LAND AT UNION CORNER FALMOUTH CORNWALL

Results of a Desk Based Assessment & Archaeological Gradiometer Survey





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Land at Union Corner, Falmouth, Cornwall

Results of a Desk Based Assessment & Archaeological Gradiometer Survey

For

Kim Dodge

of

Westcountry Land Ltd.

Ву



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Summary

This report presents the results of a desk-based assessment, walkover survey and geophysical survey carried out by South West Archaeology Ltd. (SWARCH) on land at Union Corner, Falmouth, Cornwall, prior to a potential residential development.

The desk-based assessment showed that some post-medieval adaptation to the field system on the site has taken place and that the site was bounded on its north side by a medieval deerpark. The walkover survey supports the limit of the deerpark being the north boundary but identified no visible earthworks on the site.

The geophysical survey in contrast identified a number of potential archaeological features associated with post-medieval field systems and perhaps more than one phase of medieval or prehistoric field systems with an associated sub-rectangular double ditched enclosure. This double ditched enclosure may represent an Iron-Age/Romano-British 'round'. A number of tentative anomalies associated with potential settlement activity were also identified in the western of the three fields, although no such evidence was noted in the two playing fields that make up the eastern half of the site. Plough scars were visible across the site in the survey data.

Any proposed development is likely to disturb these identified archaeological deposits or remains.

Land at Union Corner, Falmouth, Cornwall

content	.S		Page No.
	Sum	ımary	3
	List o	5	
	List o	5	
	List o	of Appendices	5
	Ackn	nowledgements	5
1.0	Intro	oduction	6
	1.1	Project Background	6
	1.2	Topographical and Geological Background	6
	1.3	Historical Background	6
	1.4	Archaeological Background	6
	1.5	Methodology	7
2.0	Desk	c-Based Assessment	9
	2.1	Documentary Background	9
	2.2	Cartographic Evidence	9
		2.2.1 Early cartographic sources2.2.2 The 1840 Budock Tithe Map2.2.3 Ordnance Survey mapping	9 11 12
	2.3	Archaeological Background	14
	2.4	Walkover Survey	16
3.0	Grad	liometer Survey	18
	3.1	Introduction	18
	3.2	Methodology	18
	3.3	Results	19
	3.4	Discussion	23
	3.5	Conclusion	24
4.0	Bibli	ography & References	25

List of Figures	Page No.
Cover plate: Union Corner playing field, Field 1, from the south-west corner; looking north-east (no scale).	
Figure 1: Site location.	8
Figure 2: Extract from the Burghley Atlas of 1579 (BL).	9
Figure 3: Extract from the 1811 OS surveyor's draft map (BL).	10
Figure 4: Extract from the 1840 Budock Tithe map (CRO).	10
Figure 5: Extract from the 1888 OS 1 st edition 6" map (Cornwall sheet LXXI, CRO).	12
Figure 6: Extract from the 1909 OS 2 nd edition 6" map (Cornwall sheet LXXI, CRO).	13
Figure 7: Extract from the 1935 OS 6" map (Cornwall sheet LXXI, CRO).	13
Figure 8: Map of nearby heritage assets (source: Cornwall HER).	14
Figure 9: The site at Union Corner (the site area is outlined in red).	17
Figure 10: Greyscale shade plot of the gradiometer survey data, minimal processing.	21
Figure 11: Interpretation of the results of the gradiometer survey	22
List of Tables	
Table 1: Extract from the 1843 Budock tithe apportionment.	12
Table 2: List of nearby heritage assets.	16
Table 3: Interpretation of Gradiometer Survey data.	20
List of Assessations	
List of Appendices	
Appendix 1: Project Design	26
Appendix 1: 1 Toject Besign Appendix 2: Additional Graphic Images of Gradiometer Survey Data	29
Appendix 3: Walkover Survey Photographs	32
Acknowledgements	
Thanks for assistance are due to:	

List of Figures

Westcountry Land (Union Corner) Ltd The Staff of the Cornwall Record Office (CRO)

1.0 Introduction

Location: Land at Union Corner, Falmouth, Cornwall

Parish: Budock
County: Cornwall

NGR: SW 78600 33503 Type of survey: Gradiometer Date of survey: 11-12.11.2015

Area surveyed: 3.05ha

1.1 Project Background

This report presents the results of a desk based assessment and geophysical survey carried out by South West Archaeology Ltd. (SWARCH) on land at Union Corner, Falmouth in Cornwall (Figure 1). The work was commissioned by Kim Dodge of Westcountry Land (Union Corner) Ltd. (the Client) in order to identify any archaeological sites or features that might be affected by a proposed residential development.

1.2 Topographical and Geological Background

The site is located on the north-east facing slope of a low hill overlooking the Fal estuary, at a height of approximately 70-85m AOD. The site comprises three fields in a roughly rectangular block approximately 2km north-west of the heart of Falmouth, 1km north of Budock Churchtown, on recreational land between Union and Hillhead Roads (see Figure 1).

The soils of this area are the well-drained fine loamy soils of the Denbigh 2 Association (SSEW 1983). These overlie hornfelsed slates and siltstones of the Mylor Slate Formation (BGS 2015).

1.3 Historical Background

The site is located within the parish of Budock, now essentially a suburb of Falmouth which was only made a parish in its own right in 1664. Budock is situated within the Deanery and Hundred of Kerrier, two miles west of Falmouth. In 1843 the site lay within fields that belonged to the former gentry residence of Trescobeas and Lower Kergilliack farm. The former was the seat of a younger branch of the Grosse family, but was by the 19th century a farmhouse and the property of the Lord Wodehouse (Lysons 1814). Both had previously been owned by the Killigrews of Arwenack.

1.4 Archaeological Background

The historic fieldscape in this area is characterised by the Cornwall Council Historic Landscape Characterisation (HLC) as post-medieval enclosed land, but is encompassed by medieval farmland, part of Anciently Enclosed Land (AEL) and forming agricultural heartland of Cornwall with settlements and field systems having clear medieval antecedents. AEL has also been strongly demonstrated to indicate areas first settled, enclosed and farmed during later Prehistory i.e. Middle Bronze Age (c.1500-1000 BC) until the Roman period (AD 43-410) and continuing into the early medieval period (AD 410-1066). It is considered highly likely buried archaeology dating to the Prehistoric and Roman-British periods generally survives within areas of AEL.

There has been little or no archaeological investigation within the immediate area of the proposed site, although there are known heritage assets in the vicinity. Most of the known heritage assets are either medieval and relate to farming settlements, or are post-medieval or recent, with many relating to the Second World War defences of Falmouth.

1.5 Methodology

This document follows the methodology outlined in the Project Design (Appendix 1).

The desk-based assessment follows the guidance as outlined in: Standard and Guidance for Archaeological Desk-Based Assessment (CIfA 2014a) and Understanding Place: historic area assessments in a planning and development context (English Heritage 2012).

The gradiometer survey follows the guidance outlined in *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (CIfA 2014b).

'Archaeological geophysical survey uses non-intrusive and non-destructive techniques to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits, as far as reasonably possible, within a specified area or site on land, in the inter-tidal zone or underwater. Geophysical survey determines the presence of anomalies of archaeological potential through measurement of one or more physical properties of the subsurface.' (Standard and Guidance for Archaeological Geophysical Survey 2014).

The results of the survey will as far as possible inform on the presence or absence, character, extent and in some cases, apparent relative phasing of buried archaeology leading to the formulation of a strategy to mitigate a threat to the archaeological resource.

