

**LAND OFF PARKA ROAD
ST COLUMB ROAD
ST ENODER
CORNWALL**

Results of an Archaeological Assessment and Geophysical Survey



South West Archaeology Ltd. report no. 190709



www.swarch.net

Tel. 01769 573555
01872 223164

Land off Parka Road, St Columb Road, St Enoder, Cornwall Results of an Archaeological Assessment and Geophysical Survey

By P. Webb
Report Version: FINAL
Draft Issued: 9th July 2019
Finalised: 4th October 2019

Work undertaken by SWARCH for Legacy Properties

SUMMARY

This report presents the results of an archaeological assessment and geophysical survey carried out by South West Archaeology Ltd. (SWARCH) on land off Parka Road, St Columb Road, St Enoder, Cornwall. The site is located on the western edge of the settlement of St Columb Road off Parka Road. Historic sources and the HER indicate that the site is located in a landscape of prehistoric settlement and funerary monuments, with later post-medieval mining. The surrounding landscape shows signs of medieval and post-medieval sub-division.

The geophysical survey identified a series of linear anomalies corresponding with the positions of the historic boundaries, though potentially infilled with modern debris. An additional possible boundary was identified as a series of post-holes, perhaps indicating a former fence-line. A linear arrangement of pits with possible spoil mounds running the length of the eastern edge of Field 1 may represent mineral prospection along the line of a lode. Other discrete anomalies distributed across the site may represent pits and tree-throws of unknown date.

On the basis of the geophysical survey, the archaeological potential of the site is low-moderate, containing features associated with the post-medieval and modern field-systems alongside possible mine-working activity which may be connected to the Parka Mine to the south.

*The impact of any development on surviving buried archaeological resources may be **permanent** and **irreversible**. Although the significance of any buried archaeological deposits remains appears limited, and is unlikely to require any further mitigation prior to development.*



July 2019

South West Archaeology Ltd. shall retain the copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved, excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project. The views and recommendations expressed in this report are those of South West Archaeology Ltd. and are presented in good faith on the basis of professional judgement and on information available at the time of production.

CONTENTS

<i>SUMMARY</i>	2
<i>CONTENTS</i>	3
<i>LIST OF TABLES</i>	3
<i>LIST OF FIGURES</i>	3
<i>LIST OF APPENDICES</i>	4
<i>ACKNOWLEDGEMENTS</i>	4
<i>PROJECT CREDITS</i>	4
1.0 INTRODUCTION	5
1.1 PROJECT BACKGROUND	5
1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND	5
1.3 METHODOLOGY	5
1.4 HISTORICAL & ARCHAEOLOGICAL BACKGROUND	5
2.0 DESK-BASED ASSESSMENT	7
2.1 DOCUMENTARY HISTORY	7
2.2 CARTOGRAPHIC DEVELOPMENT	7
2.3 ARCHAEOLOGICAL BACKGROUND	9
2.4 AERIAL PHOTOGRAPHY AND LIDAR	13
2.5 GEOPHYSICAL SURVEY	15
3.0 CONCLUSION	21
4.0 BIBLIOGRAPHY & REFERENCES	22

LIST OF TABLES

TABLE 1: EXTRACT FROM THE 1840 ST COLUMB MAJOR TITHE APPORTIONMENT.	8
TABLE 2: TABLE OF NEARBY DESIGNATED AND UNDESIGNATED HERITAGE ASSETS.	11
TABLE 3: INTERPRETATION OF GRADIOMETER SURVEY DATA.	16

LIST OF FIGURES

Cover plate: View across Field 1; viewed from the north-west.

FIGURE 1: SITE LOCATION.	6
FIGURE 2: EXTRACT FROM THE 1840 ST COLUMB MAJOR TITHE MAP, PART 2.	8
FIGURE 3: EXTRACT FROM THE 1888 1ST ND EDITION OS 6" MAP.	9
FIGURE 4: EXTRACT FROM THE 1908 2 ND EDITION OS 6" MAP.	9
FIGURE 5: NEARBY HERITAGE ASSETS.	11
FIGURE 6: AERIAL PHOTOGRAPH OF THE SITE TAKEN IN 2001.	13
FIGURE 7: AERIAL PHOTOGRAPH OF THE SITE TAKEN IN 2005.	14
FIGURE 8: DETAIL OF THE HEDGEBANK BOUNDARY BETWEEN F1 AND F2.	16
FIGURE 9: SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.	19
FIGURE 10: INTERPRETATION OF GRADIOMETER SURVEY DATA.	20

LIST OF APPENDICES

APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY	23
APPENDIX 2: SUPPORTING PHOTOGRAPHS: SITE INSPECTION	27

ACKNOWLEDGEMENTS

LEGACY PROPERTIES (THE CLIENT)
CAD ARCHITECTS (THE AGENT)

PROJECT CREDITS

DIRECTOR: DR. SAMUEL WALLS
FIELDWORK: PETER WEBB
REPORT: PETER WEBB
EDITING: DR. SAMUEL WALLS
GRAPHICS: PETER BONVOISIN; PETER WEBB

1.0 INTRODUCTION

LOCATION:	PARKA ROAD, ST COLUMB ROAD
PARISH:	ST ENODER
COUNTY:	CORNWALL
NGR:	SW 91018 59184
SWARCH REF.	CPR19

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned to undertake an archaeological assessment and geophysical survey on land off Parka Road, St Columb Road, St Enoder, Cornwall, as part of a pre-application assessment for proposed development of the site. This work was undertaken in accordance with best practice and ClfA guidelines.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

St Columb Road is located c.8.5km south-east of Newquay, south of the A392 and east of the A30 at Indian Queens (c.1km to the south-west) in Cornwall. The site is situated on the western edge of the settlement within agricultural fields adjacent to modern residential development at an altitude of c.120m AOD (Figure 1). The soils of this area are the well-drained fine loamy soils of the Denbigh 2 Association where they border the fine loamy permeable soils of the Yeollandpark Association (SSEW 1983). These overlie the hornfelsed slate and sandstone of the Bovisand and Trendrean Mudstone Formations, with overlying superficial deposits of head clay, silt and gravel covering the western half of the site (BGS 2019).

1.3 METHODOLOGY

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

The geophysical survey was undertaken in accordance with best practice and the gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 2014b).

1.4 HISTORICAL & ARCHAEOLOGICAL BACKGROUND

St Columb Road is now located within the parish of St Enoder on the northern fringes of the china clay district of Cornwall, although historically (until 1981) it was within the parish of St Columb Major in the hundred and deanery of Pyder (Lysons 1814). The settlement is first recorded in 1888, developing following the creation of Halloon (later re-named St Columb Road) Railway Station on the Fowey to Newquay line of the Cornwall Minerals Railway; the settlement continuing to expand with the development of the railway and roads during the 19th and 20th centuries. The new railway was opened in 1874 connecting to Treffry's Newquay railway, originally as a goods line, but with the addition of passenger services in 1876, and re-named to St Columb Road in 1878.

LAND OFF PARKA ROAD, ST COLUMB ROAD, ST ENODER, CORNWALL



FIGURE 1: SITE LOCATION.

2.0 DESK-BASED ASSESSMENT

2.1 DOCUMENTARY HISTORY

St Columb Road is now located within the parish of St Enoder on the northern fringes of the china clay district of Cornwall, although historically (until 1981) it was within the parish of St Columb Major in the hundred and deanery of Pyder (Lysons 1814). St Columb Road, from the saint's name *St Columba* and the modern English *road* reflects the settlement's position along the road to St Columb Major (Watts 2010).

The settlement is first recorded in 1888, developing following the creation of Halloon (later re-named St Columb Road) railway station serving the Fowey to Newquay line of the Cornwall Minerals Railway; the settlement continuing to expand with the development of the railway and roads during the 19th and 20th centuries. The new railway was opened in 1874 connecting to Treffry's Newquay railway, originally as a goods line, but with the addition of passenger services in 1876, and re-named to St Columb Road in 1878.

The Newquay and St Dennis railway was one of Joseph Treffry's mineral tramways running between Newquay and St Dennis, and running past St Columb Road, and opened in 1849. These tramways were designed to allow the easy transportation of mining materials and consequently the expansion of mining towns along the line. This line was later taken over by the Cornish Minerals Railway and extended, to include the Fowey to Newquay line, further benefitting the area. Evidence of this original tramway and the mining activity in the area is still apparent in the form of the Toldish tunnel, situated to the east of the site near the hamlet of Toldish, and by several disused mines surrounding the line.

2.2 CARTOGRAPHIC DEVELOPMENT

The earliest detailed cartographic source available to this study is the tithe map of c.1840 (Figure 2). This shows the site comprised of parts of four small sub-rectangular fields at the junction of a crossroads with large open fields to the west. The accompanying tithe apportionment (Table 1) indicates that the land within the proposal area was owned by Edward Coode esq.; leased to Mr. Price Rowling; and occupied by John Burt.

