

Llanfaethlu WWTW Anglesey

Mitigation: An Assessment of Potential for Analysis MAP2: Phase 3





Ymddiriedolaeth Archaeolegol Gwynedd Gwynedd Archaeological Trust

Llanfaethlu WWTW, Anglesey

Archaeological MAP2 Phase 3 Report (Assessment of Potential for Analysis)

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01	Complete Welsh Non-technical summary translation	Non- technical summary	For GAPS approval
	AOC Table 2 Charcoal amended	Appendix III	
	Detailed proposals for further work removed	3.4.3 & 4.2	
	Conclusions changed to provide more comment on potential of site, reference Research Framework, reference adjacent sites & more inclusive assessment of site and specialist reports	4	

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CRYNHODEB DAD-TECHNEGOL

Comisiynwyd Ymddiriedolaeth Archaeolegol Gwynedd gan Dwr Cymru / Welsh Water i gwblhau rhaglen o liniaru archeolegol ar safle o estyniad i waith trin dŵr gwastraff presennol yn Llanfaethlu, Ynys Môn. Lleolwyd y safle o fewn system faes ôl-ganoloesol, ac o fewn ardal o archaeoleg gynhanesyddol a chanoloesol arwyddocaol. Mae'r adroddiad hwn yn cwmpasu'r Asesiad Ôl-Cloddio o Gam Posibl o'r deunydd a adferwyd o'r gwaith ar y safle.

Byddai'r asesiad o'r lithics a siediau o grochenwaith a adferwyd o'r safle yn dynodi actifedd cynhanesyddol. Mae'r darnau o gornfaen a adferwyd o'r man llosgi yn Is-ardal ac yn debyg i ddyddio i'r Oes Neolithig gynnar, o'i gymharu â chrynodiad mwy o fflint yn Is-ardal B sy'n awgrymu actifedd o'r Oes Fesolithig hwyr neu amgylch ei ddiwedd. Mae'r siediau o grochenwaith yn fychan, ac wedi'u cadw'n wael ac yn priodoli i'r Oes Neolithig.

Datgelodd yr asesiad o'r ecofactau grynodiad mawr o blisgyn cnau cyll yn Is-ardal B. Argymhellir y dylai dyddiad radiocarbon dargedu nodweddion gyda phlisgyn cnau cyll am ddyddiad mwy manwl gywir.

NON-TECHNICAL SUMMARY

Gwynedd Archaeological Trust was commissioned by Dwr Cymru/Welsh Water to complete a programme of archaeological mitigation on the site of an extension to an existing wastewater treatment works at Llanfaethlu, Ynys Môn. The site was located within a postmedieval field system, and within an area of significant known prehistoric and medieval archaeology. This report covers the Post Excavation Assessment of Potential phase of the material recovered from the on - site work.

The assessment of the lithics and pottery sherds recovered from the site would indicate prehistoric activity. The pieces of chert retrieved from the burnt spread in Sub-area A are of probable Early Neolithic date, compared to the greater concentration of flint in Sub-area B which suggests Later or Final Mesolithic activity. The pottery sherds are small, poorly preserved pieces that can be tentatively attributed to the Neolithic.

The assessment of the ecofacts revealed a large concentration of hazelnut shells in Subarea B. It is recommended that radiocarbon dating should target features with hazelnut shells for more precise dating.

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been commissioned by Dwr Cymru Welsh Water (DCWW) to complete a programme of archaeological mitigation for the site of an extension to an existing wastewater treatment works (WWTW) at Llanfaethlu, Ynys Môn (NGR SH31758711; Figure 01). The site is located within a post-medieval field system, within an area of significant known prehistoric and medieval archaeology. A post-excavation *Assessment of Potential for Analysis (MAP2 Phase 3)* has been completed, following the production of a project Design (Appendix I). This followed a programme of archaeological mitigation completed between 8th December 2016 and 27th February 2017, the interim results of which may be found in GAT report 1382. Two areas of presumed prehistoric activity were identified, a burnt spread with a couple of small associated postholes (sub-area A) and a larger area (sub-area B) comprising a series of pits, gullies and burnt areas. In addition a former northeast - southwest orientated post-medieval boundary (sub-area C) and a northwest - southeast orientated linear of unknown date (sub-area D) were also investigated. A total of 96 bulk soil samples and 48 artefacts were recovered from deposits across the site.

The post-excavation has been undertaken as a phased process in accordance with guidelines specified in *Management of Archaeological Projects: MAP2* (English Heritage 1991), and the relevant guidelines from *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide* (Historic England 2015). Five project phases are specified in *MAP2* :

- MAP2 Phase 1: Project Planning
- MAP2 Phase 2: Fieldwork
- MAP2 Phase 3: Assessment of Potential for Analysis
- MAP2 Phase 4: Analysis and Report Preparation
- MAP2 Phase 5: Dissemination

The report specifically relates to the assessment of recovered artefacts and ecofacts (MAP2 Phase 3). The methodology and specialists are noted in Sections 3.1 and 3.2. Subsequent analysis, dating, report preparation and dissemination will be undertaken as part of MAP2 Phases 4 and 5.

The post-excavation has been monitored by Gwynedd Archaeological Planning Services (GAPS). GAPS must approve the current report as well as any subsequent reporting.

Reference will also been made to the following guidelines:

- Environmental Archaeology: A guide to the theory and practise of methods, from sampling and recovery to post-excavation (Campbell, Moffett and Straker 2011);
- Standard and Guidance for Archaeological Excavation (Chartered Institute for Archaeologists 2014);
- Standard and Guidance for Archaeological Watching Brief (Chartered Institute for Archaeologists 2014);
- Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (Chartered Institute for Archaeologists 2014);
- Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (Chartered Institute for Archaeologists 2014); and
- Guidelines for digital archives (Royal Commission on the Ancient and Historic Monuments of Wales 2015).

Gwynedd Archaeological Trust is certified to ISO 9001:2008 and ISO 14001:2004 (Cert. No. 74180/A/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists and a member of the Federation of Archaeological Managers and Employers (FAME).

2 BACKGROUND - ARCHAEOLOGICAL RESULTS

(Reproduced from GAT Report 1382)

2.1 Methodology

The WWTW extension area was 2491m² in size, and archaeological controlled strip was undertaken for the entire area (Figure 01). Deposits were reduced in spits using a tracked excavator fitted with a toothless bucket down to the glacial horizon, an archaeological horizon or 0.50m below ground level, whichever was encountered first.

All archaeological features and deposits encountered were hand cleaned and investigated in order to determine extent, function, date and stratigraphic relationships. Smaller features, such as pits and postholes, were subject to an initial 50% excavation, followed by a 100% excavation if they proved to be archaeological. A minimum of 10% of larger features such as linears were investigated.

The sampling strategy for bulk soil samples was based on the perceived character, interpretational importance and chronological significance of the strata under investigation. This ensured that only significant deposits were sampled. The primary aim of the sampling strategy was to recover carbonised plant remains suitable for radiocarbon dating. The samples simultaneously enabled the recovery of any small artefacts and ecofacts not recovered during excavation. A sample of 40 litres was taken from each context, or 100% from small features.

2.2 Results

For the purposes of this section, context numbers within square brackets (e.g. [05]) represent the cuts of features and context numbers within round brackets (e.g. (08)) represent deposits and fills. Feature numbers have been assigned to certain groups of contexts and these also appear in square brackets. The site is divided into four sub-areas, A to D (Figure 02).

2.2.1 Sub-area A

Sub-area A comprised a small cluster of prehistoric features located adjacent to the northwest boundary of the site. The features consisted of two post holes [19] and [24] associated with a spread of burnt stone and charcoal (08) which continued beyond the limit of excavation to the north east (Figure 03). These features are likely to represent a phase of occupational activity.

2.2.2 Sub-area B

Sub-area B comprised a more extensive quantity of predominantly prehistoric features located adjacent to the northwest boundary of the site. The area was u-shaped in plan with an area in the centre left unexcavated, following consultation with DCWW and GAPS. The features are likely to represent an area of habitation, though the precise function of many of the individual features was unclear. Several of the features continued beyond the limit of excavation to the northwest (Figure 04).

Context No.	t Description		Archaeological?	Provisional Date
72	Gully	N/A	Yes	Prehistoric
75	Pit	N/A	Yes	Prehistoric
78	Bioturbation	N/A	No	Unknown
80	Colluvial deposit	N/A	N/A	Unknown
95	Charcoal rich pit	N/A	Yes	Prehistoric
97	Shallow gully	[105]	Yes	Prehistoric
99	Pit	[105]	Yes	Prehistoric
104	Pit	N/A	Yes	Prehistoric
108	Pit	[105]	Yes	Prehistoric
110	Pit	N/A	Yes	Prehistoric
115	Gully	N/A	Yes	Prehistoric
116	Burnt deposit	N/A	Yes	Prehistoric
118	Burnt deposit	N/A	Yes	Prehistoric
121	Oval pit	[105]	Yes	Prehistoric
125	Small pit	[105]	Yes	Prehistoric
127	Bioturbation	[105]	No	Prehistoric
129	Small pit	N/A	Yes	Prehistoric
130	Small pit	N/A	Yes	Prehistoric
132	Bioturbation	[105]	No	Prehistoric
134	Short linear gully	N/A	Yes	Prehistoric
136	Pit	N/A	Yes	Prehistoric
140	Pit	N/A	Yes	Prehistoric
141	Pit	[105]	Yes	Prehistoric
147	Pit	[105]	Yes	Prehistoric
149	Pit	[105]	Yes	Prehistoric
151	Pit	N/A	Yes	Unknown
154	Pit	N/A	Yes	Prehistoric
156	Pit	N/A	Yes	Prehistoric
160	Pit	N/A	Yes	Prehistoric
162	Pit	N/A	Yes	Unknown
165	Truncated pit	N/A	Yes	Prehistoric