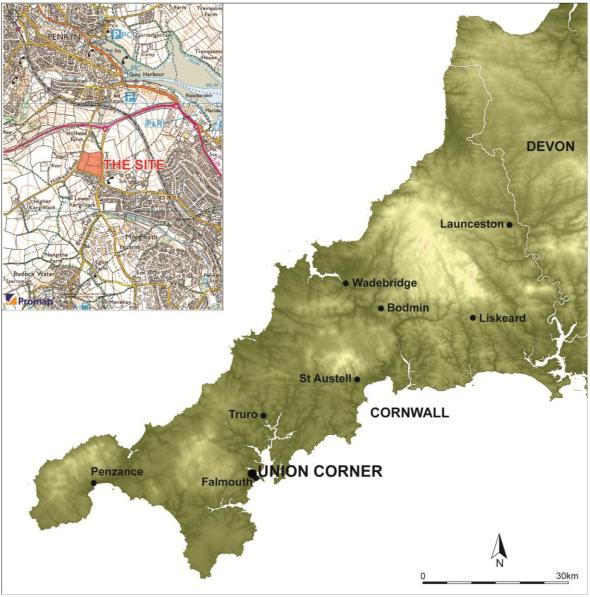


Figure 1: Site location (the location of the proposed development is indicated).

8

2.0 Desk-Based Assessment

2.1 Documentary Background

The documentary background to the site is surprisingly sparse; the tithe apportionment indicates that in 1843 the site formed part of the tenements of Trescobeas and Lower Kergilliack. The first is recorded in 1284, incorporating the early medieval Cornish prefix *tre* (estate, farmstead) with an unknown second element (Gover 1948). The second, Kergillack, is recorded in 1313 and the name is derived from the Cornish for hedge/bank+cock (Padel 1985, 44-5). Neither site is particularly well-represented among readily-accessible documentary sources (e.g. at the CRO). Trescobeas is cited as a former seat of a younger branch of the Grosse family. William Grosse, seemingly the last of that line, was married to the widow of Charles Vyvyan, 'who, upon some jealously or discontent of his wife, drank a pint or quart of brandy, entered his chamber, took a pistol and charged it with a brace of bullets, and then forthwith shot himself dead' in 1693 (Gilbert 1838, 136). It thereafter came into the possession of the Killigrews of Arwenack in the late 17th century and was held by Lord Wodehouse in 1814 (CRO: BRA2231/3/1.2). Several later 16th century documents refer to Peter Killigrew of Kergilliack, implying the Killigrews also owned these farms (CRO: CM/577; CM/181). In 1756 displaced Acadians (French colonists from Nova Scotia deported in 1755) were temporarily lodged at Kergilliack (CRO: AD1974).

2.2 Cartographic Evidence

2.2.1 Early cartographic sources

The earliest useful map depicting the site is Lord Burghley's Atlas of 1579, which depicts the site as lying within an enclosed fieldscape, and one which still includes unenclosed strip fields.



Figure 2: Extract from the Burghley Atlas of 1579 (BL) (the approximate location of the site is indicated).

The next detailed cartographic source is the OS surveyor's draft of 1811, which shows the surrounding landscape in some – if perhaps misleading – detail. As with the earlier Burghley map, the triangle of land between the roads is clearly shown, as is the cross lane to the south. The pattern of fields on the draft maps is, however, often speculative rather than accurate.



Figure 3: Extract from the 1811 OS surveyor's draft map (BL) (the location of the site is indicated).

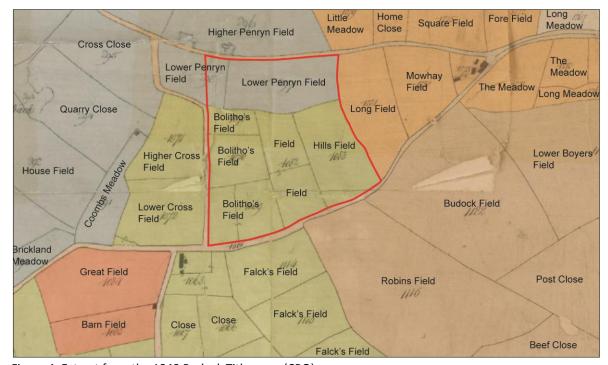


Figure 4: Extract from the 1843 Budock Tithe map (CRO).

2.2.2 The 1840 Budock Tithe Map

The first detailed map available to this study is the 1843 tithe map, and in contrast to the earlier maps shows the area of the development as comprising all or part of nine separate fields. While allowing for the variable accuracy of the tithe map, the repetition of field-name elements and the subdivision of ownership would suggest these many small fields were fairly recent subdivisions, perhaps related to the growth of Falmouth.

The apportionment indicates these fields formed part of two separate tenements: that of Triscobeas, with ownership split between William Bullmore, the executors of Peter Harvey and Barnet Falck, and that of Lower Kergillack, owned by the Bishop of Exeter. The pattern of land ownership and tenancy is particularly complicated.

The field names are mostly prosaic, being locational, topographical or relating to personal names. Higher and Lower Cross Field and Cross Close may indicate the former presence of a wayside cross. All of the fields were listed as being under arable rotation.

Field No.	Owner	Tennant	Field Name	Field Use		
Lower Kergillack						
290		Himself	Brickland Meadow	Arable		
291			Coombs Meadow	Arable		
292	_,		House Field	Arable		
294	Thomas Harvey		Quarry Close	Arable		
295	Lessee under the Bishop of		Cross Close	Arable		
296	Exeter		Higher Penryn Field	Arable		
297		ALCHE ALC I	Lower Penryn Field	Arable		
298		William Woodman	Lower Penryn Field	Arable		
		Trescobeas				
1084	Milliana Manthun	Viscout Mostus	Great Field	Arable		
1085	William Martyn	Vincent Martyn	Barn Field	Arable		
		Triscobeas				
1065			Triscobeas Field	Arable		
1066			Close	Arable		
1067	William Bullmore	William Woodman	Close	Arable		
1068	william Bullmore	William Woodman	Cottage, outhouses, yard & garden			
1069			Bolitho's Field	Arable		
1070			Bolitho's Field	Arable		
1071		Vincent Martyn	Higher Cross Field	Arable		
1072			Lower Cross Field	Arable		
1075	Dotor Homeou		Pigs Meadow	Arable		
1079	Peter Harvey, Executors of		Long Field	Arable		
1081	Executors of		Higher Moor	Arable		
1082		Robert Hill	Field	Arable		
1083		Roger Jeffry	Hills Field	Arable		
1112		William Woodman	Falck's Field	Arable		
1113	Barnet Falck		Falck's Field	Arable		
1114			Falck's Field	Arable		
		East Wood				
1115			Robins Field	Arable		
1116	William Glasson,		Beef Close	Arable		
1121	Lessee under the Bishop of	Himself	Post Close	Arable		
1122	Exeter		Budock Field	Arable		
1125			Lower Boyers Field	Arable		
College						
1267	Peter Harvey, Executors of, Lessees under the Bishop of Exeter	Alexander Hamilton	Long Meadow	Arable		

Hill Head						
1268		Roger Jeffery	Meadow	Arable		
1269			Long Meadow	Arable		
1270			The Meadow	Arable		
1271	Peter Harvey, Executors of, Lessees under the Bishop of Exeter		The Meadow	Arable		
1272			Fore Field	Arable		
1273			Dwelling house, mowhay, yard &			
			outhouses			
1275			Square Field	Arable		
1278			Home Close	Arable		
1279			Little Meadow	Arable		
1280			Mowhay Field	Arable		
1281			Long Field	Arable		

Table 1: Extract from the 1843 Budock tithe apportionment.

2.2.3 Ordnance Survey mapping

The 1st and 2nd edition Ordnance Survey maps depict a landscape similar in outline, but subject to a significant loss of field boundaries. By 1888, the nine fields had become four, and only three by 1909. The removal of field boundaries would suggest the agricultural depression of the later 19th century and the specific circumstances that had led to the proliferation of small fields and smallholders had been removed, and larger individual farms had emerged. By 1888 the cross lane had also been straightened, removing the pronounced kink at its western end depicted on all the earlier maps.

