Archaeology Wales

Land at Tyddyn Cae Farm, Boduan Gwynedd

Field Evaluation

By
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Report No. 1300

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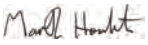
Field Evaluation

Prepared For: Lightsource Renewable Energy Ltd

Edited by: Mark Houliston Signed:  Position: Managing Director Date: 20/1/15	Authorised by: Mark Houliston Signed:  Position: Managing Director Date: 20/1/15

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Summary

During December 2014 and January 2015 Archaeology Wales Ltd (AW) carried out a trenched evaluation on land at Tyddyn Cae Farm, Boduan, Pwllheli, Gwynedd for Lightsource Renewable Energy Ltd. The proposed development is for a new solar farm including landscaping, access and service provision (Planning Reference: C14/0885/33/LL). The site is centred on NGR 233465, 337785 and the AW Project Number is 2274.

The work consisted of an archaeological evaluation of thirty three, 20.0m long, machine-cut trenches and was undertaken on the recommendation of the Gwynedd Archaeological Planning Service (GAPS) in their capacity as archaeological advisors to Gwynedd Council. The trenches were spread evenly across the site, although some were positioned to target possible archaeological features identified by a previous geophysical survey.

The site is located within the Llŷn Peninsula, a region of known archaeological and historical importance, although a previous cultural heritage assessment (Hyder 2014) concluded that the application site itself contains little known archaeological activity predating the medieval period. It was in the medieval period that human occupation and the exploitation of the area around the site for agriculture appears to have begun, even though there is some earlier evidence for ceremonial and funerary activity on the edge of the study area, as evidenced by standing stones and an early medieval burial. There is no indication that this activity extended into the site.

The geophysical survey identified small amounts of potential buried archaeology located across much of the site, although few of the anomalies identified were conclusively archaeological in origin. The survey was impeded in places by wet ground conditions. Following the geophysical survey, areas A, B & I were excluded from the development area.

Subsequently, GAPS recommended that 35 evaluation trenches were excavated across areas C, D, E, F, H and the northern half of area G, to gather further information about the buried archaeological resource in the remainder of the site. This was reduced to 33 following the removal of trenches 17 & 18 from area C. In addition to targeting identified anomalies, the trenching was designed to test the reliability of the geophysical data by verifying apparently blank or unclear areas where archaeological features may have been obscured.

Apart from land drains, the evaluation identified 9 possible archaeological features in 7 out of the 33 trenches investigated, while non-archaeological anomalies such as palaeochannels and 'tree-throws' were identified in 6 trenches. Eight of the nine archaeological features were identified as the remains of roughly cut, flat-bottomed, linear trenches (T1, T4, T16, T25, T28, T30 (2) & T32), while the ninth was identified as a possible pit (T30).

Two sherds of 20th century pottery were found in topsoil deposits, but no dating evidence was recovered from any of the excavated features.

Seven of the linear trenches were probably cut as drainage gullies, whereas the possible pit could represent another tree-throw. Therefore, the only potentially significant archaeology is a fairly well-preserved linear feature (Feature 2506) with a well-developed fill structure that was found in Trench 25. The evidence indicates that this was probably not one of the later shallow drainage gullies that crossed the site and that it could belong to a different phase of

use. However it had the same alignment as the other drainage gullies and the depth of deposits above it (0.5m of topsoil/subsoil) may have preserved it.

The absence of proven significant archaeology is such that further mitigation work is not considered necessary. It is not recommended that a watching brief is undertaken during the construction phase of the development.

1. Introduction

In December 2014 and January 2015 Archaeology Wales Ltd (AW) carried out a field evaluation on land at Tyddyn Cae Farm, Boduan, Pwllheli, Gwynedd. The assessment area totalled 20.2 hectares and was centred on NGR 233465 337785 (Figs 1&2). A total of 33 field evaluation trenches, each measuring 20m x 1.8m, were excavated. The work was carried out at the request of Lightsource Renewable Energy Ltd in order to support a planning application submission (C14/0885/33/LL) for the creation of a solar farm.

The assessment area was the subject of a previous Cultural Heritage Desk Based Assessment, undertaken by Hyder Consulting (UK) Ltd. This report concluded that the assessment area has a low potential for the presence archaeological remains and that those which are present are likely relate to past agricultural practices (Wylie, 2014).

A geophysical survey was undertaken in October 2014 by AW, which identified and located a relatively small amount of archaeological features, both linear and discrete, within the survey area (Smith 2014). Based on the results of the geophysical survey, a field evaluation was recommended by Jenny Emmet of Gwynedd Archaeological Planning Services (GAPS).

A works Specification (see Appendix 3) was drawn up by Chris E Smith (MCIfA) of Archaeology Wales Ltd (AW). This was subsequently approved by GAPS on behalf of Gwynedd Council.

2. Site Description

2.1 Location, Topography and Geology

The underlying solid geology of the assessment area is primarily made up of sedimentary formations of Caradoc rocks from the Ordovician era. This is overlain by loamy and clayey, slowly permeable, seasonally wet, acid soils with impeded drainage (Geological Survey Map, 2001).

The assessment area is located on land sloping to the south, from a height of 56m above ordnance datum down to 43m. The site is located to the north east of the village of Boduan and is bounded to the east by an area of woodland (Fig 1).

2.2 Historical Background and Previous Archaeological Work

A cultural heritage desk based assessment was previously undertaken that covered the archaeological and historical background of the surrounding area (Wylie, 2014). The desk based assessment highlighted the location of a 19th century structure observed on OS maps dating from 1880 to 1920. Also noted were the cloddiau (clawdd banks and stone walls) forming the field boundaries of the area around and including Tyddyn Cae farm. These are thought to be of 19th century date (Wylie, 2014).

The Iron Age hillfort of Garn Boduan is located 2.4km to the north west of the assessment area. Further evidence of prehistoric activity comes from two standing stones located 1.5km to the north east of the site.

A small medieval motte is located some 1.3km to the east of the assessment area, though has no associated settlement. Medieval settlement in the area is likely to have been largely in the village of Boduan to the west of the site. Though the current church in Boduan dates from 1765, it is on the site of an earlier medieval foundation (Salter, 1993).

Aside from the recently undertaken geophysical survey (Smith 2014) there have been no recorded archaeological investigations or interventions within, or located close to, the assessment area.

3. Aims and Objectives

The aims of the archaeological evaluation were (as far as practicable within the limits of the specified techniques and trench layout) to establish the presence or absence of archaeological deposits at the site; to assess the extent and significance of the archaeological resource of the site; to assess the potential impact of the development proposals on surviving remains; and to inform future decision making and potential mitigation strategies.

The objectives of the individual evaluation trenches were;

- To confirm the nature, date, extent and quality of the geophysical anomalies.
- To establish the ecofactual/environmental potential of any archaeological features.

4. Methodology

The initial fieldwork strategy comprised the machine excavation of thirty-five 20m long by 1.8m wide trenches, the locations of each having been agreed with GAPS prior to the commencement of fieldwork (See **Figs 2** & **3**). They were positioned to explore the nature of a series of geophysical anomalies recorded during a prior geophysical survey by Archaeology Wales Ltd. (Smith 2014), in particular Trenches **2** & **4** and **31** & **32** which were located over marked linear features.

Due to various factors (overhead power lines, topography and hard standing) it was necessary to adjust the position of four of the trenches: Trenches **11**, **12**, **14** and **20**. However, this repositioning was minimal and their relative alignment and location over any associated

geophysical anomalies were maintained. Trenches **17** & **18** were not excavated as permission was not granted to evaluate in Plot C.

All trenches were located in relation to the Ordnance Survey national grid using GPS, and all archaeological features were related to Ordnance Survey Datum.

The trenches were excavated under constant archaeological supervision using a tracked 360° excavator equipped with a 1.8m wide toothless bucket. The topsoil and subsoil were piled separately in order to facilitate consolidation of the trench footprint after backfilling. In addition, any field drains damaged by machining were repaired with plastic piping prior to backfilling.

All trenches were excavated either to natural deposits or to the top of the archaeological horizon, whichever was encountered first. The methodology followed by the excavation team is set out in detail in the WSI (Appendix 3). All archaeological features (including potentials) were fully recorded on Archaeology Wales' *pro forma* record sheets in accordance with Archaeology Wales' technical manual (Procedures for Excavation and Site Recording 2011). A sample of all discrete and linear features was excavated. A full photographic (digital at a minimum 14MP) and graphic record was kept, the site drawings at an appropriate scale, typically 1:10 for sections and 1:20 for plans.

All work was undertaken in accordance with the Chartered Institute for Archaeologists Standards and Guidance for an archaeological field evaluation (2014).

Provision was made for bulk sampling from appropriate archaeological deposits for artefactual, economic and environmental data. The topsoil and subsoil were both scanned for artefacts.

5. Results

The results set out in this summary report represent a synthesis of the archaeological features investigated. A summary of the deposits encountered in each trench is given in **Appendix 1**. However, no archaeologically significant features or deposits were encountered in 22 of the trenches (**5-15**, **19-24**, **26**, **29**, **31** & **34-5**) and the depths of the soil horizons in these are summarised in **Appendix 2**.

5.1 Archaeological features/horizons

Within the evaluation area three types of feature/horizon were observed. These comprise;

- Gullies
- Treethrows
- Other features

Gullies (Figures 4-7; Plates 3, 7 & 10)
A series of gullies was found crossing the evaluation area – all undated. These were in general shallow, never more than 0.2m deep, and approximately 0.7 to 1m wide. Those in Trenches **1** (Feature **104**), **4** (Feature **402**), **28** (Features **2804** & **2806**/**2808**) and **32** (Feature

3204) were aligned northwest-southeast and seem to be part of a field drainage system. That in Trench **33** (Feature **3303**) was aligned northeast-southwest and was probably part of the same system, running off from the predominant axis.

The gullies in Trench **28** show an example of a recut, as gully **2804** was truncated by **2806** running almost exactly on the same line. What was thought to be a terminal end of **2806** (Feature **2808**) is most probably only the point where the feature is shallows out, with the area to the northwest having been scoured or ploughed away.