Table 1: features in Sub-area B

Context No.	Description Part of group Archaeolo		Archaeological?	Provisional Date
169	Bioturbation [183] No Unkno			
171	Pit	N/A	Yes	Prehistoric
177	Bioturbation	[183]	No	Unknown
178	Pit/posthole	[183]	Yes	Prehistoric
179	Bioturbation	[183]	No	Unknown
181	Bioturbation	[183]	No	Unknown
184	Bioturbation	N/A	No	Unknown
191	Bioturbation	N/A	No	Unknown
195	Bioturbation	N/A	No	Unknown
197	Bioturbation	N/A	No	Unknown
199	Bioturbation	N/A	No	Unknown
204	Pit	N/A	Yes	Post-Medieval
209	Bioturbation	N/A	No	Unknown
212	Pit	N/A	Yes	Prehistoric
215	Curvilinear ditch	[202]	Yes	Prehistoric
218	Charcoal rich deposit	N/A	Yes	Prehistoric
220	Bioturbation	N/A	No	Unknown
222	Curvilinear ditch	[202]	Yes	Prehistoric
223	Pit	N/A	Yes	Prehistoric
224	Pit	N/A	Yes	Prehistoric
226	Curvilinear ditch	[202]	Yes	Prehistoric
229	Curvilinear ditch	[202]	Yes	Prehistoric
232	Hearth	N/A	Yes	Prehistoric
235	Linear	N/A	Yes	Prehistoric
237	Pit	N/A	Yes	Prehistoric
239	Linear	N/A	Yes	Prehistoric
242	Bioturbation	N/A	?	Unknown
247	Posthole	N/A	Yes	Prehistoric
249	Bioturbation	N/A	No	Unknown
252	Pit	N/A	Yes	Prehistoric
255	Linear	N/A	Yes	Prehistoric
60	Bioturbation	N/A	No	Unknown
62	Post-medieval ditch	N/A	Yes	Post-Medieval

At the centre of the area lay a pair of fairly shallow curvilinear features [229]/[226] and [222]/[215] containing charcoal rich deposits and encircling a central cut hearth [232]. Several additional short gullies were found ([239], [115], [134] and [072]), scattered across the sub-area.

A total of 20 pits of varying shape and size were identified across this sub-area, many of which were discreet features, however some occurred in intercutting clusters, for example

group no. [105] which comprised five intercutting pits and a short gully cut within areas of bioturbation.

Six areas of definite bioturbation were also identified within the sub-area these were very irregular with diffuse interfaces. Although apparently not directly archaeological in nature some of these features were found to contain prehistoric artefacts. These features likely represent clearance prior to the occupation of the site as well as perhaps regrowth following abandonment; as such these features hold relevance to the interpretation of the site.

A linear ditch [62] was identified extending 20.7m southeast from the northwest limit of the work area. This feature was shown in section to be cut through the subsoil, indicating a relatively modern date.

2.2.3 Sub-area C

The remnants of a former northeast - southwest orientated field boundary were identified subdividing the work area; this feature may be depicted on the Llanfaethly Tithe Map of 1840 as well as the First to Third edition Ordnance Survey maps, but is no longer visible at surface level today. Following the controlled strip, remnants of this feature were seen sporadically across the entire width of the work area (40m), and it continued beyond the limit of excavation at either end. The feature comprised a mixture of parallel low banks and ditches.

2.2.4 Sub-area D

A northwest - southeast orientated linear ditch (feature no. [30]) was identified that extended diagonally across much of the work area. This feature was 40.5m long and was targeted by five hand excavated 1.0m wide slots. It became progressively narrower and shallower as it progressed northwest and had a variable profile. This feature was cut into the natural and was sealed by the subsoil. The date of this feature is unknown.

3 ASSESSMENT OF POTENTIAL FOR ANALYSIS: SPECIALIST ASSESSMENT

3.1 Introduction

All artefacts recovered were initially processed in house by GAT and were cleaned, catalogued and grouped by material type; selected artefacts were then prepared for specialist assessment. The assessment was limited to the prehistoric lithic and ceramic artefacts, along with the environmental samples.

3.2 Lithic Artefact Assessment (Appendix II)

The flint and chert artefacts were assessed by George Smith, a specialist working on behalf of GAT. The lithics were assessed according to their form and function and the details of this are given in the table below:

Find No.	Context No.	Sub Area	Context type	Material	Description
02	(11)	С	Sole fill of post-medieval	Chert	Possible chert
			ditch [10].		debitage
03	(08)	А	Burnt deposit.	Chert	Possible chert
	(2.2)				debitage x10.
04	(08)	A	Burnt deposit.	Flint	Orange flint flake.
05	(08)	A	Burnt deposit.	Flint	Half beach pebble - Possible scraper
06	(08)	А	Burnt deposit.	Chert	Scraper
08	(08)	А	Burnt deposit.	Chert	Chert debitage X2.
09	(01)	N/A	Topsoil	Chert	Possible chert
					scrapper?
10	(26)	А	Deposit (probably natural)	Chert	Chert debitage X26.
11	(39)	С	Sole fill of NE/SW post- medieval linear [38]	Flint	Worked flint - Blade section? Orange -
					Red in colour.
12	(40)	С	Upper fill of post-medieval	Flint	Worked flint - Blade
10			ditch [56].		section? Orange -red
19	Unstratified	N/A	N/A	Flint	Flint flake X2
20	(57)	С	Fill of post-medieval ditch [56].	Flint	Debitage? X3
21	(54)	С	Fill of post-medieval ditch	Flint	Flint debitage X1
			[53].		Red.
22	(79)	В	Charcoal rich fill of	Flint	Blue/Grey flint
		_	bioturbation [78].		scraper.
24	(153)	В	Colluvial deposit overlying	Flint	Orange-brown
	(450)	5	area of prehistoric activity		scraper
26	(153)	В	Colluvial deposit overlying	Chert	Chert debitage

Table 2: Lithic artefacts register

Find No.	Context No.	Sub Area	Context type	Material	Description
			area of prehistoric activity		
28	(216)	В	Sole fill of curvilinear ditch [215].	Flint	Possible blade
29	(216)	В	Sole fill of curvilinear ditch [215].	Chert	Debitage
30	Unstratified	N/A	N/A	Chert	Debitage
31	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Flint flake
32	(118)	В	Burnt deposit.	Flint	Reworked & discarded blade
33	(153)	В	Colluvial deposit overlying area of prehistoric activity	Chert	Possible chert debitage
34	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Possible scrapper
35	(116)	В	Burnt deposit.	Flint	Flint flake - Brown- grey.
36	(135)	В	Uppermost fill of gully [134].	Chert	2X black chert flakes
37	(135)	В	Uppermost fill of gully [134].	Chert	1X Struck black chert - Flake
38	(142)	В	Fill of pit [141]	Flint	Blue-grey struck flint.
39	(152)	В	Sole fill of small pit [151].	Flint	Light grey blue struck flint.
40	(159)	В	Uppermost fill of pit [156].	Flint	Grey -orange flint flake.
41	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Pink flint flake.
42	(233)	В	Fill of possible hearth	Flint	Small flint core.
43	(196)	В	Sole fill of bioturbation [195].	Flint	Pale blue grey, Flake - Possible broken blade.
44	(238)	В	Sole fill of pit [237].	Flint	Pale blue-grey flake
45	(219)	В	Fill of curvilinear ditch terminus [222].	Flint	Possible flint core
46	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Flint flake.
47	(240)	В	Secondary fill of linear [239].	Chert	Chert -Possible core.
49	(08)	А	Burnt deposit.	Flint	Flint flake.
50	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	pale green-orange flint flake with cortex
51	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	pale orange flint flake with cortex
52	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	pale grey flint flake with cortex
53	(153)	В	Colluvial deposit overlying area of prehistoric activity	Chert	3 pieces of struck chert
54	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Struck grey flint.
55	(135)	В	Uppermost fill of gully	Chert	black chert flake

Find No.	Context No.	Sub Area	Context type	Material	Description
			[134].		

3.2.1 Results of the Specialist Assessment

Taken from George Smith, Preliminary Lithics Assessment - Appendix II

The assessment determined that there is a clear divide in the lithic assemblage between Sub-Areas A and B. The pieces from Sub-area A are few in number and not diagnostic but are predominantly broad flakes of chert extracted from the burnt spread (08), which may be the remnants of a midden. The chert is of poor flaking quality in comparison to the beach flint. The continued rise of sea levels after the end of the Last Ice Age which reached a maximum during the Early Neolithic period may have made the beach flint inaccessible and mitigated a change to using chert instead.

In Sub-area B the assemblage recovered from hand excavation and more notably from the residue sorting of the ecofact samples has a bias toward flint and shows evidence of microlithic point manufacture. The lithic assemblage in this part of the site is suggestive of Later or Final Mesolithic date but given that the period of Mesolithic/Neolithic transition has yet to be defined or identified in terms of lithic assemblage or type or location of activity (Prehistoric Society 1999; IFA Wales/Cymru) this observation has to be provisional until radiocarbon dates are available. If radiocarbon dating does confirm that this is a Later Mesolithic site then it is of great significance as:

- Sub-area B is an area of habitation;
- Its proximity to and possible relation with the more extensive Early and Middle Neolithic activity area 300m to the west (Rees and Jones 2015-16); and
- Mesolithic activity on Anglesey and in north west Wales has been concentrated along the coast, identified through surface collections of lithics that suggest temporary activity or camp sites.

It should be noted though the comparative paucity of lithic evidence from the majority of features in Sub-area B which indicates a relative lack of flint working. In addition, there were no concentration of flint within specific features that suggests the artefacts were incorporated within the fills by chance rather than deliberate deposition.

No further work on the lithic assemblage is recommended.

3.3 Ceramic Artefact Assessment

3.3.1 Introduction

The ceramic artefacts were initially examined by Frances Lynch and further in house assessment was undertaken by GAT with reference to comparative sites, such as, Parc Bryn Cegin (Lynch, in Kenny and Davidson 2006, 3-25). The artefacts were examined and described in terms of evidence of form, function, provenance and date. Those fragments too small to present defining characteristics are not discussed in detail. The ceramic artefacts recovered from the excavation are detailed in the table below.

Finds	Context	Sub		
No.	No.	Area	Context type	Description
				Prehistoric pot sherds x4 & broken
07	(08)	А	Burnt deposit.	fragments.
16	(257)	В	Colluvial deposit	Possible pot fragments x4
17	(257)	В	Colluvial deposit	Possible pot fragment
			Colluvial deposit	
25	(153)	В	prehistoric activity	Prehistoric pot x3.
23	(89)	В	Fill of shallow pit [108].	Prehistoric pot.
15	(35)	N/A	Fill of shallow pit [34].	Very badly preserved Pot fragments
27	Unstratified	N/A	N/A	Small Prehistoric pot fragment.
			Primary fill of ditch [31].	
14	(33)	D	[Slot 2.]	Small pot sherd.
48	(248)	В	Sole fill of posthole [247].	Sherds of pot x2.