The curving and irregular field boundaries of the wider landscape indicate that the straight bounded sub-divisions of the proposal site form part of the post-medieval enclosure of larger medieval landscape. The field names are largely prosaic, Little Close, Little Moor, Great Moor and Long Close; and are largely arable fields, except for Great Moor which was laid to pasture. The surrounding fields are largely recorded as plantation or pasture and appear to have been part of Castle Denis Common. The map depicts only isolated houses in the area, all along the roadside, and includes a single house plot at the north-eastern corner of the proposal area.

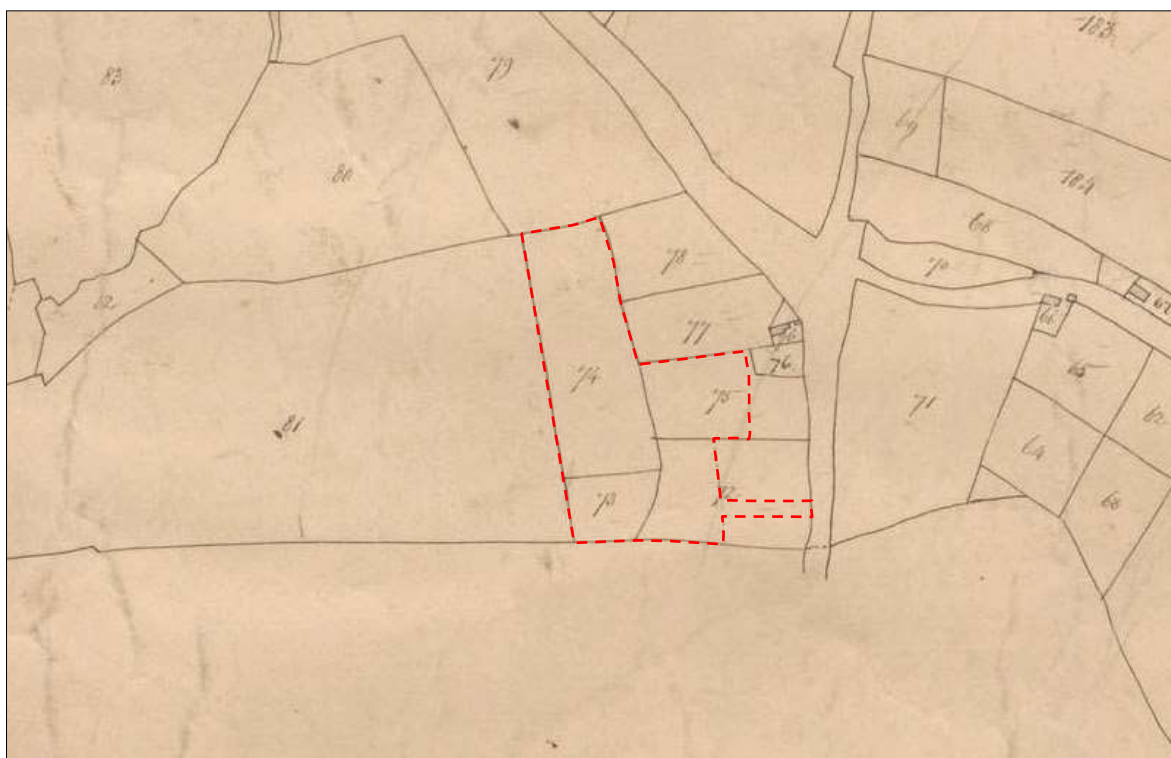


FIGURE 2: EXTRACT FROM THE 1840 ST COLUMB MAJOR TITHE MAP, PART 2 (CRO); THE SITE IS INDICATED.

TABLE 1: EXTRACT FROM THE 1840 ST COLUMB MAJOR TITHE APPORTIONMENT.

Number	Landowner	Tenant	Field Name	Cultivation
Part of Castle Denis Common				
72	Edward Coode, esq. Mr Price Rowling, lessee	John Burt	Little Close	Arable
73			Little Moor	Arable
74			Great Moor	Pasture
75			Long Close	Arable
76			House & garden	-
77			House Close	Arable
78			Great Close	Arable
81		Price Rowling	Plantation	Trees
Part of Tresithny				
79	Edward Coode, esq.	Robert Clemon	Grose's Higher Moor	Arable
80			Plantation Moor	Pasture

The 1888 Ordnance Survey (OS) 1st edition map (Figure 3) depicts a landscape very similar to that of the earlier tithe map with limited boundary alteration. The most significant development, however, being the creation of the railway, including St Columb Road station, running east to west to the north of the site. Mining activity can also be seen to have extended towards the site; a shaft being depicted in the field immediately to the south. The site itself was subject to boundary sub-division, *Field no.72, no.74, and no.75* all being split, the proposal site (with the exception of the access route) now encompassing five entire fields rather than being situated within larger plots, access through a sixth plot. The map also indicates that land use has remained relatively constant, and whilst the western and south-western portions of the site (*Field no.72, no.73, and no.74*) are depicted as moorland, the plantation to the west remains.

By 1907 the Ordnance Survey 2nd edition map (Figure 4) shows further significant development: roadside settlement now existing surrounding the crossroads at St Columb Road; a brickworks to the south of the railway station with associated clay pits to the east. The site itself had been altered again, the boundaries added by 1888 having been removed alongside the division between *Field no.72 and no.75*.



FIGURE 3: EXTRACT FROM THE 1888 1ST EDITION OS 6" MAP (SURVEYED 1879-80) (CORNWALL SHEET XL.NE); THE SITE IS INDICATED.

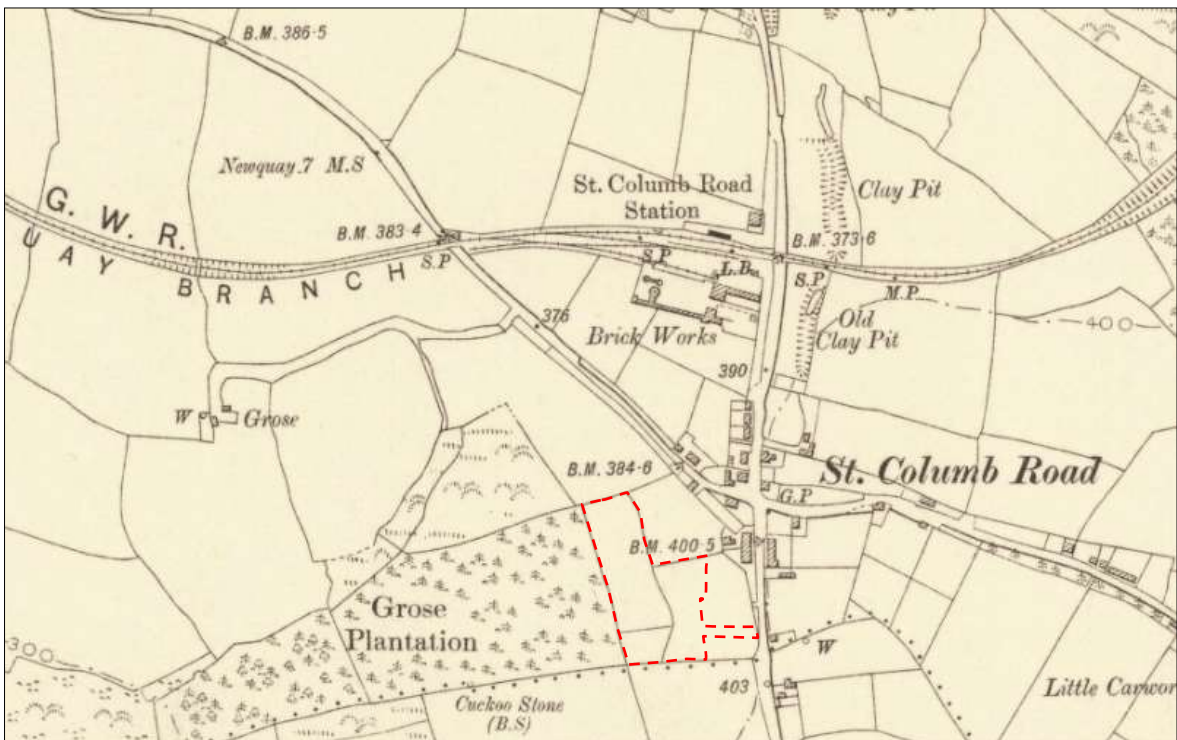


FIGURE 4: EXTRACT FROM THE 1908 2ND EDITION OS 6" MAP (REVISED 1906) (CORNWALL SHEET XL.NE); THE SITE IS INDICATED.

2.3 ARCHAEOLOGICAL BACKGROUND

There has been little or no archaeological investigation within the immediate area of the proposed site, those that have been carried out largely associated with large scale surveys and assessments of the wider landscape area. Episodes of geophysical survey (Bartlett and Allen 2005) and archaeological watching brief during works associated with the creation of the A30

(Nowakowski 1994; 1998; Nowakowski *et al* 1994) and renovation of the Chiverton Cross Roundabout (Cole 2006) identifying evidence of settlement and activity dating back to prehistory, though in close proximity to the site this was more restricted to field boundary alteration and agricultural practices.

