

**Land at Treloweth Lane,
St Erth, Hayle,
Cornwall
(NGR SW 54602 35281)**

Archaeological Strip, Map, and Sample



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For: **ebc Partnerships Ltd**

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PROJECT INFORMATION

Project Name:	Land at Treloweth Lane
Location:	St Erth, Hayle, Cornwall
Type:	Archaeological strip, map and sample
National grid reference (NGR):	SW 54602 35281
Planning authority:	Cornwall Council
Planning reference	PA17/12089
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Site Code:	TLE22
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Report number:	R02-00002-2
Report written by:	Simon Sworn, MCIfA
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SUMMARY

An archaeological strip, map and sample was undertaken by ISCA Archaeology between 9 - 20 January 2023 at Land at Treloweth Lane, St Erth, Hayle, Cornwall, prior to the development of 44 new residential dwellings and associated landscaping and services. The archaeology present was dispersed across the site (totalling 2310m²).

The archaeological programme of works identified a total of 28 archaeological features which broadly validated, and expanded upon, the results of the previous geophysical survey and evaluation trenching within the site. The archaeology present was located to the northern half of the excavated area. These features indicated possible dispersed prehistoric settlement or agricultural activity consisting of stock enclosures, gullies, postholes, and pits are likely to have formed temporary structures associated with animal husbandry and prehistoric settlement activity, which is also evident within the wider landscape. Bronze Age pottery was recovered from four of the archaeological features. Charcoal from several features is significant in that charcoal remains from Bronze Age deposits across Cornwall is at present limited. Also significant is an unusual early post Romano-British date from an isolated posthole located to the far east of the SMS area.

1. INTRODUCTION

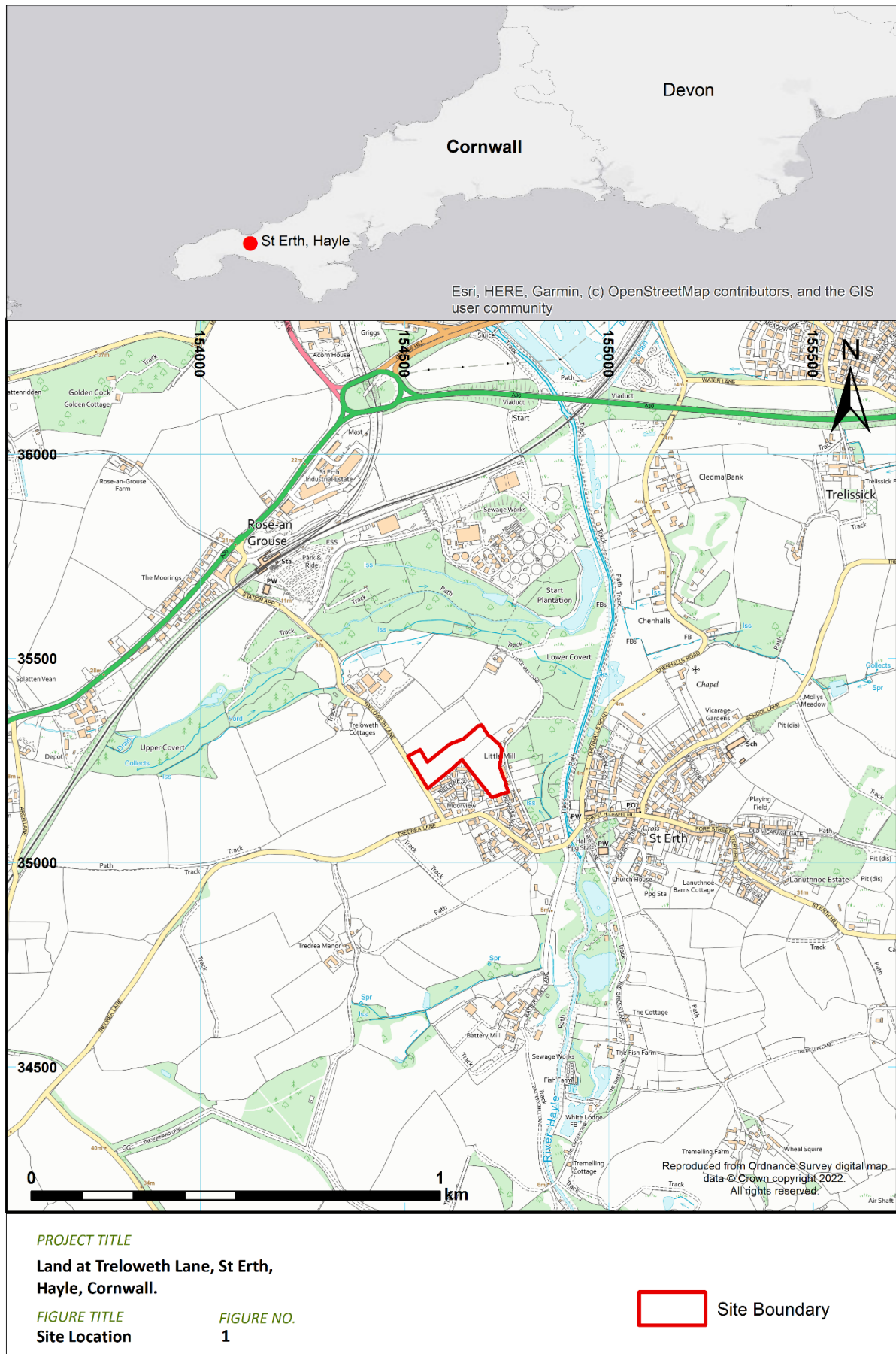
1.1. This document sets out a report of an archaeological strip, map, and sample (SMS) carried out by ISCA Archaeology between 9 – 20 January 2023 at Land at Treloweth Lane, St Erth, Hayle, Cornwall (hereafter referred to as ‘the site’), centred at NGR SW 54602 35281 (**Fig. 1**). The archaeological SMS was commissioned by ebc Partnerships Ltd. This report sets out the background, methodology and the results of the strip, map and sample undertaken as a requirement of Condition 12 of the planning permission (PA17/12089) for proposed residential development of the site, consisting of 44 residential dwellings, and associated landscaping and services.

1.2. Condition 12 of the Conditional Planning Permission states that:

‘No development shall take place until a Written Scheme of Investigation has been submitted to and agreed in writing by the Local Planning Authority. It shall include a strip-map-sample exercise in relation to the area (c. 60m x 35m) encompassing all of the eastern part of Trench 2 and the associated geophysical anomalies, as set out within the ‘Results of an Archaeological Evaluation’, dated 30 January 2019, by South West Archaeology Ltd. The Scheme shall include:

- a) an assessment of significance;*
- b) the programme and methodology of site investigation and recording;*
- c) the programme for post-investigation assessment;*
- d) the provision to be made for analysis of the site investigation and recording; and*
- e) the provision to be made for the publication and dissemination of the analysis and records of the site investigation.*

The scheme of investigation shall be carried out in accordance with the approved details prior to the commencement of construction works’ (Cornwall Council HEP (Arch), 2021).



- 1.3. The archaeological SMS was carried out in accordance with a detailed Written Scheme of Investigation (WSI, **Appendix 7**) produced prior to the commencement of works (ISCA, 2022) and drawn up in consultation with Historic Environment Planning – Archaeology (HEP (Arch)) and approved by Peter Dudley, Senior Development Officer, Historic Environment Archaeologist, Cornwall Council. The archaeological SMS was also carried out in line with the *Standard and Guidance for Archaeological Excavation* (ClfA, 2020) and *The Code of Conduct: Professional Ethics in Archaeology* (ClfA, 2022).

THE SITE

- 1.4. The site is located west of the village of St Erth, off the A30, and is situated between Treloweth Farm (to the north-west) and Treloweth Close (to the south-east) on the edge of the extant settlement (**Fig. 1**). The site comprises two fields located on a north-east facing slope, rising from the south-east to the north-west between altitudes of 9m and 19m aOD. The fields are located close to the end of a shallow spur between the two arms of the River Hayle which was navigable as far as St Erth Bridge in the medieval period. The site consists of an area measuring approximately 1.9ha and is currently in use as pasture.
- 1.5. The SMS area lies to the north and west of the development area, and measured 2310m² and at 19.47m aOD (existing ground level) to the north-west, sloping down to the south-east at 15.75m aOD (**Fig. 2**).
- 1.6. The soils of this area are the well-drained fine loamy soils over slate, variably affected by groundwater, of the Denbigh 2 Association (LandIS, 2022). These overlie the slates and siltstones of the Mylor Slate Formation (BGS, 2022).