Table 3: Ceramic Artefact Register

3.3.2 Results of the Ceramic Assessment

All of the pottery sherds recovered were small and retained only limited diagnostic features. Five of the pottery sherds were of sufficient size to be discussed in terms of their characteristics and these are described below. Two of these were from the same context (Finds 16 and 17) and are considered likely to be from the same original vessel. The remaining pottery sherds were considered too small and fragmentary to merit detailed consideration.

Find No. 07 Context No. 08

Four sherds (the two largest sherds are 34mm x 25mm x15mm and 30mm x 22mm x 15mm) with a total weight of 8.2g. The sherds consist of friable undecorated pottery with reduced dark surfaces and body. The tempering contains well crushed grit and some evidence of vitrification, along with some larger gritty fragments (Gibson and Woods 1997, 257). There is no evidence of decoration, but the largest sherd is from a coil formed pot, with possible suggestions of a thumb print present.

These sherds appear to be Neolithic in date, although there is insufficient evidence for a clear identification.

Find No. 14 Context No. 33

One sherd was recovered from context 33. It measures 25mm x 22mm x10mm and is 4.9g in weight. It is a hard abrasive undecorated pottery sherd with reduced dark inner surface and lighter outer one with more evidence of oxidisation. The outer surface is semi-burnished. The tempering contains well crushed grit and some evidence of vitrification (*ibid*.). There is no evidence of decoration.

This sherd appears to be Neolithic in date, although there is insufficient evidence for a clear identification.

Finds Nos. 16 and 17 Context No. 257

Find 16 from context 257 consists of three sherds (the largest is 30mm x 20mm x20mm), and weighs 2.4g. The sherd is friable undecorated pottery with reduced dark surfaces and body. The tempering contains well crushed grit with no evidence of vitrification. There is no evidence of decoration and the sherds are much abraded. A small fragment of pottery from the same context (Find No. 17, 0.3g in weight) is similar in character, and may be from the same source.

These sherds appear to be Neolithic in date, although there is insufficient evidence for a clear identification.

Find No. 23 Context No. 89

Two sherds (the largest is 31mm x 20mm x10mm), and also one small fragment, with the largest sherd being 1.2g in weight. The sherds consist of an abrasive undecorated pottery with reduced dark inner surface and lighter outer one with more evidence of oxidisation. The

tempering contains well crushed grit with no evidence of vitrification, but some larger gritty inclusions. There is no evidence of decoration and the sherds are much abraded.

These sherds appear to be Neolithic in date, although there is insufficient evidence for a clear identification.

3.3.3 Conclusion

The ceramic artefacts are considered to be of limited value in terms of their datable characteristics and morphology. Most of the sherds are very small, heavily abraded and undiagnostic, suggesting that they are essentially the remains of domestic rubbish.

No further work on the pottery is recommended, but the ceramic artefacts will be retained by GAT, or offered to Oriel Ynys Môn as part of the archiving process.

3.4 Ecofact Assessment Report (AOC Report No 24185 - Appendix III)

3.4.1 Introduction

A total of 94 flots were sent to AOC Archaeology Group to be assessed by Jackaline Robertson. The aim of the assessment was to establish the potential of the environmental evidence to contribute to understanding the function of the features uncovered during the archaeological mitigation as well as establishing the chronology of the site through radiocarbon dating.

3.4.2 Results

The carbonised macroplant assemblage totalled 424 remains and was recovered from 57 flots. The assemblage was a combination of cultivated cereal crops, wild food remains, woodland and weed taxa. The most common variety was hazelnut shells with 340 fragments present in 48 contexts. The feature with the greatest concentration of hazelnut shells with 108 shell fragments recovered was from pit [178], located at the centre of Sub-area B. In addition, 12 cereal caryopses and one glume were recovered from eight contexts. This included one barley caryopsis (*Hordeum* sp) and two wheat caryopses (T*riticum* sp). The cereal remains were scattered throughout the site in small numbers with no evidence of deliberate or selective disposal.

The charcoal assemblage totalled 264.9g and fragments suitable for species identification were recovered from 71 contexts. It was noted that some of the charcoal has been vitrified which may make further analysis of affected fragments difficult. The largest single quantity of charcoal of 77.0g was retrieved from fill (106) of pit [104], while key features at the centre of the centre of the area of habitation, notably the gullies [97], [222] and [226] also produced good quantities of charcoal.

3.4.3 Conclusion and Recommendations

It was recommended that the macroplant assemblage was fully identified and does not require any further work.

Both hazelnut shell and charcoal provide good targets for radiocarbon dating. The charcoal fragments should be identified to species to allow selection of the most suitable fragments for dating. Once contexts have been selected for dating a single fragment of charcoal should be identified to species from those samples.

If charred macroplant was selected for dating it was recommended that hazelnut shell be ranked above the cereal caryopses. This is because the cereal caryopses, given their generally poor condition and low numbers, may not contain sufficient carbon.

4 CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER ANALYSIS (MAP2 PHASE 4)

4.1 DISCUSSION

The assessment of the artefacts and ecofacts recovered from the excavation at Llanfaethlu WWTW has provided more insight about this area of habitation and helps to place it more within both a local and national context. The lithics recovered from the excavation and through wet sieving most probably indicate evidence for Early Neolithic activity in Sub-area A with preponderance for the use of chert. In comparison Sub-area B has a bias toward the use of flint with evidence of microlithic manufacture which is indicative of Later or Final Mesolithic activity.

In contrast the ceramics recovered from site are of such limited number, size and lacking in diagnostic features that it contributes little to the understanding and dating of the activity on site. At best the pottery corroborates the lithic evidence.

The ecofacts produced noticeable results in carbonised macroplant assemblage with the presence of hazelnut shells and to a lesser degree cereal caryopses. This correlates well with the lithic evidence from the site, especially the presence of hazelnut shells which are a ubiquitous food source during the Mesolithic and the Early Neolithic.

The combined picture produced from the assessment of the artefacts and ecofacts coalesce to strongly suggest that this area was inhabited during the Late Mesolithic and Early Neolithic. If this observation is underscored by corroborative radiocarbon dates then this area of habitation would be of real significance at a local and national level for evidence of Mesolithic activity at an inland location and potentially of greater significance it could be a site dateable to the Mesolithic/Neolithic transition period and would contribute to the understanding of the lithic typologies for that period. As underscored in the Research Framework for Wales, there is currently a coastal bias for Mesolithic activity and settlement in Wales (A Research Framework for the Archaeology of Wales 2016, Refresh of the Welsh Research Agenda for Palaeolithic & Mesolithic Archaeology 2016, 7) and Llanfaethlu would go a little way to addressing it. Equally if radiocarbon dates do confirm that Sub-area B dates from the Final Mesolithic or the Mesolithic/Neolithic transition then it would help to track changes in lithic technologies between these periods. The potential Early Neolithic date of Sub-area A would also broaden the scope of understanding the type of settlement use during this era and could underscore that house like structures were not the only form of

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habitation present during this stage of the Neolithic (A Research Framework for the Archaeology of Wales 2017, Neolithic and Early Bronze Age, 4).

The archaeological evidence garnered to date from the site at the Dwr Cymru Waste Water Treatment Works dovetails well with the developing local knowledge of prehistoric archaeology in north Anglesey and in particular in vicinity to the village of Llanfaethlu. During archaeological work for the A5025 road improvements, Wessex Archaeology excavated a series of trial trenches at key points along the route between August and October 2016. In Trench 109, in a field to the west of and immediately adjacent to the GAT excavation, Neolithic activity was uncovered in the form of a curvilinear feature that may have formed part of an arc of a ring ditch. The western terminal of the ditch was later re-cut and may have incorporated postholes and a beam slot. The re-cut produced small fragments of Grooved Ware pottery, while a flint core and flint flake were uncovered in adjacent features. In addition, the remains of hazelnut shells were recovered from the fill of the curvilinear ditch (Wessex Archaeology, 2017, 34-35). While the fragments of Grooved Ware would indicate activity during the Late Neolithic, the nature of the archaeology and the presence of hazelnut shells are broadly comparable to that identified within the GAT excavation.

Of even greater significance is the archaeology identified and excavated at the community school of Llanfaethlu, further west of the GAT excavation, between the A5025 and St. Maethlu's Church by CR Archaeology. Four Early Neolithic houses, along with evidence for Mesolithic activity, Middle, Late Neolithic and Early Bronze Age pit clusters, two Neolithic burials and a burnt mound were uncovered at this site. The archaeology recovered by GAT and Wessex Archaeology form the hinterland and possibly partially define the limits of the Mesolithic and Neolithic archaeology centred around the school site. Of particular note for and in direct comparison with the GAT site at the Waste Water Treatment Works, was the presence (in far greater quantities) local sourced beach flint, the preponderance of hazelnut shells and over one hundred pieces of Late Mesolithic flint (Rees & Jones, 2017, 18-25). The earlier phases of occupation at the school site could well be broadly contemporary with the activity at the GAT excavation and may well have been the camp sites/habitation of the same band of hunter/gatherers and later early farmers.

4.2 **RECOMMENDATIONS**

No further recommendations are made in the specialist assessment reports for the study of the lithic, pottery or plant macrofossil assemblages. The results obtained from the assessments will be incorporated into the discussions and the conclusion of the MAP2 Phase 4 Analysis report. Further analysis of the charcoal and ecofact assemblage is recommended by AOC following the obtaining of radiocarbon dates.

The ecofact assessment report conducted by AOC recommended that, if charred macroplant is selected for dating that hazelnut shell be used ahead of the cereal caryopses as they may have sufficient carbon due to their poor condition and low numbers. The samples from the ten features listed below should be put forward for dating as they cover key deposits within the site, have a secure stratigraphic context within the site sequence, a wide coverage of the area excavated and largely correspond with features that produced lithics. Sample 1 did not contain hazelnuts but did have a cereal present (*Cerealia sp.*), and it is a significant deposit within the site matrix.

Feature	Context Number	Sample Number
Deposit	8	1*#
Post hole [24]	25	3 (roundwood)
Pit [75]	77	18#
Pit [99]	100	22#
Gully [115]	114	32
Burnt deposit	116	33#
Pit [178]	188	61#
Ditch [222]	219	81#
Ditch [226]	227	87
Pit [252]	254	100

Table 4: Samples Recommended for Radiocarbon Dating

- *cereal grains, not hazelnut.
- # fill with lithics.