The site is situated within a landscape rich with prehistoric monuments, the Cornwall and Scilly Historic Environment Record (HER) recording numerous prehistoric settlement sites and barrows in the wider landscape. Most of the known heritage assets in the vicinity are related to the post-medieval mining of the area and its associated infrastructure, though elements of medieval agricultural practices are also present (see Table 2 and Figure 6).

The historic fieldscape in this area is characterised by the Cornwall and Scilly HLC as *post-medieval enclosed land*, though there are elements of *medieval farmland*, *modern enclosure*, *plantation and scrub*, and *20th century settlement* all surrounding the site. Medieval farmland is described as *Anciently Enclosed Land* (AEL) and formed the agricultural heartland of Cornwall with the settlements and field systems typically having clear medieval antecedents. AEL has also been strongly demonstrated to indicate areas first settled, enclosed and farmed during later Prehistory and continuing into the early Medieval period. It is considered highly likely that buried archaeology dating to the Prehistoric and Romano-British periods generally survives within areas of AEL.

2.3.1 PREHISTORIC 4000BC - AD43

The evidence for Prehistoric activity in this area is relatively substantial, probably reflecting the elevated landscape. The earliest evidence is Bronze Age and includes possible barrow monuments or settlement at Tresithney (MCO20339; MCO20340) and settlement at Indian Queens (MCO48548).

2.3.2 ROMANO-BRITISH AD43 – AD409

The evidence for Romano-British activity is sparse. However, it is probable that the prehistoric settlements of the area continued into this period.

2.3.3 MEDIEVAL AD410 – AD1540

The archaeology of the medieval period is fairly well represented with a number of the existing settlements in the area having origins during this period, including: Halvenna (first recorded 1189, MCO14721); Fraddon (1327, MCO14460); Halloon (1334, MCO14712). Many of the removed field boundaries reflect the origins of the field-systems depicted on the historic mapping, including at Grose (MCO49241, MCO49252, MCO49257); whilst tin stream-workings (MCO48547, MCO49254) demonstrate a mixed economy that included industrial activity.

2.3.4 POST-MEDIEVAL AND MODERN AD1540 - PRESENT

Population and settlement expanded during the post-medieval period, the settlements of St Columb Road and Indian Queens both originating in the 19th century as a result of the growth of the industrial economy; whilst the medieval settlement at Penhale/Fraddon similarly grew. This growth was aided by the need for workers at sites such as the St Columb Road brickworks (MCO25723); Treffry's tramway (MCO55075); and the Fatwork and Virtue (MCO12090), Halloon (MCO61252) and Parka (MCO12370) mines, as well as the converted open cast mine of Queen's Pit (SAM1007290).

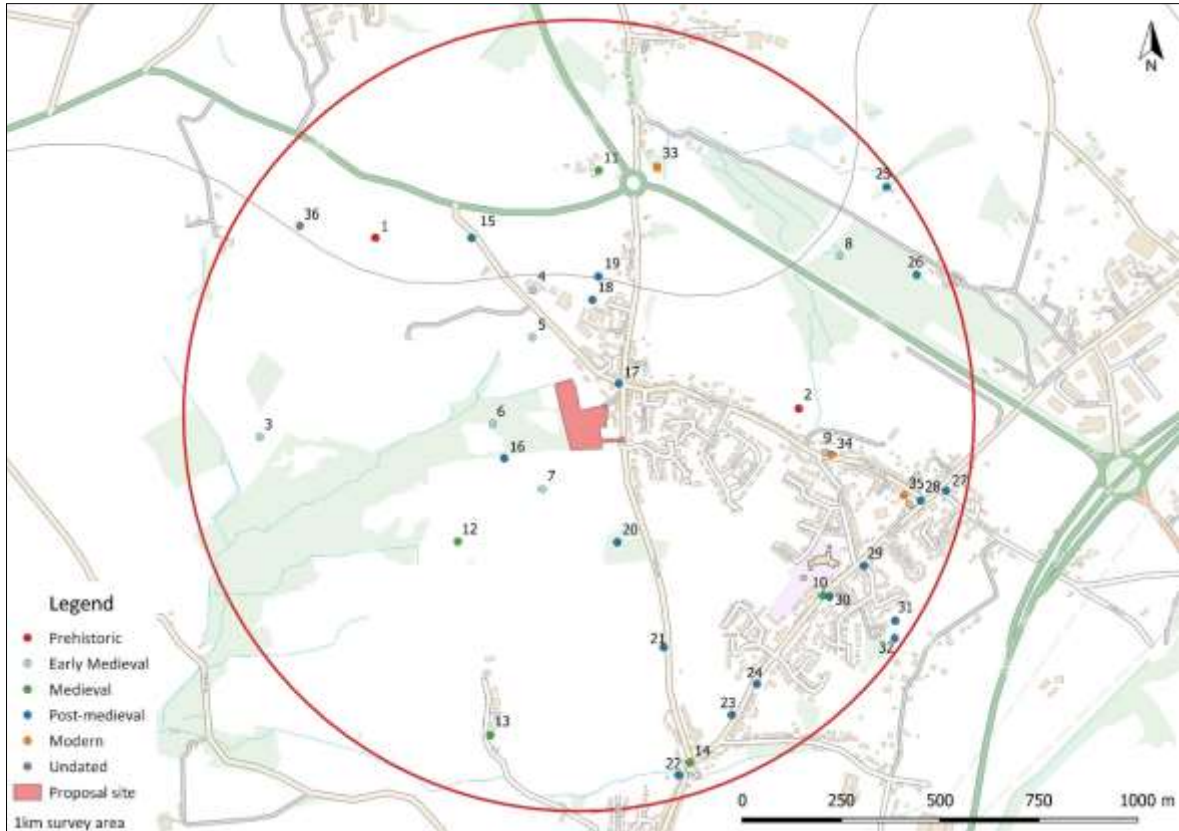


FIGURE 5: NEARBY HERITAGE ASSETS (THE SITE IS INDICATED) (SOURCE: CORNWALL & SCILLY HER).

TABLE 2: TABLE OF NEARBY DESIGNATED AND UNDESIGNATED HERITAGE ASSETS (SOURCE: CORNWALL & SCILLY HER).

No.	Mon ID	Name	Record	Details
1	MCO20339	Tresithney - prehistoric hut circle, prehistoric barrow	Cropmark	Two possible hut circles/barrows are visible on aerial photographs
	MCO20340	Tresithney - prehistoric hut circle, prehistoric barrow	Cropmark	Two possible hut circles/barrows are visible on aerial photographs
2	MCO48548	Indian Queens - prehistoric round	Cropmark	A curvilinear enclosure is visible as a cropmark ditch on aerial photographs
3	MCO49257	Grose Plantation - early medieval boundary	Earthwork	A historic field boundary survives as an earth bank visible on aerial photographs
4	MCO49241	Grose - early medieval field boundary	Earthwork	A historic field boundary survives as an earth bank visible on aerial photographs
5	MCO49252	Grose - early medieval field boundary	Earthwork	A historic field boundary survives as an earth bank visible on aerial photographs
6	MCO49254	Grose - early medieval streamworks	Earthwork	The remains of a tin streamworks, including several short cuttings, three groups of spoil banks and three leats or water channels, are visible on aerial photographs
7	MCO49259	Grose Plantation - early medieval field boundary, early medieval trackway	Cropmark	A substantial linear feature, up to 9m wide, is visible as a cropmark bank on aerial photographs
8	MCO48547	The Kelliars - early medieval streamworks	Earthwork	Extensive remains of a tin streamworks are visible on aerial photographs
9	SAM1016367	An early Christian memorial stone in St Francis churchyard, Indian Queens	Scheduled Ancient Monument	A scheduled standing stone with inscriptions that read RUANI HICIACIT or CRUARIG HICIACIT stands outside the Anglican church, but originated from elsewhere
10	MCO7427	Indian Queens - early medieval inscribed stone	Documentary	This is the original location of the scheduled standing stone MCO7426. It was moved c.1950.
11	MCO14712	Halloon - medieval settlement	Documentary	The settlement of Halloon is first recorded in 1334 when it is spelt 'Hellanwoen'
	List1144051	Halloon Farmhouse	Listed building	Grade II Listed probable late 17 th or early 18 th century farmhouse with later alterations

