeast of Field 13. It was aligned north-south and was 30m long, 1.8m in width and 0.62m deep. Trench 30 targeted a number of east-west linear anomalies and a larger anomaly. Following the excavation, a ditch was noted in this trench aligned east-west across the trench, which was roughly in line with the larger anomaly from the geophysical survey.

4.31.2. The natural (30001) was a very firm, compact, mottled yellow and grey clay and was more than 0.26m thick. Two features cut this deposit: a ditch [30003] and a land drain [30002].

4.31.3. The land drain [30002] was located in the southern part of the trench and was aligned roughly north-northwest to south-southeast. It was more than 2m long and was filled with silt and stones.

4.31.4. Located centrally to the trench was a ditch [30003], which was aligned east-west. It was 1.2m wide, 0.3m deep and more than 1.8m long with a concave profile. It contained a single fill (30004); a moderately firm, pale brownish grey silty clay with very occasional sub angular stones up to 0.1m in size.

4.31.5. Overlying these and the uppermost deposit was the extant topsoil layer (30000); a moderately compact, mid-grey-brown silty loam with a thickness 0.36m.

5. The Finds and Environmental Samples

5.1.1. No finds were recovered during the evaluation.

5.1.2. Bulk soil samples ranging between 5 and 10lts in volume were recovered from contexts of interest during the evaluation. The samples were taken to recover charred organic remains and for artefact retrieval.

5.1.3. The samples were returned to Archaeology Wales' Finds and Environmental processing facility, where they were processed using a three tank, recycled water flotation system. During the flotation process, a 500µm mesh was used to collect the residue and a 300µm mesh to collect the flot. The residue was then washed through a sieve stack containing 10mm, 5mm, 2mm and 500µm mesh sizes. Each fraction was kept separate to aid drying.

5.1.4. Once dry the residues were sorted for artefacts and ecofacts. Material was extracted from all residues greater than 2mm and separated according to type. A magnet was passed over the <2mm residue in order to collect any magnetic residue present. This was then scanned by eye for any obvious signs of hammerscale. The flots were scanned by eye for environmental remains.

5.1.5. The samples contained no material of archaeological significance.

6. Discussion

6.1.1. The evaluation trenches revealed a site which has been subjected to extensive drainage throughout its history, especially since the industrial period. From the identification of linear ditches and gullies, as well as field/land drains (including some with ceramic and plastic pipes as well as the more common stone filled drains) it is apparent that this is a site with a history of waterlogging, flooding and standing water and this was in evidence during the fieldwork.

6.1.2. Map regression shows that the linear features in Trench 4, Trench 3, Trench 9, Trench 26, Trench 28 and possibly Trench 23 all correlate to earlier field boundaries noted on the Tithe plan of 1841.

6.1.3. The remaining linear features were interpreted as possible drainage routes although in some cases this is uncorroborated.

6.1.4. No evidence of Roman activity was revealed during the evaluation. No finds were recovered to provide direct dating of features, but the majority of the features are likely to be post-medieval or modern in date. The changes in land drain types, from clay through to plastic indicates continued use of the field for agricultural purposes during this time.

7. Conclusions

7.1.1. A geophysical survey was carried out by Magnitude Surveys (Wilkinson 2022). The survey identified possible archaeological activity in the north of the site with the indication of enclosures present just to the south of the A484. Other features noted were evidence of agricultural activity such as field boundaries, ridge and furrow and modern ploughing, as well as anomalies linked to the known industrial uses. The evaluation trenches were located to identify the cause of the anomalies in the geophysical survey results. The results of the evaluation revealed very little archaeological evidence of occupation or other forms of activity on the site.

7.1.2. The targeting of anomalies based on the interpretations of a geophysical survey did result in a number of features being encountered, with 15 of the 30 trenches reporting features. However, the remaining fifteen contained no features that might explain the anomalies from the geophysical survey.

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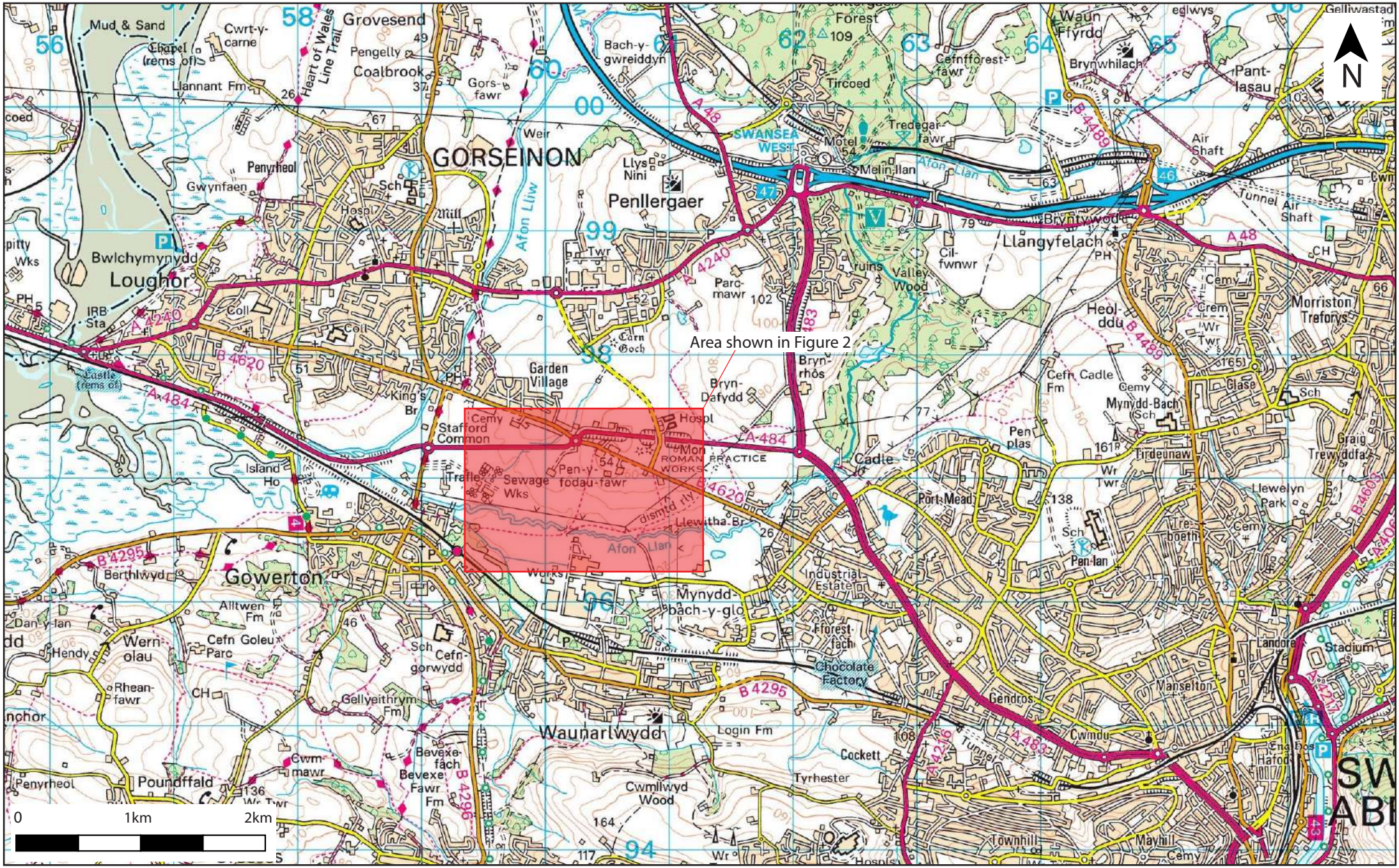

Figure 1. Location of site (red)

Figure 2. Plan of trenches (red) overlaying the features noted during the geophysical survey (blue)