The gully in Trench **16** (Feature **1604**) is aligned directly east-west, and may represent a different field drainage system, as it does not reflect the natural topography. However, this feature was clearly cut through the subsoil deposit (**1601**).

Of potential archaeological significance was the north-south aligned linear in Trench **25** (Feature **2506** – see **Figure 5)**. This was well preserved, 0.55m deep and 0.72m wide, and located below the subsoil, with three fills: a thin primary deposit (**2505**), a redeposited natural secondary deposit (**2504**) and a secondary silting deposit (**2503**). The redeposited natural **2504** was almost certainly derived from the bank, indicating its presence on the eastern side of the feature. Although not certain within the confines of the trench, it appears that the feature was curving slightly to the southwest.

The depth of deposits of this feature and its different alignment suggest that it did not belong to the northwest-southeast aligned gully drainage system.

Treethrows **(Figures 4 & 6; Plates 2, 8 & 9**)

Three morphologically similar features in Trench **2** (Feature **204**), Trench **27** (Feature **2705**) and Trench **30** (Feature **3004**) all contained significant charcoal deposits and have been interpreted as burnt out treethrows. All are irregular, though all vary in size from 0.6m in diameter (Feature **3004**) to 2.4m by 1.1m (Feature **204**). Each contains two fills, the basal deposit being scorched/burnt redeposited natural.

Feature **3010** in Trench **30** (immediately to the south of feature **3004**) is deeper at 0.55m, but does not exhibit the same degree of burning. However it does show morphological similarities to the burnt treethrows, and the presence of taproots at its base suggest that it too was a treethrow, though perhaps removed at a different time.

No finds were recovered from these features.

Other features **(Figures 6 & 7; Plates 5 & 6**)

In Trench **30** two possible linear features, both aligned east-west, were excavated (Features **3006** and **3012**). They were found to be very shallow and either natural in origin (Feature **3012**) or the location of large stones that had moved downslope (Feature **3006**).

In Trench **33**, a large (3.5m by 1.8m+) amorphous feature (**3305**) was excavated that was found to be a 0.4m deep depression in the natural.

Four of the trenches were located to ascertain the nature of two linear anomalies found in the geophysical survey. Trenches **31** and **32** were positioned over a northwest-southeast aligned feature, which on stripping was found to be a glacial scar.

Trenches **2** and **4** were located on a more promising linear feature and significant depth of deposits was found here of up to 1.25m below ground level. The sequence in Trench **4** (**Figure 5**) best illustrates this with three stabilisation events overlying glacial till. Layers **400** and **404** represent the current topsoil/subsoil horizons, **405**/**406** and **407**/**408** being the two earlier phases of soil build up/stabilisation. Layer **409** is glacial in origin. Initially interpreted to be a palaeochannel, excavation suggests that the deposits fill a terrace in the natural rather than filling a cut channel.

5.2 Finds

Apart from two sherds of 20th century pottery found in topsoil deposits, no finds were recovered from any archaeological feature/horizon.

5.3 Environmental samples

The site sampling policy followed that set out in the approved Specification. Samples were taken of all non-contaminated deposits of potential archaeological significant. Samples were not taken from trenches where there was clear evidence of contamination resulting from bioturbation, i.e. where root action or other post-depositional processes had allowed modern and earlier material to penetrate into a context.

In all cases, the aim was to obtain material suitable for dating such as carbon, and for improving the interpretation of the associated feature by recovering items such as charred bone, flint fragments and pottery sherds.

Samples of between 8 and 15 litres (L) were taken from 11 contexts as follows:

Trench	Sample number	Context number	Soil volume
2	10	203	15 L
4	9	403	15 L
4	11	408	15 L
25	1	2503	15 L
27	3	2703	8 L
28	2	2807	15 L
30	4	3002	8 L
30	5	3003	8 L
30	7	3008	15 L
30	8	3009	15 L
33	6	3304	15 L

Given the absence of significant archaeology, the decision was made not to process any of the samples that were taken. However, they have been retained in case further work at the site is recommended and that such archaeology is recovered as a result.

6. Discussion and Conclusions

The field evaluation at Tyddyn Cae Farm located no finds or features of archaeological or historical significance in any of the 33 excavated trenches.

The wetness of the ground within the assessment area was noted at the time of the geophysical survey (Smith 2014) and was again noted during the field evaluation. It is thus very likely that the gully type features identified on both the geophysical survey and within the field evaluation represent various attempts at drainage across the area.

The absence of proven significant archaeology in areas likely to be affected by the proposed development is such that further mitigation work is not considered necessary. It is not recommended that a watching brief is undertaken during the construction phase of the development.

7. Bibliography

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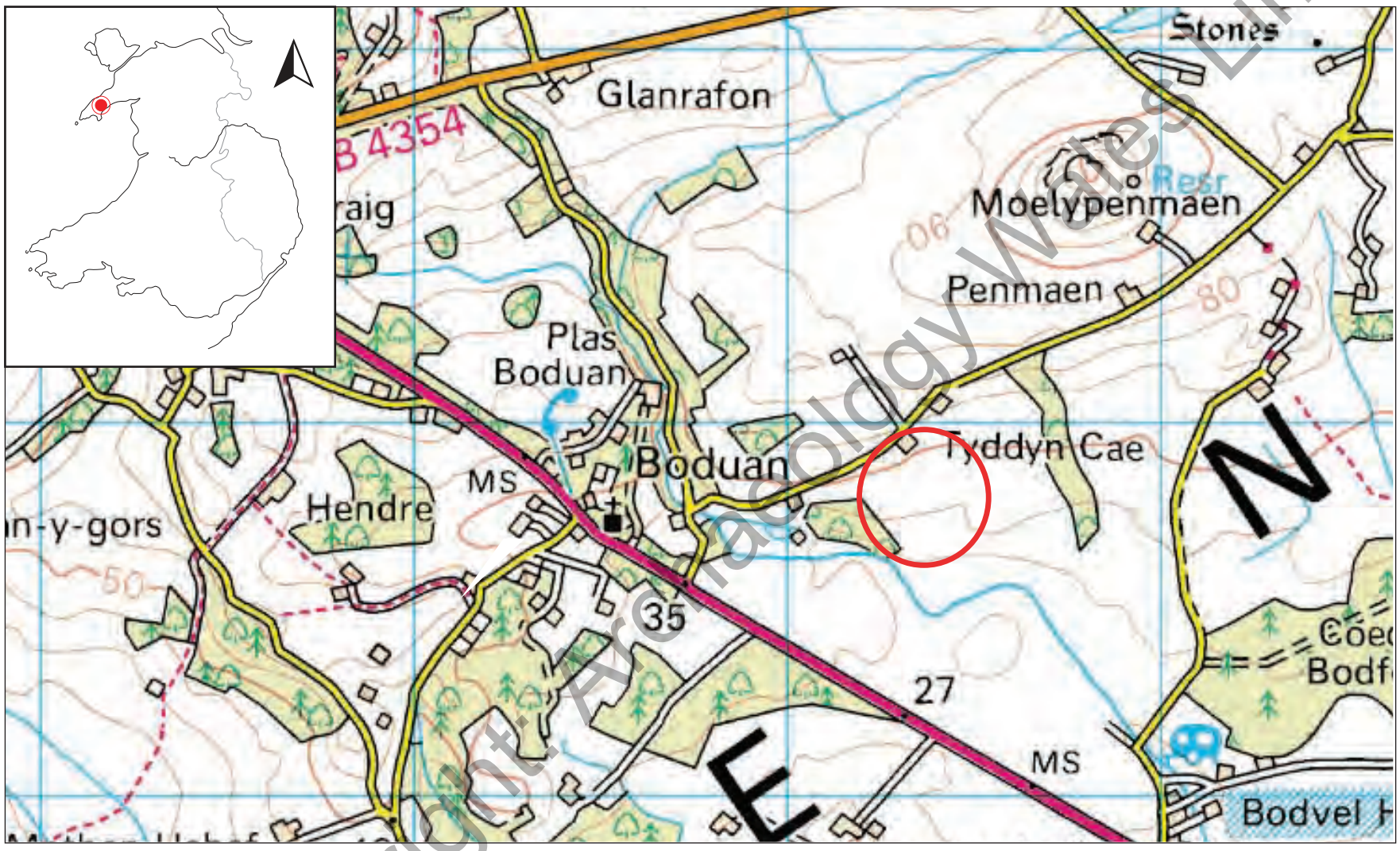

Figure 1.
Location plan

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Tyddyn Cae
68.6m
74.0m
58.5m
51.2m
Not excavated.
A
B
C
D
E
F
G
H
I
Spring
Spreads
Collects
Sinks
Issues
Drain
Foot Bridge
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
0
300m