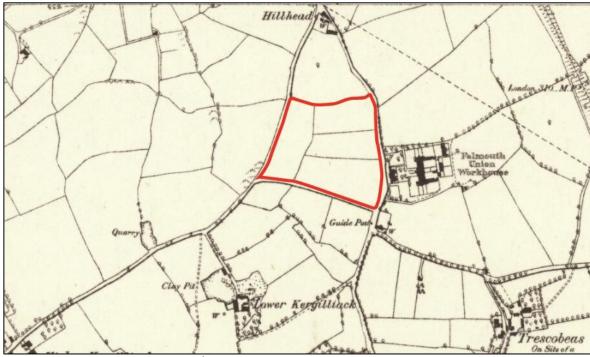


Figure 5: Extract from the 1888 OS 1st edition 6" map (Cornwall sheet LXXI, CRO) (the site is indicated).

The most significant local development was the construction of the Falmouth Union Workhouse (later *Budock Hospital*, and demolished after 2006) in 1850-52 within the area known as *Falck's Fields* immediately to the east of the site, and the appearance of an isolation hospital to the north, on land formerly belonging to Lower Kergillack. Beyond this, the Cornwall Railway line to Falmouth was opened in 1863, sweeping around the site to the north and west.

This landscape remained fairly static during the interwar years, but by 1963 residential housing had been built along Kergillack Road and Trescobeas Road, and Falmouth School built, along with a number of playing fields. The Penryn bypass, opened in 1994, passes just to the north of Hillhead Farm.

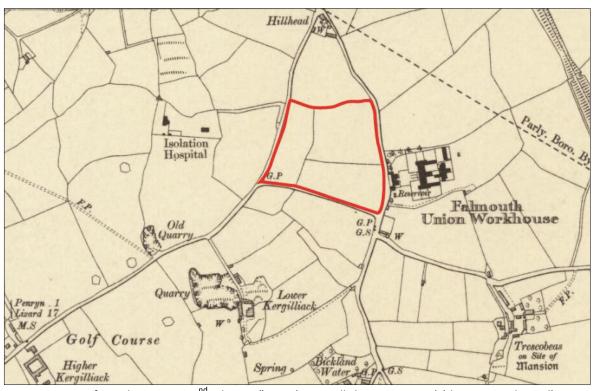


Figure 6: Extract from the 1909 OS 2nd edition 6" map (Cornwall sheet LXXI, CRO) (the site is indicated).

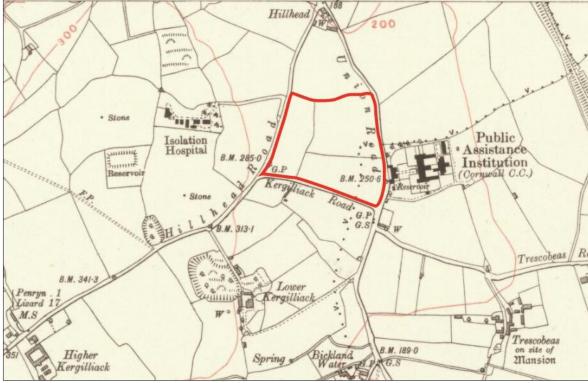


Figure 7: Extract from the 1935 OS 6" map (Cornwall sheet LXXI, CRO) (the site is indicated).

2.3 Archaeological Background

Most of the historic fieldscape in this area is characterised as *medieval farmland* on the Cornwall and Scilly Historic Landscape Characterisation (HLC). The fields between Hillhead Road and Union Road are, however, characterised as *post-medieval enclosed land*, for no clear reason.

Medieval farmland forms part of the broader category of Anciently Enclosed Land (AEL). These areas formed the ancient heartland of rural Cornwall with settlements and field systems having clear medieval antecedents. AEL has also been strongly demonstrated to indicate areas first settled, enclosed and farmed during later Prehistory i.e. Middle Bronze Age (c 1500-1000 BC) until the Roman period (AD 43-410) and continuing into the early medieval period (AD 410-1066). It is considered highly likely that buried archaeology dating to the Prehistoric and Roman-British periods survives within AEL.

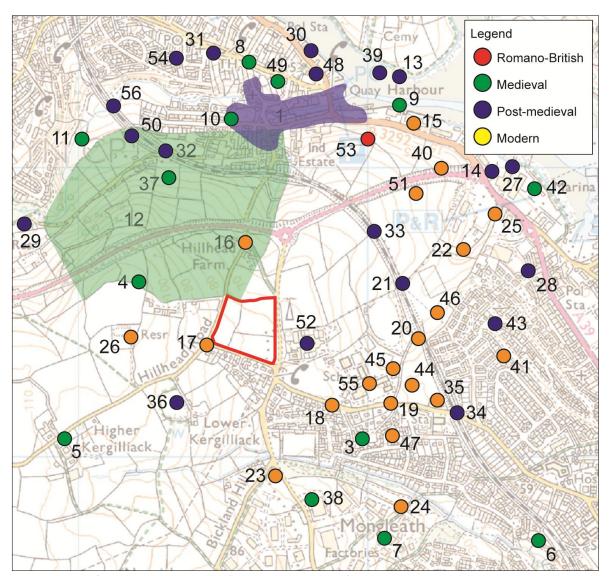


Figure 8: Map of nearby heritage assets (source: Cornwall HER).

The Cornwall Historic Environment Record (see Figure 8 and Table 2) records a number of heritage assets in close proximity to the development site, although most of these are post-medieval in date. There is a Romano-British findspot to the north-east (HER169404), and medieval settlements recorded at Trescobeas (HER18529), Penryn (MDV18603), Higher Kergilliack (HER18615), Tregenver (HER18630), and Tregoniggie (HER18632). Penryn itself was an important

medieval town and port with a large number of historic buildings, including the site of Glasney College and the Bishop's Palace. A large area to the north-west is thought to lie within a medieval deerpark associated with these ecclesiastical centres. It is first recorded in 1311 as a 'free warren' and was disparked after 1540. Otherwise the HER entries in this area is dominated by post-medieval buildings and recent military structures.

The Portable Antiquities Scheme (PAS) database records three late medieval coin finds within 1km of the site.