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Figure 3. Field Numbering

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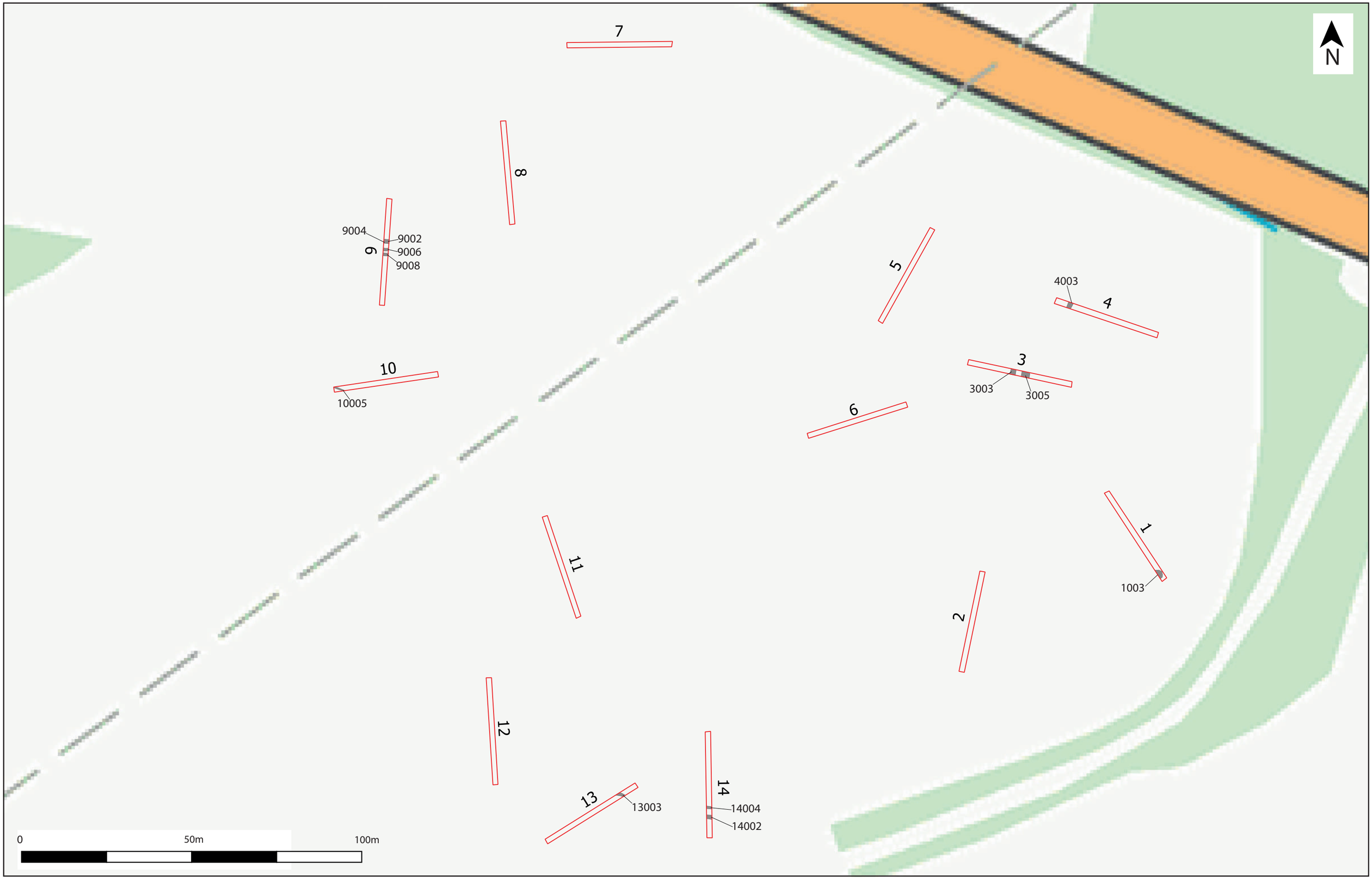


Figure 4. Plan of trenches excavated in Area 1

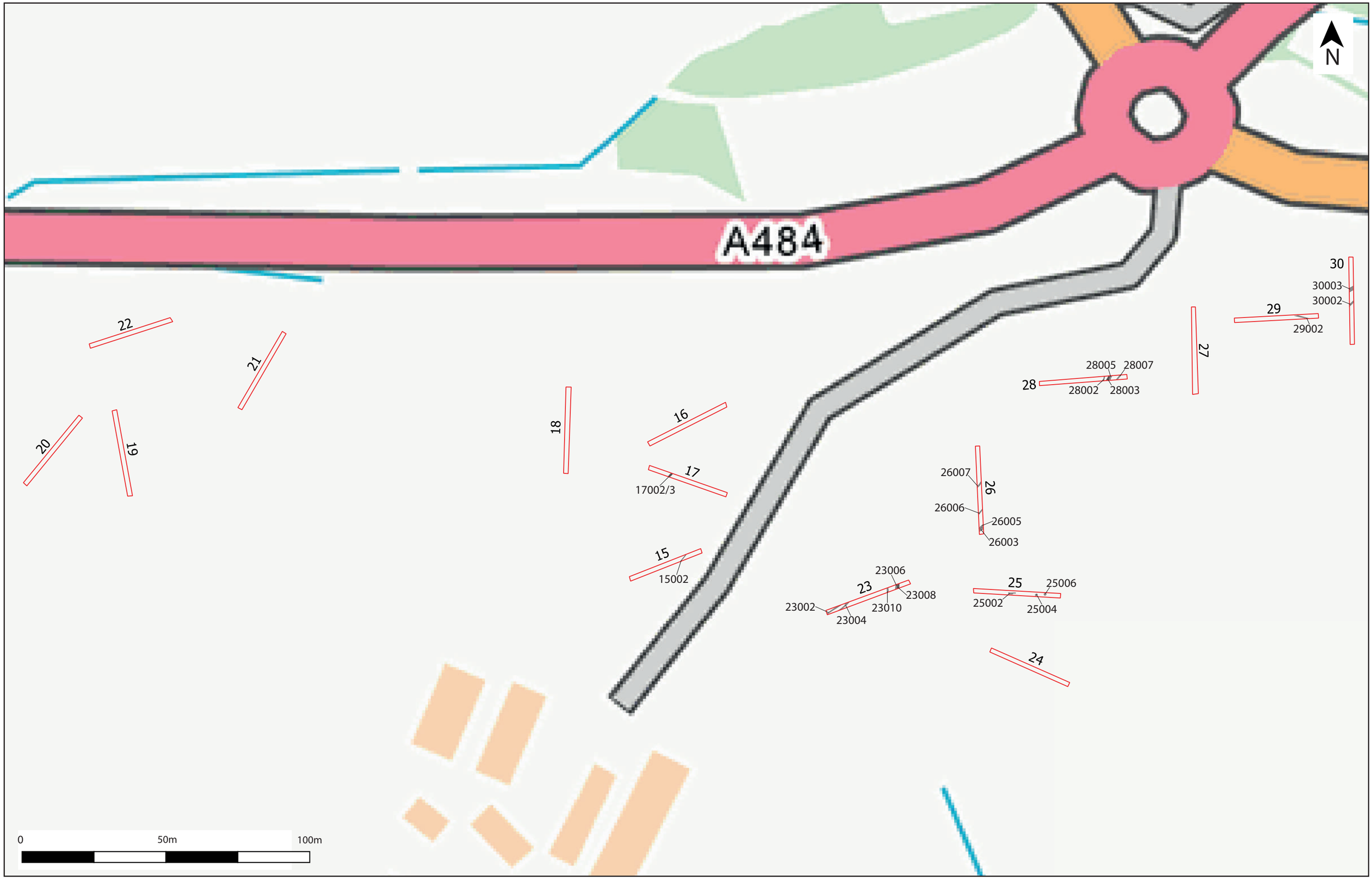
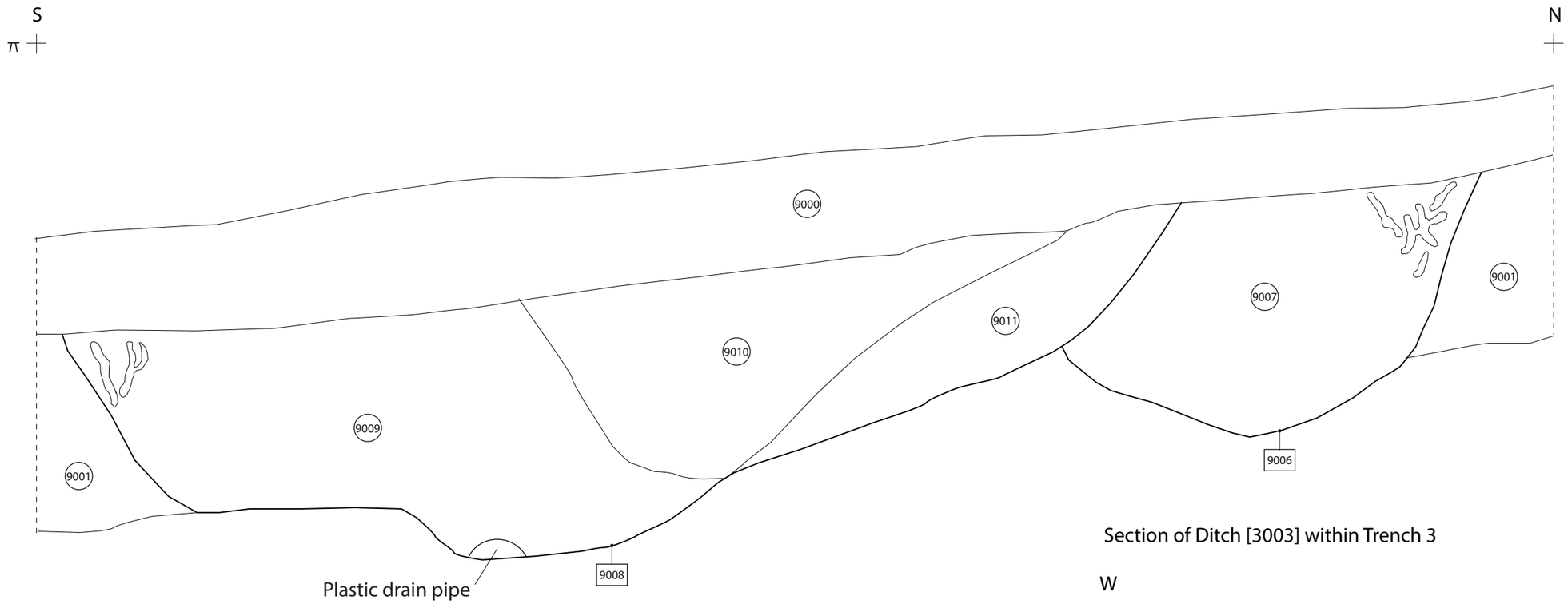
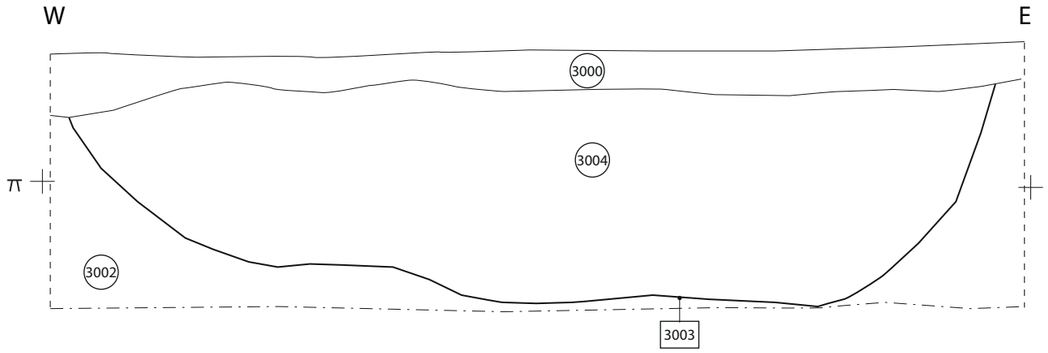