The samples should be submitted to SUERC (Scottish Universities Environmental Research Centre) for dating, with a requirement for two dates from each sample. The results from the radiocarbon dating will be incorporated in the Phase 4 report, and should enable an outline site chronology to be developed.

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	W
(a.2)	
PostholeBurnt SpreadLand Drain	Figure 03: Distribution of archaeological features within sub-area A PROJECT: G2482 Image: CRY AUTHOR: CRY DATE: 28/04/2017 Image: CRY AUTHOR: CRY CHARACTERIAL CONTRACTOR CONTRA



APPENDIX I – Reproduction of GAT approved Project Design

LLANFAETHLU WWTW (G2482)

PROJECT DESIGN FOR AN ASSESSMENT OF POTENTIAL FOR ANALYSIS: MAP2 PHASE 3

Prepared for

DCWW

May 2017

Ymddiriedolaeth Archaeolegol Gwynedd Gwynedd Archaeological Trust

LLANFEUTHLU WWTW

PROJECT DESIGN FOR AN ASSESSMENT OF POTENTIAL FOR ANALYSIS: MAP2 PHASE 3

Prepared for DCWW, May 2017

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	Role	Printed Name	Signature	Date			
Originated by	Document Author						
Reviewed by	Document Reviewer						
Approved by	Principal Archaeologist						

	Revision History							
Rev No.	Summary of Changes	Ref Section	Purpose of Issue					

All GAT staff should sign their copy to confirm the project design is read and understood and retain a copy of the specification for the duration of their involvement in this phase. On completion, the specification should be retained with the project archive:

Name

Signature

Date

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been commissioned by Dwr Cymru Welsh Water (DCWW) to complete a programme of archaeological mitigation for the site of an extension to an existing wastewater treatment works (WWTW) at Llanfaethlu, Ynys Môn (NGR SH31758711; Figure 01). The site is located within a post-medieval field system, within an area of significant known prehistoric and medieval archaeology.

This project design for the post-excavation Assessment of Potential for Analysis (MAP2 Phase 3) follows a programme of archaeological mitigation completed between 8th December 2016 and 27th February 2017, the interim results of which may be found in GAT report 1382. Two areas of presumed prehistoric activity were identified, a burnt spread with a couple of small associated postholes (sub-area A) and a larger area (sub-area B) comprising a series of pits, gullies and burnt areas. In addition a former northeast - southwest orientated post-medieval boundary (sub-area C) and a northwest - southeast orientated linear of unknown date (sub-area D) were also investigated. A total of 96 bulk soil samples and 48 artefacts were recovered from deposits across the site.

The post-excavation work will be undertaken as a phased process in accordance with guidelines specified in *Management of Archaeological Projects – MAP2* (English Heritage, 1991), and relevant guidelines from *Management of Research Projects in the Historic Environment* (Historic England 2015). Five project phases are specified in *MAP2* (English Heritage, 1991):

- MAP2 Phase 1: Project Planning
- MAP2 Phase 2: Fieldwork
- MAP2 Phase 3: Assessment of Potential for Analysis
- MAP2 Phase 4: Analysis and Report Preparation
- MAP2 Phase 5: Dissemination

The current design specifically relates to the assessment of recovered artefacts and ecofacts (MAP2 Phase 3). The proposed methodology and nominated specialists are noted in Sections 4.1 and 4.2. Subsequent analysis, dating, report preparation and dissemination will be undertaken as part of MAP2 Phases 4 and 5.

Reference has also been made to the following guidelines:

- Campbell, G., Moffett, L. and Straker, V., 2011. *Environmental Archaeology: A guide* to the theory and practise of methods, from sampling and recovery to post-excavation (2nd edition). Historic England.
- Standard and Guidance for Archaeological Excavation (Chartered Institute for Archaeologists, 1995, rev. 2001, 2008 and 2014).
- Standard and Guidance for Archaeological Watching Brief (Chartered Institute for Archaeologists, 1995, rev. 2001, 2008 and 2014).
- Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (Chartered Institute for Archaeologists, 2009 and 2014).
- Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (Chartered Institute for Archaeologists, 2008 and 2014).
- Royal Commission for Ancient and Historic Monuments Wales Guidelines for Digital Archives Version 1

NB. All phases of this project are being monitored by the Gwynedd Archaeological Planning Services (GAPS). The content of this and any future project designs and reporting must be approved by GAPS.

2 ARCHAEOLOGICAL RESULTS

(Reproduced from GAT Report 1382)

2.1 Methodology

The extension area was 2491m² in size. An archaeological controlled strip was undertaken for the entire area. Deposits were reduced in spits using a tracked excavator fitted with a toothless bucket down to the glacial horizon, an archaeological horizon or 0.50m below ground level, whichever was encountered first.

All archaeological features and deposits encountered were hand cleaned and investigated in order to determine extent, function, date and stratigraphic relationships. Smaller features, such as pits and postholes, were subject to an initial 50% excavation, followed by a 100% excavation if they proved to be archaeological. A minimum of 10% of larger features such as linears were investigated.

The sampling strategy for bulk soil samples was based on the perceived character, interpretational importance and chronological significance of the strata under investigation. This ensured that only significant deposits were sampled. The primary aim of the sampling strategy was to recover carbonised plant remains suitable for radiocarbon dating. The samples simultaneously enabled the recovery of any small artefacts and ecofacts not recovered during excavation. A sample of 40 litres was taken from each context, or 100% from small features.

2.2 Results

For the purposes of this section, context numbers within square brackets (e.g. [05]) represent the cuts of features and context numbers within round brackets (e.g. (08)) represent deposits and fills. Feature numbers have been assigned to certain groups of contexts and these also appear in square brackets. The site is divided into four sub-areas, A to D.

2.2.1 Sub-area A

Sub-area A comprised a small cluster of prehistoric features located adjacent to the northwest boundary of the site. The features consisted of two post holes [19] and [24] associated with a spread of burnt stone and charcoal (08) which continued beyond the limit of excavation to the north east. These features are likely to represent a phase of occupational activity.

2.2.2 Sub-area B

Sub-area B comprised a more extensive quantity of predominantly prehistoric features located adjacent to the northwest boundary of the site. The area was u-shaped in plan with an area in the centre left unexcavated, following consultation with DCWW and GAPS. The features are likely to represent an area of habitation, though the precise function of many of the individual features was unclear. Several of the features continued beyond the limit of excavation to the northwest (Figure 02).

Context No.	Description	Part of group	Archaeological?	Provisional Date
72	Gully	N/A	Yes	Prehistoric
75	Pit	N/A	Yes	Prehistoric
78	Bioturbation	N/A	No	Unknown
80	Colluvial deposit	N/A	N/A	Unknown
95	Charcoal rich pit	N/A	Yes	Prehistoric
97	Shallow gully	[105]	Yes	Prehistoric
99	Pit	[105]	Yes	Prehistoric
104	Pit	N/A	Yes	Prehistoric
108	Pit	[105]	Yes	Prehistoric
110	Pit	N/A	Yes	Prehistoric
115	Gully	N/A	Yes	Prehistoric
116	Burnt deposit	N/A	Yes	Prehistoric
118	Burnt deposit	N/A	Yes	Prehistoric
121	Oval pit	[105]	Yes	Prehistoric
125	Small pit	[105]	Yes	Prehistoric
127	Bioturbation	[105]	No	Prehistoric
129	Small pit	N/A	Yes	Prehistoric
130	Small pit	N/A	Yes	Prehistoric
132	Bioturbation	[105]	No	Prehistoric
134	Short linear gully	N/A	Yes	Prehistoric
136	Pit	N/A	Yes	Prehistoric
140	Pit	N/A	Yes	Prehistoric
141	Pit	[105]	Yes	Prehistoric
147	Pit	[105]	Yes	Prehistoric
149	Pit	[105]	Yes	Prehistoric
151	Pit	N/A	Yes	Unknown
154	Pit	N/A	Yes	Prehistoric
156	Pit	N/A	Yes	Prehistoric
160	Pit	N/A	Yes	Prehistoric
162	Pit	N/A	Yes	Unknown
165	Truncated pit	N/A	Yes	Prehistoric

Table 1: features in Sub-area B

Context No.	Description	Part of group	Archaeological?	Provisional Date
169	Bioturbation	[183]	No	Unknown
171	Pit	N/A	Yes	Prehistoric
177	Bioturbation	[183]	No	Unknown
178	Pit/posthole	[183]	Yes	Prehistoric
179	Bioturbation	[183]	No	Unknown
181	Bioturbation	[183]	No	Unknown
184	Bioturbation	N/A	No	Unknown
191	Bioturbation	N/A	No	Unknown
195	Bioturbation	N/A	No	Unknown
197	Bioturbation	N/A	No	Unknown
199	Bioturbation	N/A	No	Unknown
204	Pit	N/A	Yes	Post-Medieval
209	Bioturbation	N/A	No	Unknown
212	Pit	N/A	Yes	Prehistoric
215	Curvilinear ditch	[202]	Yes	Prehistoric
218	Charcoal rich deposit	N/A	Yes	Prehistoric
220	Bioturbation	N/A	No	Unknown
222	Curvilinear ditch	[202]	Yes	Prehistoric
223	Pit	N/A	Yes	Prehistoric
224	Pit	N/A	Yes	Prehistoric
226	Curvilinear ditch	[202]	Yes	Prehistoric
229	Curvilinear ditch	[202]	Yes	Prehistoric
232	Hearth	N/A	Yes	Prehistoric
235	Linear	N/A	Yes	Prehistoric
237	Pit	N/A	Yes	Prehistoric
239	Linear	N/A	Yes	Prehistoric
242	Bioturbation	N/A	?	Unknown
247	Posthole	N/A	Yes	Prehistoric
249	Bioturbation	N/A	No	Unknown
252	Pit	N/A	Yes	Prehistoric
255	Linear	N/A	Yes	Prehistoric
60	Bioturbation	N/A	No	Unknown
62	Post-medieval ditch	N/A	Yes	Post-Medieval

At the centre of the area lay a pair of fairly shallow curvilinear features [229]/[226] and [222]/[215] containing charcoal rich deposits and encircling a central cut hearth [232]. Several additional short gullies were found ([239], [115], [134] and [072]), scattered across the sub-area.

A total of 20 pits of varying shape and size were identified across this sub-area, many of which were discreet features, however some occurred in intercutting clusters, for example

group no. [105] which comprised five intercutting pits and a short gully cut within areas of bioturbation.