2. ARCHAEOLOGICAL BACKGROUND

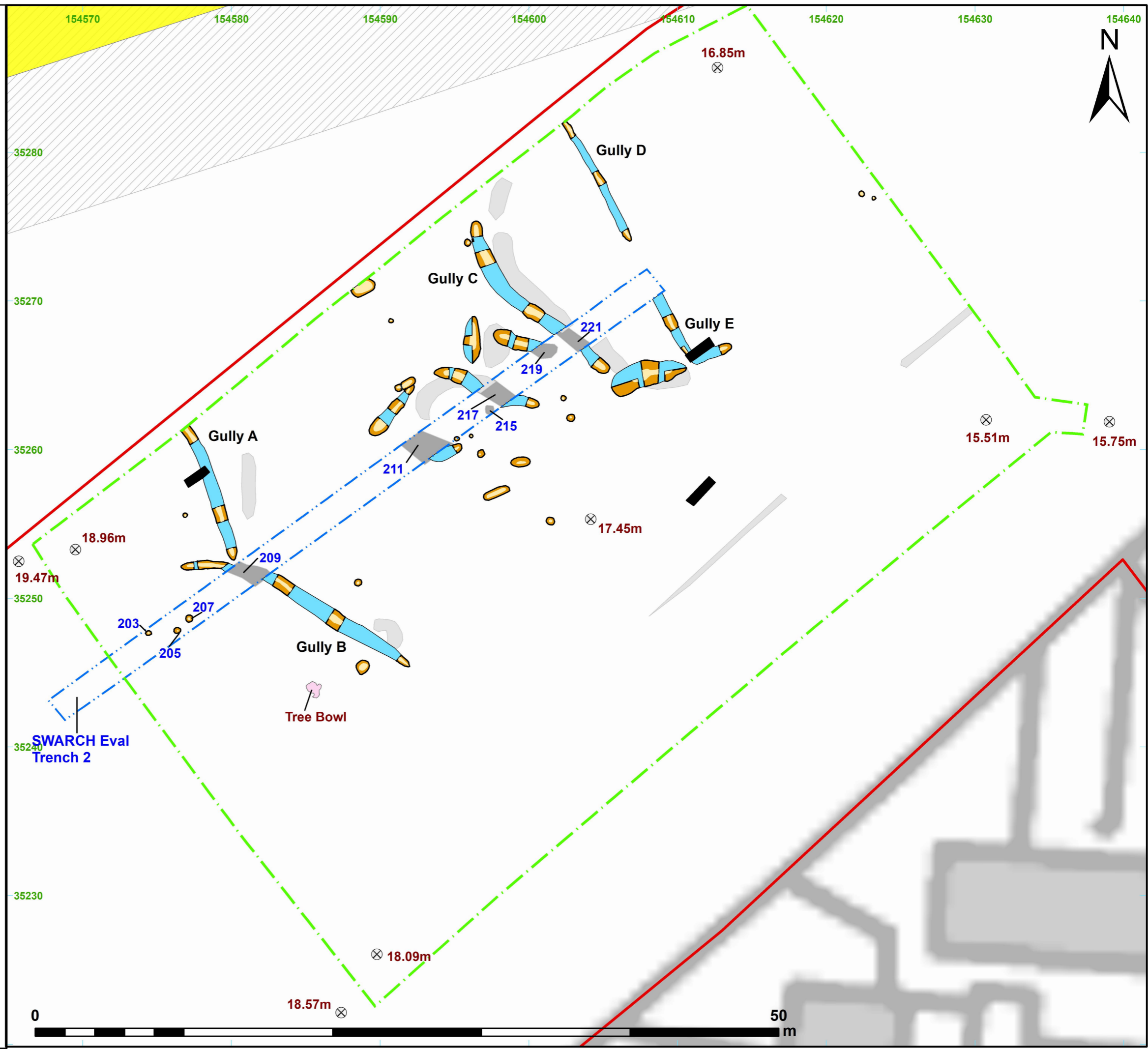
- 2.1. The site has been the subject of a combined Heritage Impact Assessment and Geophysical Survey (SWARCH, 2018) (**Figs. 2 and 3**). The following sections utilise information contained in those documents, which should be referred to for full archaeological details.
- 2.2. St Erth is located in the Hundred and Deanery of Penwith (Lysons, 1814), the placename (meaning St. Ergh's [church]) being derived from the 13th century church dedication. The alternative name (Lanuthinoch) is derived from the Old Cornish Lann (meaning church or religious enclosure) and an unknown suffix (Watts, 2010). The site is located to the west of the St Erth churchtown, in the former Manor of Treloweth, first documented in 1301.

PROJECT TITLE
**Land at Treloweth Lane, St Erth,
 Hayle, Cornwall.**

FIGURE TITLE
**Site Plan with SWARCH Evaluation Trench (2019)
 and Geophysical Anomalies (2018)**

FIGURE NO.
2














- Site Boundary
- Strip, Map, and Sample Area (SMS)
- Evaluation Trenches (SWARCH, 2019)
- Feature
- Excavated
- Excavated Base
- Geotech Pit
- Tree Bowl
- Archaeological Features (SWARCH, 2019)
- Geophysical Anomaly within SMS Area (SWARCH, 2018)
- Gas Main
- Gas Main 10m Buffer Zone
- Height in m AOD

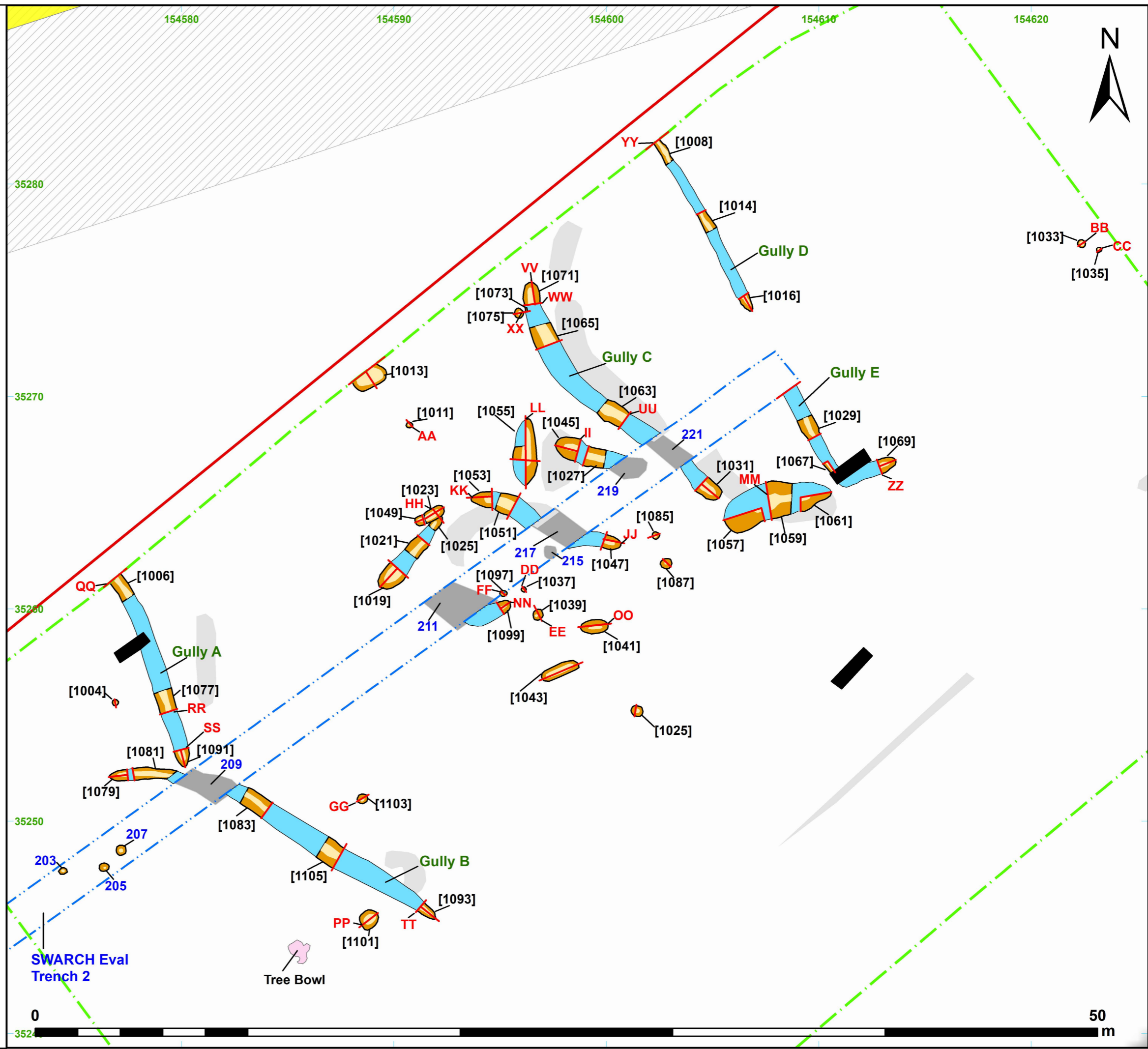


PROJECT TITLE
**Land at Treloweth Lane, St Erth,
 Hayle, Cornwall.**

FIGURE TITLE
Site Plan with Excavated Slots and Sections

FIGURE NO.
3

-  Site Boundary
-  Strip, Map, and Sample Area (SMS)
-  Section
-  Evaluation Trenches (SWARCH, 2019)
-  Feature
-  Excavated
-  Excavated Base
-  Geotech Pit
-  Tree Bowl
-  Geophysical Anomaly within SMS Area (SWARCH, 2018)
-  Archaeological Features (SWARCH, 2019)
-  Gas Main
-  Gas Main 10m Buffer Zone



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- 2.3. A limited amount of archaeological fieldwork has been undertaken in this area, the majority relating to the works at the St Erth Multi-Modal Hub at St Erth Railway Station, including assessments, geophysical survey (Cornwall Archaeological Unit (CAU), 2005; 2009; 2010) and monitoring works, which exposed part of a medieval ditch and the line of a 19th century road (SWARCH, 2016; 2017). The Cornwall and Scilly Historic Environment Record (HER) provides evidence for human activity in the surrounding area from the prehistoric through to the modern periods.
- 2.4. Very few prehistoric or Romano-British sites are recorded in the immediate area: a poorly located Bronze Age axe head (HER 31980), a fieldname at Penponds (Park-an-Chamber) (HER 31123), and the undated cropmark of an enclosure (no reference) just to the south of 1 and 2 Tredrea Lane. However, this absence is likely to be more apparent than real, as Bronze Age barrows and Iron Age and Romano-British settlements are commonly encountered within Anciently Enclosed Land. It is possible (Lower) Treloweth sits within a round, and tentatively also a possible Roman fort.
- 2.5. The main farms and settlements in the area are first recorded in the 14th and 13th century AD; Lannutherno in 1233 (HER 31076) and Treloweth (Trelwyth) in 1301 (HER 29973). The church of St Erth is thought to date to the 15th century, although likely sits on the location of an earlier site (NHLE 331131).
- 2.6. The bridge at St Erth is a rebuild of the former 1663 bridge, on a medieval site. The majority of the structures and features within the St Erth Conservation Area date to this period, mainly from the 18th century onwards. A number of buildings within St Erth are Grade II Listed, with the Church of St Erth Grade I Listed (NHLE 331131).
- 2.7. The 1840 Parish of St Erth Tithe Map shows the site as consisting of two open fields, with the SMS area within the northern of the two fields (**Fig. 4**).

Geophysical survey (Figs 2 and 3)

- 2.8. A geophysical survey (SWARCH, 2018) was undertaken as part of the Heritage Impact Assessment and is summarised below.
- 2.9. A total of 26 groups of anomalies were recorded, the majority of which were assessed as being field boundary ditches of medieval or post-medieval date. A cluster of six geophysical anomalies were located in the northern field and were considered to be of possible

prehistoric origin. The anomalies were targeted by Trench 2 in the later archaeological trial trenching evaluation phase of works (SWARCH, 2019) and discussed below.