Site name: Tyddyn Cae Solar Farm, Boduan

Fig 2. Trench Layout Plan showing Geophysics results

Scale : 1:3000@A3

Drawn By: CES

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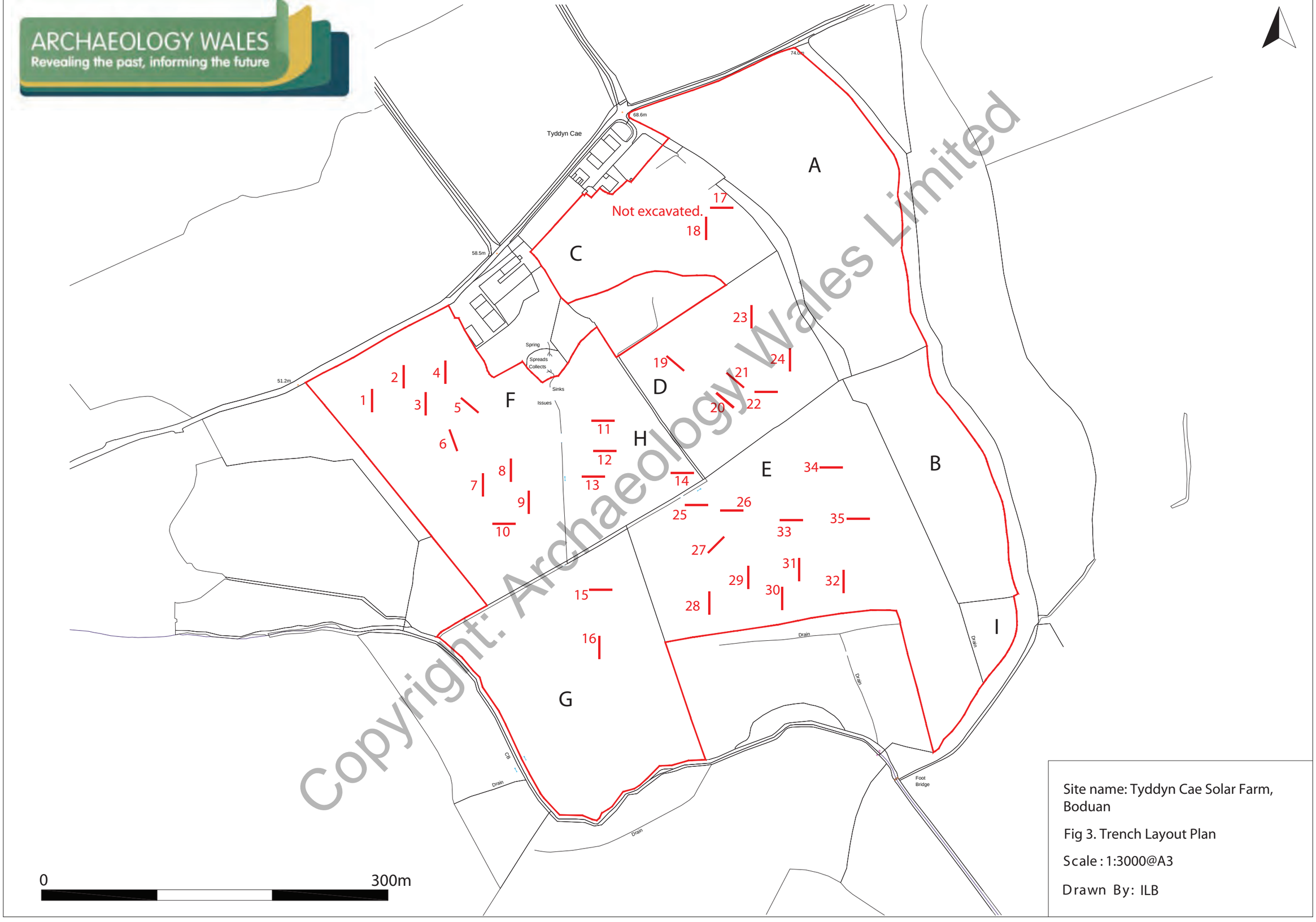
Revealing the past, informing the future



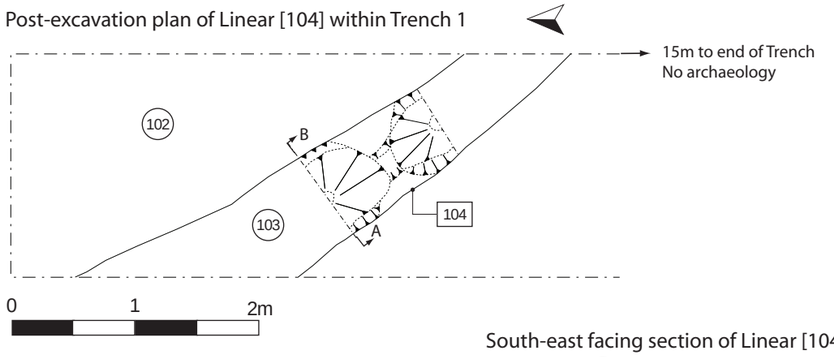
Site name: Tyddyn Cae Solar Farm, Boduan

Fig 3. Trench Layout Plan

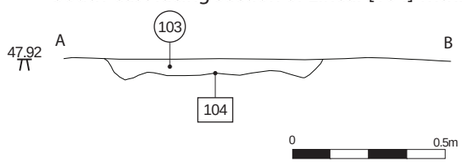
Scale : 1:3000@A3

Drawn By: ILB

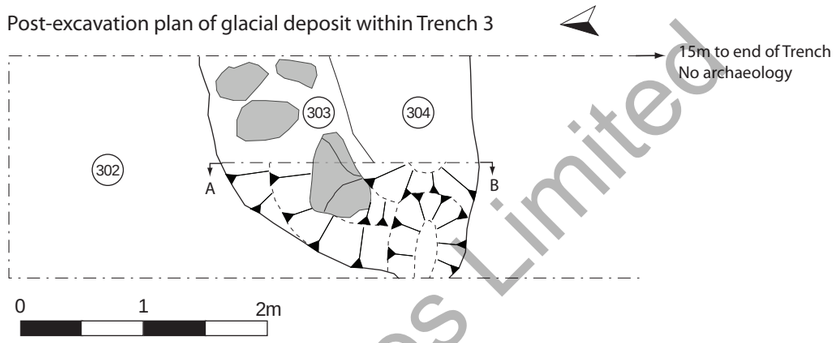
Post-excavation plan of Linear [104] within Trench 1



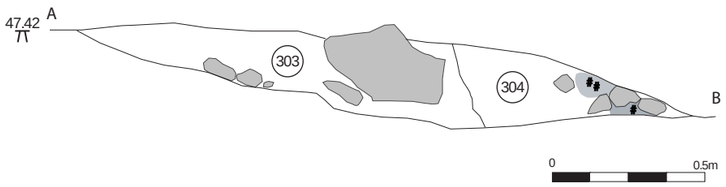
South-east facing section of Linear [104] within Trench 1



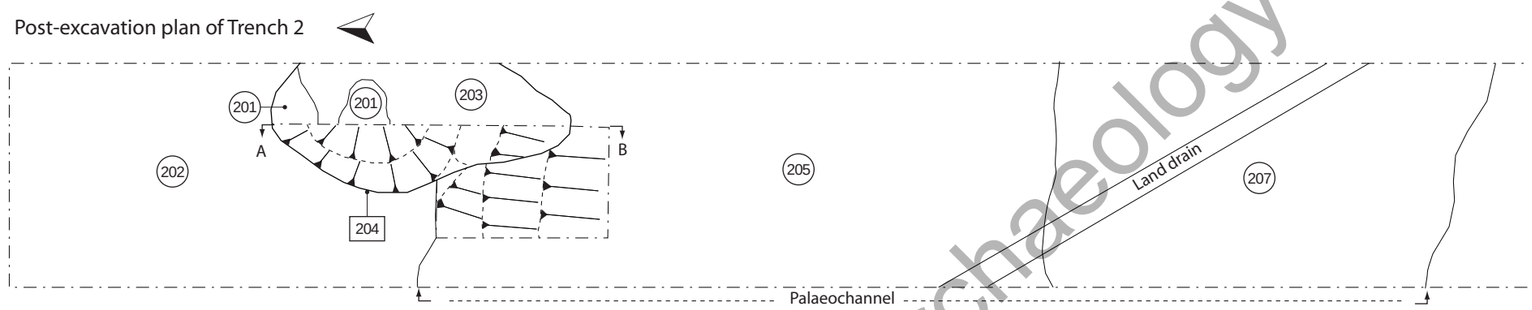
Post-excavation plan of glacial deposit within Trench 3

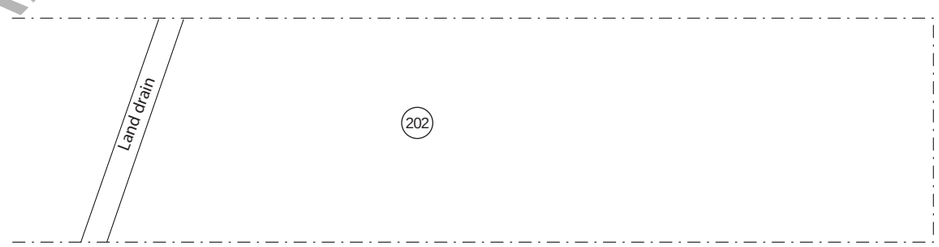


West facing section of glacial deposit within Trench 3

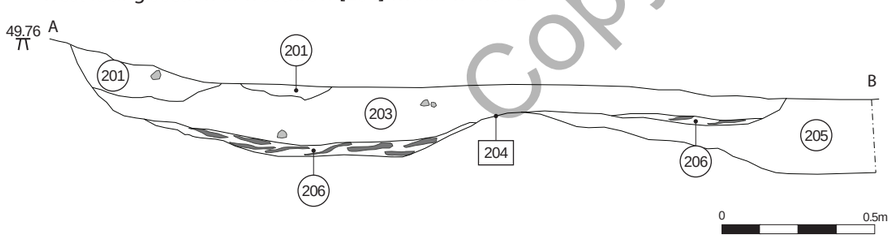


Post-excavation plan of Trench 2





West facing section of Treethrow [204] within Trench 2



Key

- Stone
- ## Charcoal
- Grey silts
- Charcoal laminations

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Drawing Title:	Plans & sections of Trench 1, 2 & 3
Date:	January 2015
Drawn By:	ILB
Scale:	Sections 1:20 & Plans 1:50 @ A3
Figure 4	

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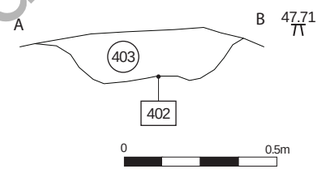
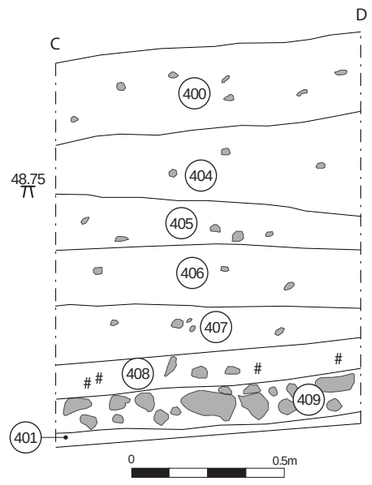
Post-excavation plan of Trench 4