LAND OFF PARKA ROAD, ST COLUMB ROAD, ST ENODER, CORNWALL

12	MCO1395	St Columb Road - Medieval findspot, post-medieval findspot	Findspot	A number of pottery sherds were found during the laying of a gas pipeline
13	MCO14721	Halvenna - medieval settlement	Documentary	The settlement of Halvenna is first recorded in 1189 when it is spelt 'Hyrmene'
14	MCO14460	Fraddon - medieval settlement	Documentary	The settlement of Fraddon is first recorded in 1327 when it is spelt 'Frudan'
15	List1393900	Milestone 120m north-west of Halloon Crossing Cottage	Listed building	Grade II Listed milestone erected c.1835-52
16	MCO61253	St Columb Road - boundary stone	Monument	The Cuckoo Stone parish boundary marker
17	MCO61252	Halloon Mine - post-medieval mine	Structure	The remains of the Halloon mine. Started or re-started in 1848 and by 1851 the engine was advertised for sale. Workings were found to the south-west of the crossroads during the construction of a house in 2013/14
18	MCO25723	St Columb Road - post-medieval brickworks	Documentary	The now demolished brickworks is first recorded on the 2nd edition OS map. The brickworks was owned by Ennor and Company in 1910
19	MCO55075	Trevemper - post-medieval tramway	Structure	The line of Treffry's horse drawn tramway from Newquay to St Denis with a branch to Newly East
20	MCO12370	Parka - post-medieval mine	Structure	The remains of Parka Mine, in operation from 1873-9 producing tin. The tithe map records this field as Inner Park of Mines, and it is marked as disused on the 1880 OS map, with an engine house and chimney marked. These survive as ruined structures
21	List1144055	Milestone at SW912586	Listed building	Grade II listed probable 18 th century milestone
22	List1146406	Fraddon Methodist Church with attached Sunday School and coach house	Listed building	Grade II listed Methodist church with attached Sunday School and coach house dated 1877.
	MCO209399	Fraddon - medieval field system	Documentary	Two small fields are depicted in this location on the tithe map and recorded as Quillets
23	List1393899	Milestone opposite Madison Place	Listed building	Grade II listed milestone erected in 1835
24	MCO61249	Fraddon Hill - late 18th century/early 19th century cottage	Building	Cottage of possible late 18 th century date survives largely unaltered
25	MCO55889	Toldish - post-medieval railway	Structure	Part of the Treffry Tramway of 1849
26	MCO48546	The Kelliers - post-medieval extractive pit	Earthwork	Two groups of tinners pits are visible on aerial photographs
27	MCO9114	Indian Queens - post-medieval blacksmiths workshop	Documentary	A smithy is recorded at this location on the 1840 tithe map, occupied by J. Penrose.
28	List1327419	Milestone at SW918590	Listed building	19 th century milestone
	List1144058	Wesley Methodist Church	Listed building	Grade II listed 19 th century Methodist church.
	MCO52246	Indian Queens - post-medieval Sunday School, post-medieval non-conformist chapel	Documentary	The first Wesleyan Methodist chapel c.1814 is recorded at this location on the 1880 OS map. By 1907 it had become a Sunday School and a new chapel was built on the adjacent plot to the south. In 1924 a new Sunday School was constructed to the west
29	MCO33774	Indian Queens - post-medieval hotel	Documentary	The Indian Queen Hotel is recorded at this location on the 1840 tithe map. It no longer survives
30	MCO33050	Indian Queens - post-medieval non-conformist chapel	Structure	19 th century Free Methodist Chapel, now converted into flats
31	MCO12090	Fatwork and Virtue - post-medieval mine	Earthworks	The Fatwork and Virtue mine was already developed by 1826 worked as wheel of Cornwall. 1835 for sale. Worked for tin from 1852-4. Re-opened as Indian Queens Consols, sold in 1881, closed 1883. Shaft and spoil tips visible on aerial photographs
32	SAM1007290	Preaching pit called Queen's Pit	Scheduled Ancient Monument	Wesleyan preaching pit in a converted open cast mine
33	MCO61251	Halloon - china clay dries	Structure	An early 20 th century china clay dry post-1907. Survives as a good example
34	MCO33776	Indian Queens - modern church	Structure	An early 20 th century Anglican church
35	MCO33051	Indian Queens - modern Sunday School	Structure	Wesleyan Sunday School built c.1924

36	MCO25663	Tresithney - Undated field system	Cropmark	A possible field system is visible as cropmarks to the east of Tresithney on aerial photographs
----	----------	-----------------------------------	----------	---

2.4 AERIAL PHOTOGRAPHY AND LIDAR

Aerial photographs from the 1940s onwards are the primary source of evidence of cropmarks for a number of the heritage assets listed in Table 2, including: the possible settlements at Tresithney (MCO20339, MCO20340) and Indian Queens (MCO48548); and several of the removed field boundaries (MCO49241, MCO49252, MCO49257). The available aerial photography indicates that the site is largely clear of earthworks, though the line of the historic boundary between *Field no.72* and *no.75* appears present as a cropmark on the 2001 image. This cropmark is not visible in later imagery, however, when the plot to the south-east corner was expanded to create the boundaries as they currently exist.

The LiDAR data available to this study only provides partial coverage of the area surrounding the site and does not include the proposal site itself.



FIGURE 6: AERIAL PHOTOGRAPH OF THE SITE TAKEN IN 2001 (© GOOGLE EARTH 2017). POSSIBLE FIELD BOUNDARY CROPMARKS ARE INDICATED.

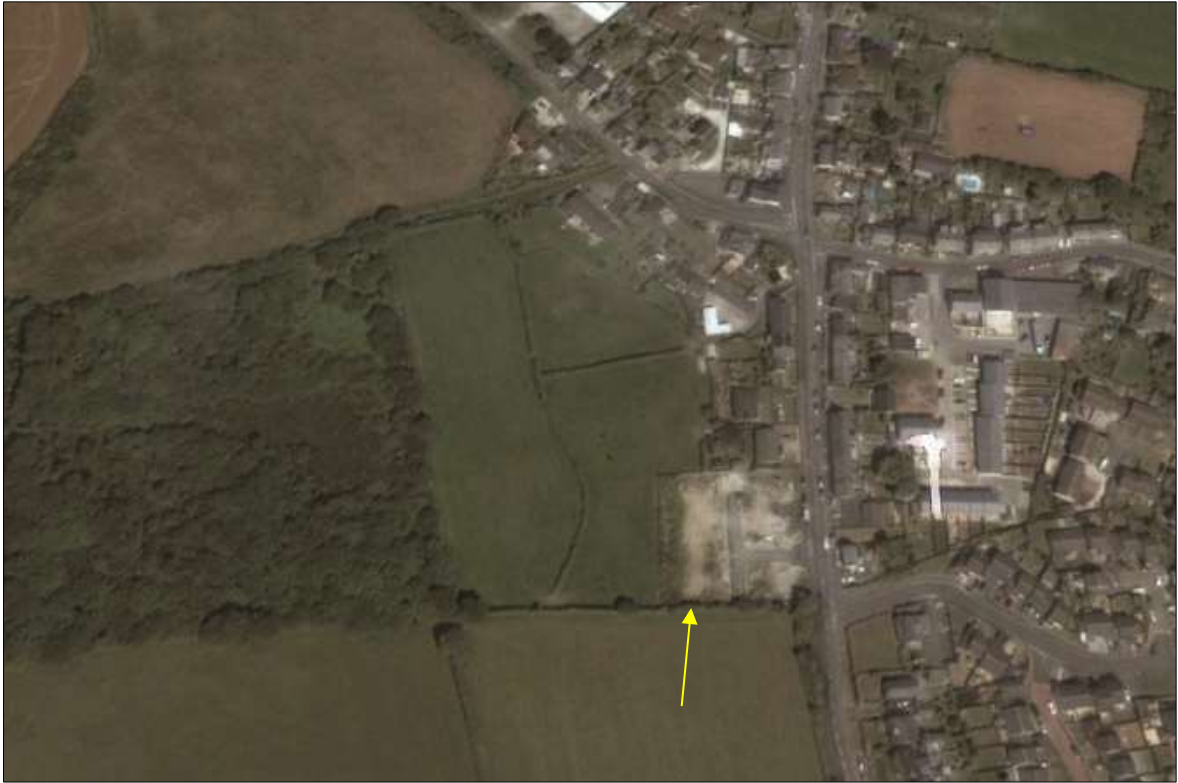


FIGURE 7: AERIAL PHOTOGRAPH OF THE SITE TAKEN IN 2005 (© GOOGLE EARTH 2017). THE BOUNDARY ALTERATION AND DEVELOPMENT WITHIN FIELD 3 IS INDICATED.

2.5 GEOPHYSICAL SURVEY

2.5.1 INTRODUCTION

An area of c.1.17ha (c.0.78ha Field 1, c.0.40ha Field 2) was the subject of a magnetometry (gradiometer) survey. The purpose of this survey was to identify and record magnetic anomalies within the proposed site. While identified anomalies may relate to archaeological deposits and structures, the dimensions of recorded anomalies may not correspond directly with any associated features. The following discussion attempts to clarify and characterise the identified anomalies. The survey was undertaken on the 27th of June 2019 by P. Webb; the survey data was processed by P. Webb.

2.5.2 METHODOLOGY

The gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 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 of particular grids.

Field 1 Details: 0.77545ha surveyed; Max. 144.50nT, Min. -100.20nT; Standard Deviation 11.71nT, mean -0.59nT, median 0.00nT.