Figure 5. Plan of trenches excavated in Area 2

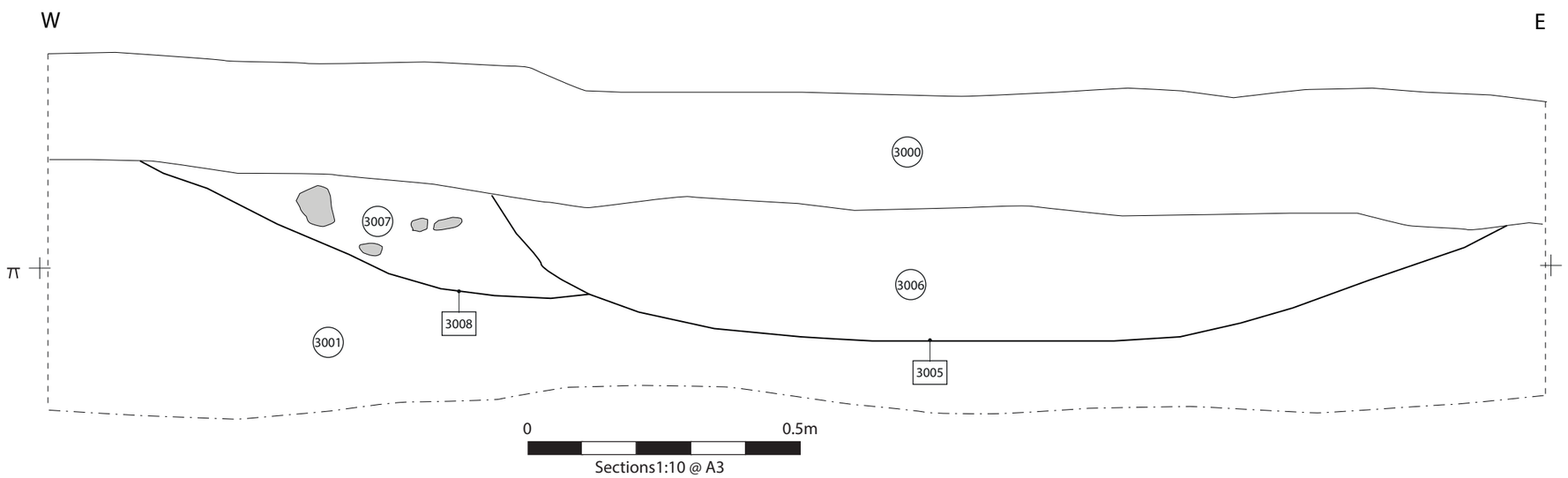
Section of Ditches [9006] and [9008] within Trench 9



Section of Ditch [3003] within Trench 3



Section of Ditches [3005] and [3008] within Trench 3



Key

burnt rootes

stone

Figure 6.
Sections within Trenches 3 and 9 in Area 1

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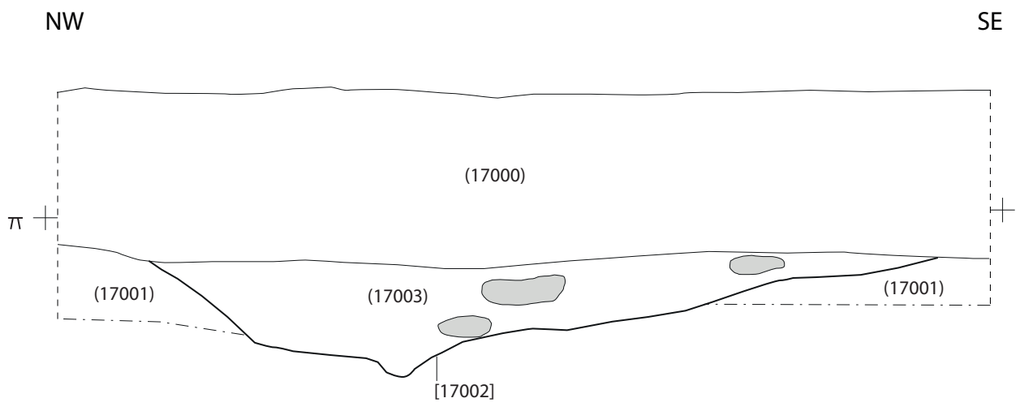
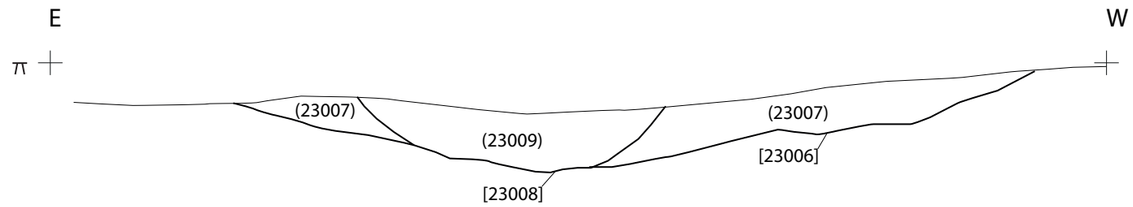
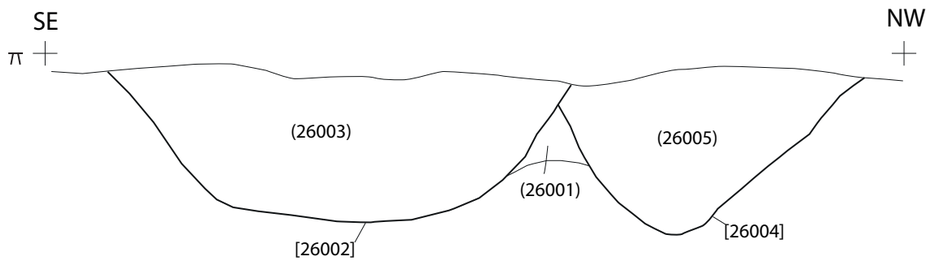
Section of Ditch [17002] within Trench 17