Six areas of definite bioturbation were also identified within the sub-area these were very irregular with diffuse interfaces. Although apparently not directly archaeological in nature some of these features were found to contain prehistoric artefacts. These features likely represent clearance prior to the occupation of the site as well as perhaps regrowth following abandonment; as such these features hold relevance to the interpretation of the site.

A linear ditch [62] was identified extending 20.7m southeast from the northwest limit of the work area. This feature was shown in section to be cut through the subsoil, indicating a relatively modern date.

2.2.3 Sub-area C

The remnants of a former northeast - southwest orientated field boundary were identified subdividing the work area; this feature may be depicted on the Llanfaethly Tithe Map of 1840 as well as the First to Third edition Ordnance Survey maps, but is no longer visible at surface level today. Following the controlled strip, remnants of this feature were seen sporadically across the entire width of the work area (40m), and it continued beyond the limit of excavation at either end. The feature comprised a mixture of parallel low banks and ditches.

2.2.4 Sub-area D

A northwest - southeast orientated linear ditch (feature no. [30]) was identified that extended diagonally across much of the work area. This feature was 40.5m long and was targeted by five hand excavated 1.0m wide slots. It became progressively narrower and shallower as it progressed northwest and had a variable profile. This feature was cut into the natural and was sealed by the subsoil. The date of this feature is unknown.

3 METHODOLOGY: ECOFACT ASSESSMENT

3.1 Introduction

The sampling strategy for bulk soil samples was based on the perceived character, interpretational importance and chronological significance of the strata under investigation. This ensured that only significant deposits were sampled. The primary aim of the sampling strategy was to recover carbonised plant remains suitable for radiocarbon dating. The samples simultaneously enabled the recovery of any small artefacts and ecofacts not recovered during excavation.

Sample	Sub	Context		Provisional	•
NO.	Area	NO.	Context description	Date	Quantity
1	А	(08)	Burnt deposit	Prehistoric	4 box
2	А	(20)	Primary fill of post hole [19]	Prehistoric	1 box
3	А	(25)	Sole fill of posthole [24]	Prehistoric	1 box
4	А	(26)	VOID	VOID	VOID
5	D	(33)	Primary fill of ditch [31]. [SLOT 2.]	Unknown	4 box
6	N/A	(35)	Sole fill of shallow pit [34]	Prehistoric	3 box
7	N/A	(37)	VOID	VOID	VOID
8	D	(43)	Primary fill of NW/SE orientated ditch [42] - [SLOT 3]	Unknown	4 box
9	N/A	(46)	VOID	VOID	VOID
10	D	(48)	Sole fill of NW/SE orientated ditch [47] -[SLOT 5.]	Unknown	4 box
11	В	(61)	VOID	VOID	VOID
12	В	(64)	VOID	VOID	VOID
13	В	(73)	Primary fill of gully [72]	Prehistoric	4 box
14	В	(74)	Secondary charcoal rich fill of gully [72].	Prehistoric	2 box
15	В	(79)	VOID	VOID	VOID
16	С	(71)	VOID	VOID	VOID
17	В	(76)	Primary fill of pit [75]	Prehistoric	1 box
18	В	(77)	Secondary charcoal rich fill of pit [75].	Prehistoric	1 box
19	В	(96)	Charcoal rich fill of pit [95].	Prehistoric	1 box
20	С	(91)	VOID	VOID	VOID
21	В	(89)	Fill of shallow pit [108].	Prehistoric	2 box
22	В	(100)	Fill of pit [99].	Prehistoric	4 box
23	В	(109)	Fill of possible pit [104]	Prehistoric	4 box
24	В	(98)	Fill of gully [97].	Prehistoric	1 box
25	В	(111)	Uppermost fill of pit [110].	Prehistoric	1 box
26	В	(112)	Secondary fill of pit [110].	Prehistoric	1 box
27	В	(113)	Primary fill of pit [110].	Prehistoric	2 box

Table 2: Bulk soil sample register

Sample	Sub	Context		Provisional	
No.	Area	No.	Context description	Date	Quantity
28	В	(118)	VOID	VOID	VOID
29	В	(119)	Fill of possible pit [104]	Prehistoric	2 box
30	В	(106)	Fill of possible pit [104]	Prehistoric	3 box
31	В	(122)	Fill of oval pit [121].	Prehistoric	2 box
32	В	(114)	Sole stoney fill of gully [115].	Prehistoric	2 box
33	В	(116)	Burnt deposit.	Prehistoric	2 box
34	В	(126)	Fill of small pit [125].	Prehistoric	1 box
35	В	(128)	Bioturbation [127].	Prehistoric	4 box
36	В	(131)	VOID	VOID	VOID
37	В	(135)	Uppermost fill of gully [134].	Prehistoric	3 box
38	В	(138)	Secondary, fill at east end of gully [134].	Prehistoric	3 box
39	В	(139)	Primary fill of gully [134].	Prehistoric	2 box
40	В	(140)	Upper fill of pit [136].	Prehistoric	2 box
41	В	(137)	Primary fill of pit [136]	Prehistoric	1 box
42	В	(140+137)	VOID	VOID	VOID
43	В	(142)	Fill of pit [141].	Prehistoric	1 box
44	В	(148)	Fill of shallow pit [147].	Prehistoric	1 box
45	В	(144)	VOID	VOID	VOID
46	В	(146)	VOID	VOID	VOID
47	В	(133)	Fill of possible pit/bioturbation [132].	Prehistoric	1 box
48	В	(150)	Fill of shallow pit [149].	Prehistoric	1 box
49	В	(152)	Sole fill of small pit [151].	Unknown	1 box
50	В	(161)	Sole fill of shallow oval pit [160].	Prehistoric	1 box
51	В	(155)	Uppermost fill of possible pit [154].	Prehistoric	4 box
52	В	(159)	Uppermost fill of pit [156].	Prehistoric	1 box
53	В	(167)	Primary fill of pit [154].	Prehistoric	1 box
54	В	(163)	Primary fill of pit [162].	Unknown	1 box
55	В	(164)	Secondary fill of pit [162].	Unknown	1 box
56	В	(163+164)	VOID	VOID	VOID
57	В	(170)	VOID	VOID	VOID
58	В	(176)	VOID	VOID	VOID
59	В	(172)	Sole fill of pit [171].	Prehistoric	1 box
60	В	(185)	VOID	VOID	VOID
61	В	(188)	Primary fill of pit [178].	Prehistoric	3 box
62	В	(175)	Secondary fill of pit [178]	Prehistoric	1 box
63	В	(174)	Uppermost fill of pit [178]	Prehistoric	1 box
64	В	(180)	VOID	VOID	VOID
65	В	(182)	VOID	VOID	VOID
66	В	(190)	VOID	VOID	VOID
67	В	(192)	VOID	VOID	VOID
68	В	(185)	VOID	VOID	VOID
69	В	(193)	Primary fill of possible pit/bioturbation	Unknown	1 box

Sample	Sub	Context	Contaut description	Provisional	Quantitu
NO.	Area	NO.		Date	Quantity
70	Б	(100)	Colo fill of amoli possible pit [407]		1 hav
70	В	(198)		Unknown	
71	В	(200)			
72	В	(201)			
73	В	(207)			VOID
74	В	(213)	Primary fill of possible pit [212].	Prehistoric	2 box
75	В	(210)	VOID	VOID	VOID
76	В	(216)	Fill of curvilinear ditch [215].	Prehistoric	4 box
77	В	(217)	Colluvial deposit.	Unknown	2 box
78	В	(219)	Fill of curvilinear ditch terminus [222].	Prehistoric	
79	В	(208)	VOID	VOID	VOID
80	В	(221)	VOID	VOID	VOID
81	В	(219)	Fill of curvilinear ditch terminus [222].	Prehistoric	4 box
82	В	(205)	VOID	VOID	VOID
83	В	(218)	VOID	VOID	
84	В	(225)	Sole fill of small pit [224].	Prehistoric	1 box
85	В	(233)	Upper fill of cut hearth [232].	Prehistoric	2 box
86	В	(234)	Primary charcoal rich fill of cut hearth [232].	Prehistoric	4 box
87	В	(227)	Secondary fill of curvilinear ditch [226].	Prehistoric	3 box
88	В	(230)	Secondary fill of curvilinear ditch [229].	Prehistoric	1 box
89	В	(243)	VOID	VOID	VOID
90	В	(244)	VOID	VOID	VOID
91	В	(236)	Sole fill of short linear [235].	Prehistoric	3 box
92	В	(238)	VOID	VOID	VOID
93	В	(214)	Secondary fill of possible pit [212].	Prehistoric	1 box
94	В	(240)	Secondary fill of linear [239].	Prehistoric	1 box
95	В	(246)	Primary fill of linear [239].	Prehistoric	1 box
96	В	(248)	Sole fill of posthole [247].	Prehistoric	1 box
97	В	(250)	VOID	VOID	VOID
98	В	(251)	VOID	VOID	VOID
99	В	(253)	Secondary fill of pit [252].	Prehistoric	1 box
100	В	(254)	Primary fill of [252].	Prehistoric	1 box

3.2 Methodology

The ecofact assessment will be completed as a two stage process, based on the following methodology:

- The bulk sample will be processed in house by GAT. This will consist of flotation and wet sieving using a 500 micron mesh to collect the residue (which collects more than the 1mm = 1000 micron), with the flot collected in a 250 micron mesh. The residues will be sorted to recover artefacts and non-floating ecofacts. Once sorted the residues will be discarded. The flots will be weighed, catalogued and examined for charred macroplant remains.
- 2. Recovered charred macroplant material will be sent for specialist assessment to AOC Archaeology. The charred macroplant material will be sieved using a 4mm, 2mm and 1mm system of stack sieves and subsequently examined under magnification (x10 and up to x100). Macroplant identifications will be completed confirmed using modern reference material and seed atlases stored at AOC Edinburgh. Taxonomic and nomenclature for plants will be based on Stace,C. 2010. *New Flora of the British Isles.* 3rd Edition. Cambridge University Press. Charcoal fragments 4mm and larger will be collected for species identification and recommendations will be made for any subsequent analysis and radiocarbon dating.

Any recommendations made for any subsequent analysis and radiocarbon dating will be defined in a MAP2 Phase 4 project design prepared by GAT.