Mon ID		Site Name	Record	Notes
-	1	Penryn	Buildings	Penryn conservation area, including medieval
				fortifications, 13 th century church and numerous post-
				medieval buildings. Settlement first recorded 1236
17863	2	Penryn	Building	Modern school built in 1961
18529	3	Trescobeas	Documentary	Medieval settlement recorded in 1284
18559	4	Beacon Hill	Documentary	Medieval beacon indicated by field names
18615	5	Higher Kergilliack	Documentary	Medieval settlement recorded in 1313
55705		Higher Kergilliack	Cropmark	Medieval field system indicated by cropmarks
40851		Higher Kergilliack	Cartographic	Location of blacksmiths workshop shown 1840 tithe map
172551		Higher Kergilliack	Findspot	Mid 19 th century milepost
18630	6	Tregenver	Documentary	Medieval settlement recorded in 1336
18632	7	Tregoniggie	Documentary	Medieval settlement recorded in 1316
18645	8	Penryn	Documentary	Medieval market
172501		Penryn	Listed building	Grade II listed post-medieval fire station
18651.10	9	Penryn	Documentary	Medieval harbour fortifications
18658		Penryn	Structure	Post-medieval harbour fortifications
18660.40	10	Glasney	Documentary	Medieval religious house and associated buildings
18660.50		Glasney	Documentary	Medieval hospital
18660.60		Penryn	Documentary	Medieval school
18662	11	Glasney	Findspot	A medieval cross is said to have been removed from
				Glasney college
18661.13	12	Penryn	Cartographic	Medival deer park recorded in 1311
38044	13	Penryn	Building	Post-medieval boat-house
38333	14	Glassons Quay	Building	Post-medieval shipyard
40813		Penryn	Cartographic	Post-medieval shipyard
38334	15	Penryn	Cartographic	Modern slipway and boat-house
38476	16	Hillhead Farm	Aerial photograph	Modern WWII road block indicated by unroofed building
				visible on aerial photograph
57037		Hillhead Farm	Findspot	19 th century fingerpost
38477	17	Falmouth	Documentary	Modern pillbox listed on the site
38478	18	Falmouth	Documentary	Modern pillbox listed on the site
38479	19	Falmouth	Documentary	WWII pillbox listed in this location
56356		No.55 Trescobeas Road	Building	20 th century building designed by Alfred Cornelius in 1911
38480	20	Falmouth	Documentary	WWII pillbox listed on the site
38481	21	Falmouth	Documentary	Modern road block
54923		Falmouth	Building	Post-medieval railway bridge
38482	22	Falmouth, Carrick	Earthwork	Modern trackway
38483	23	Falmouth	Documentary	WWII road block listed
38495		Bickland Water	Building	WWII barrage balloon mooring site visible on aerial
				photographs
38486	24	Falmouth	Building	Remains of WWII pillbox
38492	25	Ponsharden	Building	Modern pillbox
166989		Ponsharden	Scheduled	Modern concrete air-raid shelter within Jewish and
			monument	Congregationalist cemetery
38497	26	Falmouth	Documentary	Anti-aircraft battery on the site of the covered railway
38976	27	Ponsharden	Find spot	Post-medieval wrecks
40799	28	Falmouth	Documentary	Post-medieval ropewalk
40800	29	Falmouth and Penryn	Cartographic	Building shown on 1 st edition OS map
		Waterworks		
40832	30	Penryn	Documentary	Post-medieval paper and bone mill
40843	31	Penryn	Cartographic	Post-medieval brewery on 1844 tithe map
54807	32	College Hill	Building	Post-medieval railway bridge
54922	33	Budock	Building	Post-medieval railway bridge
54928	34	Trescobeas Road	Building	Post-medieval railway bridge
55440	35	Falmouth	Building	Modern kitchen
55708	36	Lower Kergilliack	Cartographic	Clay pit marked on 1 st edition and modern OS maps

55709	37	Hillhead Farm	Cropmark	Medieval field system indicated by cropmarks
55712	38	Tregoniggie	Cropmark	Medieval field boundary indicated by cropmarks
55717	39	Penryn, Carrick	Findspot	Post-medieval wreck
55720	40	Penryn	Documentary	Modern anti-aircraft battery
55721	41	Falmouth	Earthwork	Modern anti-aircraft battery
55722	42	Ponsharden	Cropmark	Medieval field boundary
55723	43	Falmouth, Carrick	Earthwork	Post-medieval cistern
55746	44	Falmouth	Aerial photo	WWII barrage balloon mooring site
55747	45	Falmouth	Aerial photo	WWII military camp and associated features
55748	46	Falmouth	Cropmark	Modern tank trap
55749	47	Falmouth	Cropmark	WWII tank trap shown on aerial photograph
57006	48	Penryn	Building	Post-medieval building
124153	49	Penryn	Cartographic	Medieval field system
128845	50	Penryn	Building	Post-medieval china stone mill
139680	51	Falmouth	Aerial photo	Modern pillbox
168244	52	Falmouth	Building	Post-medieval workhouse
169404	53	Penryn	Findspot	Romano-British bronze fibula 1 st -2 nd century AD
177235	54	Penryn	Building	Post-medieval school built 1857
178604	55	Falmouth	Building	Modern school built in 1957
365808	56	Collegewood Viaduct	Listed building	Grade II listed railway viaduct and associated features. Built in 1863

Table 2: List of nearby heritage assets (source: Cornwall HER).

2.4 Walkover Survey

A walkover survey was conducted across the site on the 6th of November 2015. The site was divided into three fields (see Figure 9). A complete compliment of supporting photographs can be seen in Appendix 3.

Field 2 contained a thick grass crop over 0.30m in height that obscured the surface of the ground. The ground sloped down gently from the south to the north and the slope became more moderately steep about half way across the field. The boundaries to the field were all stone lined Cornish hedgebanks, c.1.75m high and c.2m wide with a variety of native deciduous trees and bushes along their length. The south and west boundaries were well consolidated. The west boundary dropped deeper on its outside to Hillhead Road. The north and east boundaries were particularly curved and kinked and more eroded than any of the others on the site and in Field 3 were less tall (c.1m high). However, the ground beyond them in the adjacent fields was lower and the banks were nearer c.1.75m high on their outside faces.

Fields 1 and 3 were utilized as playing fields and had two football pitches with goals laid out on them with a third pitch partially marked at the north end of the site. The grass was very short and worn away in places. These fields are divided by a well consolidated Cornish Hedgebank c.1.75m high and 0.2m wide. Their north and south boundaries are the same as those in Field 2. The east boundary and east end of the south boundary have been rectified by the modern adaptation of Union Road and is lined with a chain link fence and has a slope that is battered and falls away to Union- and Kergilliack Road. No archaeological features were visible on the surface. Although a gentle slope occurs on the site it is possible that some landscaping and levelling has taken place to improve the playing fields, particularly in the north-east corner of the site where the road beyond falls away substantially.

Beyond the north boundary of the entire site the ground appeared to drop away into a wide ditch, although obscured by overgrowth. This substantial feature may denote the limit of the deerpark noted in the 14th century immediately north of the site (MonID: 18661.13).

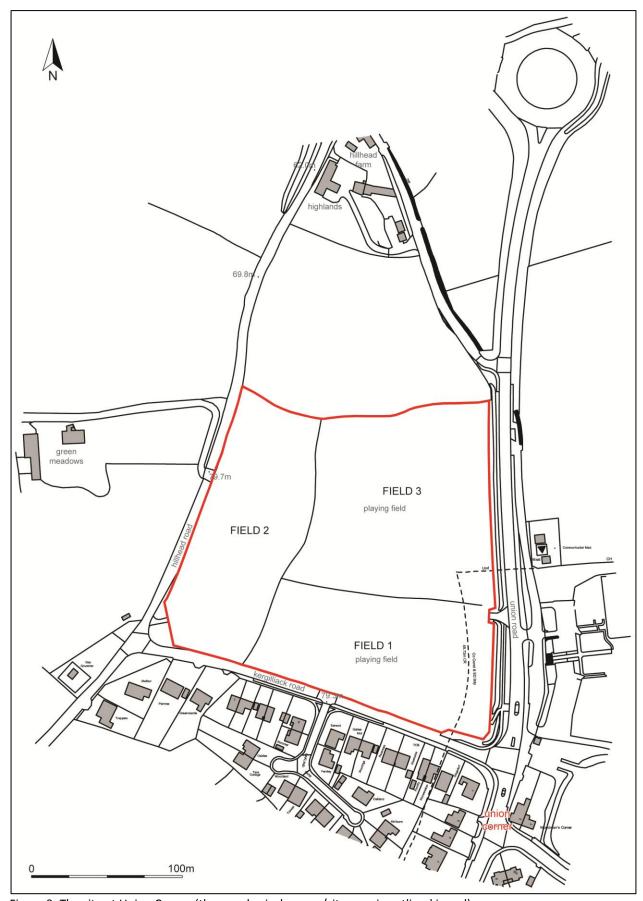


Figure 9: The site at Union Corner (the geophysical survey/site area is outlined in red).