Archaeological Evaluation (Figs. 2 and 3)

- 2.10. The site was subject to a phase of targeted archaeological evaluation works by SWARCH in 2019 informed by the earlier 2018 geophysical survey, and although the section below summarises the results, the original document should be consulted for full details.
- 2.11. The evaluation identified a total of 18 features across five trenches, most of which are likely to be post-medieval or modern in date and relating to the existing field-system, land drainage and services. Of these, five ditches are roughly aligned with the existing field boundaries and may represent removed boundaries and or associated drainage. Further ditches correspond with sinuous features identified on the geophysical survey and may also be post-medieval in origin, though may reflect earlier activity. Few of the features produced dating evidence, only one ditch contained prehistoric flint debitage, the remaining artefacts all being recovered from topsoil layers. The apparent association of many of the features with the existing field system would suggest that the majority of features are post-medieval in date.
- 2.12. A series of features including post-holes and ditches were identified in Trench 2. These ditches, which represented a penannular feature identified on the geophysical survey, appeared to be of prehistoric date. Along with a series of associated post-holes, results suggest some limited prehistoric settlement activity, though no datable artefacts were recovered.

PROJECT TITLE

Land at Treloweth Lane, St Erth,
Hayle, Cornwall.


FIGURE TITLE

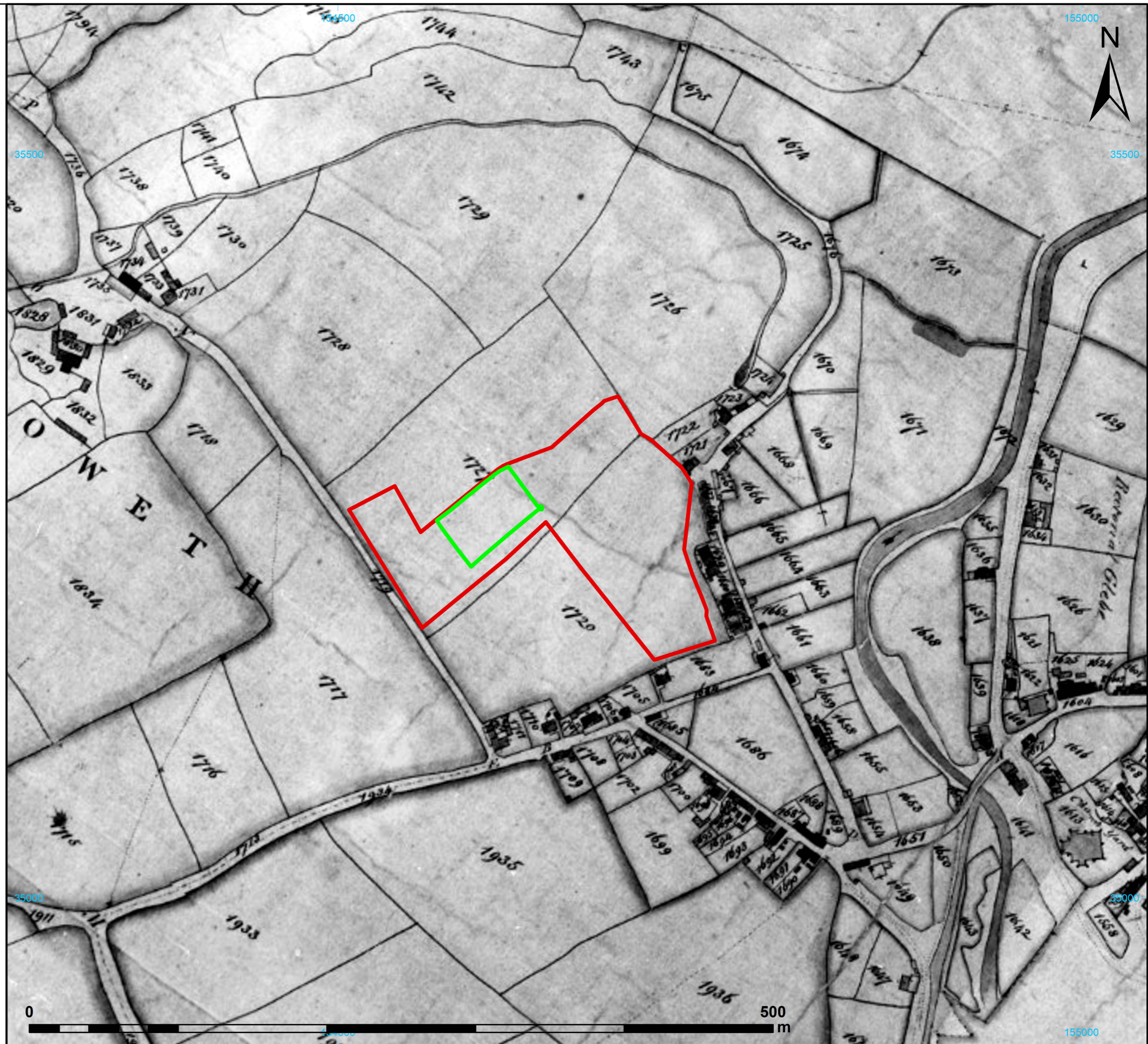
Extract from the 1840 Parish
of St Erth Tithe Map

FIGURE NO.

4

 Site Boundary

 Strip, Map, and Sample Area (SMS)



3. **AIMS AND OBJECTIVES**

3.1. The primary objective of the programme of archaeological work is to appropriately investigate and ensure the preservation by record of any significant archaeological remains at the site which will be impacted upon by the proposed development, in line with the National Planning Policy Framework (NPPF, 2023).

3.2. A specific objective of the archaeological work was to further investigate and characterise the prehistoric archaeological features recorded by the previous geophysical survey and trial trench evaluation (SWARCH, 2019). The strip, map, and sample aimed to determine the presence or absence of archaeological deposits and/or remains, and if present, to record the character, date, location, and preservation of any archaeological remains, and to record the nature and extent of any previous damage to archaeological deposits or remains on site.

4. **METHODOLOGY – ARCHAEOLOGICAL STRIP, MAP, AND SAMPLE (also referred to as an EXCAVATION)**

4.1. The definition of an archaeological excavation is:

‘a programme of controlled, intrusive fieldwork with defined research objectives, which examines, records, and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, in an inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design’ (CIfA, 2020).

4.2. The purpose of an archaeological excavation is to:

‘to examine the archaeological resource within a given area or site within a framework of defined research objectives, to seek a better understanding of and compile a lasting record of that resource, to analyse and interpret the results, and disseminate them’ (CIfA, 2020).

4.3. The SMS area was set out on OS National Grid (NGR) co-ordinates using Leica GPS and scanned for live services by trained ISCA Archaeology staff using CAT and genny equipment in accordance with the ISCA Safe System of Work for avoiding underground services (ISCA SSOW 1.3).

- 4.4. The overlying topsoil and subsoil layers were removed from the SMS area using a tracked 360° excavator equipped with a toothless grading bucket. All machining was conducted under constant archaeological supervision and ceased when the first archaeological horizon or natural substrate was revealed (whichever was encountered first). Topsoil and subsoil were stored separately at more than 1m from edge of the excavations.
- 4.5. Following machining, all archaeological features revealed were investigated. All features were planned using a Leica GPS, and recorded as set out below, in accordance with the WSI (ISCA, 2023), as well as the *Code of Approved Practice and Guidelines and Best Practice* as set out by the Chartered Institute for Archaeologists (CIfA).
- 4.6. Where archaeological features/deposits were exposed, these were investigated using hand tools to the following sample levels; 100% excavation of small discrete features (pits and postholes), a minimum of 50% of larger discrete features (elongated pits/short ditches) and, long linear features (gullies) were sampled along their length to a minimum percentage of 10% of their total length. Deposits were also assessed for their paleoenvironmental potential (see paragraph 7.1). Features that were clearly of modern date (geo-technical pits) were not excavated.
- 4.7. All excavation of exposed archaeological features was carried out stratigraphically by hand and recorded on a pro-forma sheet by written and measured descriptions. All features/deposits were recorded electronically using Leica GPS and drawn sections (scales at 1:10 or 1:20 as appropriate). All scale drawings were undertaken at a scale appropriate to the size and/or significance/complexity of the archaeological features to allow accurate depiction and interpretation.
- 4.8. An adequate digital photographic record of all the archaeological works was compiled in both section and plan. All excavated features and deposits were photographed. A selection of representative feature group/area shots were also be taken along with general working shots to illustrate the general nature of the works. A photographic scale(s) and north arrow were included in detailed photographs.
- 4.9. All archaeological features and their subsequent spoil heaps were scanned with a metal detector for artefact retrieval.
- 4.10. Upon completion of the fieldwork, the SMS area was not backfilled, at the request of the client.

- 4.11. The archive from the Strip, Map and Sample is currently held by ISCA at their Okehampton office. ISCA will make arrangements with the Royal Cornwall Museum for the deposition of the site archive and, subject to agreement with the legal landowner(s), the artefact collection. In the event that the Royal Cornwall Museum is unable to accept such deposition, ISCA will consult with HEP (Arch) to arrange appropriate deposition with an alternative accredited museum. A digital archive (comprising digital photographs and other relevant born-digital data) will be submitted to the Archaeological Data Service (ADS).
- 4.12. A summary of information from this project, as set out in **Appendix 5**, will be entered onto the OASIS online database of archaeological projects in Britain.

5. RESULTS

- 5.1. This section provides an overview of the archaeological SMS results. Detailed summaries of the recorded contexts can be found in **Appendix 1**. Details of the artefactual materials recovered from the site are given in **Section 6** and **Appendix 2**. The environmental results are detailed in **Section 7** and **Appendix 3**.
- 5.2. Context numbers within the text and figures that are prefixed with either a name (e.g. Gully A) or GRP indicate a 'group number', used to combine a group of different numbers relating to one feature on the site (e.g. sections of the same elongated pit or gully). Context numbers mentioned below starting with the number '2' refer to cross-referenced features recorded within the previous 2019 evaluation phase of works (SWARCH, 2019).
- 5.3. Context numbers referenced with (rounded brackets) refer to fills or layers, whilst those with [square brackets] are numbers relating to cut features.
- 5.4. The natural geology consisted of a mid-yellow-brown silty clay (1002). The underlying natural geology was exposed at a depth of 0.48m – 0.56m below the present ground surface. It was sealed by a mid-light yellow brown silty clay subsoil (1001), with occasional small and large sub-rounded stones, generally 0.2m – 0.28m thick. A sherd, and two small fragments of possible Bronze Age pottery, were recovered from the subsoil during initial machine stripping to the north-west corner of the SMR area. The larger sherd of pottery was the least abraded that was recovered from the site, suggesting that it may have derived from an archaeological feature during the machine stripping process. The subsoil was in turn covered by 0.3m of grassed topsoil (1000). Prior to the archaeological strip, map and sample, the SMS area was under rough pasture grass (**Fig. 5**).