4 METHODOLOGY: ARTEFACT ASSESSMENT

4.1 Introduction

All artefacts recovered were initially processed in house by GAT and were cleaned, catalogued and grouped by material type; selected artefacts were then prepared for specialist assessment. Assessment will be limited to the prehistoric lithic and ceramic artefacts. Any additional artefacts recovered during the bulk sample processing will be added to the find registers and submitted to the appropriate specialist, with GAPS approval.

4.2 Lithic Artefact Assessment

The flint and chert artefacts will be assessed by George Smith, a specialist working on behalf of GAT. Artefacts will be examined and described in terms of evidence of form, function, provenance and date. If relevant, recommendations will be made for any further analysis as part of MAP2 Phase 4.

Find No.	Context No.	Sub Area	Context type	Material	Description
02	(11)	С	Sole fill of post-medieval	Chert	Possible chert
			ditch [10].		debitage
03	(08)	А	Burnt deposit.	Chert	Possible chert debitage x10.
04	(08)	А	Burnt deposit.	Flint	Orange flint flake.
05	(08)	A	Burnt deposit.	Flint	Half beach pebble - Possible scraper
06	(08)	А	Burnt deposit.	Chert	Scraper
08	(08)	А	Burnt deposit.	Chert	Chert debitage X2.
09	(01)	N/A	Topsoil	Chert	Possible chert scrapper?
10	(26)	А	Deposit (probably natural)	Chert	Chert debitage X26.
11	(39)	С	Sole fill of NE/SW post- medieval linear [38].	Flint	Worked flint - Blade section? Orange - Red in colour.
12	(40)	С	Upper fill of post-medieval ditch [56].	Flint	Worked flint - Blade section? Orange -red
19	Unstratified	N/A	N/A	Flint	Flint flake X2
20	(57)	С	Fill of post-medieval ditch [56].	Flint	Debitage? X3
21	(54)	С	Fill of post-medieval ditch [53].	Flint	Flint debitage X1 Red.
22	(79)	В	Charcoal rich fill of bioturbation [78].	Flint	Blue/Grey flint scraper.
24	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Orange-brown scraper

Find No.	Context No.	Sub Area	Context type	Material	Description
26	(153)	В	Colluvial deposit overlying area of prehistoric activity	Chert	Chert debitage
28	(216)	В	Sole fill of curvilinear ditch [215].	Flint	Possible blade
29	(216)	В	Sole fill of curvilinear ditch [215].	Chert	Debitage
30	Unstratified	N/A	N/A	Chert	Debitage
31	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Flint flake
32	(118)	В	Burnt deposit.	Flint	Reworked & discarded blade
33	(153)	В	Colluvial deposit overlying area of prehistoric activity	Chert	Possible chert debitage
34	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Possible scrapper
35	(116)	В	Burnt deposit.	Flint	Flint flake - Brown- grey.
36	(135)	В	Uppermost fill of gully [134].	Chert	2X black chert flakes
37	(135)	В	Uppermost fill of gully [134].	Chert	1X Struck black chert - Flake
38	(142)	В	Fill of pit [141]	Flint	Blue-grey struck flint.
39	(152)	В	Sole fill of small pit [151].	Flint	Light grey blue struck flint.
40	(159)	В	Uppermost fill of pit [156].	Flint	Grey -orange flint flake.
41	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Pink flint flake.
42	(233)	В	Fill of possible hearth	Flint	Small flint core.
43	(196)	В	Sole fill of bioturbation [195].	Flint	Pale blue grey, Flake - Possible broken blade.
44	(238)	В	Sole fill of pit [237].	Flint	Pale blue-grey flake
45	(219)	В	Fill of curvilinear ditch terminus [222].	Flint	Possible flint core
46	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Flint flake.
47	(240)	В	Secondary fill of linear [239].	Chert	Chert -Possible core.
49	(08)	А	Burnt deposit.	Flint	Flint flake.
50	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	pale green-orange flint flake with cortex
51	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	pale orange flint flake with cortex
52	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	pale grey flint flake with cortex
53	(153)	В	Colluvial deposit overlying area of prehistoric activity	Chert	3 pieces of struck chert
54	(153)	В	Colluvial deposit overlying area of prehistoric activity	Flint	Struck grey flint.

Find No.	Context No.	Sub Area	Context type		Material	Description
55	(135)	В	Uppermost fill [134].	of gully	Chert	black chert flake

4.3 Ceramic Artefact Assessment

The prehistoric ceramic artefacts will be submitted to Frances Lynch, a specialist working on behalf of GAT. Artefacts will be examined and described in terms of evidence of form, function, provenance and date. If relevant, recommendations will be made for any further analysis as part of MAP2 Phase 4.

Finds	Context	Sub		
No.	No.	Area	Context type	Description
				Prehistoric pot sherds x4 & broken
07	(08)	А	Burnt deposit.	fragments.
16	(257)	В	Colluvial deposit	Possible pot fragments x4
17	(257)	В	Colluvial deposit	Possible pot fragment
			Colluvial deposit	
			overlying area of	
25	(153)	В	prehistoric activity	Prehistoric pot x3.
23	(89)	В	Fill of shallow pit [108].	Prehistoric pot.
				Very badly preserved Pot
15	(35)	N/A	Fill of shallow pit [34].	fragments?
27	Unstratified	N/A	N/A	Small Prehistoric pot fragment.
			Primary fill of ditch [31].	
14	(33)	D	[SLOT 2.]	Small pot sherd.
48	(248)	В	Sole fill of posthole [247].	x2 Sherds of pot.

Table 4: Ceramic Artefact Register

5 METHODOLOGY: REPORTING

Following completion of the stages outlined above, a MAP2 Phase 3 report will be produced incorporating the following:

- 1. Non-technical summary
- 2. Introduction
- 3. Background
- 4. Methodology (including specialist methodology)
- 5. Results of Ecofact Assessment
- 6. Results of Artefact Assessment
 - i. Lithics
 - ii. Ceramics
- 7. Conclusions and recommendations for further analysis (MAP2 Phase 4)
- 8. Sources Consulted
- 9. Appendix I Approved Project Design
- 10. Appendix II Ecofact Assessment Report
- 11. Appendix III Artefact Assessment Reports

A full archive will also be prepared. A draft copy of the report will be sent to the regional curatorial archaeologist (GAPS) and to the client for review by **August 2017**. Once approved, a final report will be submitted to all parties as well as the Historic Environment Record; the archive will be sent to the *Royal Commission for Ancient and Historic Monuments Wales (RCAHMW)*.

The following dissemination will apply:

1. A digital report will be provided to GAPS (draft report then final report).

- 2. A paper report plus a digital report will be provided to the regional Historic Environment Record, Gwynedd Archaeological Trust; this will be submitted within six months of report completion (final report only).
- 3. A digital report and archive (including photographic and drawn) data will be provided to *RCAHMW* (final report only). Submission of digital information to the Royal Commission on the Ancient and Historical Monuments of Wales shall be undertaken in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. Digital information will include the photographic archive and associated metadata
- 4. A digital report(s) plus paper report(s) (if requested) will be provided to the client (draft report then final report).
- 5. It is proposed ultimately to publish a summary of the work in *Archaeology in Wales*, the journal for the Council of British Archaeology Wales. This will be undertaken as part of MAP2 Phase 5.

6 SOURCES CONSULTED

- Campbell, G., Moffett, L. and Straker, V. Environmental Archaeology: A guide to the theory and practise of methods, from sampling and recovery to post-excavation (2nd edition). (Historic England, 2011);
- 2. English Heritage, 1991, Management of Archaeological Projects;
- 3. Historic England 2015. *Management of Research Projects in the Historic Environment;*
- 4. Standard and Guidance for Archaeological Excavation (Chartered Institute for Archaeologists, 1995, rev. 2001, 2008 and 2014);
- 5. Standard and Guidance for Archaeological Watching Brief (Chartered Institute for Archaeologists, 1995, rev. 2001, 2008 and 2014);
- 6. Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (Chartered Institute for Archaeologists, 2009 and 2014);
- Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (Chartered Institute for Archaeologists, 2008 and 2014).

7 Figure 01

Site location Map



8 Figure 02

Distribution and type of archaeological features within the mitigation (controlled strip) area



APPENDIX II – Reproduction of G. Smith's Lithics Report

GWYNEDD ARCHAEOLOGICAL TRUST

DCWW, LLANFAETHLU

GAT PROJECT G2482

LITHICS, PRELIMINARY REPORT

George Smith February 12th 2018

INTRODUCTION

This report provides a description and analysis of lithic materials from the GAT Llanfaethlu excavations. The interpretation and discussion is only preliminary at this stage, requiring reconsideration when combined with the forthcoming additional information from study of the ceramics, palaeobotanical evidence and the radiocarbon dating. The general wider interpretation also needs comparison with the final results, when forthcoming, from the nearby Llanfaethlu School excavation by CR Archaeology, which includes a considerable lithic assemblage (Rees and Jones 2015-16).

The assemblage from the GAT excavation is too small to allow any statistical analysis of the technology or typology so only general observations are made here. The overall assemblage derives from two different methods of retrieval, first from hand excavation and second from floatation sieving. This creates different retrieval rate by size of material, which affects the interpretation, so the material from each retrieval method is kept separate. Record numbers were listed as SF1, SF2 etc. (Small Find). Some record numbers included several pieces and these were given sub-numbers such as SF76.1, SF76.2 etc.

The excavation uncovered three main areas of activity and so the lithic material is considered in relation to those groups. First Area A was a discrete spread of burnt material, associated with two shallow pits. Area B consisted of a group of closely associated features,

including gulleys, slots, post-holes and a hearth, altogether regarded as a probable settlement area. Areas C and D consisted of separate lengths of similar linear features identified as post-medieval field ditches. Only a very few objects came from these features but only small areas of them were excavated. A few pieces were recorded from unstratified or uncertain contexts and a few others were identified as just natural objects and are not included in the report.

RAW MATERIAL AND TECHNOLOGY

The amounts of material from the different areas, separated by retrieval method are shown in Table 1. In the hand excavated material flint and chert pieces were present in similar proportions overall but differed between areas. However, in the sieved material flint predominates showing the way that flint is able to be worked more finely, producing many small flakes and chips.

	AREA A		AREA B		AREA		AREA	
					С		D	
	Flint	Chert	Flint	Chert	Flint	Chert	Flint	Chert
Hand excavati on	2	35	31	9	4	-	1	-
Sieving	-	1	71	4	-	-	2	1

The flint, where cortex is present, is all from small pebbles or larger rolled cobbles, all ultimately deriving from fluvio-glacial deposits, mainly collected from beaches. It is of mixed colour and generally poor flaking quality.