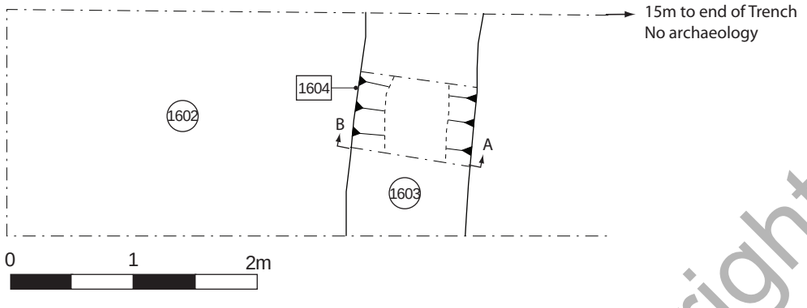
South-east facing section of Linear [402] within Trench 4



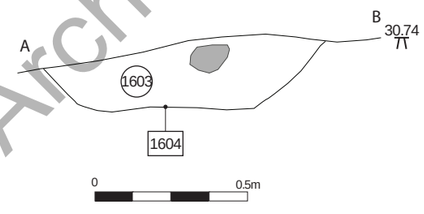
East facing section through Palaeochannel within Trench 4



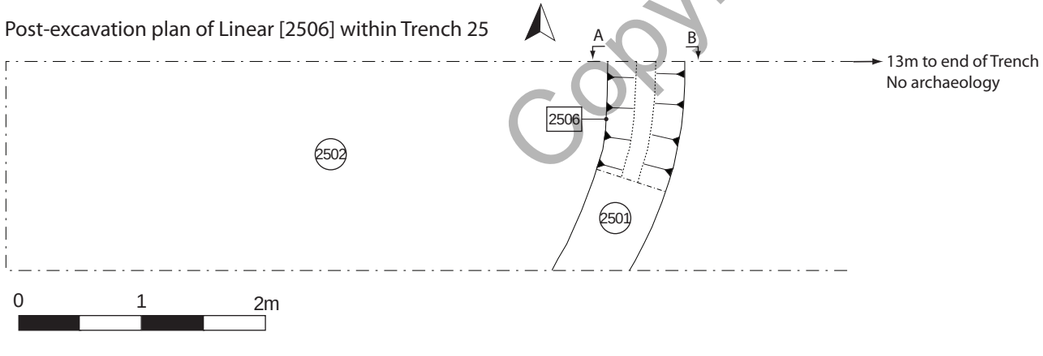
Post-excavation plan of Linear [1604] within Trench 16



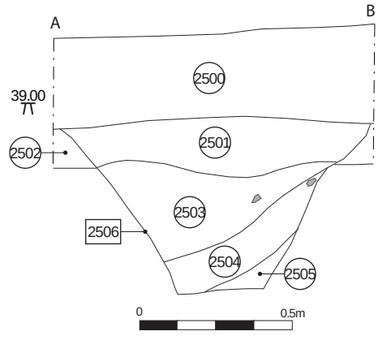
East facing section of linear [1604] within Trench 16



Post-excavation plan of Linear [2506] within Trench 25



South facing section of Linear [2506] within Trench 25



Key:

- Stone
- ## Charcoal

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Drawing Title:	Plans & sections of Trench 4, 16 & 25
Date:	January 2015
Drawn By:	ILB
Scale:	Sections 1:20 & Plans 1:50 @ A3
Figure 5	

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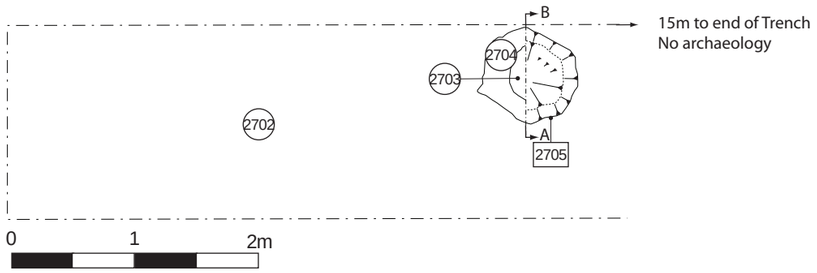
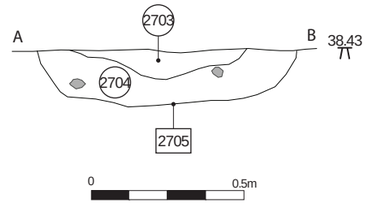
Post-excavation plan of Treethrow [2705] within Trench 27



South-west facing section of Treethrow [2705] within Trench 27

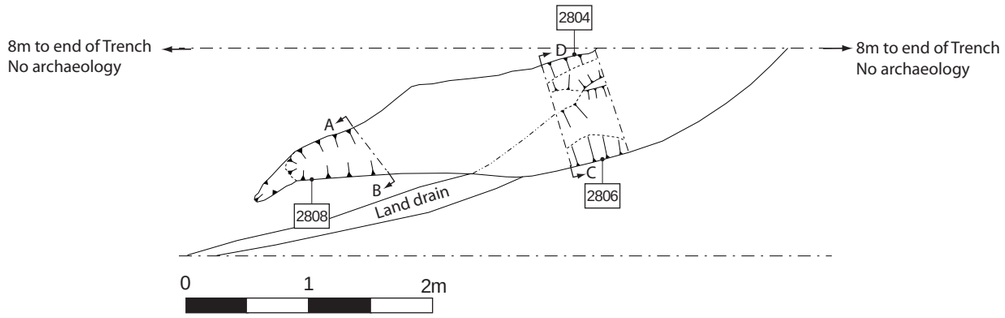


Key

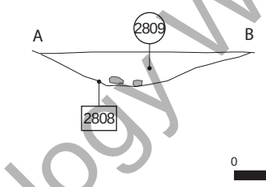
Stone

Charcoal

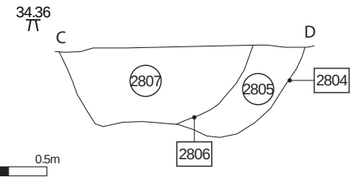
Post-excavation plan of Linear [2806] & [2808] within Trench 28



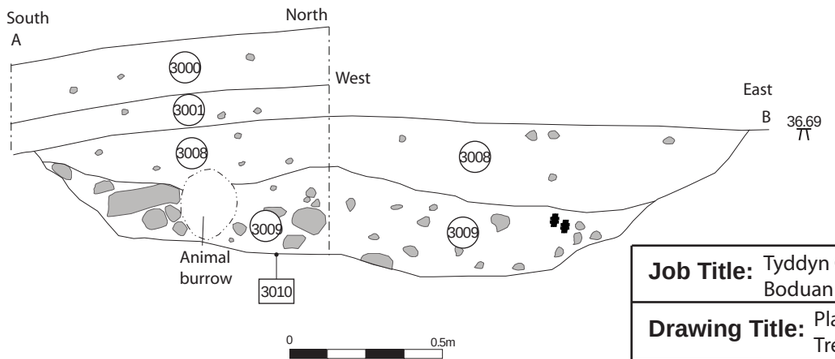
North-west facing section of Linear [2808] within Trench 28



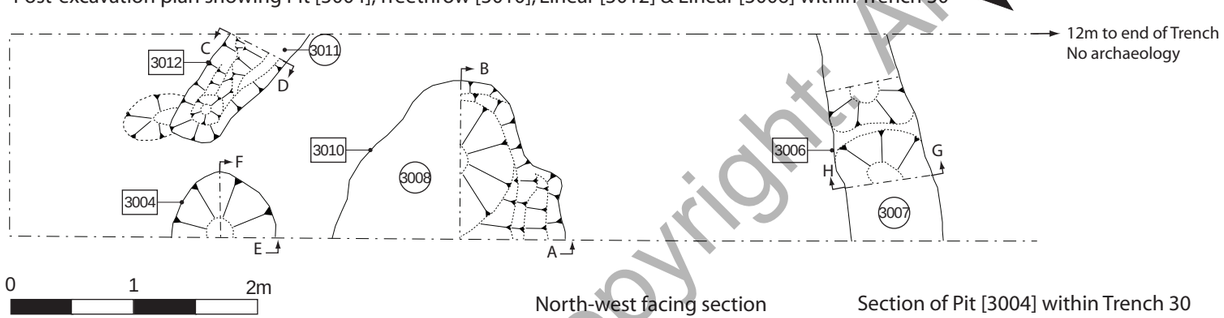
South-east facing section of Linear [2804] & [2806] within Trench 28



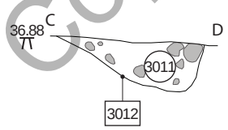
Section of Treethrow [3010] within Trench 30



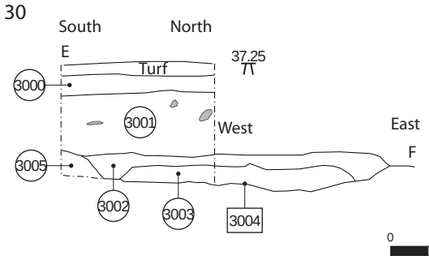
Post-excavation plan showing Pit [3004], Treethrow [3010], Linear [3012] & Linear [3006] within Trench 30



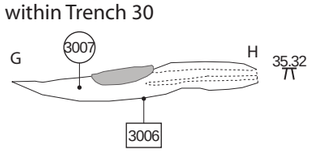
North-west facing section of Linear [3012] within Trench 30



Section of Pit [3004] within Trench 30



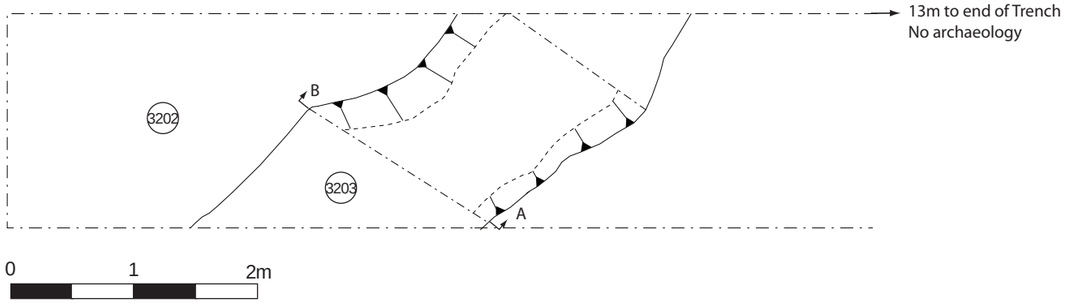
East facing section of Linear [3006] within Trench 30