- 5.5. The archaeology recorded was located towards the northern half of the SMS area and was sealed by the overlying subsoil. The recorded features were noted to correspond well with the earlier geophysical and evaluation trench results (**Figs 2 and 3**).
- 5.6. Of the excavated features (five gullies, 12 postholes, five circular/oval pits, six elongated pits/short ditches and a single tree bowl) only four contained datable pottery [1023, 1045, 1055 and 1097]. Of these three could be dated to the likely Bronze Age period – (1023)/[1024], (1044)/[1045] and (10970)/[1098], whilst (1054)/[1055] could only be dated to the broad prehistoric period. All the other features were undated but are inferred to possibly be contemporary with the dated features due to their form and similarity of their fills.
- 5.7. A number of features appeared to be short linear features [GRP's 1025, 1045, 1047, 1055 and 1059]. These features measured between 2.34m – 7.1m in length and could have been either short ditches/gullies or elongated pits. For the purpose of the descriptions below, they are referred to as elongated pits. All these features are described in detail below.

Bronze Age (2400 – 700BC)

Posthole 1097 (Figs 3 and 11, Section FF)

- 5.8. Posthole [1097] was located just to the south of the former evaluation trench, and close to postholes [1037] and [1039] and posthole [215] which had been recorded during the evaluation works. This posthole consisted of a circular cut, measuring 0.3m diameter by 0.21m deep, with steep sides and containing a single fill (1096). A single sherd of Bronze Age pottery was recovered from this posthole.

Postholes 1033 and 1035 (Fig. 8, Sections BB and CC)

- 5.9. To the far eastern extent of the SMS area were two similar postholes [1033 and 1035] located only 0.4m apart (**Fig. 8: Sections BB and CC**). The northern posthole [1033] measured 0.38m diameter by 0.13m deep, and the southern posthole [1035] measured 0.25m diameter by 0.13m deep. Both postholes were steep sides, with 'U' shaped bases. Posthole [1033] contained a high percentage of oak charcoal within its respective fill (1032). Although neither posthole contained any artefactual material, the charcoal from posthole [1033], fill (1032) was carbon dated (C14) and underwent further analysis. The C14 analysis (sample TPA_504: **Appendix 4**) and returned a date of 3350-3165 BP (1401-1216 cal BC) at a 95.4% probability. The charcoal is discussed in detail in **Section 7**, but consisted of mainly of oak,

with birch (*Betula* sp.) charcoal, of which a small number were of roundwood, from small branch or trunkwood as well as fragment of charcoal from the apple sub-family (Maloideae), a sub-family that includes hawthorn, whitebeam, rowan, apple, and pear (**Section 7** and **Appendix 3**).

- 5.10. Posthole [1035], although undated, is likely to have been contemporary with the nearby posthole [1033], in that they were together in isolation from the rest of the observed archaeology, were of similar dimensions, and contained very similar fills.

Pit 1023 (Figs. 3 and 13, Section HH)

- 5.11. An oval pit cut [1023/1049], extended east/west measured 1.7m long and 0.41m wide by 0.16m deep with moderate concave sides and base (**Fig. 13: Section HH**). A single sherd of Bronze Age pottery was recovered from the fill (1022) of this pit to its eastern end. Fill (1048) was sterile. This pit clearly cut a larger, elongated pit GRP [1025] to the south.

Elongated pits GRPs 1025, 1045, 1047 and 1055 (Figs. 3 and 13 – 17, Sections HH, II, JJ, KK, LL)

- 5.12. To the south of pit [1023] was a larger elongated pit GRP 1025, [1019/1021/1025], extending south-west/north-east. This pit measured 2.35m long and up to 0.96m wide by 0.3m deep at its south-western extent (**Fig. 13: Section HH**). The pit had steep concave sides and shallow base towards the south-west end, with a much shallower profile to the north-east. Although the single fill (1018/1020/1024) of this pit contained no datable material, it was clearly cut by pit [1023] which contained Bronze Age pottery.
- 5.13. Elongated pit GRP 1045 [cuts 219/1027/1045] measured 2.34m long and up to 0.85m wide by 0.12m deep to the centre and 0.23m at its northern extent (**Fig. 14: Section II**). The southern extent of this elongated pit was fully recorded during the evaluation [219], where it measured 1m wide and 0.25m deep. The pit had gentle concave sides and base. The fill (1044) from the northern extent of the pit produced a single sherd of Bronze Age pottery.
- 5.14. To the centre of the SMS area, an elongated pit/short gully GRP 1047 [cuts 217/1047/1051/1053] extended for a total of 7.10m, to both the north and the south of the former evaluation trench. This elongated pit/gully, aligned north-west/south-east, was up to 1.03m wide by 0.23m deep with shallow concave sides and base. The central extent of this ditch was recorded during the evaluation [217], where it measured 1.1m wide by 0.2m deep. Both the south-eastern [1047], and the north-western terminals [1053] appeared to have

been original features, due to their steeper profiles (**Figs 15 and 16: Sections JJ and KK**), as opposed to truncation at a later date.

- 5.15. Elongated pit [1055] was aligned north/south and measured 3.03m long and 1.18m wide by 0.37m deep (**Fig. 17: Section LL**). The pit had moderate concave sides and a shallow concave base. This single fill of the pit (1054) produced two sherds of pottery, broadly dated to the prehistoric period, along with fragments of fired clay/daub.

Post Romano-British

Pit 1101 (Fig. 23, Section PP)

- 5.16. Pit [1101] was located to the south-western extent of the SMS area, close to the southern terminus of Gully B. This circular pit measured roughly 0.8m diameter by 0.14m deep, with shallow concave sides and base (**Fig. 23: Section PP**). The single fill of this probable pit (1100) contained frequent charcoal and fragments of fired clay/daub, but no datable material. However, the charcoal was carbon dated (C14). The C14 analysis (sample TPA_505: **Appendix 4**) and returned a date of 1534-1405 BP (416-545 cal AD) at a 95.4% probability. The charcoal is discussed in detail in **Section 7** below but consisted almost exclusively of oak (with all fragments deriving from large branch or trunkwood) and three roundwood fragments of plum-type (*Prunus* sp.) charcoal, most likely of the wild/sour/bird cherry variety.

Undated

Postholes 1004, 1011, 1037, 1039, 1085, 1087 and 1089 (Figs. 3, 7, 9, 10, 12 and 13, Sections AA DD, EE, and GG)

- 5.17. To the north-west corner of the SMS area was a shallow, isolated posthole. This sub-oval posthole [1004] measured 0.28m long and 0.25m wide by 0.09m deep and contained a single undated fill (1003).
- 5.18. Posthole [1011] was located to the centre north of the SMS area and consisted of a circular cut with steep sides and a flat base, measuring 0.31m diameter by 0.32m deep (**Fig. 7: Section AA**). The posthole contained two fills (1009 and 1010). Fill (1010) represented the original post-packing, and contained several stones, whereas fill (1009) marked the shadow of the former post, measuring 0.19m diameter by 0.27m deep. This latter fill contained exclusively oak charcoal fragments (**Section 7 and Appendix 3**).

- 5.19. Posthole [1037], located close to postholes [1039] and [1097], comprised a sub-circular cut, with steep sides and a 'U' shaped base, measuring 0.16m long and 0.11m wide by 0.19m deep (**Fig. 9: Section DD**). The posthole contained a single undated fill (1036), but which contained exclusively oak charcoal (**Section 7 and Appendix 3**).
- 5.20. Located roughly 1.2m to the south of posthole [1037], posthole [1039] consisted of a sub-circular cut, with steep sides and a 'U' shaped base (**Fig. 10: Section EE**). The posthole measured 0.48m long and 0.8m wide by 0.32m deep, and contained a single, undated fill (1038) with frequent stone packing and charcoal fragments.
- 5.21. Just to the west of the northern terminus of Gully C was a single, isolated sub-circular posthole [1075]. This posthole (**Fig. 31: Section XX**) measured 0.38m long and 0.3m wide by 0.21m deep and contained a single, undated fill (1074).
- 5.22. Circular posthole [1085] measured 0.38m diameter by 0.22m deep with vertical sides and a flat base, and was located towards south-east of Gully C. It contained a single, undated fill (1084).
- 5.23. To the south of posthole [1085] was a shallow, circular cut, measuring 0.5m diameter by 0.08m deep. This cut [1087] may have been a heavily truncated posthole, though it may have also functioned as a pit. Its sterile single fill (1086) was undated.
- 5.24. Towards the southern extent of the main concentration of the archaeology was a single, isolated circular posthole [1089], with steep concave sides and a flat base, measuring 0.52m diameter by 0.13m deep. The single fill (1088) of this posthole was sterile.
- 5.25. Located to the east of Gully B was a small, isolated sub-circular posthole [1103]. This posthole measured 0.5m long and 0.45m wide by 0.2m deep (**Fig. 12: Section GG**). The posthole contained a single undated fill (1102).
- 5.26. Five postholes were recorded during the evaluation phase [203, 205, 207, 213 and 215]. These postholes measured between 0.4-0.6m diameter by 0.12-0.22m deep. One posthole (213) was cut by later elongated pit [1099/211].

Elongated pits GRPs 1059 and 1099 (Figs. 3, 18 – 20), Sections MM and NN)

- 5.27. To the south-east, close to the southern return of Gully E was an east/west aligned elongated pit GRP 1059 [cuts 1057/1059/1061]. This pit measured 5.05m long and up to 1.8m wide by

0.62m deep. The western and central half of this pit had steep sides and a sharp 'V' shaped base, whereas the eastern extent was much shallower (**Figs. 3, 18 and 19: Section MM**). The single fill (1056/1058/1060) contained no datable material.

- 5.28. Extending south-eastwards from the earlier evaluation trench was a possible elongated pit/short gully [1099]. This feature extended eastwards for 2.4m and measured 0.6m wide and 0.11m deep (**Fig. 20: Section NN**). The north-western extent of this pit was recorded within the evaluation trench (211), where it measured 1.65m wide by 0.1m deep, and was seen to be possibly truncating an earlier posthole [213] below. No datable material was recovered from either the single fill (1098) of the pit/gully, or from the earlier evaluation. The results of the evaluation suggested that this pit may have extended beyond the northern limit of the evaluation trench. Despite extensive cleaning of the area, no evidence of this pit was found continuing to the north.