The black chert is mostly of poor flaking quality and most of the pieces are irregular chunks but there is the occasional piece of better quality. Even so there are no pieces with secondary working and must only have produced thick, sharp-edged flakes or fragments for utilisation. Most is plain black chert, cobbles of which occur in the glacial sediments of the coastal cliffs, beaches and subsoils of north Anglesey. There are also a few pieces of banded chert such as can be obtained from *in situ* deposits found in outcrops and coastal cliff exposures of limestone in the south-east of Anglesey.

The quality and small size of the flint core material limits the size of the usable flakes but it seems to have been worked successfully although there are a few scalar pieces resulting from direct shattering of pebbles in anvil fashion rather than conventionally struck from cores with prepared striking platforms.

AREA A

Table 2 Summary of objects from Area A

	Flint		Chert		
	Hand	Sieving	Hand	Sieving	
	excavation		excavation		
Core/frag/reject			1		
Flake			1		
Flake frag			5	1	
Irregular	1	1	28		
frag/chip					
Split pebble	1				

The types of object from this area are summarised in Table 2. The most noticeable feature here is that these are nearly all of chert. The one core, of banded chert, is short (33mm), unidirectional and has been struck with a hard hammer, producing broad flakes. The one

complete flake is broad but thin. All but one of the pieces came from the burnt spread (8). One piece, only a small flint chip, came from the fill of pit 24.

AREA B

Table 3 Summary of objects from Area B

	Flint		Chert		
	Hand excavation	Sieving	Hand excavation	Sieving	
Core/frag/reject	2	1	2	-	
Flake	8	7	4	-	
Flake frag	2	14	3	1	
Irregular frag/chip	11	45	-	3	
Split pebble	1	-	-	-	
Retouched piece	1	4	-	-	
Utilised piece	3	-	-	1	
Scalar piece	2	-	-	-	

The types of object from this area are summarised in Table 3. This is the largest and most useful assemblage and is dominated by the use of flint. Numerically most of these came from the sieved samples but these are mainly small pieces under 10mm maximum length and some are small chips under 5mm maximum length. The flakes and fragments are mainly tertiary pieces, that is with no cortex remaining but there are five cores. Three of the cores are of flint of which two are irregular rejects and one, from a pebble, is flat and partly

prismatic, and produce blade flakes (Fig. X, 1). The other two cores, of chert, are just fragments. It is noticeable that although the flint raw material was just small pebbles there is a lack of unused complete or split pebble fragments, suggesting that selection and primary working took place elsewhere, probably during the initial collection of raw material.

There are four possibly utilised pieces, three of flint and one of chert, all blades with microchipping on sharp edges. The retouched pieces are the most diagnostic. One piece, from hand excavation, is a small flint convex scraper, made on the side of a thick split pebble fragment (Fig. X, 2). The soil sample sieving produce four more flint retouched pieces. Two are blades snapped from notches, e.g. Fig. X, 3. The other two are narrow blade microlithic points. One is a complete lanceolate shape, retouched alternately on two sides (Fig. X, 5). The other is the tip of a probably convex backed piece, retouched on one side (Fig. X, 6).

AREAS C AND D

Table 4 Summary of objects from Areas C and D

	Flint		Chert		
	Hand excavation	Sieving	Hand excavation	Sieving	
Flake frag			1	-	
Irregular frag/chip	3		-	-	
Retouched piece		2	-	-	
Scalar piece	2		-	-	

The few objects are summarised in Table 4. There are no usefully diagnostic objects from Area C although two scalar pieces of waste flint show the use of small pebbles, as in Area B.

Area D, however, produced two pieces of flint waste from microlith manufacture. One is the tip of a narrow blade that has been snapped off by means of a retouched notch (Fig. X, 4) and the other is a tiny fragment that is probably part of a similar piece. Although these pieces are in a secondary context they fit with the assemblage from Area B.

DISCUSSION

Although Area A has only a few pieces, and none diagnostic there is a clear contrast with the material from Area B in the predominance of chert and the suggestion of the use of broad flakes rather than blades, indicating that they belong to a different periods of activity, despite their proximity. All but one of the pieces from Area A came from the 'burnt spread' (8) and so are closely contextually related to that spread, perhaps an eroded midden, the date and origin of which may be identified by further analysis of its contents. The major use of black chert might suggest comparison with the lithic assemblage from Early Neolithic activity area found beneath the chambered tomb of Trefignath on Holy Island, 8km to the south-west (Smith and Lynch 1987). The change to the use of the less desirable chert as a raw material might be because formerly accessible areas of beach of flint became unavailable as sea levels rose to their maximum during the Early Neolithic period.

Area B comprises a discrete group of features regarded provisionally as an area of settlement activity with some probable structural features, post-holes, slots and gulleys, but of unknown date. This should be elucidated by analysis of the features, plus radiocarbon dating and study of charred plant evidence. The lithic assemblage highlights the importance of soil sampling to provide a proper understanding of the activities present. On the evidence of hand-collection alone the material provides little of diagnostic use as to site period or function with only a small scraper and two utilised flakes. The sieved material however provides a controlled collection to a smaller retrieval size. This material shows evidence of microlithic point manufacture, with two narrow blade points (under 10mm wide) and two notched snapped blades from which a narrow blade point might have been made. Overall, however, the assemblage does not show a preponderance of narrow blade or even blade manufacture, with only two out of six complete flakes from the hand-collected objects of blade proportions and only three of nine complete flakes of the sieved material. The complete flakes may just represent rejects wider than required, with all the narrow blades

further worked. For instance the core (Fig. 1, 1) clearly produced blades and the utilised pieces and notched piece (Fig. 1, 3) are of blade proportions. Also, all the nine complete breadths of flake fragments in the sieved material are less than 10mm. Narrow blade points of lanceolate or convex backed shape form a typical part of the Later or Final Mesolithic period (Jacobi 1980).

Although there are some ceramic objects from the activity area here, these appear to be just parts of deliberate hearth lining, rather than of pottery as such. All the lithic evidence suggests that that the activity area here is of Later or Final Mesolithic date but the period of Mesolithic/Neolithic transition is a one that has yet to be defined or identified in terms of lithic assemblage or type or location of activity (Prehistoric Society 1999; IFA Wales/Cymru). If the activity here is confirmed by radiocarbon dating to be of that transitional period then it would be of great significance, firstly because the features seem to represent some kind of structure and secondly for its possible relation to the more extensive Early and Middle Neolithic activity area 300m to the west (Rees and Jones 2015-16). Mesolithic activity on Anglesey and within north-west Wales has so far been identified almost entirely in coastal locations and mostly from surface collections of lithics, so far thought to represent just surface scatters of temporary activity or camp sites. Some research has identified river valleys as rich habitats for hunter-gatherers, as shown by excavations at Rhuddlan, Denbighshire (Quinnell and Blockley 1994), perhaps leading to the development of more permanent settlement. This has been supported by more recent surveys of river valleys in Pembrokeshire (David and Painter 2015). The inland location at Llanfaethlu is different and the dating and palaeobotanical evidence from the features in Area B is of great interest.

It must be recognised how little lithic evidence there is from a considerable number of features in Area B, which shows that there was relatively little flint working there was. Also to consider is that the largest part of the originally present lithic material may have been incorporated in the topsoil and that could only have been checked by surface collection or gridded topsoil sampling before excavation. Although the lithic assemblage is small, the objects were thinly scattered in a large number of features. There were no significant concentrations in any particular features, suggesting that they were incorporated by chance with no deliberate deposition, or concentration of activity. In terms of quantity it was the sieved soil samples that produced the most material and perhaps the quantities of soil sampled could be calculated to provide a better estimation of the probable original quantities and distribution of lithic material.

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Fig. 1 Worked flint Area B 1 core, sf42; 2 convex scraper, sf24; 3 notched, snapped blade, butt fragment sf67.1 5 microlith point sf71; 6 microlith point sf75.8. Area D 4 notched flake tip fragment sf76.1.

APPENDIX III – Reproduction of AOC Report No 24185

DCWW Llanfaethlu Waste Water Treatment Works

AOC Project no: 24185 Site Code: G2482 Date: March 2018



ARCHAEOLOGY

HERITAGE

CONSERVATION

DCWW Llanfaethlu Waste Water Treatment Works

On Behalf of:

Gwynedd Archaeological Trust (GAT)

AOC Project No:

Date of Report:

24185

Prepared by:

Jackaline Robertson

March 2018

This document has been prepared in accordance with AOC standard operating procedures.

Author: Jackaline Robertson

Date: Feb 2018

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Date: 15 March 2018

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Factual data

A total of 94 flots were submitted for environmental assessment from Gwynedd Archaeological Trust, from the archaeological mitigation at DCWW Llanfaethlu Waste Water Treatment Works. The samples were collected from a series of pits, postholes, ditches, hearths, gullies, burnt deposits, curvilinear and linear features. Most of these features are believed to be prehistoric but a small number may be medieval to post medieval. The aim of this assessment was to assess the environmental evidence to establish its potential (1) to contribute to understanding the function of these features and (2) towards establishing the chronology of the site through radiocarbon dating.

Methodology

Several flots had been sub-divided within the same bag and these were treated as different samples where they were marked as flot 1 and 2. The dry samples were sieved using a 4mm, 2mm and 1mm system of stack sieves. The flots were subsequently analysed using a low power microscope and identifications of macrofossils were examined at magnifications of x10 and up to x100 where necessary. Identifications were confirmed using modern reference material and seed atlases stored at AOC Edinburgh (Cappers *et al* 2006; Jacomet 2006). Taxonomic and nomenclature for plants follows Stace (2010). Charcoal 4mm and larger was collected for future species identification.

Results

The results are recorded in table 1 the carbonised macroplant and table 2 the charcoal. Nomenclature for plants follows Stace (2010).

The macroplant assemblage

The carbonised macroplant assemblage totalled 424 remains and was recovered from 57 flots. Preservation ranged from poor to good. The assemblage was formed of cultivated cereal crops, wild food remains, woodland and weed taxa.

There were 12 cereal caryopses and one glume recovered across eight contexts. This includes one barley caryopsis (*Hordeum* sp) and two wheat caryopses (*Triticum* sp). The remaining ten caryopses could not be identified further due to poor preservation. The cereal remains were scattered throughout the site in small numbers with no evidence of deliberate or selective disposal.