3.1 Introduction

The purpose of this survey was to identify and record magnetic anomalies. While the anomalies may relate to archaeological deposits and structures, the dimensions of recorded anomalies may not directly correspond with any associated archaeological features. The following discussion attempts to clarify and characterise any identified anomalies. The survey took place over the 5th and 6th of November 2015 by SWARCH personnel in showery conditions. The site was divided into three fields; Field 2 had a thick grass crop, *c*.300mm high; Fields 1 and 3 constituted playing fields with two football pitches laid out at the time of the survey. The land sloped down gently from the south to the north.

The survey identified ten groups of anomalies; Groups 1 to 6 are of probable archaeological origin; Groups 7, 8 and 9 are of possible archaeological origin; Group 10 represents a large modern metallic pipeline. Anomaly Group 1 equates to historic field boundaries. Groups 2 and 3 equate medieval or prehistoric field boundaries. Group 4 is indicative of ditches associated with the earlier field systems and possible feature represented by Anomaly Group 6; Group 5 probably represent post-medieval field boundaries associated with Anomaly Group 1, but removed before 1840; Group 6 equates to a double ditched, sub-rectangular enclosure that may represent an Iron-Age/Romano-British 'round'; Group 7 represents a possible penannular 'ring-ditch' within the sub-rectangular enclosure (Group 6); Group 8 represents two possible 'ring-ditches', however the clarity and strength of their responses makes their genuine existence or survival improbable; Group 9 represents two possible large discreet cut features or spreads; Group 10 represents a large modern metallic pipeline. Ploughing activity aligned north-south can also be seen to have occurred across the site, particularly within Field 2. Weak magnetic variation/debris can be seen across the site. In Field 2 the human eye naturally forms shapes, which may be false from these responses and a number of unlikely features have been discounted in the analysis. The north-east corner of the site beyond Group 10 is probably made-up ground that obscures any linear features. This would presumably have occurred in order to level the playing field in Field 3.

3.2 Methodology

The gradiometer survey follows the guidance outlined in *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (CIFA 2014b).

The survey was carried out using a twin-sensor fluxgate gradiometer (Bartington Grad601). These machines are sensitive to depths of up to 1.50m. The survey parameters were: sample intervals of 0.25m, traverse intervals of 1m, a zigzag traverse pattern, traverse orientation was circumstantial, grid squares of 30×30m. The gradiometer was adjusted ('zeroed') every 0.5-1ha. The survey grid was tied into the Ordnance Survey National Grid. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.25.0*. The primary data plots and analytical tools used in this analysis were *Shade* and *Metadata*. The details of the data processing are as follows:

Processes: Clip +/- 3SD; DeStripe all traverses, median; DeStagger, offset in- and outbound by +2 to +3 intervals (all grids); Interpolate X and Y, double resolution.

Details: 3.05ha surveyed; Max. 173.89nT, Min. -196.87nT; Standard Deviation 17.20nT, mean -0.71nT, median -0.01nT.

3.3 Results

Figures 10 and 11 with the accompanying Table 3 show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data can be seen in Appendix 2.

Anomaly	Class and	Form	Archaeological	Comments
group	Certainty		characterisation	
1	Weak negative with associated positive, probable	Linear	Historic field boundaries	Each of these six linear anomalies equates to a field boundary that is depicted on the 1840 Budock Tithe map. On the 1888 OS mapping only the east-west linear anomaly in Field 3 is still depicted: by 1909 it has been removed.
2	Strong negative with associated positives, probable	Linear	Field boundaries	These five linear anomalies with a moderate negative response (c20nT) flanked by positive linear anomalies that would represent ditches flanking stony bank material. These are on an earlier field alignment to that of Anomaly Group 1 and the existing site field boundaries (which cut these anomalies). But do tie-in with a number of the curving field boundaries in the wider area that are likely to be medieval or earlier in origin.
3	Strong positive with associated negative, probable	Linear	Field boundaries	These linear anomalies represent bank and ditch boundaries. They run parallel to some of the linear anomalies in Anomaly Group 2; but not others. Between them, these two anomaly groups probably represent two to three phases of field systems.
4	Weak positive, probable	Linear	Ditches/ land drains/ small field boundaries	These almost entirely positive anomalies (<20nT) are indicative of cut features that may have once denoted boundaries. They are generally perpendicular to Anomaly Groups 2, 3 and 6 and probably associated with these.
5	Weak negative with associated negative, probable	Linear	Field boundaries	These are relatively weak diffuse anomalies (< +/- 5nT). They run parallel with the extant and removed historic boundaries and have similar responses to Anomaly Group 1. They are most likely contemporaries of these that were removed before 1840.
6	Strong positive, probable	Curvi- linear/	Possible Romano- British/Iron Age 'round'	This is a double ditched sub-rectangular enclosure; a probable 'round'. A slight gap in the responses in the inner linear response may indicated a drove-way function if it is not a 'round'. It is associated with two linear anomalies from Group 4 and internally contains Anomaly Group 7.
7	Weak positive, possible	Curvi-linear	Possible 'ring-ditch'	This appears to be a penannular 'ring-ditch' positive point response at one end, which

				may represent another feature such as a burnt pit (-23 to +50nT). This feature has been highlighted due to its location within the possible 'round'. However it is common for the human eye to discern circular shapes from the magnetic debris/variation responses across the site and this may be particularly strong/clear example of this.
8	Very weak positive, possible	Curvi-linear	Possible 'ring-ditch	These anomalies are particularly weak responses that may or may not equate to genuine features. The northern of these two anomalies contains two relatively strong responses (c.60nT) that may equate to thermoremnant material.
9	Weak positive, possible	Ovoid	Possible 'sunken featured building'	These two areas of weak positive responses may equate to a spread or cut feature. They may be their own 'sunken features' or be associated with the adjacent Anomaly Group 8. There is a confluence of cut linear features in this area which may respect a contemporary or earlier feature or be obscuring and or overcomplicating the results.
10	Strong bipolar, probable	linear	Modern metallic pipeline	This anomaly may represent a high pressure fuel pipe associated with the Government Pipelines and Storage System (GPSS).

Table 3: Interpretation of Gradiometer Survey data.