Pits 1013, 1041 and, 1043 (Figs. 3 and 22, Section OO)

- 5.29. Pit [1013] was located to, and extending beyond, the northern limits of the SMS area. This pit was sub-circular pit, with only its southern extent visible. The pit had steep concave sides and a flat base. Its single, undated fill was clearly sealed by the overlying subsoil.
- 5.30. To the south of the former evaluation trench were two similar oval pits [1041 and 1043]. Pit [1041] measured 1.27m long and 0.63m wide by 0.23m deep (**Fig. 22: Section OO**), and pit [1043] measured 1.8m long and 0.62m wide by 0.29m deep. Both pits had moderate concave sides and shallow bases, with fills (1040 and 1042) which contained frequent stones, suggesting possible deliberate back filling. Neither pit contained any datable material.

Gully A (Figs. 2, 3 and 24 - 26, Sections QQ, RR and SS)

- 5.31. Extending southwards from the northern extent of the SMS area was a very shallow gully [cuts 1006/1077/1091], measuring 9.75m in total exposed length and 1.16m wide by up to 0.18m deep. The undated gully contained a single fill (1005/1076/1090) which appeared to have gradually infilled naturally. This gully gradually became shallower as it extended southwards and it is likely that the gully once extended further south, but this has been truncated through later ploughing activity (**Fig. 26: Section SS**). There was no physical relationship with Gully B, less than 0.5m to the south. Part of this gully was truncated by a modern geotechnical test pit.

Gully B (Figs. 2, 3, 27 and 28, Section TT)

- 5.32. To the south of Gully A was a north-west/south-east aligned gully [cuts 209/1079/1081/1083/1093/1105], with a slight curve to the west, at its northern extent. The gully was wholly visible within the SMS area, though both ends of the gully appeared to have been truncated by later ploughing, suggesting that this was not its original form/length. Both the northern terminus [1079] and the southern terminus [1093] (**Fig. 27: Section TT**) were shallow, gradual cuts, as opposed to steep sided cuts that would have been seen in an original, deliberate terminus. The gully as recorded, measured 17.6m in length and up to 1.21m wide by 0.15m deep. A section of this gully [209] was recorded to the northern end during the evaluation, where it measured 0.85m wide by 0.13m deep. Its widest/deepest dimensions being towards the middle of the extant gully. The single fill of this gully (1078/1080/1082/1092/11040 was very similar to that of Gully A and appeared to have also naturally infilled (as opposed to deliberate back filling). No datable material was recovered from this feature.

Gully C (Figs. 2, 3 and 29 - 31, Sections UU, VV, WW and XX)

- 5.33. This short, sinuous gully aligned roughly north-west/south-east, with both terminals exposed within the SMR area. The gully (cuts 221/1031/1063/1065/1071/1073) measured 13.77m in length, up to 1.1m wide and 0.34m deep, and contained a single, undated fill (222/1030/1062/1064/1070/1072). Part of this ditch was excavated during the evaluation [221], where it measured 0.75m wide by 0.15m deep. The fill of this gully contained frequent large stones and may have been deliberately backfilled. Both the northern and southern termini were observed. The northern terminus [1071] (**Figs. 30 and 31: Sections VV and WW**) was clearly defined and represented an original terminus. The southern terminus [1031] was very gradual and is likely to have been ploughed out, suggesting that this gully originally extended further southwards. Also from the southern terminus, fragments of fired clay/daub were recovered (1030), but no dateable material.

Gully D (Figs 2, 3 and 32, Section YY)

- 5.34. A south-east/north-west aligned gully (Gully D) extended south/east from the northern limit of the SMS area by 9.5m. This undated gully [cuts 1008/1015/1017] measured up to 0.48m wide by a maximum of only 0.06m deep. The gully was filled by a single deposit (1007/1014/1016) which had gradually infilled, which in-turn was sealed by the overlying subsoil (**Fig 32: Section YY** – note, the shallow gully is located directly below the 0.4m scale)

The gully terminated to the south-east, though this appeared to have been through later ploughing, rather than an original entrance. Gully E, to the south, may have been a continuation of this gully, as it is of similar form, and follows the same alignment.

Gully E (Figs. 2, 3 and 33, Section ZZ)

- 5.35. This gully (Gully E) extended to the south and is likely to have been a continuation of Gully D, to the north. This gully [cuts 1029/1067/1069/1095] extended southwards from the 2019 evaluation trench for 5.6m, before turning sharply to the east for 2.2m, before terminating [1069] (**Fig. 33: Section ZZ**). The gully was of similar dimensions to the of Gully D, measuring up to 0.69m wide by 0.16m at its south-eastern end. The northern extent of this gully had been truncated by the 2019 evaluation trench but was still visible in the lower, southern edge of the trench [1095]. The single fill (1028/1066/1068/1094) of this gully appeared to have gradually infilled. No artefacts were recovered from this gully, though fragments of land snail were recovered from fill (1068). Part of the south-western corner/return of this gully was truncated by a modern geotechnical test pit.

Tree bowl

- 5.36. A small irregular feature to the far south-east was investigated, the feature had very variable sides and an uneven base. The edges showed signs of former roots and was interpreted as a tree bowl. No finds were recovered from this feature.

6. ARTEFACTUAL EVIDENCE (by Imogen Wood)

Introduction

- 6.1. The small assemblage of pottery recovered from the SMS is predominantly Bronze Age in date and consists of eight sherds weighing a total of 88g. Assessment of this material provides provisional dating evidence for many of the excavated features on the site and supports the stratigraphical interpretation of the site.

Methodology

- 6.2. The eight recovered sherds from five contexts were examined macroscopically with a hand lens at x2 magnification to identify initial fabric groups; these groups were then examined under a binocular microscope at a magnification of x10. This enabled large areas of the surface and edges of sherds to be examined, and in many cases useful diagnostic mineral

and rock components to be identified. Abrasion has been subjectively assessed using Sorensen's method (Sorensen, 1996).

Quantification

- 6.3. A context-by-context breakdown of fabrics, wares, abrasion, and dating can be found in **Appendix 2: Table 1**.
- 6.4. A single fragment of flint debitage was recovered from fill (212), cut [211] of the elongated pit GRP [1099] during the 2019 evaluation. No other finds were recovered from evaluation Trench 2 (SWARCH, 2019).

Condition of the Assemblage

- 6.5. The condition of the pottery is poor with most sherds being abrasion Level 3 (very abraded), followed by Level 2 (moderately abraded). This suggests that most sherds are not in their primary deposition, and subject to a dynamic post-depositional environment, with only sherds from the subsoil layer (1001) in moderately good condition.

Results

- 6.6. The largest and least abraded sherd is from subsoil layer (1001) which is an undecorated body sherd in reduced poorly sorted gabbroic fabric with an oxidised exterior and internal black coating. This is part of a large vessel which based on its characteristics is most likely Bronze Age in date, due to the lack of decoration it is harder to narrow this down to a specific phase.
- 6.7. Two body sherds from fill (1044), elongated pit/ditch [1045] and (1096), posthole [1096] are high abraded with oxidised exterior and reduced interior in a very poorly sorted gabbroic fabric with gabbro rock fragment. They are also likely to date to the Bronze Age. A highly abraded sherd from (1022), elongated pit [1023] is in the same fabric suggesting a similar date.
- 6.8. The basal angle sherd and base sherd from (1054), elongated pit [1055] are highly abraded with an oxidised exterior and reduced interior in a Gabbro fabric with no diagnostic features can only be assigned to the general prehistoric period.
- 6.9. The two pieces that were recovered from (1046), elongated pit [1047] were initially thought to be pottery fragments but were revealed to be natural rock fragments on inspection.

Comment

- 6.10. The poor condition of this very small assemblage makes any conclusive comments on the date of the pottery difficult. The Gabbroic fabric with gabbro rock fragments suggest a clay source from the Lizard Peninsula which was used for 4000 years throughout Cornwall and parts of Devon offer little diagnostic information (Quinnell, 2012). However, the firing, sherd thickness and overall character are more typical of the Bronze Age than other periods and can be assigned to this era until further dating evidence becomes available. There is abundant evidence for life in the Bronze Age in Cornwall covering most areas the landscape and possibly the most commonly found in the prehistoric era (Jones and Quinnell, 2011, 211).

Significance of the Assemblage

- 6.11. This assemblage is little significance of this area and but does contribute to a growing understanding of the distribution of activity in the Bronze Age in this area.

7. ENVIRONMENTAL EVIDENCE (by Stacey Adams)

Introduction

- 7.1. Sixteen bulk environmental samples were taken during archaeological investigations at Treloweth Lane, St Erth for the recovery of environmental remains such as plant macrofossils, wood charcoal, faunal remains and Mollusca, as well as to assist finds recovery. Of the sixteen, eleven samples were selected for assessment at this stage taken from postholes, ditches, gullies and pits. The following report assesses the potential of the plant macrofossils and charcoal to inform on the diet, economy and local environment of the site as well as fuel selection and use.

Methodology

- 7.2. The 10-litre bulk environmental samples were processed by flotation using a 500µm mesh for the heavy residue and a 250µm mesh for the retention of the flot before being air dried. The residues were passed through 8, 4 and 2mm sieves and each fraction sorted for environmental and artefactual remains (**Appendix 3: Table 3**). The flots were scanned, in their entirety, under a stereozoom microscope at 7-45x magnifications and their contents recorded (**Appendix 3: Table 4**). Identification of the plant macrofossils was based on observations of gross morphology and surface cell structure and quantification was based on minimum number of individuals. Nomenclature follows Zohary & Hopf (1994).

- 7.3. Charcoal fragments were fractured by hand along three planes (transverse, radial and tangential) according to standardised procedures (Gale & Cutler, 2000; Hather, 2000). Specimens were viewed under a stereozoom microscope for initial grouping, and an incident light microscope at magnifications up to 400x to facilitate identification of the woody taxa present. Taxonomic identifications were assigned by comparing suites of anatomical characteristics visible with those documented in reference atlases (Schoch et al, 2004; Hather, 2000; Schweingruber, 1990). Ten fragments were submitted for identification from samples containing sufficient charcoal (>3g from the >4mm fraction of the heavy residue) and the results recorded in **Appendix 3: Table 3**. Nomenclature follows Stace (1997). Of the initial ten samples, four samples were selected for further detailed analysis of the charcoal. These samples were taken from postholes [1011], [1033], [1037] and pit [1101], and 100 fragments were identified from each sample based on the minimum number of fragments principle for temperate regions proposed by Asouti & Austin (2005) and these results are recorded in **Appendix 3: Tables 5 and 6**.