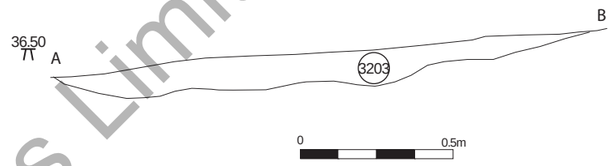
Job Title:	Tyddyn Cae Solar Farm, Boduan
Drawing Title:	Plans & sections of Trench 27,28 & 30
Date:	January 2015
Drawn By:	ILB
Scale:	Sections 1:20 & Plans 1:50 @ A3
Figure 6	

ARCHAEOLOGY WALES
Revealing the past, informing the future

Post-excavation plan of Linear (3203) within Trench 32

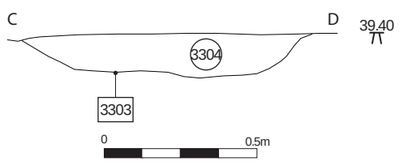


North-west facing section of Linear (3203) within Trench 32

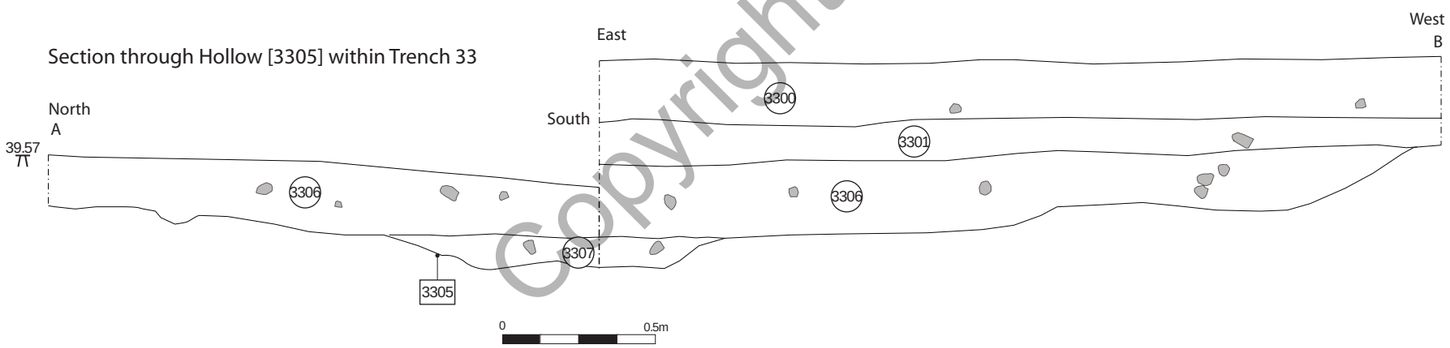


Post-excavation plan of Linear [3303] and Hollow [3305] within Trench 33

North facing section of Linear [3303] within Trench 33



Section through Hollow [3305] within Trench 33



Job Title:	Tyddyn Cae Solar Farm, Boduan
Drawing Title:	Plans & sections of Trench 32 & 33
Date:	January 2015
Drawn By:	ILB
Scale:	Sections 1:20 & Plans 1:50 @ A3
Figure 7	

ARCHAEOLOGY WALES
Revealing the past, informing the future

Plate 1. General shot of work in progress at Tyddyn Cae, looking South-east

Plate 2. Shot of Burnt Tree Hollow within Trench 2, looking East

Plate 3. Shot of Gully within Trench 4, looking South

Plate 4. Section of Palaeochannel within Trench 4, looking West

Plate 5. Shot of Linear feature within Trench 4, looking North

Plate 6. Shot of Ditch cut withing Trench 25, looking North

Plate 7. Shot of Gullies within Trench 28, looking North-east.

Plate 8. Shot of Burnt Tree Throw within Trench 30, looking North-west

Plate 9. Shot of Tree Throw within Trench 30, looking West

Plate 10. Shot of Gully within Trench 32, looking East

Archaeology Wales

APPENDIX I:
Trench Summaries

Appendix 1: Trench Summaries

The order in which the deposits are listed reflects their stratigraphical position, except where noted.
+ = sample taken

All Trenches 20m long and 1.8m wide

Trench 1		Alignment: North – South	Max Depth: 0.37m
Co-ordinates:		233214 **E** 337854 **N**	233212 **E** 337834 **N**
Ground Level:		48.56m aOD	47.01m aOD
No.	**Type**	**Description**	**Depth**
100	Topsoil	Soft dark greyish brown silty clay with rare small subrounded and subangular stone fragments.	0.18m
101	Subsoil	Firm greyish brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments.	0.19m

Cut Features/Archaeological Horizons

103	Fill	Firm light grey silty clay with occasional subrounded and subangular stone fragments. Sealed by **101**.	0.07m
104	Linear	Linear regular feature with shallow concave sides and an irregular flat base, 0.7m wide. Aligned northwest-southeast. Cuts **102**. **Drainage Gully**.	0.07m

101	Natural	Compact light grey/orange brown sandy silty clay with common small to medium subrounded and subangular stone fragments	-

Trench 2		Alignment: North – South	Max Depth: 0.71m
Co-ordinates:		233239 **E** 337875 **N**	233242 **E** 337855 **N**
Ground Level:		50.48m aOD	48.14m aOD
No.	**Type**	**Description**	**Depth**
200	Topsoil	Firm dark greyish brown silty clay with rare small subrounded and subangular stone fragments.	0.28m
201	Subsoil	Firm mid brown sandy silty clay with rare small to medium subrounded and subangular stone fragments.	0.43m

Cut Features/Archaeological Horizons

203 +	Fill	Firm to loose mid brown mottled black silty clay with rare small subrounded stone fragments. Charcoal rich. Sealed by **201**.	0.20m
206	Fill	Firm orange brown sandy silty clay interleaved with laminations of charcoal. No coarse componants.	0.10m
204	Cut	Ovate feature with steep to shallow concave sides and a rounded base, 2.4m north-south and 1.1m+ east-west. Cuts **205**. **Burnt out treethrow**.	0.25m

205	Deposit	Firm to loose mid brown silty clay with rare small subrounded stone fragments. Cut by **204**.	0.25m+
207	Deposit	Firm grey sandy silty clay with common small to medium subrounded and subangular stone fragments. Occasional charcoal fragments.	Not excavated

202	Natural	North end of trench: Orange brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments. South end of trench: Grey sandy silty clay with frequent small to medium and occasional large subrounded and subangular stone fragments.	-

Trench 3		Alignment: North – South	Max Depth: 0.40m
Co-ordinates:		233259 **E** 337853 **N**	233260 **E** 337834 **N**
Ground Level:		47.99m aOD	46.55m aOD
No.	**Type**	**Description**	**Depth**
300	Topsoil	Firm dark greyish brown silty clay with rare small subrounded and subangular stone fragments.	0.20m
301	Subsoil	Firm to friable mid brown sandy silty clay with common small to medium subrounded and subangular stone fragments.	0.20m

Cut Features/Archaeological Horizons

303	Deposit	Frequent small to medium and occasional large subrounded and subangular stone in a frim mid grey silty clay matrix.	0.34m
304	Deposit	Firm to sticky yellow sandy clay with patches of firm grey silty clay. Occasional charcoal flecks within the grey silty clay	0.28m

302	Natural	Firm to friable orange brown mottled pale grey sandy silty clay with frequent small to medium subrounded and subangular stone fragments.	-

Trench 4		Alignment: North – South	Max Depth: 1.24m
Co-ordinates:		233275 **E** 337879 **N**	233275 **E** 337858 **N**
Ground Level:		50.04m aOD	48.15m aOD
No.	**Type**	**Description**	**Depth**
400	Topsoil	Firm dark greyish brown silty clay with occasional small subrounded and subangular stone fragments.	0.30m
404	Subsoil	Firm mid brown mottled grey silty clay with rare small to medium subrounded and subangular stone fragments. Heavy manganese staining.	0.25m

Cut Features/Archaeological Horizons

403 +	Fill	Firm grey silty clay with rare small subrounded stone fragments. Sealed by **404**.	0.14m
402	Linear	Linear regular feature with steep concave sides and a rounded base, 0.8m wide. Aligned northwest-southeast. Cuts **405**. **Drainage Gully**.	0.14m

405	Deposit	Grey mottled brown firm silty clay with occasional small to medium stone fragments. Rare charcoal flecks. Cut by **402**.	0.18m
406	Deposit	Firm mid brown mottled grey silty clay with rare small to medium subrounded and subangular stone fragments. Heavy manganese staining.	0.20m
407	Deposit	Firm grey sandy silty clay with occasional small to medium subrounded and subangular stone fragments.	0.18m
408 +	Deposit	Firm grey mottled pale grey silty clay with common small to medium subrounded and subangular stone fragments. Common charcoal fragments.	0.14m
409	Deposit	Very frequent small to large subrounded and subangular stone fragments in a firm pale grey sandy silty clay matrix.	0.13m

401	Natural	Firm yellowish brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments.	-

Trench 16	Alignment: North – South	Max Depth: 0.33m
Co-ordinates:	233408 **E** 337642 **N**	233409 **E** 337620 **N**
Ground Level:	31.40m aOD	29.68m aOD

No.	Type	Description	Depth
1600	Topsoil	Soft dark greyish brown silty clay with rare small subrounded and subangular stone fragments.	0.20m

Cut Features/Archaeological Horizons

1603	Fill	Firm greyish brown silty clay with occasional subrounded and subangular stone fragments. Sealed by **1600**.	0.32m
1604	Linear	Linear regular feature with steep concave sides and a rounded base, 1m wide. Aligned east-west. Cuts **1601**. **Drainage gully**.	0.07m