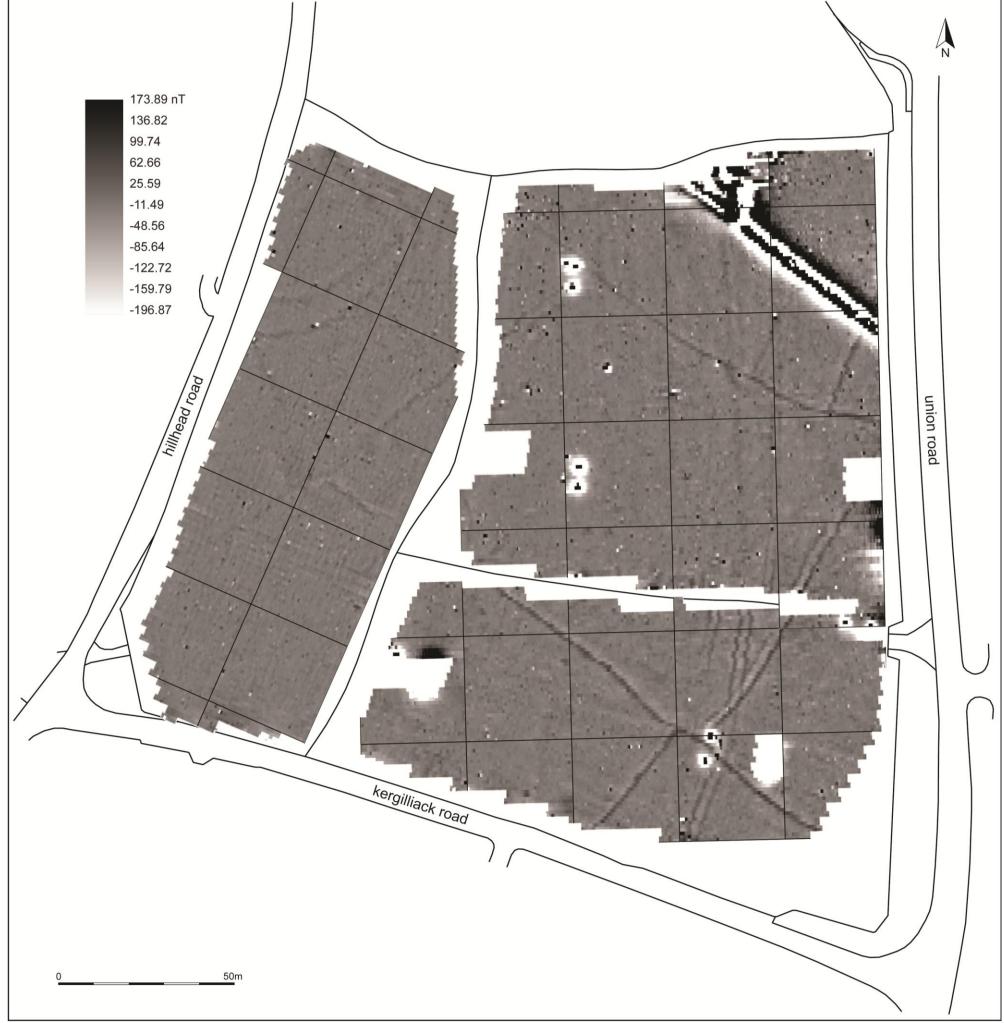


Figure 10: Greyscale shade plot of the gradiometer survey data, minimal processing.

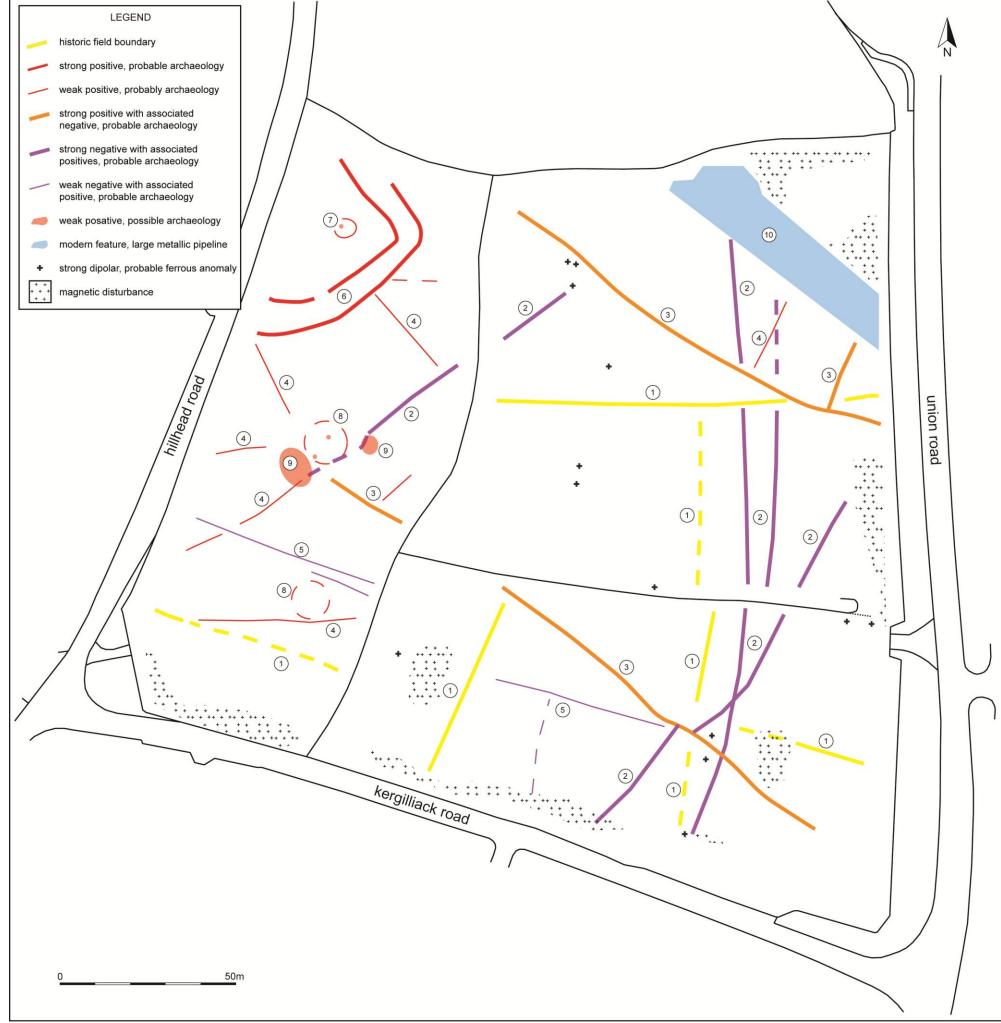


Figure 11: Interpretation of the results of the gradiometer survey (dashed lines are particularly weak responses).

22

3.4 Discussion

The survey identified ten groups of anomalies; Groups 1 to 6 are of probable archaeological origin; Groups 7, 8 and 9 are of possible archaeological origin; Group 10 represents a large modern metallic pipeline. Ploughing activity was also identified to have occurred across the site.

Anomaly Group 1 equates to a historic field boundary, which is visible on the 1840 Budock tithe map. On the 1888 Ordnance Survey 1st edition map only the east-west linear anomaly in Field 3 was still depicted: and by 1909 this had also been removed.

Group 2 equates to five linear anomalies that are typical of Cornish hedgebanks with a moderate negative response (c.-20nT) flanked by positive linear anomalies that would represent ditches flanking probable stony bank material. These are on an earlier field alignment to that of Anomaly Group 1 and the existing site field boundaries, which cut these anomalies. However, they do tie-in with a number of the curving field boundaries in the wider area that are likely to be either medieval or prehistoric in origin. The Cornwall Historic Landscape Characterisation (HLC) describes the surrounding fieldscape as 'The agricultural heartland, with farming settlements documented before the 17th century AD and whose field patterns are morphologically distinct from the generally straight-sided fields of later enclosure. Either medieval or prehistoric origins'.

Group 3 is comprised of three linear anomalies (one is cut by the existing post-medieval boundaries) representing bank and ditch boundaries. They run parallel to some of the linear anomalies in Group 2. Between them, these two anomaly groups probably represent two to three phases of medieval and or later prehistoric field systems.

Group 4 is comprised of approximately seven almost entirely positive anomalies (<20nT) that are indicative of cut features such as drains that may have once denoted boundaries. They are generally perpendicular to Anomaly Groups 2, 3 and 6 and probably associated with them.

Group 5 is comprised of three or four relatively weak diffuse anomalies (< +/- 5nT). They run parallel with the extant and removed historic boundaries and have similar responses to Anomaly Group 1. They are most likely contemporaries of these post-medieval boundaries that were removed before 1840. This is probably due to the British Agricultural Revolution between the late-17th century and mid-19th century.

Group 6 represents a double ditched sub-rectangular enclosure; a probable Romano-British or Iron-Age 'round'. A slight gap in the responses in the inner linear response may indicate a drove-way function if it transpires that this potential feature is not a 'round'. It is associated with two linear anomalies from Group 4 and contains the possible feature of Anomaly Group 7. If it is not a 'round' it may be associated with a deerpark (MonID: 18661.13) recorded immediately north of the site in AD 1311.

Group 7 appears to represent a penannular 'ring-ditch' positive point response at one end, which may represent another feature such as a burnt pit (-23 to +50nT). This feature has been highlighted due to its location within the possible 'round'. However it is common for the human eye to discern circular shapes from the magnetic debris/variation responses across the site and these may be particularly strong/clear examples of this. In Field 2 a number of these potential patterns of responses, which may be false and are unlikely to be features have been discounted in the analysis.