Results

- 7.4. The bulk environmental samples contained charcoal fragments which were abundant in postholes [1011], [1033] and [1037] and pit [1101]. Fired clay/daub was extracted from posthole [1011], ditch terminus [1031 and pit [1055]. Marine mollusc shell was present in gully terminus [1069]. The flots contained frequent charcoal fragments, worm capsules and modern roots. Land snail shell was present in the flots from gully terminus [1069] and uncharred fat hen (*Chenopodium album*) seeds were identified in posthole [1037], pit/ditches [1034] and [1047], pit [1055] and gully terminus [1093].

Charred Plant Macrofossils

- 7.5. Well-preserved charred plant macrofossils were present in gully terminus [1093] and posthole [1097]. Gully terminus [1093] contained individual wheat (*Triticum* sp.) and oat (*Avena* sp.) caryopses whilst posthole [1097] contained a rounded wheat caryopsis possibly of a free-threshing variety. No other charred plant macrofossils were identified within the bulk environmental samples from Treloweth Lane.

Charcoal

- 7.6. The charcoal from Treloweth Lane (**Appendix 3: Table 5**) was moderately well-preserved with most of the assemblage identifiable to genus- or species-level. The charcoal was especially affected by radial cracks in postholes [1011], [1033] and [1037]. Radial cracks are

missing, or exploded tissue caused by the presence of moisture in the wood and can be attributed to the burning of fresh or damp wood (Fiorentino & D'Oronzo, 2011). Post-depositional sediment, attributed to fluctuations in the water table, was occasional whilst vitrification was frequent in posthole [1011] and [1037]. Vitrification is a process that fuses the anatomical features giving it a glassy appearance, is generally linked to prolonged burning times and high temperatures (Prior & Alvin, 1983). However, experimental evidence indicates that this is not a sufficient factor for charcoal to become vitrified and that a secure cause is not yet known (McParland et al, 2010). Several of the fragments in posthole [1033] were distorted likely caused by thermal degradation during the charring process. Preservation of the charcoal in pit [1101] was excellent with very little distortion to the fragments.

- 7.7. Oak (*Quercus* sp.) was the predominant charcoal taxa across the assemblage and dominated each of the analysed deposits. All the identifiable charcoal from postholes [1011] and [1037] was exclusively of oak with all fragments deriving from large branch or trunkwood. The oak was accompanied by indeterminate knotwood in posthole [1011]. The oak charcoal in posthole [1033] was accompanied by that of birch (*Betula* sp.), of which a small number were of roundwood, from small branch or trunkwood as well as fragment of charcoal from the apple sub-family (*Maloideae*). A sub-family that includes hawthorn, whitebeam, rowan, apple and pear. Almost a quarter of the assemblage in posthole [1033] was from indeterminate bark fragments. 20% of the oak charcoal in pit [1101] derived from roundwood fragments with the remainder from large branch or trunkwood. The oak was accompanied by three roundwood fragments of plum-type (*Prunus* sp.) charcoal. The plum-type charcoal had 2-4 seriate rays in the tangential section and is therefore likely of the wild/sour/ bird cherry variety. A quarter of the assemblage in pit [1001] was formed of charred bark fragments.

Significance and Potential

Charred Plant Macrofossils

- 7.8. The charred plant macrofossils from Treloweth Lane are of low significance considering the paucity of remains. They suggest that wheat was likely locally cultivated and processed within the vicinity of the site. Oat may have been additionally cultivated or may be present as a weed of the wheat crop.

Charcoal

- 7.9. Charcoal data from Bronze Age deposits in Cornwall is extremely limited (Smith 2002: 22), making the small charcoal assemblage at Treloweth Lane highly significant. Oak charcoal was similarly identified in Bronze Age deposits from a number of barrows along the North Cornish coast (Cartwright, 1985) indicating it was both used as domestic fuel and for funerary and ritual activity. The exclusive oak charcoal in postholes [1011] and [1037] likely derives from *in-situ* burnt structural timber as it is all of the same taxa and derives from large branch or trunk wood. Oak makes for excellent timber (Taylor, 1981) and has been identified as building material at Tremough, Cornwall (Gale, 2015). Birch would have thrived in the local area and in particular on the damp heathland of Bodmin Moor (Wilkinson & Straker, 2023) in the Bronze Age. Oak and wood of the apple sub-family and plum-type would have grown across the area in shrubby woodland. The wood taxa identified at Treloweth Lane all make for excellent fuel (Taylor, 1981) and may have been selected as fuelwood if not destined for use as structural timber. The high frequency of radial cracks within the charcoal assemblage suggests that the wood was likely burnt either when fresh or damp. Oak continued to be an important fuelwood into the late Roman and early medieval period in southern Britain (Smith, 2002, 36). The reduction in the frequency of radial cracks in the later deposit may indicate that wood was sufficiently dried-out prior to use than during the earlier occupation.

Conclusion

- 7.10. The charcoal assemblage from Treloweth Lane indicates that oak was the predominant fuel and structural wood at the site during the Bronze Age and later Roman occupation and follows a similar pattern across the southwest of England. Wood was exploited from shrubby oak woodland and birch forests, potentially located on the heathland of Bodmin Moor. The wood was evidently burnt damp or whilst fresh in the Bronze Age but was largely dried-out prior to use during the Roman occupation. Oak continued to be wood of choice in the later period, a trend that is likely due to its availability and that it makes both excellent fuelwood and timber.

Further Work

- 7.11. No further work is recommended on the flots from Treloweth Lane and the remaining five unprocessed samples need not be processed due to the paucity of remains.

Radiocarbon (C14) dates

- 7.12. Two charcoal samples (fill 1032) from posthole [1033], and fill (1100) from pit [1101]) were processed for radiocarbon dating, with dates of 1401-1216 cal BC and 416-545 cal AD. The full detailed report for this analysis is produced in **Appendix 4**.

8. GEOPHYSICAL RESULTS

- 8.1. The 2018 magnetometer survey undertaken by SWARCH indicated several possible archaeological features across the entire development site. Those that were targeted within the earlier evaluation trenching phase were identified within Trenches 4 and 5, and interpreted as boundary features and/or drainage associated with phases of the existing post-medieval and modern field-system. Two small number of discrete features were also recorded within Trench 5 that were not visible on the geophysical survey. The geophysical features targeted by Trench 2 were also identified within the evaluation trench and were clearly visible. This trench also revealed six discrete features that were not shown on the survey.
- 8.2. The strip, map, and sample undertaken during this phase of works, extending to the north and south of evaluation Trench 2, also revealed further evidence of the anomalies indicated within the geophysical survey, allied with more discrete features.
- 8.3. Across the entire development site, the geophysical survey corresponded well to the observed buried archaeological remains, with the larger features, such as field ditches, gullies and elongated pits having been identified. Although the smaller discrete features, such as postholes had not been noted in the survey.

9. DISCUSSION

- 9.1. The postholes and smaller elongated pits were dispersed across the area of archaeology and did not appear to form a coherent permanent settlement structure, such as a roundhouse. However, it is possible that a number of postholes, if they existed, may have disappeared through later truncation by medieval and post/medieval ploughing. Charcoal analysis from postholes [1011] and [1037] suggested the burning of oak, likely derived from *in-situ* structural timbers, although these timbers may have formed part of a domestic or agricultural structure, or even a fence line, though why the latter would have been burnt is unclear/unlikely.

- 9.2. The elongated pits did not appear to have been former beam slots used in the construction of buildings, as they did not have steep sides and/or a flat base. They may have formed smaller ditches with associated banks, and allied with the postholes for possible fence lines, these features may have been utilised for stock enclosures.
- 9.3. Across the excavated archaeological features, there were very few stratigraphical or physical relationships noted, suggesting a possible single phase of use. Of those where physical relationships were noted, pit GRP [1023] cut pit GRP [1025] and elongated pit Grp [1047/211] cut posthole [213] (recorded in the evaluation). This later relationship tentatively suggests that the postholes may have been earlier than the pits.
- 9.4. The longer, linear gullies, though undated may have either related to the possible Bronze Age dispersed settlement activity or may possibly belong to the later medieval field systems, as noted across the wider landscape.
- 9.5. The charcoal and its subsequent analysis, from several features is significant in that charcoal remains from Bronze Age deposits across Cornwall is at present limited.
- 9.6. Also significant is the unusual early post Romano-British radiocarbon date of the charcoal from the isolated posthole [1033], located to the far east of the SMS area. This later date is rare for this part of Cornwall and may indicate activity in the immediate period after the Roman conquest. It is not clear whether this later date suggests that there was either continuous or intermittent occupation of the site from the Bronze Age onwards, or if this later date was activity completely unrelated to the earlier use/occupation of the site.

10. CONCLUSION

- 10.1. The SMS excavation at Treloweth Lane identified a total of 28 archaeological features which broadly validated, and expanded upon, the results of the previous geophysical survey and evaluation trenching within the site. The archaeology present indicated an area of possible prehistoric settlement or agricultural activity consisting of stock enclosures, gullies, and postholes, likely to have formed temporary structures associated with animal husbandry. There is also tentative evidence of activity relating to the early post Romano-British period in the form of a radiocarbon dated posthole.

11. ISCA PROJECT TEAM

- 11.1. Fieldwork was undertaken by Simon Sworn, with assistance by Tim Brown and Jerry Austin. This report was written by Simon Sworn. The finds and environmental reports were written by Imogen Wood (Freelance) and Stacey Adams (York Archaeology) respectfully. The illustrations were compiled by Tim Brown. The project was managed for ISCA by Simon Sworn.