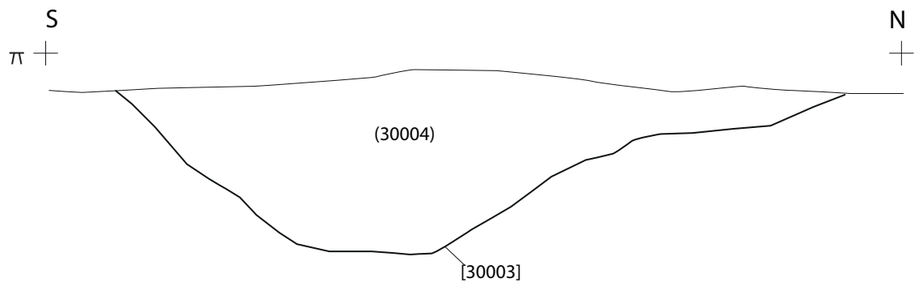
Sections of Ditch [23006] and Gully [23008]



Section of Ditches [26002] and [26004] within Trench 26



Section of Ditch [30003} within Trench 30



Sections1:10 @ A3

Figure 7.
Sections within Trenches 17, 23, 26 and 30 in Area 2

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Plates

Plate 1. Northeast facing section of Pit [1003] in Trench 1

Plate 2. East facing representative section of Trench 2

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Plate 3. South facing section of Ditches (3008) and (3005) in Trench 3

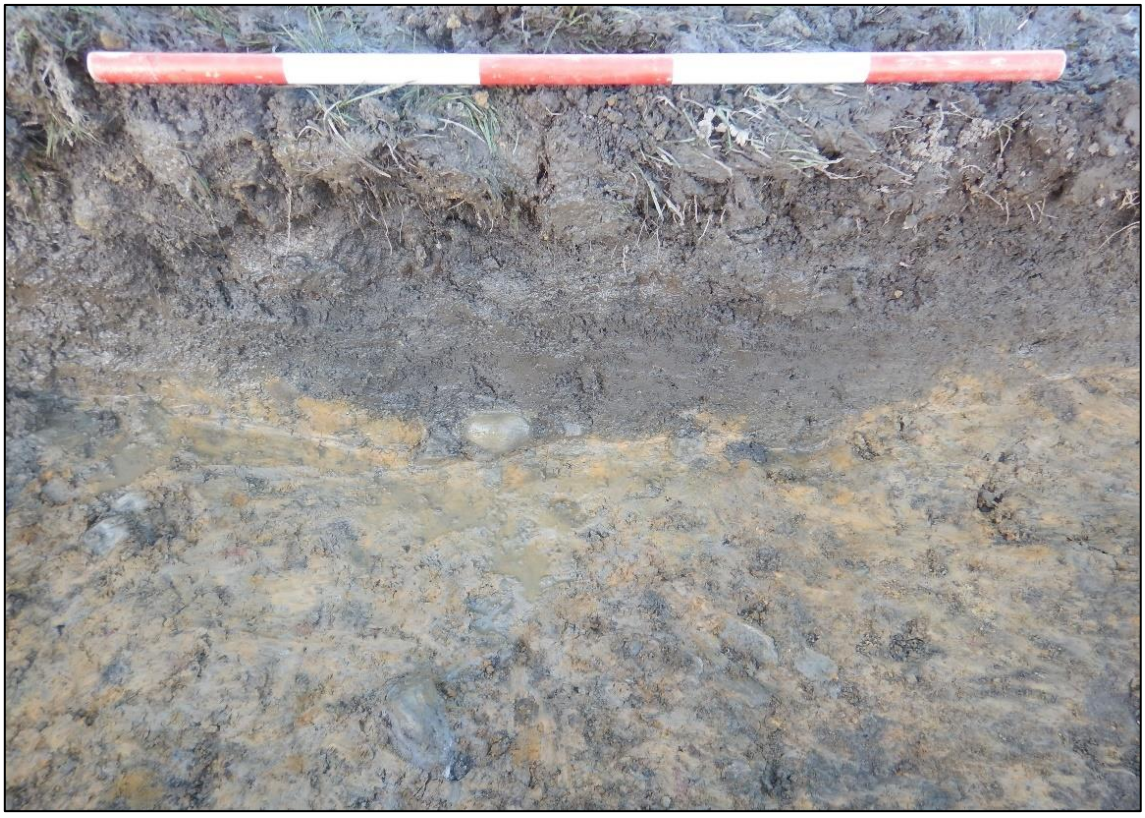

Plate 4. Southwest facing representative section of Ditch [4003] in Trench 4

Plate 5. Southeast facing representative section of Trench 5

Plate 6. North northwest facing representative section of Trench 6

Plate 7. North facing representative section of Trench 7

Plate 8. West facing representative section of Trench 8

Plate 9. East facing section of ditch [9002] in Trench 9

Plate 10. Looking east along gully [10005] in Trench 10

Plate 11. Southwest facing representative section of Trench 11

Plate 12. Southwest facing representative section of Trench 12

Plate 13. Northwest facing section of Ditch [13003] in Trench 13

Plate 14. East facing section of Ditch [1402] in Trench 14

Plate 15. Southeast facing representative section of Trench 15

Plate 16. Southeast facing representative section of Trench 16

Plate 17. Southwest facing section of gully [17002] in Trench 17

Plate 18. West facing representative section of Trench 18

Plate 19. Southwest facing representative section of Trench 19

Plate 20. West facing representative section of trench 20

Plate 21. Northwest facing representative section of Trench 21

Plate 22. Southeast section of Trench 22

Plate 23. Looking northeast along trench 23 showing features [23002] and [23004]

Plate 24. North facing representative section of Trench 24

Plate 25. Looking east along trench 25 showing variations in the subsoil due to rooting

Plate 26. Southeast facing section of ditches/gullies [26002] & [26004] in Trench 26

Plate 27. Southeast facing representative section of Trench 27

Plate 28. Northeast facing section of land drain [28003] and possible boundary ditch [28005] in Trench 28

Plate 29. Southwest facing representative section of Trench 29

Plate 30. East facing section of ditch [30003] in Trench 30

Appendix I Context Inventory

Context Number	Type	Relationship	Description
1000	Deposit		Topsoil
1001	Deposit		Natural a mid-yellow brown, sandy clay
1002	Deposit		Natural mid-yellow brown with grey mottling, sandy (30%) clay (70%)
1003	Cut	Contained 1004-1006	Cut of half circular pit located against the southwest baulk of the trench
1004	Deposit	Fill of 1003	Mid-grey-brown with orange mottling, sandy clay loam
1005	Deposit	Fill of 1003	Dark brown-black sandy clay loam
1006	Deposit	Fill of 1003	Mid-brown-yellow sandy clay
2000	Deposit		Topsoil
2001	Deposit		The upper subsoil layer, a pale yellow brown sandy (20%) clay
2002	Deposit		Natural mid-yellow-brown with grey mottling, sandy (30%) clay (70%)
3000	Deposit		Topsoil
3001	Deposit		An orange/yellow sandy clay
3002	Deposit		Natural an orange with grey mottling, a sandy clay
3003	Cut	Contained 3004	Cut of linear
3004	Deposit	Fill of 3003	A moderately firm, mid/dark brown-grey silty clay loam
3005	Cut	Contained 3006	Recut of [3008]
3006	Deposit	Fill of 3005	A loose to moderately firm, dark grey-brown silty clay.
3007	Deposit	Fill of 3008	A moderately firm, mid-grey-brown silty clay
3008	Cut	Contained 3007	A linear ditch aligned roughly north-south
4000	Deposit		Topsoil
4001	Deposit		A mid-orange/yellow sandy clay
4002	Deposit		Natural mid-orange/yellow with grey mottling sandy clay
4003	Cut	Contained 4004	Cut of linear
4004	Deposit	Fill of 4003	A moderately firm, dark grey-brown sandy clay loam
5000	Deposit		Topsoil
5001	Deposit		A yellow/orange sandy clay
5002	Deposit		A yellow/orange sandy clay natural
5003	Deposit		A grey sandy clay subsoil
6000	Deposit		Topsoil
6001	Deposit		An orange/yellow sandy clay
6002	Deposit		A firm, orange natural deposit with grey mottling
6003	Deposit	above 6001	Ploughsoil/subsoil
7000	Deposit		Topsoil
7001	Deposit		An upper subsoil which was firm, mid-brown-yellow sandy clay
7002	Deposit		Natural firm, mid-brown-yellow sandy clay