Group 8 is comprised of two particularly weak responses that may or may not equate to genuine features. The northern of these two anomalies contains two relatively strong responses (c.60nT) that may equate to thermoremnant material.

Group 9 is comprised of two areas of weak positive responses that may equate to a spread or cut feature. They may be their own 'sunken features' or be associated with the adjacent Anomaly Group 8. There is a confluence of cut linear features in this area which may respect a contemporary or earlier feature or be obscuring or overcomplicating the results. Therefore the non linear responses in this area may simply be natural, weak magnetic variation.

Group 10 probably represents a high pressure fuel pipe associated with the Government Pipelines and Storage System (GPSS) that was modified during the Second World War. A pipeline ran from Falmouth to St Mawgan. A probable section of which this was revealed at Roscarrick House (SWARCH HER report) and identified in a further SWARCH conducted geophysics survey (Stratascan Report, Job Ref.:J3378) on land along Bickland Water Road, both to the south.

The weak nature of some of the relatively more recent anomalies may reflect the comparative longevity of some of the potential features and in many cases the probable state of survival of some of the potential features that will have undergone varying degrees of plough truncation. Truncation by ploughing may be particularly severe on the upper slope of Field 2. The north-east corner of the site beyond Group 10 is probably made-up ground that obscures any linear features. This would have been deposited in the later 20th century to level the extant playing field in Field 3.

3.5 Conclusion

The geophysical survey would indicate there are features of archaeological origin present within the area of the proposed development associated with post-medieval field systems and perhaps more than one phase of medieval or prehistoric field systems with an associated sub-rectangular double ditched enclosure (Round) of possible Iron-Age/Romano-British origin. A number of tentative anomalies associated with potential settlement activity were also identified in the western of the three fields, although no such evidence was noted in the two playing fields that make up the eastern half of the site.

Any development is likely to disturb these archaeological deposits or remains.

4.0 Bibliography & References

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Budock Tithe Map 1840 Budock Tithe Apportionment 1843 Ordnance Survey 1st edition map of 1888 Ordnance Survey 2nd edition map of 1909 Ordnance Survey revised edition map of 1935

Appendix 1

PROJECT DESIGN FOR GEOPHYSICAL SURVEY AT LAND AT UNION CORNER, FALMOUTH, CORNWALL

Location: Land at Union Corner

Parish: Falmouth County: Cornwall

NGR: SW 78600 33503 **Date:** 23rd February 2015

1.0 INTRODUCTION

1.1 This document forms a Project Design (PD) which has been produced by South West Archaeology (SWARCH) at the request of Kim Dodge of Westcountry Land (Union Corner) Ltd. (the Clients). It sets out the methodology for a geophysical survey to be undertaken in advance of the application for planning for development of the site and for related off site analysis and reporting. The Project Design and the schedule of work it proposes were drawn up according to best praxtise.

2.0 ARCHAEOLOGICAL BACKGROUND

The site is located within the parish of Budock, now essentially a suburb of Falmouth which was only made a parish in its own right in 1664. St. Budock is situated within the Deanery and Hundred of Kerrier, two miles west of Falmouth. In 1843 the site lay within fields that belonged to the former gentry residence of Trescobeas and Lower Kergilliack farm. The former was the seat of a younger branch of the Grosse family, but was by the 19th century a farmhouse and the property of the Lord Wodehouse (Lysons 1814). Both had previously been owned by the Killigrews of Arwenack.

The historic fieldscape in this area is characterised by the Cornwall Council Historic Landscape Characterisation (HLC) as *post-medieval enclosed land*, but is encompassed by *medieval farmland*, part of *Anciently Enclosed Land* (AEL) and forming agricultural heartland of Cornwall with settlements and field systems having clear medieval antecedents. AEL has also been strongly demonstrated to indicate areas first settled, enclosed and farmed during later Prehistory i.e. Middle Bronze Age (*c*.1500-1000 BC) until the Roman period (AD 43-410) and continuing into the early medieval period (AD 410-1066). It is considered highly likely buried archaeology dating to the Prehistoric and Roman-British periods survives within AEL.

3.0 AIMS

- **3.1** The principal objectives of the work will be to:
 - 3.1.1 To observe and identify archaeological features through geophysical survey.
 - 3.1.2 To analyse and report on the results of the project as appropriate.

4.0 METHOD

4.1 Geophysical Survey:

The programme of work shall include a magnetometer survey of 3.05 hectares, covering the field proposed for development. The results of this survey will inform whether an archaeological evaluation or further archaeological recording of any potential buried remains or other mitigation is required.

- 4.2 The Client will provide SWARCH with details of the location of existing services and of proposed groundworks within the site area, and of the proposed construction programme.
- 4.3 Health and Safety requirements will be observed at all times by any archaeological staff working on site, particularly when working with machinery. As a minimum: high-visibility jackets, safety helmets and protective footwear will be worn.
 - 4.4.1 Appropriate PPE will be employed at all times.
 - 4.4.2 The site archaeologist will undertake any site safety induction course provided by the Client.

5.0 REPORTING

- 5.1 The type of report produced will be agreed with Cornwall Council's Senior Development Officer for the Historic Environment (SDOHE) in view of the results. If a full report is produced it will include the following elements:
 - 5.1.1 A report number, date and the OASIS record number;
 - 5.1.2 A copy of this PD;
 - 5.1.3 A summary of the project's background;

- 5.1.4 A description and illustration of the site location;
- 5.1.5 A methodology of the works undertaken, and an evaluation of that methodology;
- 5.1.6 Plans and reports of all documentary and other research undertaken;
- 5.1.7 A summary of the project's results;
- 5.1.8 An interpretation of the results in the appropriate context;
- 5.1.9 A summary of the contents of the project archive and its location (including summary catalogues of finds and samples);
- 5.1.10 A location plan and overall site plan including the location of areas subject to archaeological recording;
- 5.1.11 A description of any remains and deposits identified including an interpretation of their character and significance;
- 5.1.12 A consideration of the evidence within its wider context;
- 5.1.13 Specialist assessment or analysis reports where undertaken.
- 5.2 The Client will receive the report within three months of completion of fieldwork.
- 5.7 A copy of the report detailing the results of these investigations will be submitted to the OASIS (*Online Access to the Index of Archaeological Investigations*) database within 3 months of completion of fieldwork.

7.0 ARCHIVE

- 7.1 On completion of the project an ordered and integrated site archive will be prepared in accordance with the Management of Research Projects in the Historic Environment (MoRPHE)(http://www.english-heritage.org.uk/publications/morphe-project-managers-guide/).
 - The digital element of the archive will be transferred to the Archaeology Data Service (ADS) for long-term curation. A reference number will be obtained from the Royal Cornwall Museum (RCM), with regard deposition of the material (finds) element of any archive created by these works.
- 7.2 The archive will consist of two elements, the digital archive and the material archive.
 - 7.2.1 The digital archive, including digital copies of all relevant written and drawn records and photographs, will be deposited with the Archaeology Data Service (ADS) and in compliance with their standards and requirements.
 - 7.2.2 The material archive, comprising the retained artefacts/samples and the hardcopy paper record (if requested) will be cleaned (or otherwise treated), ordered, recorded, packed and boxed in accordance with the deposition standards of the RCM, and in a timely fashion.
 - 7.2.3 If the RCM wishes to retain the hardcopy paper archive, it will be deposited with the rest of the material archive under the same accession number. Should the RCM decline the hardcopy paper archive, that archive will be offered to other appropriate museum bodies or the CRO. If a suitable third party cannot be found, the hardcopy paper archive will be retained by SWARCH for 3 years and then destroyed.
- 7.3 SWARCH will, on behalf of the RCM obtain a written agreement from the landowner to transfer title to all items in the material archive to the receiving museum.
- 7.4 If ownership of all or any of the finds is to remain with the landowner, provision and agreement must be made for the time-limited retention of the material and its full analysis and recording, by appropriate specialists.
- 7.5 SWARCH will notify the SDOHE upon the completion of:
 - i) deposition of the digital archive with the ADS, and
 - ii) deposition of the material (finds) archive with the museum.
- 7.6 The condition placed upon this development will not be regarded as discharged until the report has been produced and submitted to the SDOHE and the LPA, the site archive deposited and the OASIS form completed.
- 7.7 The archive will be completed within 3 months of the completion of the final report.