Field 2 Details: 0.39875ha surveyed; Max. 124.55nT, Min. -171.97nT; Standard Deviation 16.21nT, mean -1.24nT, median -0.01nT.

2.5.3 SITE INSPECTION

The site is divided into two sub-rectangular fields (F1, and F2) and a sub-rectangular area of wasteland (F3) on the western edge of the settlement of St Columb Road. The survey area was fairly flat, F1 and F2 bounded primarily by Cornish hedgebanks and adjacent internal ditches, with modern concrete block walls and wooden fences forming the eastern boundary to F2. F3 was bounded to the south by a Cornish hedgebank; a concrete block wall to the north and west; and herras fencing to the east. The site was bordered to the east by Parka Road and residential development; to the south by open agricultural fields; to the west by plantation and water pumping station; and to the north by a track and pastoral field. A grass crop had recently been cut on F1 and F2; F3 being a concreted area of waste-ground (and resultingly not surveyed). Two slightly raised linear earthworks were identified running approximately east to west across F1; with a linear hollow across F2, all in the approximate positions of removed boundaries identified on the historic mapping. A rectangular mound of spoil suggesting geotechnical investigations and a borehole monitoring point were also identified within Field 1; an area of exposed ground in the south-west corner of Field 1 indicating that the ground has been raised with made-ground, perhaps as a result of waterlogging. Overhead cables run east to west across the centre of the site. No finds were recovered. A full complement of site photographs can be found in Appendix 2.



FIGURE 8: DETAIL OF THE HEDGEBANK BOUNDARY BETWEEN F1 AND F2; VIEWED FROM THE SOUTH.

2.5.4 RESULTS

Table 3, Figures 9 and 10; show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 1.

TABLE 3: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Weak/moderate positive, probable	Linear	Historic field boundaries	Indicative of infilled cut features. A pair of linear ditches likely representing a historic field boundary. Depicted on 1888 OS map and removed by 1907. Responses of c.+2.27nT to +24.04nT.
2	Weak/strong mixed positive and negative, possible	Linear	Historic field boundaries	Indicative of modern disturbance. Likely representing the infilling of a hollow left by the removal of a historic field boundary. Depicted on 1888 OS map and removed by 1907. Responses of between -41.76nT to +98.56nT.
3	Weak/moderate mixed positive and negative, possible	Linear	Historic field boundaries	Indicative of modern disturbance. Likely representing the infilling of a hollow left by the removal of a historic field boundary. Depicted on 1840 tithe map, and 1888 and 1907 OS maps. Responses of between -35.74nT to +26.54nT.
4	Weak positive with associated	Ovoid within linear	Possible fence-line boundary	Indicative of infilled cut features. Linear arrangement of small pits

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
	negative, possible	arrangement		(post-holes?) possible representing a fence-line boundary. Responses between -13.92nT to +17.63nT.
5	Weak/strong mixed positive with associated negative, possible	Linear	Possible ditch	Indicative of infilled cut features with surrounding banked material. Linear arrangement of pits with associated spoil heaps, possibly representing mineral prospection pits. Responses of between -100.00nT to +98.64nT.
6	Weak/moderate positive with associated negative	Ovoid	Possible pits/tree-throws	Indicative of discrete infilled cut features such as pits or tree-throws. Responses of between -4.74nT to +16.72nT.
7	Strong positive and negative	Rectangular	Geotechnical pit	Indicative of infilled cut features. Modern feature cut through the topsoil likely to represent a geotechnical investigation trench. Responses of between -100.00nT to +98.58nT.
8	Dipolar, strong positive and negative	Discrete ovoid	Capped borehole	Ferrous anomaly. Modern borehole with ferrous inspection cap. Responses of between -28.01nT to +38.98nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance, including large ferrous objects. Responses of between -100.00nT to +98.84nT.
	Moderate/strong bipolar	Discrete	Ferrous objects	Bipolar responses indicative of ferrous objects. Responses of between -10.62nT to +14.90nT.

2.5.5 DISCUSSION

The survey identified eight groups of anomalies. These included linear anomalies likely to be associated with historic boundaries; linear arrangements of ovoid anomalies possibly associated with a fence-line boundary; and larger anomalies indicating possible mineral prospection pits. Additional discrete ovoid anomalies may be associated with pits or tree throws. The general geological variation across the site was between +/-1nT. The identified anomaly groups include: historic field boundaries forming parts of the existing field-system; a possible fence-line boundary similarly forming part of the existing field-system; a linear alignment of pits and spoil heaps possibly representing lode chasing mineral prospection; a number of possible pits/tree throws; and possible buried ferrous/metallic items. Responses around the edges of the fields are indicative of heavily disturbed ground.

Anomaly Group 1 consists of a pair of weak-moderate positive (+2.27nT to +24.04nT) linear responses orientated approximately east to west across the centre of Field 1. They are indicative of heavily disturbed infilled cut features and align with the position of a removed historic field boundary depicted on the 1888 OS map.

Anomaly Group 2 consists of mixed weak-strong positive (+10.14nT to +98.56nT) and negative (-7.08nT to -41.76nT) responses within a linear feature orientated approximately east to west across the centre of Field 2. It is indicative of modern disturbance, but the position within the field corresponds with a removed historic boundary depicted on the 1888 OS map. It is likely that

the anomaly represents the modern infilling of a hollow created by the removal and subsequent infilling of this boundary.

Anomaly Group 3 consists of mixed weak-moderate positive (+3.12nT to +26.54nT) and negative (-2.30nT to -35.74nT) responses within linear features orientated approximately east to west across the southern end of Field 1. It is indicative of modern disturbance, but the position within the field corresponds with a removed historic boundary depicted on the 1840 tithe to 1907 OS maps. It is likely that the anomaly represents the modern infilling of a hollow created by the removal and subsequent infilling of this boundary.

Anomaly Group 4 consists of discrete weak positive (+3.48nT to +17.63nT) with surrounding negative (-2.73nT to -13.92nT) responses within a linear arrangement orientated approximately east to west across the southern end of Field 1. These are indicative of infilled cut pits or post-holes and follow the same alignment as anomaly Group 2, perhaps suggesting that they form part of a historic fence-line boundary within the same field-system.

Anomaly Group 5 consists of mixed weak-strong positive (+2.41nT to +98.84nT) with associated negative (-1.28nT to -100.00nT) anomalies within a linear alignment orientated approximately north-north-west to south-south-east along the eastern edge of Field 1. The responses are indicative of cut and infilled pit features with surrounding spoil mounds, the arrangement and proximity of the site to mining features suggesting a series of mineral prospection pits chasing a lode. The strength of some of the responses indicates the inclusion of large metallic objects which could reflect modern disturbance.

Anomaly Group 6 consists of a series of weak-moderate positive (+2.37nT to +16.72nT) with associated weak negative (-1.18nT to -4.74nT) responses and may be indicative of cut and filled discrete features such as pits or tree-throws. The overall strength of these features indicates that they are more likely natural features, though they may be mineral prospection pits.

Anomaly Group 7 consists of a pair of strong positive (+34.92nT to +98.58nT) and negative (-40.05nT to 100.00nT) anomalies which correspond with recent ground disturbance, and likely represent modern geotechnical investigation trenches.

Anomaly Group 8 consists of a strong di-polar (-28.01nT to +38.98nT) anomaly which corresponds with the position of the exposed ferrous cap of a borehole monitoring point.

Modern disturbance, di-polar anomalies and magnetic disturbance are also located across the site, particularly around the site boundaries. This is likely due to modern or metallic debris and metallic components along the boundaries of the fields, but also appears to be spread across the site indicating an element of made-ground across the entire site.



FIGURE 9: SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING (SITE BOUNDARY OUTLINED IN BLUE).