1601	Subsoil	Firm to friable pale grey sandy silty clay with occasional small to medium subrounded and subangular stone fragments. Cut by **1604**.	0.13m
1602	Natural	Firm to friable orange mottled grey sandy silty clay with common small to medium subrounded and subangular stone fragments.	-

Trench 25	Alignment: East – West	Max Depth: 0.50m
Co-ordinates:	233502 **E** 337754 **N**	233480 **E** 337754 **N**
Ground Level:	39.98m aOD	38.90m aOD

No.	Type	Description	Depth
2500	Topsoil	Soft mid brown silty clay with occasional small subrounded and subangular stone fragments.	0.30m
2501	Subsoil	Firm greyish brown sandy silty clay with rare small to medium subrounded and subangular stone fragments.	0.20m

Cut Features/Archaeological Horizons

2503 +	Fill	Soft greyish brown silty clay with rare small subrounded stone fragments. Rare charcoal fragments. Sealed by **2501**.	0.20m
2504	Fill	Firm greyish brown mottled orange sandy silty clay with very rare small subrounded stone fragments. **Remnant bank deposit**, washed in from the east side of the feature.	0.15m
2505	Fill	Soft grey sandy silty clay with no coarse componants.	0.14m
2506	Linear	Linear regular feature with steep concave sides and aflat base, 0.72m wide. Aligned north-south. Cuts **2502**. **Gully**.	0.55m

2502	Natural	Firm to compact orange brown sandy silty clay with frequent small to medium subrounded and subangular stone fragments.	-

Trench 27	Alignment: East – West	Max Depth: 0.58m
Co-ordinates:	233518 **E** 337731 **N**	233502 **E** 337715 **N**
Ground Level:	39.39m aOD	38.03m aOD

No.	Type	Description	Depth
2700	Topsoil	Firm mid brown silty clay with occasional small subrounded and subangular stone fragments.	0.34m
2701	Subsoil	Firm orange brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments. Rare manganese staining.	0.24m

Cut Features/Archaeological Horizons

2703 +	Fill	Firm pale grey mottled orange brown silty clay with rare small subrounded stone fragments. Frequent charcoal flecks. Sealed by **2701**.	0.10m
2704	Fill	Firm orange brown mottled pale grey sandy silty clay with occasional small to medium subrounded and subangular stone fragments. Occasional charcoal flecks.	0.20m
2705	Cut	Subcircular feature with steep concave sides and a flat irregular base, c. 0.85m in diameter. Cuts **2702**. **Burnt out treethrow**.	0.20m

2702	Natural	Firm grey mottled orange brown sandy silty clay with frequent small to medium subrounded and subangular stone fragments.	-

Trench 28	Alignment: North – South	Max Depth: 0.36m
Co-ordinates:	233504 **E** 337681 **N**	233506 **E** 337658 **N**
Ground Level:	35.83m aOD	33.29m aOD

No.	Type	Description	Depth
2801	Topsoil	Firm mid brown silty clay with occasional small subrounded and subangular stone fragments.	0.20m
2802	Subsoil	Firm to friable orange brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments.	0.16m

Cut Features/Archaeological Horizons

2807 +	Fill	Friable orange brown sandy clay silt with frequent small to medium subrounded and subangular stone fragments. Sealed by **2802**. Same as **2809**.	0.13m
2806	Linear	Linear regular feature with steep concave sides and a flat base, 0.6m wide. Aligned northwest-southeast. Cuts **2805**. Same as **2808**. **Drainage gully (recut)**.	0.13m
2805	Fill	Firm orange brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments.	0.20m
2804	Cut	Linear regular feature with steep concave sides and a flat base, 0.8m wide. Aligned northwest-southeast. Cuts **2803**. **Drainage gully**.	0.20m

2809	Fill	Friable orange brown sandy clay silt with frequent small to medium subrounded and subangular stone fragments. Sealed by **2802**. Same as **2807**.	0.05m
2808	Cut	Linear regular feature with shallow concave sides and a rounded base, 0.6m wide. Aligned northwest-southeast. Cuts **2803**. **Drainage gully**.	0.05m

2803	Natural	Firm yellowish brown sandy silty clay with frequent small to medium subrounded and subangular stone fragments.	-

Trench 30	Alignment: North – South	Max Depth: 0.35m
Co-ordinates:	233567 **E** 337685 **N**	233566 **E** 337663 **N**
Ground Level:	37.62m aOD	34.29m aOD

No.	Type	Description	Depth
3000	Topsoil	Firm mid brown brown silty clay with common small subrounded and subangular stone fragments.	0.20m
3001	Subsoil	Firm orange brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments.	0.15m

Cut Features/Archaeological Horizons

3002 +	Fill	Friable greyish brown silty clay with occasional small subrounded and subangular stone fragments. Frequent charcoal flecks. Sealed by **3001**.	0.10m
3003 +	Fill	Friable dark greyish brown silty clay with very frequent charcoal.	0.08m
3004	Cut	Subcircular feature with shallow concave sides and a rounded base, c. 0.60m in diameter. Cuts **3005**. **Burnt out treethrow**.	0.10m

3007	Fill	Friable greyish brown silty clay with occasional small subrounded and subangular stone fragments. Sealed by **3001**.	0.10m
3006	Linear?	Linear irregular feature with shallow concave sides and an irregular flat base, 0.60m wide. Aligned broadly east-west Cuts **3005**. **Probable stone holes**.	0.10m

3008 +	Fill	Firm mid brown sandy clay silt with rare small to medium subrounded and subangular stone fragments and one large rounded stone. Sealed by **3301**.	0.30m
3009 +	Fill	Firm greyish brown mottled orange brown sandy silty clay with frequent small to medium and rare large subrounded and subangular stone fragments, poorly sorted. Rare charcoal flecks. Heavily disturbed by animal burrowing.	0.30m
3010	Cut	Ovoid feature with steep concave sides and an irregular flat base, 1.47m+ east-west by 2m north-south. Cuts **3005**. **Probable treethrow**.	0.55m

3011	Fill	Firm greyish brown silty clay with common small subrounded and subangular stone fragments. Sealed by **3001**.	0.10m
3012	Linear?	Linear irregular feature with a shallow concave north side and steep concave south side, and an irregular base. 0.50m wide. Aligned northwest-southeast. Cuts **3005**. **Probably not a feature**.	0.10m

3005	Natural	Firm orange brown sandy silty clay with common small to medium subrounded and subangular stone fragments.	-

Trench 32	Alignment: North – South	Max Depth: 0.50m
Co-ordinates:	233620 **E** 337697 **N**	233619 **E** 337672 **N**
Ground Level:	37.20m aOD	34.76m aOD

No.	Type	Description	Depth
3200	Topsoil	Loose mid brown silty clay with occasional small subrounded and subangular stone fragments.	0.20m
3201	Subsoil	Firm to friable orange brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments.	0.20m

Cut Features/Archaeological Horizons

3203	Fill	Friable orange brown sandy clay silt with rare small to medium subrounded and subangular stone fragments. Sealed by **3201**.	0.13m
3204	Cut	Linear regular feature with shallow concave sides and a rounded base, 1.78m wide. Aligned northwest-southeast. Cuts **3202**. **Drainage gully**.	0.13m

3202	Natural	Firm to compact yellowish brown sandy silty clay with occasional small to	-

		medium subrounded and subangular stone fragments.	

Trench 33	Alignment: East – West	Max Depth: 0.35m
Co-ordinates:	233587 **E** 337738 **N**	233564 **E** 337740 **N**
Ground Level:	39.94m aOD	40.42m aOD

No.	Type	Description	Depth
3300	Topsoil	Firm dark greyish brown silty clay with rare small subrounded and subangular stone fragments.	0.20m
3301	Subsoil	Firm mid brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments.	0.15m

Cut Features/Archaeological Horizons

3304 +	Fill	Friable greyish brown sandy clay silt with occasional small subrounded and subangular stone fragments. Sealed by **3301**.	0.15m
3303	Linear	Linear regular feature with shallow concave sides and a flat base, 0.95m wide. Aligned northeast-southwest. Cuts **3302**. **Drainage gully**.	0.15m

3306	Fill	Firm greyish brown sandy clay silt with occasional small to medium subrounded and subangular stone fragments and one large rounded stone. Sealed by **3301**.	0.25m
3307	Fill	Firm greyish brown mottled orange brown sandy silty clay with occasional small to medium subrounded and subangular stone fragments.	0.12m
3305	Cut	Irregular feature with shallow concave sides and an irregular flat base, 3.5m east-west by 1.8m+ north-south. Cuts **3302**. **Depression in the natural**.	0.40m

3302	Natural	Firm orange brown sandy silty clay with common small to medium subrounded and subangular stone fragments.	-

Appendix 2:

Summary of Soil horizons in Trenches with No Archaeological Features/Horizons

All Trenches 20m long and 1.8m wide

Depths of deposits are max depths.