8.0 CONFLICT WITH OTHER CONDITIONS AND STATUTORY PROTECTED SPECIES

Even where groundworks are being undertaken under the direct control and supervision of SWARCH personnel, it remains the responsibility of the Client - in consultation with SWARCH, the applicant or agent - to ensure that the required archaeological works do not conflict with any other conditions that have been imposed upon the consent granted and should also consider any biodiversity issues as covered by the NERC Act 2006. In particular, such conflicts may arise where archaeological investigations/excavations have the potential to have an impact upon protected species and/or natural habitats e.g. SSSIs, National Nature Reserves, Special Protection Areas, Special Areas of Conservation, Ramsar sites, County Wildlife Sites etc.

9.0 PERSONNEL & MONITORING

9.1 The project will be managed by Dr..Brynmor Morris; the archaeological gradiometer survey will be undertaken by SWARCH personnel with appropriate expertise and experience. Where necessary, appropriate specialist advice will be sought (see list of consultant specialists in Appendix 1 below).

Natalie Boyd

South West Archaeology

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Appendix 1 - List of specialists

Building recording

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Conservation

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Curatorial Thomas Cadbury Curator of Antiquities Royal Albert Memorial Museum, Bradninch Offices, Bradninch Place,

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Bone

Human Professor Chris Knusel University of Exeter Tel: 01392 722491 c.j.knusel@ex.ac.uk

Animal Wendy Howard Department of Archaeology, Laver Building, University of Exeter, North Park Road, Exeter EX4 4QE

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Lithics

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Palaeoenvironmental/Organic

Wood identification Dana Challinor Tel: 01869 810150 dana.challinor@tiscali.co.uk

Plant macro-fossils Julie Jones juliedjones@blueyonder.co.uk

Pollen analysis Ralph Fyfe Room 211, 8 Kirkby Place, Drake Circus, Plymouth, Devon, PL4 8AA

Pottery

Prehistoric Henrietta Quinnell 39D Polsloe Road, Exeter EX1 2DN Tel: 01392 433214

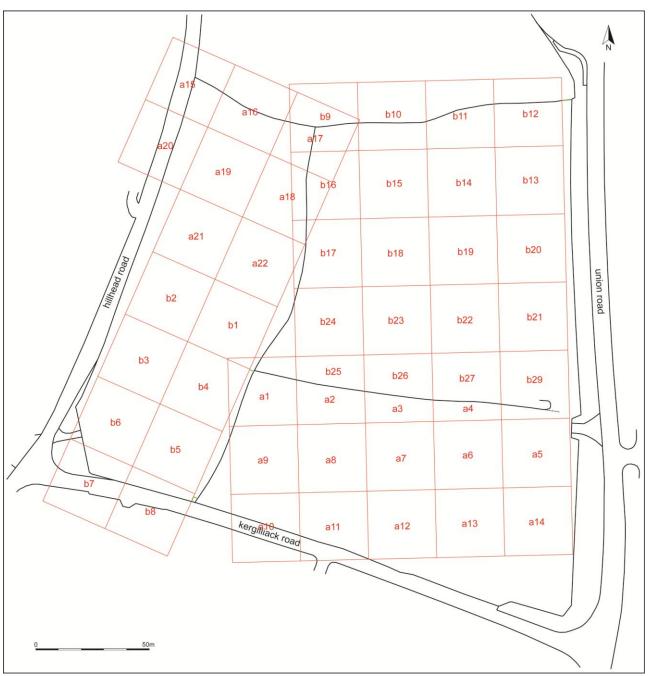
Roman Alex Croom, Keeper of Archaeology Tyne & Wear Archives & Museums, Arbeia Roman Fort and Museum, Baring

Street, South Shields, Tyne and Wear NE332BB Tel: (0191) 454 4093 alex.croom@twmuseums.org.uk

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Post Medieval Graham Langman Exeter, EX1 2UF Tel: 01392 215900 email: su1429@eclipse.co.uk

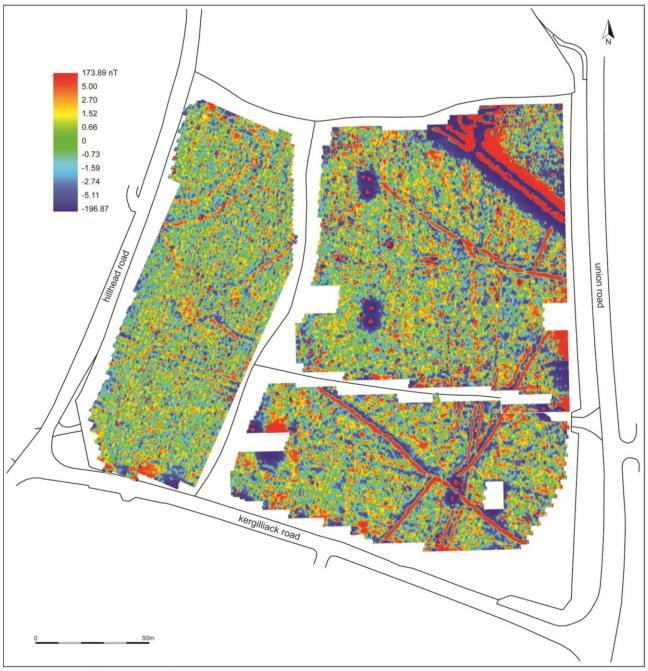
Appendix 2
Additional Graphic Images of Gradiometer Survey Data



Location and numbering system of geophysical survey grid.



Red-grey-blue shade plot of gradiometer survey data.



Red-Blue-Green(2) shade plot of gradiometer survey data.

Appendix 3 Walkover Survey Photographs



Field 2, from the south-west corner; looking east (no scale).



Field 2, from the south-west corner; looking north (2m scale).



Field 2, from the south-west corner; looking north-east (no scale).



Field 2, from the north-east corner; looking west (no scale).



Field 2, from the north-east corner; looking south-west (no scale).



Field 2, from the north-east corner; looking south (no scale).



Field 2, east boundary from above; looking north (2m scale).



Field 3, the south-west corner; looking south-west (no scale).



Field 3, from the south-west corner; looking east (2m scale).



Field 3, from the south-west corner; looking north-east (no scale).



Field 3, from the south-west corner; looking north (no scale).



Field 3, northern boundary; looking north (2m scale).



Field 3, northern boundary; looking north (2m scale).



Field 3, north-east corner; looking north-east (no scale).



Field 3, from north-east corner; looking west (2m scale).



Field 3, from north-east corner; looking south-west (no scale).



Field 3, from north-east corner; looking south (2m scale).



Field 3, eastern end of the boundary between Fields 1 and 2; looking west-south-west (no scale).



Field 1, from north-east corner; looking south (no scale).



Field 1, from north-east corner; looking south-west (no scale).



Field 1, from north-east corner; looking west (2m scale).



Field 1, from south-west corner; looking east (2m scale).



Field 1, from south-west corner; looking north-east (no scale).



Field 1, western boundary; looking west (2m scale).



Field 1, from south-west corner; looking north (2m scale).



Field 2, from south-east corner; looking west (no scale).



Field 2, from south-east corner; looking north-west (no scale).



Field 2, from south-east corner; looking north (2m scale).



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