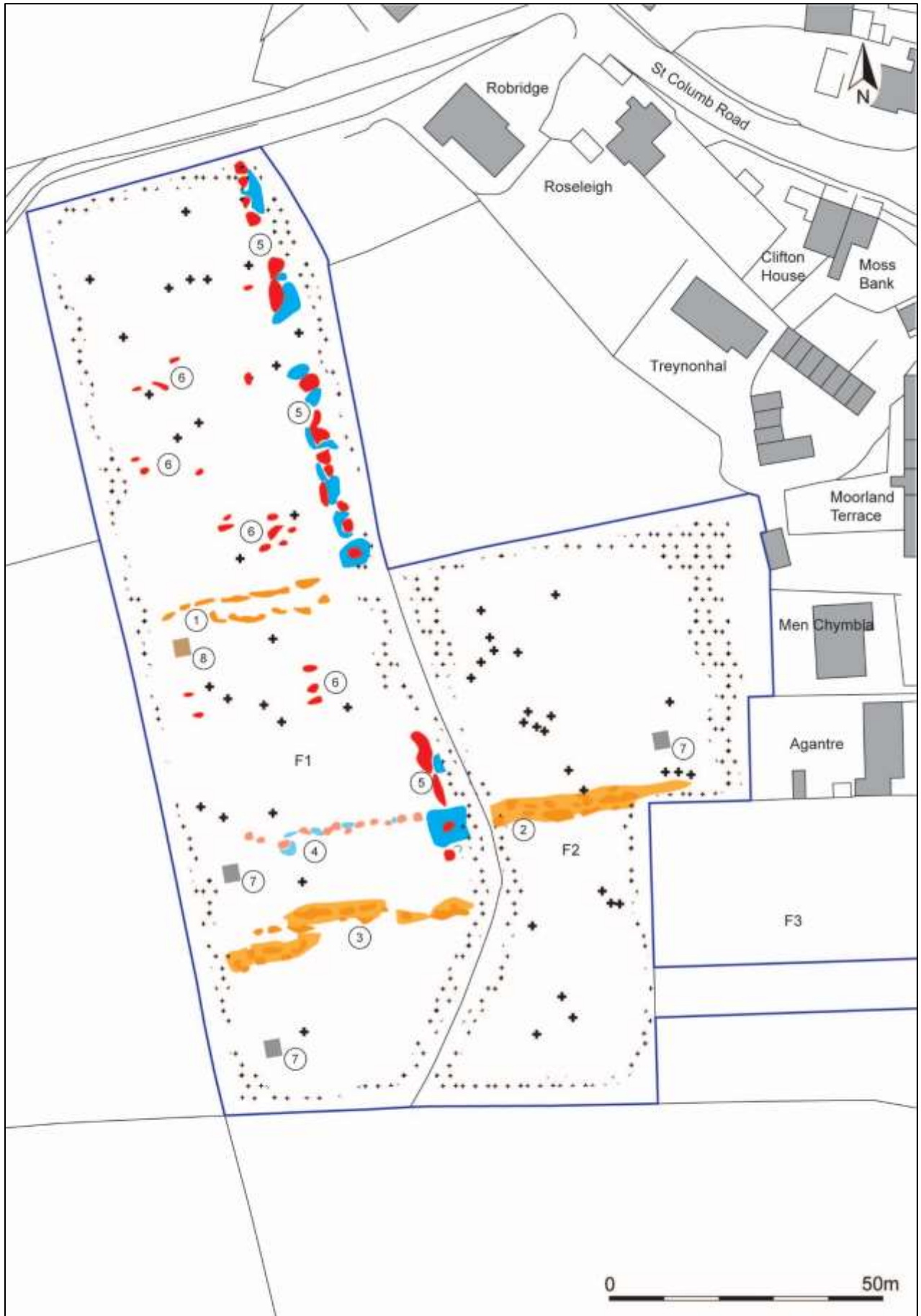


FIGURE 10: INTERPRETATION OF GRADIOMETER SURVEY DATA (SITE BOUNDARY OUTLINED IN BLUE).

3.0 CONCLUSION

The site is located on the western edge of the settlement of St Columb Road, south of the Fowey to Newquay railway between the settlements of St Columb Major and Indian Queens. The site is situated to the rear of modern development off Parka Road, c.275m south of the St Columb Road railway station. The surrounding landscape contains evidence of prehistoric settlement and funerary monuments; medieval and post-medieval settlement and farming activity on the edge of the china clay district of Cornwall with substantial evidence for mining and clay working. The site itself appears to have remained undeveloped despite the limited growth of the settlement surrounding it.

Assessment of the readily-available aerial photography for the proposal site indicates the presence of an earthwork associated with at least one of the historic boundaries; and is supported by the presence shallow/low earthworks identified during the site inspection which indicate the position of additional removed boundaries depicted on the historic mapping.

The geophysical survey identified a series of linear anomalies corresponding with the positions of the historic boundaries, though potentially infilled with modern debris. An additional possible boundary was identified as a series of post-holes, perhaps indicating a fence-line. A linear arrangement of pits with possible spoil mounds running the length of the eastern edge of Field 1 may represent mineral prospection along the line of a lode. Discrete ovoid anomalies distributed across the site are likely to represent pits and tree-throws.

On the basis of the geophysical survey, the archaeological potential of the site is *low-moderate*, containing features associated with the post-medieval and modern field-systems alongside possible mine-working activity potentially connected to the Parka mine to the south.

The impact of any development on surviving buried archaeological resource may be **permanent** and **irreversible**. Although the significance of any buried archaeological deposits remains unknown at present, but appears limited and as such the site is unlikely to require further archaeological mitigation prior to development.

4.0 BIBLIOGRAPHY & REFERENCES

Published Sources:

- Chartered Institute of Field Archaeologists** 2014a: *Standard and Guidance for Historic Environment Desk-based Assessment*.
- Chartered Institute for Archaeologists** 2014b: *Standard and Guidance for Archaeological Geophysical Survey*.
- English Heritage** 2008: *Geophysical Survey in Archaeological Field Evaluation*.
- English Heritage** 2012: *Understanding Place: Historic Area Assessments in a Planning and Development Context*.
- Lysons, D. & Lysons, S.** 1814: *Magna Britannia, volume 3: Cornwall*. London.
- Schmidt, A.** 2002: *Geophysical Data in Archaeology: A Guide to Good Practice*. ADS series of Guides to Good Practice. Oxbow Books, Oxford.
- Soil Survey of England and Wales** 1983: *Legend for the 1:250,000 Soil Map of England and Wales (a brief explanation of the constituent soil associations)*.
- Watts, V.** 2010: *The Cambridge Dictionary to English Place Names*. Cambridge University Press.

Websites:

- British Geological Survey** 2019: *Geology of Britain Viewer*.
http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html
- Cornwall Council Interactive Map** 2019: *HER and HLC*
<https://map.cornwall.gov.uk>