Context Number	Type	Relationship	Description
8000	Deposit		Topsoil
8001	Deposit		Subsoil a mid-brown-yellow sandy
8002	Deposit		Natural mid-brown-yellow sandy clay
9000	Deposit		Topsoil
9001	Deposit		Natural mottled grey and yellow silty clay
9002	Cut	Contained 9003	Cut of linear
9003	Deposit	Fill of 9002	Fill of linear
9004	Cut	Contained 9005	Cut of post hole/pit
9005	Deposit	Fill of 9004	Mid-greyish brown clayey silt
9006	Cut	Contained 9007	Cut of linear
9007	Deposit	Fill of 9006	A soft/wet, mid-brownish grey clayey silt
9008	Cut	Contained 9009-9011	Cut of linear
9009	Deposit	Fill of 9008	A moderately firm, mid-greyish brown, clay silt
9010	Deposit	Fill of 9008	A moderately firm, mid-greyish brown, clay silt
9011	Deposit	Fill of 9008	A moderately firm, mid-greyish brown, clay silt
10001	Deposit		Topsoil
10002	Deposit		A firm, yellow-orange sandy clay
10003	Deposit		Natural firm, yellow-orange sandy clay
10004	Deposit	above 10002	Spread of grey silty clay with frequent stones
10005	Cut	Contained 1006	Cut of linear
10006	Deposit	Fill of 1005	A compact, mid-brown silty clay
11000	Deposit		Topsoil
11001	Deposit		Natural mottled pale yellow and pale grey-brown silty clay
12000	Deposit		Topsoil
12001	Deposit		Natural, a firm, mottled pale yellow and pale grey-brown silty clay
13000	Deposit		Topsoil
13001	Deposit		A soft, mid-greyish yellow sandy clay
13002	Deposit		Natural mid-brownish yellow, silty clay
13003	Cut	Contained 13004	Cut of linear
13004	Deposit	Fill of 13003	A soft, dark greyish brown clay silt
14000	Deposit		Topsoil
14001	Deposit		Natural firm, mid-brownish-yellow, silty clay
14002	Cut	Contained 14003	Cut of linear
14003	Deposit	Fill of 14002	A soft, dark greyish brown clay silt
14004	Cut	Contained 14005	Cut of linear
14005	Deposit	Fill of 14004	A moderately firm, mid-greyish brown clay silt
15000	Deposit		Topsoil
15001	Deposit		A moderately firm, mid-brownish yellow silty clay natural
15002	Feature	cuts 15001	Copper water pipe
16000	Deposit		Topsoil
16001	Deposit		Natural firm, pale brownish yellow sandy clay
17000	Deposit		Topsoil
17001	Deposit		Natural, moderately firm, mid-brownish yellow silty clay

Context Number	Type	Relationship	Description
17002	Cut	Contained 17003	Cut of linear
17003	Deposit	Fill of 17002	A soft, mid-grey-brown silty clay
18000	Deposit		Topsoil
18001	Deposit		A moderately firm, pale orange-brown silty clay natural
18002	Deposit		Bedrock
19000	Deposit		Topsoil
19001	Deposit		A firm, pale yellow-brown sandy clay natural
20000	Deposit		Topsoil
20001	Deposit		A soft mid-yellow-brown sandy clay natural
21000	Deposit		Topsoil
21001	Deposit		A moderately firm, yellow-grey sandy clay natural
22000	Deposit		Topsoil
22001	Deposit		A firm, pale yellow-brown sandy clay natural
23000	Deposit		Topsoil
23001	Deposit		A firm, grey and yellow clay natural
23002	Cut	Contained 23003	A shallow linear gully
23003	Deposit	Fill of 23002	A moderately firm, mid-brownish grey clay silt
23004	Cut	Contained 23005	Cut of linear
23005	Deposit	Fill of 23004	A moderately firm, mid-grey-brown silty clay
23006	Cut	Contained 23007	Cut of linear
23007	Deposit	Fill of 23006	A soft, dark greyish brown sandy silt
23008	Cut	Contained 23009	Cut of linear
23009	Deposit	Fill of 23008	A soft, dark grey-brown sandy silt
23010	Cut	Contained 23011	Cut of linear
23011	Deposit	Fill of 23010	A moderately firm, mid-brownish grey silty clay
24000	Deposit		Topsoil
24001	Deposit		A firm, yellow and grey clay natural
25000	Deposit		Topsoil
25001	Deposit		A mid-orange-yellow silty clay natural
25002	Cut	Contained 25003	Cut of root bowl
25003	Deposit	Fill of 25002	A friable, mid-brown grey with orange mottling, silty clay with very occasional charcoal flecks
25004	Cut	Contained 25005	Thought to be cut for a feature, Following investigation this feature was considered to be an undulation in the subsoil/natural.
25005	Deposit	Fill of 25004	Following investigation this feature was considered to be an undulation in the subsoil/natural.
25006	Cut	Contained 25007	Following investigation this feature was considered to be an undulation in the subsoil/natural.
25007	Deposit	Fill of 25006	Following investigation this feature was considered to be an undulation in the subsoil/natural.
26000	Deposit		Topsoil
26001	Deposit		A firm, pale orange-brown silty clay natural
26002	Cut	Contained 26003	Cut of linear
26003	Deposit	Fill of 26002	A fairly compact, mid-brownish grey, silty clay
26004	Cut	Contained 26005	Cut of linear

Context Number	Type	Relationship	Description
26005	Deposit	Fill of 26004	A moderately firm, pale brownish grey silty clay
26006	Feature		Cut & fill of field drain
26007	Feature		Cut & fill of field drain
27000	Deposit		Topsoil
27001	Deposit		A firm, mottled yellow and grey clay natural
28000	Deposit		Topsoil
28001	Deposit		A firm, mottled yellow and grey clay natural
28002	Feature		Cut & fill of land drain
28003	Cut	Contained 28004	Cut of land drain
28004	Deposit	Fill of 28003	A soft, mid-brownish grey sandy clay
28005	Cut	Contained 28006	Cut of linear
28006	Deposit	Fill of 28006	A soft, mid-brownish grey, clayey sand,
28007	Feature		Cut & fill of modern clay drain
29000	Deposit		Topsoil
29001	Deposit		A firm, grey mottled mid-orange-brown clayey sand natural
29002	Feature		Cut & fill of land drain
30000	Deposit		Topsoil
30001	Deposit		The natural, a very firm/compact, mottled yellow and grey clay
30002	Feature		Cut & fill of land drain
30003	Cut	Contained 30004	Cut of linear
30004	Deposit	Fill of 30003	A moderately firm, pale brownish grey silty clay

Appendix II Written Scheme of Investigation

Written Scheme of Investigation for an Archaeological Field Evaluation at Parc Solar, Llewitha, Swansea

Project No: 3049

November 2022

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Contents

1. Introduction and Planning Background

1.1. This Written Scheme of Investigations (WSI) details the proposal for an Archaeological Field Evaluation associated with proposed solar development at land to the south of Swansea Road, Llewitha, Swansea centred on NGR SS 60208 96928.

1.2. This WSI has been prepared by Charley James-Martin, Project Manager at Archaeology Wales Ltd at the request of Heritage Archaeology on behalf of their Clients (henceforth – 'the client').

1.3. The methodology set out in this WSI has been agreed with the Glamorgan-Gwent Archaeological Trust (GGAT-APM) in its capacity as archaeological advisors to the local planning authority (Swansea Council (SC)). The purpose of the proposed archaeological evaluation is to determine the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts, and their research potential, within the development area (CIfA 2020) and to provide the local planning authority with the information they are likely to request in respect of the proposed development, the requirements for which are set out in Planning Policy Wales Revised Edition.11, Section 6.1 (2021) and Technical Advice Note (TAN) 24: The Historic Environment (2017). The work is to highlight and assess the impact of the proposed development on the archaeological resource.

1.4. All work will conform to the Standards and Guidance for an Archaeological Field Evaluation (CIfA 2020) and be undertaken by suitably qualified staff to the highest professional standards. AW is a Registered Organisation with the CIfA.

2. Site Description

2.1. The proposed development site is an area of mostly pasture bounded by residential and industrial estates. Within the bounds of the development lies Penyfodau Fawr Farm and the southern part of the development area is traversed by the Afon Lian. The site is bounded to the north by the B4560, Swansea Road that links Fforestfach to Gorseinon (Figure 1).