Trench	Co-ordinates & Ground Level	Topsoil	Subsoil	Natural
5	233287 **E** 337848 **N** / 47.03m aOD 233302 **E** 337834 **N** / 45.95m aOD	**500** – 0.38m	-	**501**
6	233277 **E** 337823 **N** / 45.09m aOD 233283 **E** 337804 **N** / 43.82m aOD	**600** – 0.19m	**601** – 0.08m	**602**
7	233307 **E** 337781 **N** / 41.46m aOD 233306 **E** 337762 **N** / 39.21m aOD	**700** – 0.16m	**701** – 0.45m	**702**
8	233330 **E** 337793 **N** / 42.14m aOD 233331 **E** 337773 **N** / 40.29m aOD	**800** – 0.20m	**801** – 0.20m	**802**
9	233345 **E** 337766 **N** / 39.17m aOD 233343 **E** 337746 **N** / 37.76m aOD	**900** – 0.18m	**901** – 0.18m	**902**
10	233313 **E** 337742 **N** / 37.71m aOD 233335 **E** 337741 **N** / 37.32m aOD	**1000** – 0.15m	**1001** – 0.22m	**1002**
11	233395 **E** 337828 **N** / 42.77m aOD 233416 **E** 337827 **N** / 42.54m aOD	**1100** – 0.20m	**1101** – 0.17m	**1102**
12	233395 **E** 337802 **N** / 41.38m aOD 233415 **E** 337802 **N** / 41.12m aOD	**1200** – 0.16m	**1201** – 0.27m	**1202**
13	233392 **E** 337780 **N** / 40.10m aOD 233414 **E** 337779 **N** / 40.17m aOD	**1300** – 0.30m	**1301** – 0.20m	**1302**
14	233460 **E** 337777 **N** / 40.45m aOD 233476 **E** 337787 **N** / 41.25m aOD	**1400** – 0.15m	**1401** – 0.20m	**1402**
15	233399 **E** 337679 **N** / 33.60m aOD 233419 **E** 337682 **N** / 34.30m aOD	**1500** – 0.17m	**1501** – 0.22m	**1502**
19	233469 **E** 337885 **N** / 45.28m aOD 233482 **E** 337870 **N** / 44.77m aOD	**1900** – 0.19m	**1901** – 0.18m	**1902**
20	233511 **E** 337848 **N** / 43.55m aOD 233525 **E** 337835 **N** / 42.88m aOD	**2000** – 0.10m	**2001** – 0.10m	**2002**
21	233516 **E** 337869 **N** / 44.90m aOD 233537 **E** 337857 **N** / 44.80m aOD	**2100** – 0.20m	**2101** – 0.16m	**2102**
22	233544 **E** 337855 **N** / 44.49m aOD 233562 **E** 337851 **N** / 44.56m aOD	**2200** – 0.20m	**2201** – 0.20m	**2202**
23	233539 **E** 337929 **N** / 48.62m aOD 233540 **E** 337907 **N** / 47.29m aOD	**2300** – 0.17m	**2301** – 0.22m	**2302**
24	233572 **E** 337890 **N** / 46.69m aOD 233573 **E** 337870 **N** / 45.68m aOD	**2400** – 0.18m	**2401** – 0.19m	**2402**
26	233540 **E** 337751 **N** / 40.78m aOD 233513 **E** 337750 **N** / 40.31m aOD	**2600** – 0.28m	**2601** – 0.20m	**2602**
29	233537 **E** 337702 **N** / 38.32m aOD 233536 **E** 337681 **N** / 36.39m aOD	**2900** – 0.10m	**2901** – 0.10m	**2902**
31	233584 **E** 337706 **N** / 39.22m aOD 233584 **E** 337684 **N** / 37.33m aOD	**3100** – 0.14m	**3101** – 0.12m	**3102**
34	233598 **E** 337786 **N** / 42.42m aOD 233619 **E** 337786 **N** / 42.07m aOD	**3400** – 0.30m	**3401** – 0.25m	**3402**
35	233625 **E** 337741 **N** / 39.77m aOD 233645 **E** 337741 **N** / 39.26m aOD	**3500** – 0.10m	**3501** – 0.15m	**3502**

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APPENDIX II:

Summary of soil horizons in trenches with no features/horizons

Appendix 2:

Summary of Soil horizons in Trenches with No Archaeological Features/Horizons

All Trenches 20m long and 1.8m wide

Depths of deposits are max depths.

Trench	Co-ordinates & Ground Level	Topsoil	Subsoil	Natural
5	233287 **E** 337848 **N** / 47.03m aOD 233302 **E** 337834 **N** / 45.95m aOD	**500** – 0.38m	-	**501**
6	233277 **E** 337823 **N** / 45.09m aOD 233283 **E** 337804 **N** / 43.82m aOD	**600** – 0.19m	**601** – 0.08m	**602**
7	233307 **E** 337781 **N** / 41.46m aOD 233306 **E** 337762 **N** / 39.21m aOD	**700** – 0.16m	**701** – 0.45m	**702**
8	233330 **E** 337793 **N** / 42.14m aOD 233331 **E** 337773 **N** / 40.29m aOD	**800** – 0.20m	**801** – 0.20m	**802**
9	233345 **E** 337766 **N** / 39.17m aOD 233343 **E** 337746 **N** / 37.76m aOD	**900** – 0.18m	**901** – 0.18m	**902**
10	233313 **E** 337742 **N** / 37.71m aOD 233335 **E** 337741 **N** / 37.32m aOD	**1000** – 0.15m	**1001** – 0.22m	**1002**
11	233395 **E** 337828 **N** / 42.77m aOD 233416 **E** 337827 **N** / 42.54m aOD	**1100** – 0.20m	**1101** – 0.17m	**1102**
12	233395 **E** 337802 **N** / 41.38m aOD 233415 **E** 337802 **N** / 41.12m aOD	**1200** – 0.16m	**1201** – 0.27m	**1202**
13	233392 **E** 337780 **N** / 40.10m aOD 233414 **E** 337779 **N** / 40.17m aOD	**1300** – 0.30m	**1301** – 0.20m	**1302**
14	233460 **E** 337777 **N** / 40.45m aOD 233476 **E** 337787 **N** / 41.25m aOD	**1400** – 0.15m	**1401** – 0.20m	**1402**
15	233399 **E** 337679 **N** / 33.60m aOD 233419 **E** 337682 **N** / 34.30m aOD	**1500** – 0.17m	**1501** – 0.22m	**1502**
19	233469 **E** 337885 **N** / 45.28m aOD 233482 **E** 337870 **N** / 44.77m aOD	**1900** – 0.19m	**1901** – 0.18m	**1902**
20	233511 **E** 337848 **N** / 43.55m aOD 233525 **E** 337835 **N** / 42.88m aOD	**2000** – 0.10m	**2001** – 0.10m	**2002**
21	233516 **E** 337869 **N** / 44.90m aOD 233537 **E** 337857 **N** / 44.80m aOD	**2100** – 0.20m	**2101** – 0.16m	**2102**
22	233544 **E** 337855 **N** / 44.49m aOD 233562 **E** 337851 **N** / 44.56m aOD	**2200** – 0.20m	**2201** – 0.20m	**2202**
23	233539 **E** 337929 **N** / 48.62m aOD 233540 **E** 337907 **N** / 47.29m aOD	**2300** – 0.17m	**2301** – 0.22m	**2302**
24	233572 **E** 337890 **N** / 46.69m aOD 233573 **E** 337870 **N** / 45.68m aOD	**2400** – 0.18m	**2401** – 0.19m	**2402**
26	233540 **E** 337751 **N** / 40.78m aOD 233513 **E** 337750 **N** / 40.31m aOD	**2600** – 0.28m	**2601** – 0.20m	**2602**
29	233537 **E** 337702 **N** / 38.32m aOD 233536 **E** 337681 **N** / 36.39m aOD	**2900** – 0.10m	**2901** – 0.10m	**2902**
31	233584 **E** 337706 **N** / 39.22m aOD 233584 **E** 337684 **N** / 37.33m aOD	**3100** – 0.14m	**3101** – 0.12m	**3102**
34	233598 **E** 337786 **N** / 42.42m aOD 233619 **E** 337786 **N** / 42.07m aOD	**3400** – 0.30m	**3401** – 0.25m	**3402**
35	233625 **E** 337741 **N** / 39.77m aOD 233645 **E** 337741 **N** / 39.26m aOD	**3500** – 0.10m	**3501** – 0.15m	**3502**

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APPENDIX III:

AW Specification

Archaeology Wales

Written Scheme of Investigation

for an Archaeological Evaluation at

Tyddyn Cae Farm, Boduan, Pwllheli
Gwynedd

Prepared for:
Lightsource Renewable Energy Ltd

Project No: 2274

December 2014

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NON TECHNICAL SUMMARY

This Written Scheme of Investigations (WSI) details the proposal for the excavation of 35 evaluation trenches at the proposed site of the Tyddyn Cae Solar Farm, Boduan, Pwllheli, Gwynedd. It has been prepared by Archaeology Wales Limited for Lightsource Renewable Energy Ltd.

1. Introduction

The proposed development is of a new solar farm including landscaping, access and service provision developed by the Lightsource Renewable Energy Ltd (Planning Reference: C14/0885/33/LL.) at Tyddyn Cae Farm, Boduan, Pwllheli, Gwynedd. The local planning authority is Gwynedd County Council, to whom Gwynedd Archaeological Planning Services (GAPS) act as advisors. The site is centred around NGR 233465 337785 (Figure 1).

This Written Scheme of Investigations (WSI) follows recommendations made by Jenny Emmett of the Gwynedd Archaeological Planning Service that a field evaluation comprising a minimum of 35 evaluation trenches is required on the site in order to further ascertain the likely impact any development will have on the archaeological resource. This WSI has been prepared by Chris E Smith (MIfA), Project Manager, Archaeology Wales Ltd (Henceforth - AW) at the request of Lightsource Renewable Energy Ltd. It provides information on the methodology that will be employed by AW during the excavation of 35, 20.0m long x 1.6m wide, evaluation trenches across the site.

All work will conform to 'Standard and Guidance for Archaeological Evaluation' (IfA 2011) and be undertaken by suitably qualified staff to the highest professional standards. Archaeology Wales is a Registered Archaeological Organisation with the Institute for Archaeologists.

2 Site description

The assessment area is located on land sloping to the south from a height of 56m above ordnance datum down to 43m. The site is located to the north east of the village of Boduan and is bounded to the east by an area of woodland.

A cultural heritage desk based assessment has previously been undertaken covering the archaeological and historical background to the area (Wylie, 2014). The desk based assessment highlighted the location of a 19th century structure observed on OS maps dating from 1880 to 1920. Also noted in the desk based assessment were the cloddiau (clawdd banks and stone walls) forming the field boundaries of the area around and including Tyddyn Cae farm. These are thought to be of 19th century date (Wylie, 2014).

The Iron Age hillfort of Garn Boduan is located 2.4km to the north west of the assessment area. Further evidence of prehistoric activity in the area comes from the locations of two standing stones located 1.5km to the north east of the site.