The wild food remains comprised hazelnut shell (*Corylus avellana* L) and blackberry stones (*Rubus fruticosus* agg). Hazelnut shell was the predominant component of this assemblage; 340 fragments present in 48 contexts. These were concentrated within pit/posthole [178] from which 108 shell fragments were recovered. A total of 22 blackberry stones were noted across six contexts.

Evidence of woodland material was retrieved from four contexts in the form of six buds.

The weed taxa assemblage was small and 43 remains were observed in 17 samples, comprising 29 bedstraw schizocarps (*Galium* sp), one floating water-plantain seed (*Luronium natans* L), one cornsalad fruit (*Valerianella* sp) and one

vetch seed (*Vicia* sp). The remaining 11 weed taxa could not be identified further. Floating water-plantain is usually found in ponds and canals, bedstraw tends to favour damp habitats, cornsalad and vetch are found in a range of landscapes such as arable and waste ground.

The charcoal assemblage

The charcoal assemblage totalled 264.9g and fragments suitable for species identification were recovered from 71 contexts. It was noted that some of the charcoal has been vitrified which may make further analysis of affected fragments difficult.

Modern Contamination

Small quantities of roots, modern seeds, insects along with live worms and springtails were noted but there is no evidence that the archaeological security of any of the ecofactual finds has been compromised.

Recommendations

The macroplant assemblage has been fully identified and does not require any further work.

Both hazel nut shell and charcoal provide good targets for radiocarbon dating. The charcoal fragments should be identified to species to allow selection of the most suitable fragments for dating.

- Once contexts have been selected for dating a single fragment of charcoal should be identified to species from those samples.
- If charred macroplant is selected for dating it is recommended that hazelnut shell be ranked above the cereal caryopses. This is because the cereal caryopses, given their generally poor condition and low numbers, may not contain sufficient carbon.
- Once the dating is completed the remainder of the charcoal assemblage should be analysed. This will make it possible to identify how wood species were utilised at this site, identify the presence of *in situ* structural elements, fuel debris and the nature of the surrounding landscape.
- Once the radiocarbon dates and charcoal identifications are complete the two ecofact assemblages can then be analysed in conjunction with each other to understand the development of this site in terms of exploitation of plants for food, building material and fuel from the pre-historic to the post medieval period.

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Project G2482: Table 1	L macroplant]		
			Flot 1	Flot 2	Flot 1
Date			Pre-H	Pre-H	Pre-H
Feature			Burnt depo	Burnt depo	PH 19
Sample			1	1	2
Context			8	8	20
Flot vol (ml)			100	20	10
% Sort			100	100	100
Species	Name	Part			
Agriculture					
Hordeum sp.	Barley	Caryopsis/es		1	
Triticum sp.	Wheat	Caryopsis/es			
Triticum sp.	Wheat	Glume			
Cerealia sp.	Cereal	Caryopsis/es		5	
Wild food					
Corylus avellana L.	Hazel	Nutshell frg(s)			
Rubus fruticosus agg	Blackberry	Stone(s)			
Woodland					
Bud	Bud	Bud		2	
Weed taxa					
Galium sp.	Bedstraws	Schizocarp(s)			
Luronium natan s L.	Floating Water-plantain	Seed(s)			
Valerianella sp	Cornsalads	Fruit(s)			
Vicia sp.	Vetch	Seed(s)			
Unknown	indet	Seed/fruit			

Flot 2		Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2
Pre-H		Pre-H	Pre-H	Unknown	Unknown	Pre-H	Pre-H	Unknown	Unknown
PH 19		PH 24	PH 24	Ditch 31	Ditch 31	Pit 34	Pit 34	Ditch 42	Ditch 42
	2	3	3	5	5	6	6	8	8
	20	25	25	33	33	35	35	43	43
<10		20	<10	30	10	30	<10	20	<10
	100	100	100	100	100	100	100	100	100
						1			
			1						
	1								
				1					
	1								

Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1
Unknown	Unknown	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H
Ditch 47	Ditch 47	Gully 72	Gully 72	Gully 72	Gully 72	Pit 75	Pit 75	Pit 75
10	10	13	13	14	14	17	17	18
48	48	73	73	74	74	76	76	77
20	10	80	10	60	<10	15	<10	15
100	100	100	100	100	100	100	100	100
			2	3		1		2
		2						3
		3						1

Flot 2		Flot 1	Flot 2						
Pre-H		Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H
Pit 75		Pit 95	Pit 95	Pit 108	Pit 99	Pit 104	Gully 97	Pit 110	Pit 110
	18	19	19	21	22	23	24	25	26
	77	96	96	89	100	109	98	111	112
<10		180	30	50	50	400	450	<10	25
	100	100	100	100	100	100	100	100	100
	1			4	8	2		1	4
						11			
					3				

Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H
Pit 110	Pit 104	Pit 104	Pit 121	Gully 115	Burnt Deposit	Pit 125	Pit 127	Gully 134
27	29	30	31	32	33	34	35	37
113	119	106	122	114	116	126	128	135
50	60	780	30	40	200	10	70	40
100	100	100	100	100	100	100	100	100
1							1	
1	3	2		7	12		12	1
			7					
			1					
			1					
								1

Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Unknown
Gully 134	Gully 134	Pit 136	Pit 136	Pit 141	Pit 147	Pit 132	Pit 149	Pit 151
38	39	40	41	43	44	47	48	49
138	139	140	137	142	148	133	150	152
40	30	45	20	40	<10	40	20	<10
100	100	100	100	100	100	100	100	100
		5	1			7		1
				4		4		
	Ł				Ł		Ł	
						2		
				1		1		

Pre-H	Pre-H	Pre-H	Pre-H	Unknown	Unknown	Pre-H	Pre-H	Pre-H
Pit 160	Pit 154	Pit 156	Pit 154	Pit 162	Pit 162	Pit/PH 171	Pit/PH 178	Pit 178
50	51	52	53	54	55	59	61	62
161	155	159	167	163	164	172	188	175
<10	80	20	20	<10	<10	<10	80	35
100	100	100	100	100	100	100	100	100
	11	1					108	1

	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2
Unknown	Unknown	Unknown	Unknown	Unknown	Pre-H	Pre-H	Pre-H	Pre-H
Pit 184	Pit 194	Pit 194	Pit 197	Pit 197	Pit 212	Pit 212	Ditch 215	Ditch 215
68	69	69	70	70	74	74	76	76
185	193	193	198	198	213	213	216	216
25	<10	<10	35	<10	<10	<10	50	<10
100	100	100	100	100	100	100	100	100
	4	2	1	2	1		1	1
	4	2	1	Ζ	I		I	1

Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1
Unknown	Unknown	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H
Culluvial	Culluvial	Ditch 222	Ditch 222	Pit 224	Pit 224	Hearth 232	Hearth 232	Hearth 232
77	77	81	81	84	84	85	85	86
217	217	219	219	225	225	233	233	234
20	10	50	20	40	25	15	15	40
100	100	100	100	100	100	100	100	100
1		2	11		2			
1		3	11		3			
				1	2			
				4	5			

Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2
Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H
Hearth 232	Ditch 226	Ditch 226	Ditch 229	Ditch 229	Linear 235	Linear 235	Pit 212	Pit 212
86	87	87	88	88	91	91	93	93
234	227	227	230	230	236	236	214	214
25	210	<10	20	<10	120	50	<10	<10
100	100	100	100	100	100	100	100	100
	2	18	1	2		27		
			2					
	1	1						
	1							
			1					

Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1	Flot 2	Flot 1
Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H	Pre-H
Linear 239	Linear 239	Linear 239	Linear 239	PH 247	PH 247	Pit 252	Pit 252	Pit 252
94	94	95	95	96	96	99	99	100
240	240	246	246	248	248	253	253	254
30	25	20	<10	200	150	70	15	190
100	100	100	100	100	100	100	100	100
		1						
		1						
2	7	2	6			2		11
2	/	۷	0			5		11
						1		5

Flot 2
Pre-H
Pit 252
100
254
80
100
1
28
20
1
2

Sample	Context	Charcoal	Weight (g)
1	8	*	2.4
2	20	*	0.4
3	25	*	0.6
3	25	*	0.8
5	33	*	0.2
6	35	*	1.6
6	35	*	0.2
13	73	*	1.9
13	73	*	1
14	74	*	0.5
14	74	*	3.5
17	76	*	0.2
17	76	*	0.1
18	77	*	1.1
19	96	*	7.7
19	96	*	4.6
21	89	*	2.6
22	100	*	1.7
23	109	**	27.3
24	98	*	8.2
26	112	*	0.1
27	113	*	1.6
27	113	*	5.7
30	106	***	77
31	122	*	0.8
32	114	*	0.2
33	116	*	4.2
34	126	*	0.01
35	128	*	1.5
37	135	*	1
38	138	*	0.3
39	139	*	0.5
40	140	*	0.2
41	137	*	0.1
43	142	*	0.4
47	133	*	0.6
48	150	*	0.2
50	160	*	0.01
51	155	*	0.8
52	159	*	0.2
61	188	*	7.2
62	175	*	0.4
68	185	*	0.3
69	193	*	0.1
69	193	*	0.4
70	198	*	3
76	216	*	0.7

76	216	*	0.6
77	217	*	0.6
77	217	*	0.2
81	219	*	3.8
81	219	*	1.4
84	225	*	1.8
84	225	*	0.4
85	233	*	0.5
85	233	*	0.9
86	234	*	1.8
86	234	*	1.4
87	227	**	15.5
88	230	*	2.2
88	230	*	0.2
91	236	**	20.2
94	240	*	0.9
94	240	*	0.2
95	246	*	0.3
96	248	*	4.9
96	248	**	11.9
99	253	*	4.2
99	253	*	0.4
100	254	*	4.7
100	254	**	11.8

Key:*=<10, **=10-29, ***=30-100, ****=>100, weight given in grams						
Comments						
Flot 1						
Flot 1 & 2						
Flot 2, roundwood present						
Flot 2						
Flot 2						
Flot 1						
Flot 1						
Flot 2						
Flot 2						
Flot 1						
Flot 1						
Flot 1						
Flot 2						
Flot 1						
Flot 1						

Flot 2			
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Flot 1			
Flot 2			
Flot 2			
Flot 1			
Flot 1			
Flot 1			
Flot 2			
Flot 2			
Flot 1			

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