2.2. The underlying geology comprises sandstone in the north with the addition of mudstone and siltstone to the south of the Grovesend Formation. This is overlain by superficial deposits of Devensian Till at the north and alluvium comprising clay, silt, sand and gravel at the south of the site (BGS 2022).

3. Archaeological Background

3.1. A desk-based assessment was carried out by Pegasus Group (Pratt 2022). This report highlighted the potential for Roman activity within the development area. This report notes that Swansea Road, to the north of the site, is the route of a Roman road linking forts at Loughor and Neath (RR60d-04). The buried remains of two Roman practice camps are located at Carn Goch Common c.100m north of the site (00381w, 00382w) and at Stafford Common c.370m west of the site (00221w) as well as various coins found within the vicinity.

3.2. Evidence may also be present of the land use throughout the early medieval periods through to the early post-medieval most likely agricultural in nature.

3.3. Documented remains of post-medieval date within the boundary also include Penyfodau Fawr farmhouse dating from the 19th century. There is also evidence for industrial activity in the form of the Penclawdd Canal and a leat. There is the potential for buried remains of the tramway and mineral railway as well as structures relating to these and the mining activity shown on the historic mapping.

3.4. A geophysical survey was carried out by Magnitude Surveys (Wilkinson 2022). The survey identified possible archaeological activity in the north of the site with the indication of enclosures present just to the south of the A484. Other features noted were evidence of agricultural activity such as field boundaries, ridge and furrow and modern ploughing as well as anomalies linked to the known industrial uses.

4. Objectives

Field Evaluation

4.1. The objective of the intrusive trial trench evaluation will be to locate and describe archaeological features that may be present within the development area as suggested. The work will elucidate the presence or absence of archaeological material, its character, distribution, extent, condition, and relative significance. The work will include an assessment of regional context within which the archaeological evidence rests and will aim to highlight any relevant research issues within national and regional research frameworks.

4.2. A report will be produced that will provide information which is sufficiently detailed to allow the archaeological resource to be better understood. The information could then be used to help inform further archaeological work undertaken in association with the proposed development.

5. Timetable of Works

5.1. GGAT-APM will be informed in advance of the start date and any subsequent changes to the schedule.

5.2. The report will be submitted to the client and to GGAT-APM within three months of the completion of the fieldwork. A copy of the report will also be submitted to the local planning authority. A copy of the report will also be sent to the regional Historic Environment Record.

6. Methodology

Field Evaluation

6.2. The work will be undertaken to meet the standard required by The Chartered Institute for Archaeologist's Standard and Guidance for Archaeological Field Evaluation (2020).

6.3. The archaeological project manager in charge of the work will satisfy herself that all constraints to ground works have been identified, including the siting of live services and Tree Preservation Orders.

6.4. The agreed evaluation trenches will be positioned to maximise the retrieval of archaeological information within accessible areas, and to ensure that the archaeological resource is understood.

6.5. It is proposed that 30 trenches are machine excavated within the development area (Figure 1). All the trenches will be cut to 1.8m in width and 30m in length.

6.6. The exact positioning of the trenches will depend on the position of an extant services or other obstructions that come to light during the initial phase of ground works.

6.7. The locations and dimensions of the trenches have been agreed with GGAT-APM. Justification of the trench locations can be found in Appendix II.

6.8. The evaluation trenches will be excavated to the top of the archaeological horizon by a 360 excavator or similar machine fitted with a toothless grading bucket under close archaeological supervision.

6.9. All areas will be subsequently hand cleaned using pointing trowels and/or hoes to prove the presence, or absence, of archaeological features and to determine their significance. The excavation of the minimum number of archaeological features will be undertaken, to elucidate the character,

distribution, extent and importance of the archaeological remains. As a minimum, small discrete features will be fully excavated, larger discrete features will be half-sectioned (50% excavated) and long linear features will be sample excavated along their length – with investigative excavations distributed along the exposed length of any such feature and to investigate terminals, junctions and relationships with other features. Should this percentage excavation not yield sufficient information to allow the form and function of archaeological features/deposits to be determined full excavation of such features/deposits may be required.

6.10. Sufficient excavation will be undertaken to ensure that the natural horizons are reached and proven, where this can be practically and safely achieved. If safety reasons preclude manual excavation to natural, a hand auger may be used to try to assess the total depth of stratification within each area. The depth of the excavation will conform to current safety requirements. If excavation is required below 1m the options of using shoring will be discussed with the client and GGAT-APM, but the intention would be to stop at safe depths.

Contingency

6.11. Should potentially significant archaeological features be encountered during the course of the evaluation then GGAT-APM and the client will be informed at the earliest possible opportunity.

6.12. GGAT-APM may subsequently request that further archaeological work is undertaken in order to fully evaluate areas of significant archaeological activity. Such work may require the provision of additional time and resources to complete the archaeological investigation. The scope of such work will be agreed with GGAT-APM and the client prior to any extended works being undertaken.

Recording

6.13. Recording will be carried out using AW recording systems (pro-forma context sheets, etc.) using a continuous number sequence for all contexts.

6.14. Plans and sections will be drawn to a scale of 1:50, 1:20 or 1:10 as required and related to Ordnance Survey datum and published boundaries where appropriate.

6.15. All features identified will be tied into the OS survey grid and fixed to local topographical boundaries. Photographs will be taken in digital format with an appropriate scale, using a 10MP+ camera with photographs stored in Tiff

format.

Finds

6.16. The professional standards set in the Chartered Institute for Archaeologists' Standard and guidance for the collection, documentation, conservation, and research of archaeological (2020) will form the basis of finds collection, processing, and recording.

6.17. Finds will be carefully excavated by hand. The excavation of fragile or particularly significant finds will be undertaken in consultation with an appropriate archaeological conservator. Finds will be bagged by archaeological context, the location of special finds and flint working deposits will be recorded three dimensionally.

6.18. In most cases all finds will be recovered from site, quantified and assessed by specialist. Finds retention and discard policies will be drawn up in conjunction with specialist advice and the requirements of the receiving archive or regional/national guidelines (NPAAW 2019) in conjunction with the CIfA Selection Strategy Tool Kit (CIfA 2019). If large quantities of material are identified, an onsite discard policy may be implemented under the guidance of relevant finds specialists and the local authority archaeologists.

6.19. Retained finds will be suitably bagged, boxed and marked. Following cataloguing and initial analysis finds of low archaeological significance may be discarded.

6.20. Finds recovered that are regarded as Treasure under The Treasure Act 1996 will be reported to HM Coroner for the local area.

6.21. Any finds which are considered to be in need of immediate conservation will be referred to a UKIC qualified conservator (normally Phil Parkes at Cardiff University).

Environmental Sampling Strategy

6.22. Deposits with a significant potential for the preservation of paleoenvironmental material will be sampled, by means of the most appropriate method (bulk, column etc). Where sampling will provide a significant contribution to the understanding of the site AW will draw up a site-specific sampling strategy alongside a specialist environmental archaeologist. All environmental sampling and recording and will follow English Heritage's Guidelines for Environmental Archaeology (2nd Edition 2011).

Human remains

6.23. In the event that human remains are encountered, their nature and extent will be established, the client, GGAT-APM and the coroner informed.

6.24. Measures will be put in place to ensure that any such remains are fenced off, covered, and protected from deterioration and damage, and that human remains, and burial goods will be treated in a respectful manner.

6.25. Where preservation in situ is not possible the human remains will be fully recorded and removed under conditions that comply with all current legislation and include acquisition of licenses and provision for reburial following all analytical work.

6.26. Human remains will be excavated in accordance with the Chartered Institute for Archaeologist's Updated Guidelines to the Standards for Recording Human Remains (2017). A Ministry of Justice Licence will be obtained before remains can be lifted, this applies to both inhumation and cremated remains.

Specialist advisers

6.27. In the event of certain finds, features or sites being discovered, AW will seek specialist opinion and advice. A list of specialists is given in the table below although this list is not exhaustive.