A small medieval motte is located some 1.3km to the east of the assessment area, though has no associated settlement. Medieval settlement in the area is likely to have

been largely in the village of Boduan to the west of the site. Though the current church in Boduan dates from 1765, it is on the site of an earlier medieval foundation (Salter, 1993).

Aside from the recently undertaken geophysical survey (Smith, 2014) there have been no recorded archaeological investigations or interventions within, or located close to, the assessment area.

3 Site specific objectives

This specification is for a 35 trench field evaluation to be undertaken within the application area prior to planning consent, in accordance with guidelines set out in Planning Policy Wales 2014 and Welsh Office Circular 60/96.

The objectives of the archaeological programme are to establish the presence or absence of archaeological deposits at the site; to assess the extent and significance of the archaeological resource of the site; to assess the potential impact of the development proposals on surviving remains; and to inform future decision making and potential mitigation strategies.

The work will include an assessment of the regional context within which the archaeological evidence rests and will aim to highlight any relevant research issues within national and regional research frameworks.

The work will result in a fully illustrated report that will provide information of sufficient detail to allow informed planning decisions to be made which can safeguard the archaeological resource. Preservation *in situ* will be advocated where at all possible, but where engineering or other factors result in loss of archaeological deposits, preservation by record will be recommended.

4 Method Statement for Evaluation

The field evaluation will comprise the excavation and recording of 35 (thirty five) 20.0m x 1.6m evaluation trenches.

As the proposed development area now excludes geophysical survey areas A, B & I, the trenches will be located only over the areas to be developed, i.e. Areas C, D, E, F, H and the northern half of G – See Fig 1.

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

Evaluation
Thirty five evaluation trenches, measuring 20.0m by 1.6m, will be located across the assessment area targeting both features identified on the 2014 geophysical survey and areas deemed to be 'blank'. An agreed trench layout is included as Figure 1.

All trenches will initially be excavated to the top of the archaeological horizon by machine under close archaeological supervision. All mechanical excavation will be undertaken using a toothless bucket. All areas will be hand cleaned using hoes and/or

pointing trowels to prove the presence, or absence, of archaeological features and to determine their significance. In each area the excavation of the minimum number of archaeological features will be undertaken, to elucidate the character, distribution, extent and importance of the archaeological remains. This will include 50% of all linear features, 50% by half sectioning of all pit and posthole features under 1m in diameter and 50% of all larger pit features by excavation of opposing quadrants.

In each area sufficient excavation will be undertaken to ensure that the natural horizons are reached and proven. If safety reasons preclude manual excavation to natural, hand augering 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 1.2m the options of using shoring or stepped trenching will be discussed with GAPS.

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

Recording will be carried out using Archaeology Wales recording systems (pro-forma context sheets etc), using a continuous number sequence for all contexts in accordance with the AW technical manual – Procedures for Excavation and Site Recording 2011.

Written, drawn and photographic records of an appropriate level of detail will be maintained throughout the course of the project. Photographs will be taken in digital *RAW format, using a 14MP camera. These will be converted to Tiff format for archiving. Should significant remains be identified that require excavation, photographs will also be taken in black and white and colour slide (35mm film).

All features identified will be tied in to the OS survey grid and fixed to local topographical boundaries and related to the developer's site plan. The location of all features will also be recorded using a Topcon GTS725 total station.

Monitoring

GAPS will be contacted prior to the commencement of ground works, and subsequently once the work is underway.

GAPS will be provided with notice of the start date, a projected timetable and a copy of the Health and Safety Risk Assessment 5 working days prior to the commencement of the work.

Any changes to the specification that the contractor may wish to make after approval will be communicated to GAPS for approval on behalf of the Planning Authority.

If it is felt necessary to expand on the excavation area – i.e add further trenches or expand existing ones, this will be undertaken after discussion with GAPS and the client.

Representatives of GAPS will be given access to the site so that they may monitor the progress of the field evaluation. GAPS will be kept regularly informed about developments, both during the site works and subsequently during post-excavation.

Artefacts

Archaeological artefacts recovered during the course of the excavation will be cleaned and labelled using an accession number which will be obtained from the local museum.

A single number sequence will be allocated to all finds. The artefacts will be stored appropriately until they are deposited with the museum.

All artefacts recovered during the project will be retained and related to the contexts from which they were derived. All typologically distinct and closely datable finds will be recorded three-dimensionally.

The evaluation will carefully consider any artefactual or economic information and provide an assessment of the viability, for further study, of such information. It will be particularly important to provide an indication of the relative significance of such material for any subsequent decision-making process regarding mitigation strategies.

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

A catalogue by context of all artefactual material found, quantified by number, weight, or both, and containing sketches of significant artefacts will be compiled.

Pottery will be analysed to the standards outlined in "Guidelines for the Preparation of Pottery Archives" as prepared by the Study Group for Roman Pottery in consultation with the IFA. All other material will be analysed following the advice given in the Institute of Field Archaeologists: Guidelines for Finds Work.

The requirements for the conservation of artefacts will be unpredictable until after the completion of the fieldwork. The archaeological contractor will ensure, however, that at least minimum acceptable standards are achieved (the UK Institute of Conservation's Guidelines for the Treatment of Finds from Archaeological Site should be used as guidance).

All finds of gold and silver will be removed to a safe place and GAPS, the client and the local coroner informed, within the guidelines of the Treasure Act 1996.

Environmental and technological samples

Samples will be taken where necessary when significant deposits are located. Minimum sample size will be 10 litres (where possible). Where the minimum sample size is not achievable, then 100% of the deposit will be sampled.

Samples will be retained for processing. The level of post-excavation processing will be dependent on the results of the field evaluation and following discussion with an environmental specialist and GAPS.

Any features containing deposits of environmental or technological significance will be sampled. If required, the project manager should arrange, through a suitably qualified expert the assessment of the environmental potential of the site through examination of suitable deposits. The assessment of potential should consider the guidelines set out in the English Heritage publication 'Guidelines for Environmental Archaeology' March 2002.

The requirements for the conservation of samples will be unpredictable until after the completion of the fieldwork. The archaeological contractor will ensure, however, that at least minimum acceptable standards are achieved (the UK Institute of Conservation's Guidelines for the Treatment of Finds from Archaeological Site should be used as guidance).

Human remains

Human remains will be left in situ, covered and protected when discovered. No further investigation should normally be permitted and GAPS and the local Coroner must be informed immediately. After discussion, it may be appropriate to take bone samples for C14 dating. If removal is essential it can only take place under the appropriate Ministry of Justice and Environmental Health regulations.

Specialists

In the event of certain finds/features etc. being discovered, the site archaeologist may have to seek specialist opinion for assistance. Such specialists will be accessed either internally within AW itself or from an external source should any such analysis be deemed necessary. A list of specialists is given in the table below. Specialist reports will be added to the finished report as an addendum.

Type	Name
Flint	Amelia Pannett
Animal bone	Jen Wood
CBM, heat affected clay, Daub etc.	Rachael Hall
Clay pipe	Hilary Major
Glass	Andy Richmond
Cremated and non-cremated human bone	Malin Holst
Metalwork	Kevin Leahy
Neo/BA pottery	Dr Alex Gibson
IA/Roman pottery	Jane Timby
Post Roman pottery	Mr Paul Blinkhorn
Charcoal (wood ID)	John Carrot
Waterlogged wood	Nigel Nayling
Molluscs and pollen	Dr James Rackham
Charred and waterlogged plant remains	Wendy Carruthers
Palaeoenvironmental sampling and analysis	Dr Martin Bates

5 Method statement for the production of an illustrated report and the deposition of the site archive

Report preparation

The report will contain the following:

- A fully representative description of the information gained from the evaluation, even if there should be negative evidence.
- A concise non-technical summary of the project results.
- At least one plan showing the sites location in respect to the local topography, as well as the position of all excavated areas.
- Plans indicating all archaeological features. All plans and sections should be related to Ordnance Datum.
- Written descriptions of all features and deposits excavated and their considered interpretation.

• A summary report on the artefactual and ecofactual assemblage and an assessment of its potential for further study, prepared by suitably qualified individuals or specialists.
• A statement of the local and regional context of the archaeological remains identified.

Copies of the report will be sent to the client, GAPS, and for inclusion in the HER. Digital copies will be provided in pdf format if required.

A summary report of the work will be submitted for publication to a national journal (e.g. *Archaeology in Wales*) no later than one year after the completion of the post-excavation work.

The site archive
A project archive will be prepared in accordance with the National Monuments Record (Wales) agreed structure and be deposited within an appropriate local museum on completion of site analysis and report production. It will also conform to the guidelines set out in MoRPHE (English Heritage, 2006).

Arrangements will be made with the local museum before work starts. Wherever the archive is deposited, this information will be relayed to the HER.

Although there may be a period during which client confidentiality will need to be maintained, the report and the archive will be deposited not later than six months after the completion of the work.

Other significant digital data generated by the survey (i.e. AP plots, EDM surveys, CAD drawings, GIS maps, etc.) will be presented as part of the report on a CD/DVD. The format of this presented data will be agreed with the curator in advance of its preparation.

6 Resources and timetable

Standards
All stages of the project will be undertaken by AW staff using current best practice. All work will be undertaken to the standards and guidelines of the IfA.

All work will be undertaken in accordance with the AW technical manual – Procedures for Excavation and Site Recording 2011.

Staff
The project will be undertaken by suitably qualified AW staff. Overall management of the project will be undertaken by Mark Houliston.

The site will be supervised by Nick Wells. Site assistants will be Peter Aherne and Ewan Kennaway.

Equipment
The project will use existing Archaeology Wales equipment.

Timetable of archaeological works
The work is provisionally scheduled to start on Monday 8th December and is expected to last a minimum of two weeks.

The site report will follow within three months of completion of the fieldwork.

Insurance
Archaeology Wales is an affiliated member of the CBA, and holds Insurance through the CBA insurance service.

Health and safety
All members of staff will adhere to the requirements of the Health & Safety at Work Act, 1974, and the Health and Safety Policy Statement of Archaeology Wales.

AW will produce a detailed Risk Assessment before any work is undertaken.

Archaeology Wales

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