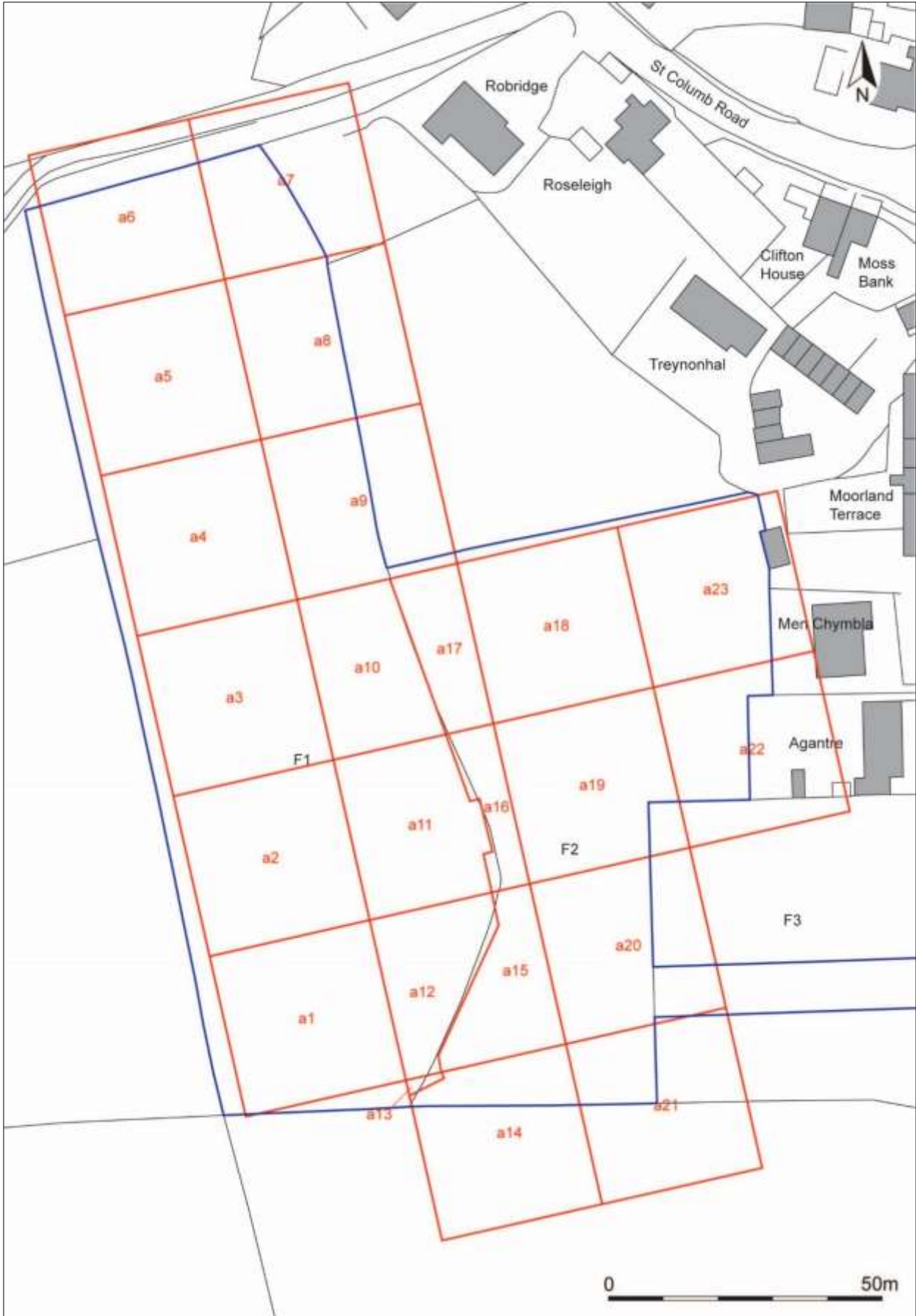
Unpublished Sources

- Bartlett, A., & Allen, T.** 2005: *A30 Chiverton Cross to Carland Cross Improvement, Cornwall: Report on Archaeogeophysical Surveys 2004 and Interpretation of Results 2005*. Oxford Archaeology Job No.2500.
- Cole, D.** 2006: *Chiverton Cross Road Improvements: Archaeological Watching Brief*. Historic Environment Service, Environment and Heritage, Cornwall Council Report No. 2006RO16.
- Nowakowski, J.** 1994: *Bypassing Indian Queens – The Hidden Archaeological Story: The A30 Project – A Summary Report on the Archaeological Investigations carried out on the route of the Indian Queens – Fraddon Road Improvement Scheme 1992-1994*. Cornwall Archaeological Unit Report No. 1994R053.
- Nowakowski, J.** 1998: *A30 Project, Cornwall – Archaeological Investigations Along the Route of the Indian Queens Bypass 1992-1994: Assessment and Updated Project Design*. Cornwall Archaeological Unit Report No. 1998R023.
- Nowakowski, J., Jones, A., & Jones, A.** 1994: *A30 Archaeological Watching Brief Programme The Fraddon-Indian Queens Road Improvement Scheme, Cornwall 1993-1994*. Cornwall Archaeological Unit Report No. 1994R001.

Cornwall Record Office

- St Columb Major tithe map and apportionment (1840)
Ordnance Survey First Edition 6 Inch Map
Ordnance Survey Second Edition 6 Inch Map

APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY



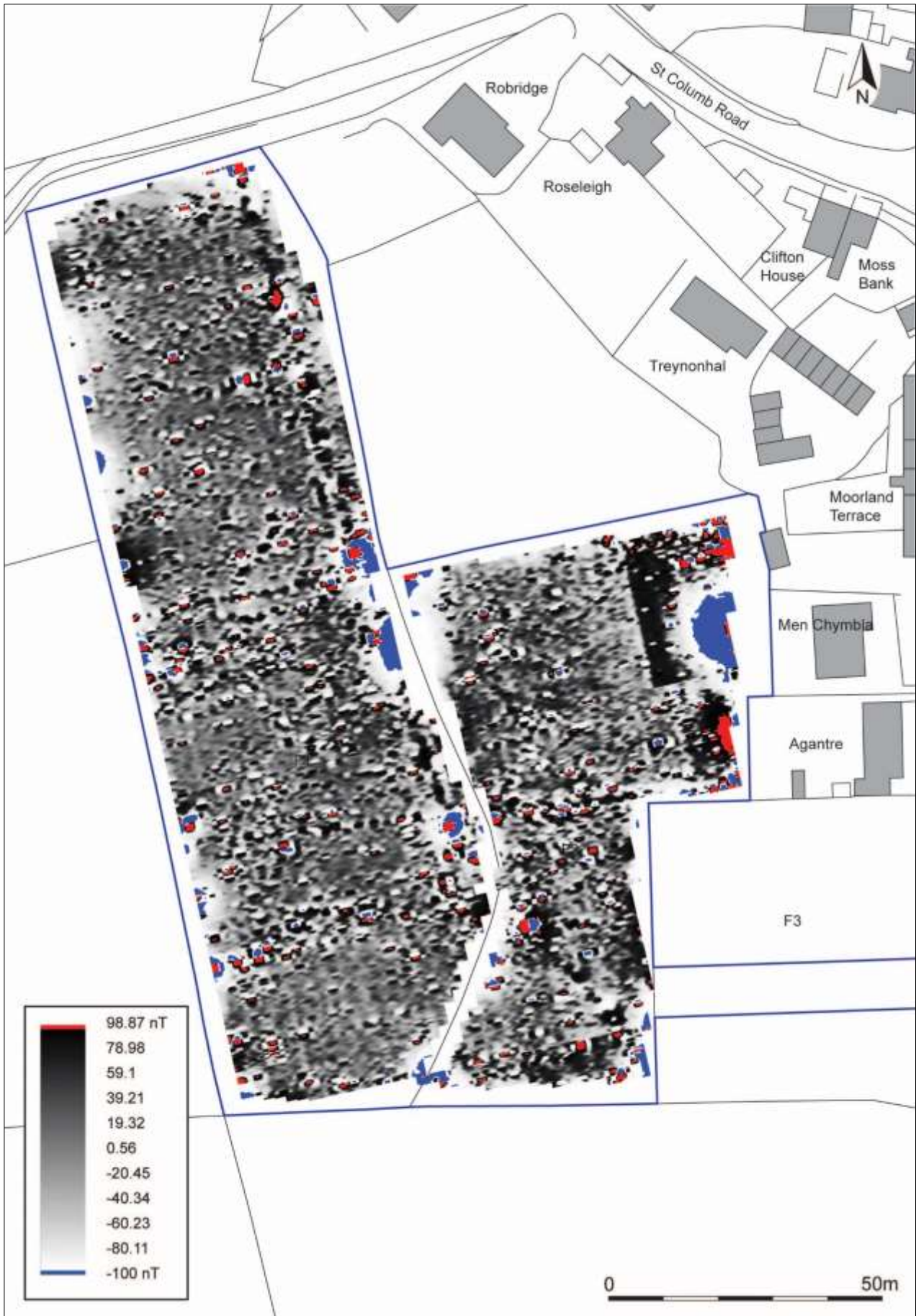
GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING.

LAND OFF PARKA ROAD, ST COLUMB ROAD, ST ENODER, CORNWALL



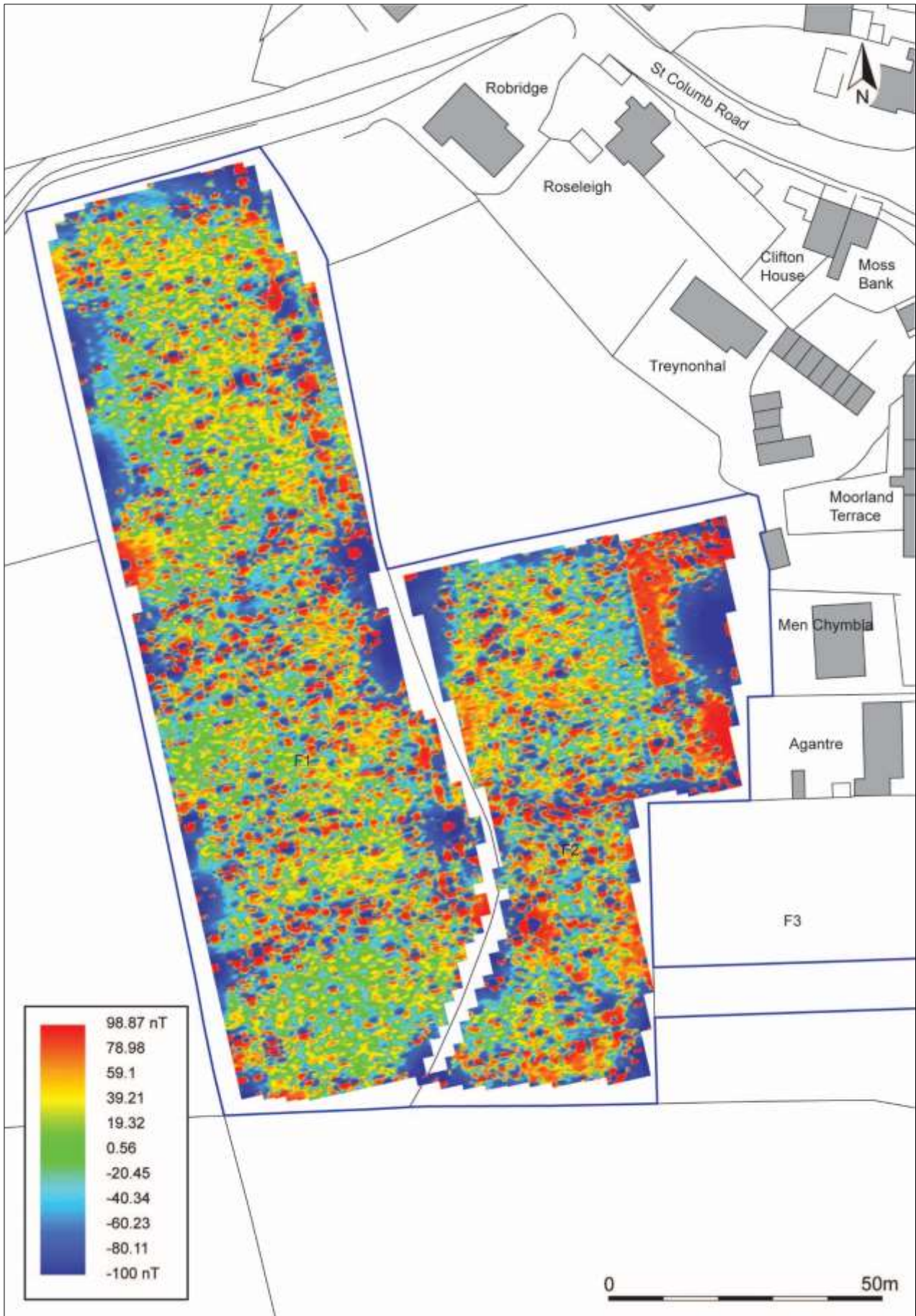
SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.