Artefact type	**Specialist**
Lithics	Dr Julie Birchenall (Freelance)
Animal bone	Dr Richard Madgwick (Cardiff University) Dr Hannah Russ (Freelance)
CBM, heat affected clay, Daub etc.	Dr Siân Thomas (Archaeology Wales) Dr Phil Mills (Freelance) Sandra Garside Neville (Freelance)
Clay pipe	Charley James Martin (Archaeology Wales)
Glass	Rowena Hart (Archaeology Wales)
Cremated and non-cremated human bone	Malin Holst (University of York) Dr Richard Madgwick (Cardiff University)
Metalwork	Dr Rhiannon Philp (Archaeology Wales) Dr Kevin Leahy (PAS/University of Leicester) Quita Mould (Freelance)
Metal work and metallurgical residues	Dr Tim Young (GeoArch)
Neo/BA pottery	Dr Alex Gibson (Bradford University) Dr David Mullin (Freelance)
IA/Roman pottery	Dr Jane Timby (Freelance)
Roman Pottery	Dr Siân Thomas (Archaeology Wales) Dr Peter Webster (Freelance)
Medieval and Post Medieval Pottery	Paul Blinkhorn (Freelance)

Artefact type	Specialist
Charcoal (wood ID)	Dana Challinor (Freelance)
Waterlogged wood	Professor Nigel Nayling (University of England – Lampeter) Damian Goodburn (MOLA) Mike Bamforth (Freelance)
Marine Molluscs	Dr Rhiannon Philp (Archaeology Wales)
Pollen	Dr Rhiannon Philp (Archaeology Wales)
Charred and waterlogged plant remains	Wendy Carruthers (Freelance) Kath Hunter Dowse (Freelance)

6.28. Specialist finds and paleoenvironmental reports will be written by AW specialists, or sub-contracted to external specialists when required.

Monitoring

6.29. GGAT-APM will be contacted prior to the commencement of archaeological site works, and subsequently once the work is underway.

6.30. Any changes to the WSI that AW may wish to make after approval will be communicated to GGAT-APM for approval on behalf of the Planning Authority.

6.31. GGAT-APM will be given access to the site so that they may monitor the progress of the mitigation work. No area will be back-filled until GGAT-APM has had the opportunity to inspect it unless permission has been given in advance. GGAT-APM will be kept regularly informed about developments, both during the site works and subsequently during post-excavation.

7. Post-Fieldwork Programme

Site Archive

7.1. An ordered and integrated site archive will be prepared in accordance with: Management of Research Projects in the Historic Environment (MoRPHE) (2015) upon completion of the project.

7.2. The site archive – including all artefacts, soil samples, paper, and digital records – will be subjected to selection in order to establish those elements that will be retained for long term curation. The selection strategy will be agreed with all stakeholders and will be detailed in the Selection Strategy and Data Management Plan (CIfA 2020). It will be developed taking into consideration the aims and objectives of the project and will be informed through a detailed consideration of the Research Agenda of the Archaeology of Wales and other relevant research frameworks. The manner in which the

records will be prepared for long time storage will be guided by the requirements established by the repositories. A detailed justification for the disposal of both records and materials will be written and included within the Data Management Plan.

7.3. The site archive (including artefacts and samples) will be prepared in accordance with the National Monuments Record (Wales) agreed structure and deposited with an appropriate receiving organisation, in compliance with CIfA Guidelines (Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives, 2014). It will also conform to the guidelines set out in The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales (National Panel for Archaeological Archives in Wales 2017). The legal landowner's consent will be gained for deposition of finds. The project will adhere to the Welsh Archaeological Trust's joint Guidance for the Submission of Data to the Welsh Historic Environment Records (2018).

Analysis

7.4. Following a rapid review of the potential of the site archive, a programme of analysis and reporting will be undertaken.

7.5. This will result in the following inclusions in the report:

- A bilingual non-technical summary
- The aims and methods adopted in the course of the archaeological works, and the background and circumstances of the report (including development proposals and planning background)
- Location plan showing the area/s covered by the trenched evaluation, including the locations of all artefacts, structures and features found
- Plans and section drawings (if features are encountered) with ground level, ordnance datum and vertical and horizontal scales.
- A written description and interpretation of all deposits identified, including their character, function, potential dating, and relationship to adjacent features. Specialist descriptions and illustrations of all artefacts and soil samples will be included as appropriate. An indication of the potential of archaeological deposits which have not been disturbed by the development, and proposals for further necessary analysis
- The report will contain a discussion of the local, regional, and national context of the remains by means of reviewing published reports, unpublished reports, historical maps, documents from local archives and

the regional HER as appropriate.

- A detailed archive list at the rear listing all contexts recorded, all samples, finds and find types, drawings and photographs taken. This will include a statement of the intent to deposit, and location of deposition, of the archive.

Report to Client

7.6. Copies of all reports associated with the mitigation, together with inclusion of supporting evidence in appendices as appropriate, including photographs and illustrations, will be submitted upon completion to GGAT-APM for comment and approval. Following approval, a copy will be sent to the client, and for formal submission to the Local Planning Authority.

Additional Reports

7.7. After an appropriate period has elapsed, copies of all reports will be deposited with the relevant county Historic Environment Record (GGAT), the National Monuments Record and, if appropriate, Cadw. The report and all relevant information will be submitted to the Historic Environment Record following the guidelines and procedures laid out in the Guidance for the Submission of Data to the Welsh Historic Environment Records (WAT 2018).

Summary Reports for Publication

7.8. Short archaeological reports will be submitted for publication in relevant journals; as a minimum, a report will be submitted to the annual publication of the regional CBA group or equivalent journal.

Notification of Important Remains

7.9. Where it is considered that remains have been revealed that may satisfy the criteria for statutory protection, AW will submit preliminary notification of the remains to Cadw.

Archive Deposition

7.10. The final archive (site and research) will, whenever appropriate, be deposited with a suitable receiving institution. If artefacts are recovered, and dependent on the size of the final archive, the preferred receiving institution would be a suitable local institution. If no artefacts are recovered then the archive will be deposited with the National Monuments Record, RCAHMW, Aberystwyth. Arrangements will be made with the receiving institution before work starts.

7.11. Although there may be a period during which client confidentiality will need

to be maintained, copies of all reports and the final archive will be deposited no later than 12 months after completion of the work.

7.12. Copies of all reports, the digital archive and an archive index will be deposited with the National Monuments Record, RCAHMW, Aberystwyth. A full Data Management Plan for this project is included in Appendix I.

7.13. Wherever the archive is deposited, this information will be relayed to the HER. A summary of the contents of the archive will be supplied to GGAT-APM.

Finds Deposition

7.14. The finds, including artefacts and ecofacts, excepting those which may be subject to the Treasure Act, will be deposited with the same institution, subject to the agreement of the legal landowners.

8. Staff

8.1. The project will be managed by Charley James-Martin MCIfA (AW Project Manager) and the assessment undertaken by suitably trained and experienced AW staff. Any alteration to staffing before or during the work will be brought to the attention of GGAT-APM and the client.

9. Health and Safety

9.1. Prior to the commencement of the site visit AW will carry out and produce a formal Health and Safety Risk Assessment in accordance with the Management of Health and safety Regulations 1999. A copy of the risk assessment will be kept on site and be available for inspection on request.

9.2. A copy will be sent to the client (or their agent as necessary) for their information. All members of AW staff will adhere to the content of this document.

Other Guidelines

9.3. AW will adhere to best practice with regard to Health and Safety in Archaeology as set out in the FAME (Federation of Archaeological Managers and Employers) health and safety manual Health and Safety in Field Archaeology (2002).

Insurance

9.4. AW is fully insured for this type of work and holds Insurance with Aviva Insurance Ltd and Hiscox Insurance Company Limited through Towergate

Insurance. Full details of these and other relevant policies can be supplied on request.

10. Quality Control

Professional standards

10.1. AW works to the standards and guidance provided by the Chartered Institute for Archaeologists. AW fully recognise and endorse the Chartered Institute for Archaeologists' Code of Conduct, Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology and the Standard and Guidance for archaeological watching briefs currently in force.

10.2. All employees of AW, whether corporate members of the Chartered Institute for Archaeologists or not, are expected to adhere to these Codes and Standards during their employment.

Project tracking

10.3. The designated AW manager will monitor all projects in order to ensure that agreed targets are met without reduction in quality of service.

11. Arbitration

11.1. Disputes or differences arising in relation to this work shall be referred for a decision in accordance with the Rules of the Chartered Institute of Arbitrators' Arbitration Scheme for the Institute for Archaeologists applying at the date of the agreement.

12. References

British Geological Survey: Geology of Britain viewer: www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html

Chartered Institute for Archaeologists, 2019. Toolkit for Selecting Archaeological Archives.

Chartered Institute for Archaeologists, 2020. Standards and guidance for the creation, compilation, transfer and deposition of archaeological archives.

Chartered Institute for Archaeologists, 2020. Standards and guidance for the collection, documentation, conservation and research of archaeological materials.

Chartered Institute for Archaeologists, 2020. Standards and guidance for archaeological field evaluation.