LAND OFF PARKA ROAD, ST COLUMB ROAD, ST ENODER, CORNWALL



RED GREYSCALE BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED.

LAND OFF PARKA ROAD, ST COLUMB ROAD, ST ENODER, CORNWALL



RED-BLUE-GREEN2 SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED.

APPENDIX 2: SUPPORTING PHOTOGRAPHS: SITE INSPECTION



1. VIEW ALONG THE SOUTHERN HEDGEBANK BOUNDARY OF FIELD 1; FROM THE EAST.



2. VIEW ACROSS FIELD 1; FROM THE SOUTH-EAST.



3. VIEW ALONG THE EASTERN HEDGEBANK BOUNDARY OF FIELD 1; FROM THE SOUTH-WEST.



4. DETAIL OF THE EASTERN HEDGEBANK BOUNDARY OF FIELD 1 AT THE ENTRANCE BETWEEN FIELDS 1 AND 2; FROM THE SOUTH (1M SCALE).



5. VIEW ALONG THE EASTERN BOUNDARY OF FIELD 1; FROM THE NORTH.



6. DETAIL OF THE GRANITE GATEPOST FORMING THE ENTRANCE TO FIELD 1 FROM THE ADJACENT FIELD; FROM THE NORTH (1M SCALE).



7. VIEW ALONG THE EASTERN HEDGEBANK BOUNDARY TO FIELD 1; FROM THE NORTH.



8. VIEW ACROSS FIELD 1; FROM THE NORTH-EAST.



9. VIEW ALONG THE NORTHERN HEDGEBANK BOUNDARY OF FIELD 1; FROM THE EAST.



10. VIEW ALONG THE NORTHERN HEDGEBANK BOUNDARY OF FIELD 1; FROM THE WEST.



11. VIEW ACROSS FIELD 1, NOTE THE CHIMNEY OF THE PARKA MINE IN THE BACKGROUND (RIGHT); FROM THE NORTH-WEST.



12. VIEW ALONG THE WESTERN HEDGEBANK BOUNDARY OF FIELD 1; FROM THE NORTH.



13. DETAIL OF BOUNDARY DITCH ASSOCIATED WITH NORTHERN HEDGEBANK BOUNDARY OF FIELD 1; FROM THE SOUTH-EAST.



14. DETAIL OF BOUNDARY DITCH ASSOCIATED WITH WESTERN HEDGEBANK BOUNDARY OF FIELD 1; FROM THE NORTH-EAST (1M SCALE PART VISIBLE).



15. DETAIL OF WESTERN HEDGEBANK AND DITCH BOUNDARY OF FIELD 1; FROM THE EAST (1M SCALE PART VISIBLE).



16. VIEW ACROSS THE NORTHERN END OF FIELD 1 WITH POSSIBLE SLIGHT MOUND; FROM THE SOUTH-WEST.



17. VIEW ACROSS FIELD 1 SHOWING POSSIBLE EARTHWORK HOLLOW OF HISTORIC BOUNDARY; FROM THE NORTH-WEST (1M SCALE).



18. DETAIL OF POSSIBLE EARTHWORK HOLLOW OF HISTORIC BOUNDARY WITHIN FIELD 1; FROM THE NORTH-WEST.



19. DETAIL OF THE HEDGEBANK AND DITCH BOUNDARY OF FIELD 1; FROM THE SOUTH-EAST (1M SCALE).



20. VIEW INTO THE PLANTATION OF THE FIELDS TO THE WEST OF FIELD 1; FROM THE NORTH-EAST (1M SCALE).



21. DETAIL OF THE PROBABLE MODERN GEOTECHNICAL INVESTIGATION TRENCH WITHIN FIELD 1; FROM THE SOUTH (1M SCALE).



22. DETAIL OF THE MODERN BOREHOLE MONITORING POINT WITHIN FIELD 1; FROM THE SOUTH (1M SCALE).



23. DETAIL OF POSSIBLE EARTHWORK HOLLOW ACROSS FIELD 1; FROM THE NORTH-WEST.



24. VIEW ALONG THE WESTERN HEDGEBANK BOUNDARY OF FIELD 1; FROM THE SOUTH.



25. VIEW ACROSS FIELD 1; FROM THE SOUTH-WEST.



26. VIEW ALONG THE SOUTHERN HEDGEBANK BOUNDARY OF FIELD 1; FROM THE WEST.



27. DETAIL OF THE EXPOSED DISTURBED GROUND IN THE SOUTH-WEST CORNER OF FIELD 1 SUGGESTING THAT IT MAY HAVE BEEN RAISED BY MADE-GROUND; FROM THE NORTH-EAST.



28. DETAIL OF THE HEDGEBANK AND DITCH WESTERN BOUNDARY OF FIELD 1; FROM THE NORTH-EAST.



29. DETAIL OF THE HEDGEBANK AND DITCH SOUTHERN BOUNDARY OF FIELD 1; FROM THE NORTH (1M SCALE).



30. VIEW ALONG THE SOUTHERN HEDGEBANK AND DITCH BOUNDARY OF FIELD 2; FROM THE WEST.



31. VIEW ACROSS FIELD 2; FROM THE SOUTH-WEST.



32. VIEW ALONG THE WESTERN HEDGEBANK AND DITCH BOUNDARY OF FIELD 2; FROM THE SOUTH.



33. VIEW ALONG THE SOUTHERN HEDGEBANK AND DITCH BOUNDARY OF FIELD 2; FROM THE EAST.



34. VIEW ACROSS FIELD 2; FROM THE SOUTH-EAST.



35. VIEW ALONG THE MODERN CONCRETE BLOCK WALL AND WOODEN FENCE EASTERN BOUNDARY AT THE SOUTHERN END OF FIELD 2; FROM THE SOUTH.



36. DETAIL OF THE MODERN CONCRETE BLOCK WALL AND WOODEN FENCE EASTERN BOUNDARY OF FIELD 2; FROM THE WEST (1M SCALE).



37. VIEW ALONG THE EARTHWORK HOLLOW OF THE POSSIBLE HISTORIC BOUNDARY WITHIN FIELD 2; FROM THE EAST.



38. VIEW ACROSS THE SOUTHERN END OF FIELD 2; FROM THE NORTH-EAST.



39. VIEW ACROSS THE NORTHERN END OF FIELD 2; FROM THE SOUTH-EAST.



40. VIEW ACROSS THE NORTH-EASTERN CORNER OF FIELD 2; FROM THE SOUTH-SOUTH-WEST.



41. DETAIL OF A POSSIBLE AREA OF DISTURBED GROUND INDICATING THE POSITION OF A GEOTECHNICAL INVESTIGATION TRENCH WITHIN FIELD 2; FROM THE WEST (1M SCALE).



42. VIEW ALONG THE BUILDING AT THE NORTHERN END OF THE EASTERN BOUNDARY OF FIELD 2; FROM THE NORTH.



43. VIEW ACROSS FIELD 2; FROM THE NORTH-EAST.



44. VIEW ALONG THE NORTHERN HEDGEBANK AND DITCH BOUNDARY OF FIELD 2; FROM THE EAST.



45. DETAIL OF THE NORTHERN HEDGEBANK BOUNDARY AT THE ENTRANCE TO FIELD 2; FROM THE EAST (1M SCALE).



46. DETAIL OF THE NORTHERN HEDGEBANK AND DITCH BOUNDARY OF FIELD 2; FROM THE SOUTH (1M SCALE).



47. VIEW ALONG THE NORTHERN HEDGEBANK AND DITCH BOUNDARY OF FIELD 2; FROM THE WEST.



48. VIEW ACROSS FIELD 2; FROM THE NORTH-WEST.



49. VIEW ALONG THE WESTERN HEDGEBANK AND DITCH BOUNDARY OF FIELD 2; FROM THE NORTH.



50. VIEW INTO THE WASTE GROUND OF FIELD 3 SHOWING EXTENT OF MODERN DISTURBANCE; FROM THE SOUTH-EAST.



THE OLD DAIRY
HACCHE LANE BUSINESS PARK
PATHFIELDS BUSINESS PARK
SOUTH MOLTON
DEVON
EX36 3LH

TEL: 01769 573555
01872 223164

EMAIL: MAIL@SWARCH.NET