Chartered Institute for Archaeologists, 2020. Standard and Guidance for Geophysical Survey Chartered Institute for Archaeologists.

National Panel for Archaeological Archives in Wales (NPAAW), 2019. The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales

Pratt, E, 2022. Heritage Desk-Based Assessment Penyfodau Fawr Farm, Gowerton, South Wales. Pegasus Group

Welsh Archaeological Trusts, 2018. Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs).

Wilkinson D, 2022. Interim Report, Phase 1 Survey Area Geophysical Survey Report for Parc Solar, Caenewydd, Llewitha, Swansea. Magnitude Surveys

Figure 1. Plan of trenches (red) overlaying the features noted during the geophysical survey (blue)

ARCHAEOLOGY WALES
Revealing the past, informing the future

Figure 2. Field Numbering

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Revealing the past, informing the future

Appendix I Data Management Plan

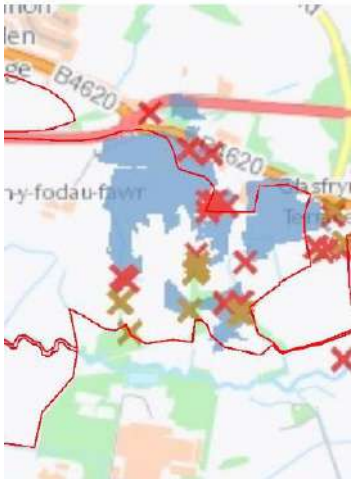
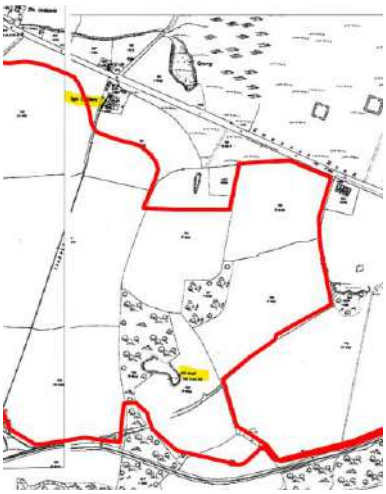
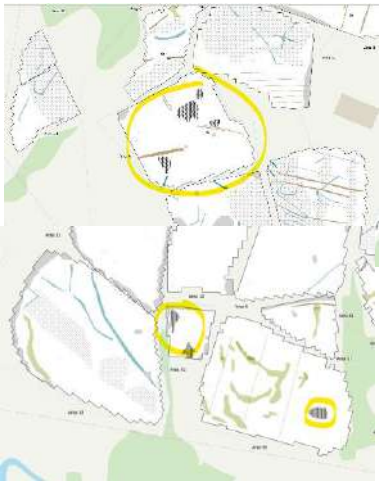
Project Name and ID
3049 – Parc Solar,Swansea PSS/22/EV
Project description
The proposed work consists of the excavation of 22 evaluation trenches in advance of a solar development. All the trenches will be cut to 1.8m in width and 30m in length.
Funder of client
Heritage Archaeology
Project Manager
Charley James-Martin – AW project manager
Principal investigator and contact
Same as above
Date DMP created and subsequent amendments
Created on 01/11/2022
Related Data Management policies
Project Brief, CIfA Standards and guidance, trusted digital repository guidelines (ADS and RCAHMW) or other best practice guidance (see brief for details)

Data type
.pdf: final report, WSI, all the paper archive generated onsite. .jpeg: Digital photographs .xlsx: spreadsheets including registers, context inventory, finds quantification, environmental sample quantification. All site drawings that are selected during the DMP will be stored as AI and PDF files The survey data will be stored both as raw data (text file/csv) and as shapefiles (shp). This will include a polygon showing the limits of the development area. The database generated with GIS will be stored so it is accessible by future users
How will data be generated?
Project Brief will determine the nature of data collection. The project brief has been produced taking into consideration guidance offered by CIfA, and by relevant repositories. While the data selection strategy may change during the course of the watching brief attending to the demands of the findings, an initial methodology is outlined in the brief which includes advice offered by specialists (e.g environmental specialist). A list of specialists that can be contacted to seek for advice is included in the brief. Data generated during the site work will be regularly updated to the served and stored within well-defined folder. The folder hierarchy and organisation devised will be understood by all members of staff involved in the project. The data stored will be checked by the project manager regularly as a means of quality assurance. The survey data will also be plotted regularly to assure that it is correct and that the instruments on site are working properly.

Further documentation accompanying the resulting archive
Data collected will include standard formats which maximise opportunities for use and reuse in the future. The archive will be associated to metadata summary which outlines details of all data types, quantities and all archive components Data documentation will meet the requirement of the Project Brief, Museum Deposition Guidelines, Digita

Repository Guidelines and the methodology described in the Project Design methodology. These details are checked and taken into consideration prior the start of the project.
Data protection
We have a GDPR compliant Privacy Policy. Sensitive data is never retained in the project folder. Copyright permission is sought from all specialists and other providers outside the organisation. Data sharing is also subjected to license agreements.
Storage
The project manager is responsible to the regular inspection of the data produced and stored in the server The data produced is uploaded regularly as a way of backing up the information. Time and resources are given to the site staff to be able to back up the data. Alternatively, laptops are issued to use during the time onsite.
Data retention
The DMP will be updated in light with the findings. This process will also inform any possible future project designs and further work associated with the project. The data selection plan will take into consideration the research agenda for Wales and any other local frameworks. At the deposition stage, the DMP will be finalised in agreement with all project stakeholders. The project results will be included in the Historic Environment Record.
Long term preservation plan
The digital archive will be deposited with the Archaeology Data Service, which is a certified repository with Core Trust Seal.
Data repository and costs
The digital archive will be deposited with the National Monuments Record, RCAHMW, Aberystwyth. Estimated cost for deposition with ADS have also been included in the project budget.
Data sharing and accessibility
A summary of the project will be provided for the museum and digital archive repositories once the work begins. Regular updates will be carried out to fit the emerging needs of the project. The documents expected for this project include a WSI and WB Report, although this is dependent on the results of the fieldwork, which may warrant a Post Excavation Assessment, Updated Project Design and possibly Final Report. The final report is expected to be completed within 3 months of the completion of fieldwork. Should the work reveal significant archaeology and therefore, specialists are required during the post-ex process, then the report might take up to twelve months to be submitted A final version of the project report will be supplied to the Historic Environment Record along with any further data they request.
DMP responsibility
The Project Manager will be responsible for implementing the DMP Data capture, metadata production and data quality are the responsibility of the Project Team, assured by the Project Manager. Storage and backup of data in the field is the responsibility of the field team. Once data is incorporated into the organisations project server, storage and backup is managed by the project manager Data archiving is undertaken by the Archives Officer, who is responsible for the transfer of the Archaeological Project Archive to the agreed repository.

Appendix II Trench rationale – summary and further information

Area	Rationale	Trenches proposed
1 2 3	Relatively level fields under pasture in topographic proximity to Roman camps	14 trenches targeting geophysical anomalies classed as agricultural and undetermined
4 5 6 7 9 10 11	These areas coincide with areas of coal workings shown on historic mapping, the Coal Authority mapping, and picked up in the geophysical survey (images in row below)	No trenches proposed
Extract from Coal Authority mapping  	1916 OS map 	geophysical survey result 
8 & 12	The farmer has fed back that the linear features in this field relate to field drains (undetermined and agricultural features identified in the geophysics will be tested in other areas)	No trenches proposed to avoid damage to the drains
13	Geophysical survey identified an enclosure in the northern part of this field. That is now outside of the development area (image in row below) but trenches are proposed in the vicinity of the enclosure	8 trenches targeting geophysical anomalies classed as archaeology possible and undetermined
		
14	Relatively level field under pasture, between two potential	4 trenches targeting

Area	Rationale	Trenches proposed
	enclosures identified through geophysical survey	geophysical anomalies classed as undetermined
15	Geophysical survey identified an enclosure in the northern part of this field. Trenches are proposed to target this feature	4 trenches targeting geophysical anomalies classed as archaeology possible
16	The field slopes steeply to the A484 and a potential water main crosses the site	No trenches proposed
17	Field potentially has a water main crossing it leading to the WwTW to the south (undetermined features identified in the geophysics will be tested in other areas)	No trenches proposed
20	This field is more steeply sloping running to the Afon Llan, a natural spread was detected in this field (undetermined features identified in the geophysics will be tested in other areas)	No trenches proposed
23	Geophysical anomalies in these fields relate to known modern industrial activity that is well documented	No trenches proposed
24		

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