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APPENDIX 1: CONTEXT DISCRIPTIONS

(Context numbers within the description column beginning with a '2', refer to features recorded within the 2019 SWARCH evaluation Trench 2)

Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
1000	Layer		Topsoil	Mid-dark brown clayey silt, occasional small sub-rounded stones	>60	>35	0.3	
1001	Layer		Subsoil	Mid-light yellow brown silty clay, with occasional small and large sub-rounded stones	>60	>35	0.23	Bronze Age
1002	Layer		Natural	Mid brown-yellow silty clay	>60	>35	-	
1003	Fill	1004	Posthole	Mid brown-grey firm silty clay, occasional small sub-angular stones	0.28	0.25	0.09	
1004	Cut		Posthole	Sub-circular cut with shallow concave sides and concave base	0.28	0.25	0.09	
1005	Fill	1006	Gully	Mid red brown firm clayey silt, occasional small sub-angular stones. Same as 1076 and 1090. (Part of Gully A)	>1.2	1.16	0.18	
1006	Cut		Gully	North-west/south-east aligned cut with moderate concave sides and irregular flat base. Same as 1077 and 1091. (Part of Gully A)	>1.2	1.16	0.18	
1007	Fill	1008	Gully	Mid red-brown loose clayey silt, occasional small sub-rounded stones. Same as 1014 and 1016. (Part of Gully D)	>1	0.34	0.04	
1008	Cut		Gully	North-west/south-east linear with shallow concave sides and base. (Part of Gully D)	>1	0.34	0.04	
1009	Fill	1011	Posthole	Mid-dark brown-grey firm clayey silt, frequent charcoal and burnt clay and very occasional small subrounded stones	0.19	0.19	0.27	
1010	Fill	1011	Posthole	Mid brown-grey firm silty clay, frequent small-medium sub-angular stones	0.31	0.31	0.32	
1011	Cut		Posthole	Sub-circular cut with steep sides and a flat base	0.31	0.31	0.32	
1012	Fill	1013	Pit	Mid grey-brown firm silty clay, occasional small-medium subangular stones	1.6	>0.64	0.26	
1013	Cut		Pit	Oval cut with steep concave sides and flat base. Not fully exposed, extends beyond northern limit of SMS	1.6	>0.64	0.26	
1014	Fill	1015	Gully	Mid red-brown loose clayey silt, occasional small sub-rounded stones. Same as 1008 and 1016. (Part of Gully D)	>1	0.45	0.04	
1015	Cut		Gully	North-west/south-east linear with shallow concave sides and base. (Part of Gully D)	>1	0.45	0.04	
1016	Fill	1017	Gully	Mid red-brown loose clayey silt, occasional small sub-rounded stones. Same as 1008 and 1014. (Part of Gully D)	>0.8	0.48	0.06	
1017	Cut		Gully	North-west/south-east linear with shallow concave sides and base – truncated southern terminus. (Part of Gully D)	>0.8	0.48	0.06	
1018	Fill	1019	Elongated pit/ short ditch	Mid grey-brown firm clayey silt, frequent medium-large sub-rounded stones. Same as 1020 and 1024	>1.15	0.96	0.3	

Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
1019	Cut		Elongated pit/ short ditch	South-west/north-east aligned short linear cut with steep concave sides and shallow concave base. Western terminus. Same as 1021 and 1025	>1.15	0.96	0.3	
1020	Fill	1021	Elongated pit/ short ditch	Mid grey-brown firm clayey silt, occasional medium sub-rounded stones. Same as 1018 and 1024	>1	0.68	0.18	
1021	Cut		Elongated pit/ short ditch	South-west/north-east aligned short linear cut with steep concave sides and shallow concave base. Same as 1019 and 1025	>1	0.68	0.18	
1022	Fill	1023	Pit	Mid red-brown firm clayey silt, occasional small sub-rounded stones. Same as 1048	>0.85	0.4	0.16	Bronze Age
1023	Cut		Pit	Shorth east/west aligned cut with moderate concave sides and base. Same as 1049	>0.85	0.4	0.16	
1024	Fill	1025	Elongated pit/ short ditch	Mid grey-brown firm clayey silt, frequent medium-large sub-rounded stones. Same as 1018 and 1020. Cut by 1023	>0.5	>0.17	0.19	
1025	Cut		Elongated pit/ short ditch	South-west/north-east aligned short linear cut with steep concave sides and shallow concave base. Eastern terminus. Same as 1019 and 1021	>0.5	>0.17	0.19	
1026	Fill	1027	Elongated pit/ short ditch	Mid grey-brown friable clayey silt, occasional small sub-angular stones. Same as 1044 and 220.	>1	0.85	0.12	
1027	Cut		Elongated pit/ short ditch	North-west/south-east aligned linear cut with shallow concave sides and irregular base. Same as 1045 and 219.	>1	0.85	0.12	
1028	Fill	1029	Gully	Mid red-brown friable clayey silt, occasional small sub-angular stones. Same as 1066, 1068 and 1094	>1	0.69	0.12	
1029	Cut		Gully	North-west/south-east aligned linear gully, with shallow concave sides and base. Same as 1067, 1069 and 1095. (Part of Gully E)	>1	0.69	0.12	
1030	Fill	1031	Gully	Mid red-brown friable silty clay, frequent small-medium sub-angular stones. Same as 222, 1062, 1064, 1070 and 1072. (Part of Gully C)	>1	0.81	0.11	
1031	Cut		Gully	North-west/south-east aligned linear cut, with shallow concave sides and near-flat base. Southern terminus. Same as 221, 1063, 1065, 1071 and 1073. (Part of Gully C)	>1	0.81	0.11	
1032	Fill	1033	Posthole	Black friable charcoal-rich clayey silt, occasional small sub-angular stones	0.38	0.38	0.13	
1033	Cut		Posthole	Circular cut with steep sides and 'U' shaped base	0.38	0.38	0.13	
1034	Fill	1035	Posthole	Black friable charcoal-rich clayey silt, occasional small sub-angular stones	0.28	0.25	0.13	
1035	Cut		Posthole	Sub-circular cut with steep sides and 'U' shaped base	0.28	0.25	0.13	
1036	Fill	1037	Posthole	Dark brown-grey firm clayey silt, occasional charcoal flecks and small sub-angular stones	0.16	0.11	0.19	

Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
1037	Cut		Posthole	Circular cut with steep sides and 'U' shaped base	0.16	0.11	0.19	
1038	Fill	1039	Posthole	Mid brown-grey brown firm clayey silt, occasional small sub-angular stones	0.43	0.38	0.32	
1039	Cut		Posthole	Sub-circular cut with steep sides and flat	0.43	0.38	0.32	
1040	Fill	1041	Elongated pit	Mid yellow-brown firm clayey silt, frequent small-medium sub-angular stones	1.27	0.63	0.23	
1041	Cut		Elongated pit	East/west extended oval cut, with moderate concave sides and shallow base	1.27	0.63	0.23	
1042	Fill	1043	Elongated pit	Mid brown-grey firm clayey silt, frequent medium-large sub-angular stones	1.8	0.62	0.29	
1043	Cut		Elongated pit	East/west extended oval cut, with moderate concave sides and shallow irregular base	1.8	0.62	0.29	
1044	Fill	1045	Elongated pit/ short ditch	Mid grey-brown friable clayey silt, occasional small sub-angular stones Same as 220 and 1026	>1.1	1.05	0.23	Bronze Age
1045	Cut		Elongated pit/ short ditch	North-west/south-east aligned linear cut with shallow concave sides and irregular base. Same as 219 and 1045	>1.1	1.05	0.23	
1046	Fill	1047	Elongated pit/ short ditch	Mid red-brown firm clayey silt, frequent small-medium sub-angular stones and occasional flecks of charcoal. Same as 218, 1050 and 1052	>1	0.64	0.24	
1047	Cut		Elongated pit/ short ditch	North-west/south-east aligned linear cut, with moderate concave sides and base. Same as 217, 1051 and 1053	>1	0.64	0.24	
1048	Fill	1049	Pit	Mid red-brown firm clayey silt, occasional small sub-rounded stones. Same as 1022	>0.4	0.41	0.11	
1049	Cut		Pit	Short east/west aligned cut with moderate concave sides and base. Same as 1023. Cuts 1024	>0.4	0.41	0.11	
1050	Fill	1051	Elongated pit/ short ditch	Mid red-brown firm clayey silt, frequent small-medium sub-angular stones. Same as 218, 1046 and 1052	>1	1.03	0.23	
1051	Cut		Elongated pit/ short ditch	North-west/south-east aligned linear cut, with moderate concave sides and base. Same as 217, 1047 and 1053	>1	1.03	0.23	
1052	Fill	1053	Elongated pit/ short ditch	Mid red-brown firm clayey silt, frequent small-medium sub-angular stones. Same as 218, 1046 and 1050	>1	0.7	0.2	
1053	Cut		Elongated pit/ short ditch	North-west/south-east aligned linear cut, with moderate concave sides and base. Same as 217, 1047 and 1051	>1	0.7	0.2	
1054	Fill	1055	Elongated pit	Mid grey-brown firm clayey silt, frequent medium-large sub-angular stones and occasional charcoal flecks	3.03	1.18	0.37	Pre-historic
1055	Cut		Elongated pit	North/south extended oval cut, with moderate concave sides and shallow concave base	3.03	1.18	0.37	
1056	Fill	1057	Elongated pit	Dark brown friable clayey silt, frequent large sub-angular stones. Same as 1058 and 1060	>1.8	1.24	0.66	

Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
1057	Cut		Elongated pit	East/west extended oval cut, with steep sides and 'V' shaped base. Same as 1059 and 1061	>1.8	1.24	0.66	
1058	Fill	1059	Elongated pit	Dark brown friable clayey silt, frequent large sub-angular stones. Same as 1056 and 1060	>1	1.8	0.62	
1059	Cut		Elongated pit	East/west extended oval cut, with steep sides and 'V' shaped base. Same as 1057 and 1061	>1	1.8	0.62	
1060	Fill	1061	Elongated pit	Dark brown friable clayey silt, frequent large sub-angular stones. Same as 1056 and 1058	>0.75	0.7	0.13	
1061	Cut		Elongated pit	East/west extended oval cut, with gentle sides and shallow base. Same as 1057 and	>0.75	0.7	0.13	
1062	Fill	1063	Gully	Mid red-brown friable silty clay, frequent small-medium sub-angular stones. Same as 222, 1030, 1064, 1070 and 1072. (Part of Gully C)	>1	0.78	0.34	
1063	Cut		Gully	North-west/south-east aligned linear cut, with steep concave sides and near-flat base. Same as 221, 1031, 1065, 1071 and 1073. (Part of Gully C)	>1	0.78	0.34	
1064	Fill	1065	Gully	Mid red-brown friable silty clay, frequent small-medium sub-angular stones. Same as 222, 1030, 1062, 1070 and 1072. (Part of	>1	1.1	0.31	
1065	Cut		Gully	North-west/south-east aligned linear cut, with moderate concave sides and near-flat base. Same as 221, 1031, 1063, 1071 and 1073. (Part of Gully C)	>1	1.1	0.31	
1066	Fill	1067	Gully	Mid red-brown friable clayey silt, occasional small sub-angular stones. Same as 1028, 1068 and 1094. (Part of Gully E)	>0.6	0.56	0.1	
1067	Cut		Gully	North-west/south-east aligned linear gully, with shallow concave sides and base. Same as 1029, 1069 and 1095. (Part of Gully E)	>0.6	0.56	0.1	
1068	Fill	1069	Gully	Mid red-brown friable clayey silt, occasional small sub-angular stones. Same as 1028, 1066 and 1094. (Part of Gully E)	>0.78	0.8	0.16	
1069	Cut		Gully	North-west/south-east aligned linear gully, with shallow concave sides and base. South-east terminus. Same as 1029, 1067 and 1095.	>0.78	0.8	0.16	
1070	Fill	1071	Gully	Mid red-brown friable silty clay, frequent small-medium sub-angular stones. Same as 222, 1030, 1062, 1064 and 1072. (Part of Gully C)	>1	0.7	0.28	
1071	Cut		Gully	North-west/south-east aligned linear cut, with moderate concave sides and near-flat base. Northern terminus. Same as 221, 1031, 1063, 1065 and 1073. (Part of Gully C)	>1	0.7	0.28	
1072	Fill	1073	Gully	Mid red-brown friable silty clay, frequent small-medium sub-angular stones. Same as 222, 1030, 1062, 1064 and 1070. (Part of Gully C)	>0.14	>0.13	>0.2	

Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
1073	Cut		Gully	North-west/south-east aligned linear cut, with moderate concave sides and near-flat base. Same as 221, 1031, 1063, 1065 and 1071. (Part of Gully C)	>0.14	>0.13	>0.2	
1074	Fill	1075	Posthole	Mid red-brown firm clayey silt, frequent medium sub-angular stones.	0.38	0.3	0.21	
1075	Cut		Posthole	Sub-circular cut, with steep sides and flat base	0.38	0.3	0.21	
1076	Fill	1077	Gully	Mid red-brown firm clayey silt, occasional small sub-angular stones. Same as 1005 and 1090. (Part of Gully A)	>1	0.78	0.08	
1077	Cut		Gully	North/south aligned cut with shallow concave sides and base. Same as 1006 and 1091. (Part of Gully A)	>1	0.78	0.08	
1078	Fill	1079	Gully	Mid red-brown firm clayey silt, occasional small sub-angular stones. Same as 210, 1080, 1082, 1092 and 1104. (Part of Gully B)	>0.8	0.5	0.05	
1079	Cut		Gully	North-west/south-east aligned cut with shallow concave sides and base. Same as 210, 1081, 1083, 1093 and 1105. (Part of Gully B)	>0.8	0.5	0.05	
1080	Fill	1981	Gully	Mid red-brown firm clayey silt, occasional small sub-angular stones. Same as 210, 1078, 1082, 1092 and 1104. (Part of Gully B)	>1.3	0.53	0.04	
1081	Cut		Gully	North-west/south-east aligned cut with shallow concave sides and base. Same as 210, 1079, 1083, 1093 and 1105. (Part of Gully B)	>1.3	0.53	0.04	
1082	Fill	1083	Gully	Mid red-brown firm clayey silt, occasional small sub-angular stones. Same as 210, 1078, 1080, 1092 and 1104. (Part of Gully B)	>1	0.81	0.06	
1083	Cut		Gully	North-west/south-east aligned cut with shallow concave sides and base. Same as 210, 1079, 1081, 1093 and 1105. (Part of Gully B)	>1	0.81	0.06	
1084	Fill	1085	Posthole	Mid yellow-brown firm clayey silt, occasional small sub-angular stones	0.38	0.38	0.22	
1085	Cut		Posthole	Circular cut, with vertical sides and flat base	0.38	0.38	0.22	
1086	Fill	1087	Posthole	Mid red-brown firm clayey silt, frequent small sub-angular stones	0.5	0.5	0.08	
1087	Cut		Posthole	Circular cut, with moderate concave sides and shallow/flat base	0.5	0.5	0.08	
1088	Fill	1089	Posthole	Mid yellow-brown firm clayey silt, occasional small-medium sub-angular stones	0.52	0.52	0.13	
1089	Cut		Posthole	Circular cut, with steep concave sides and flat base	0.52	0.52	0.13	
1090	Fill	1091	Gully	Mid red-brown firm clayey silt, occasional small sub-angular stones. Same as 1005 and 1076. (Part of Gully A)	>0.6	0.69	0.08	

Context No.	Type	Fill of	Interpretation	Description	L(m)	W(m)	D(m)	Spot-date
1091	Cut		Gully	North-west/south-east aligned cut with shallow concave sides and base. Southern terminus. Same as 1006 and 1077. (Part of Gully A)	>0.6	0.69	0.08	
1092	Fill	1093	Gully	Mid red-brown firm clayey silt, occasional small sub-angular stones. Same as 210, 1078, 1080, 1082 and 1104. (Part of Gully B)	>1	0.5	0.09	
1093	Cut		Gully	North-west/south-east aligned cut with shallow concave sides and base. Southern terminus. Same as 210, 1078, 1081, 1083 and 1105. (Part of Gully B)	>1	0.5	0.09	
1094	Fill	1095	Gully	Mid red-brown friable clayey silt, occasional small sub-angular stones. Same as 1028, 1066 and 1068. (Part of Gully E)	-	0.65	0.09	
1095	Cut		Gully	East/west aligned linear gully, with shallow concave sides and base. South-east terminus. Same as 1029, 1067 and 1067. Northern terminus cut by Evaluation Trench 2. (Part of Gully E)	-	0.65	0.09	
1096	Fill	1097	Posthole	Mid-dark red-brown firm clayey silt, frequent small-medium sub-angular stones,	0.3	0.3	0.21	Bronze Age
1097	Cut		Posthole	Circular cut, with steep regular sides and flat base	0.3	0.3	0.21	
1098	Fill	1099	Elongated pit	Mid-dark red-brown clayey silt, frequent small sub-angular stones. Same as 212	>0.5	0.6	0.11	
1099	Cut		Elongated pit	North-west/south-east aligned curvilinear cut, with moderate concave sides and shallow base. Same as 211	>0.5	0.6	0.11	
1100	Fill	1101	Pit	Mid red-brown firm clayey silt, occasional small sub-angular stones	0.82	0.8	0.14	
1101	Cut		Pit	Circular cut, with shallow concave sides and base	0.82	0.8	0.14	
1102	Fill	1103	Posthole	Mid red-brown firm clayey silt, occasional small sub-angular stones, and charcoal flecks.	0.5	0.45	0.2	
1103	Cut		Posthole	Sub-oval cut, with steep concave sides and concave base	0.5	0.45	0.2	
1104	Fill	1105	Gully	Mid red-brown firm clayey silt, occasional small sub-angular stones. Same as 210, 1078, 1080, 1082 and 1092. (Part of Gully B)	>1	1.21	0.15	
1105	Cut		Gully	North-west/south-east aligned cut with shallow concave sides and base. Same as 210, 1079, 1081, 1083 and 1093. (Part of Gully B)	>1	1.21	0.15	

APPENDIX 2: FINDS CONCORDANCE

Period	No of sherds	Weight (grams)
Bronze Age	6	77
Prehistoric	2	11
Total	8	88

Table 1: Quantification by period

Context	Count	Weight (g)	Abrasion	Fabric	Description
1001	3	56	2	Gabbro	Body sherd of large jar black coating interior surface, undecorated
1022	1	2	3	Gabbro rock	Abraded undiagnostic sherd oxidised with reduced interior
1044	1	12	3	Gabbro rock	Body sherd of very abraded oxidised sherd oxidised exterior with reduced interior surface.
1054	2	11	3	Gabbro	Basal angle sherd and base sherd, highly abraded with an oxidised exterior and reduced interior
1096	1	7	3	Gabbro rock	Body sherd oxidised exterior and reduced interior

Table 2: context-by-context breakdown of fabrics, wares, abrasion, and dating

APPENDIX 3: ENVIRONMENTAL TABLES

Sample Number	Context	Context / Deposit Type and Parent Context	Sample Volume(L)	Charcoal >4mm	Weight (g)	Charcoal 2-4mm	Weight (g)	Charcoal Identifications	Preservation	Marine Molluscs	Weight (g)	Pottery	Weight (g)	Fired Clay/ Daub	Weight (g)	Magnetic Material	Weight (g)
1	(1009)	Posthole [1011]	10	***	8	***	8	<i>Quercus</i> sp. (10) [ARN:3, RC:8, V:5, PDS:1]	++	-	-	-	-	**	19	-	-
2	(1032)	Posthole [1033]	10	*** *	19	***	2	<i>Betula</i> sp. (3) [ARN:3] Maloideae (1) [ARN:2] Bark (5) Knotwood (1)	++	-	-	-	-	-	-	**	1
4	(1036)	Posthole [1037]	10	***	7	-	-	<i>Quercus</i> sp. (10) [ARN:2, RC:7, V:5, PDS:3]	++	-	-	-	-	-	-	-	-
5	(1030)	Ditch Terminus [1031] in Gully C	10	-		***	2			-	-	-	-	*	13	-	-
6	(1044)	Elongated Pit/ Ditch Terminus [1034]	10	**	1	**	1			-	-	-	-	-	-	-	-
7	(1046)	Elongated Pit/ Ditch Terminus [1047]	10	**	<1	*	<1			-	-	-	-	-	-	*** *	4
8	(1054)	Elongated Pit [1055]	10			**	<1			-	-	-	-	*	12	*** **	5
10	(1068)	Gully E Terminus [1069]	10	*	<1	-	-			*	<1	-	-	-	-	**	2
14	(1092)	Gully D Terminus [1093]	10	*	1	-	-			-	-	-	-	-	-	*	<1
15	(1100)	Pit [1101]	10	*** *	28	***	3	<i>Quercus</i> sp. (7) [ARN:8, RW:2, RC:2] Bark (3)	+++	-	-	-	-	-	-	**	2
16	(1096)	Posthole [1097]	10	**	1	**	1			-	-	-	-	-	-	-	-

Table 3: Ecofacts and artefacts from bulk environmental samples from Treloweth Lane, St Erth.

Quantification: * = 1-10, ** = 11-50, *** = 51-150, **** = 151-250, ***** = >250. Preservation: + = poor, ++ = moderate, +++ = good. Key: ARN: average ring number, RC = radial cracks, V = vitrification, PDS = post-depositional sediment, RW = roundwood.

Sample Number	Context	Context/ Deposit Type and Parent Context	Sample Volume (L)	Flot Weight (g)	Flot Volume (ml)	Uncharred (%)	Seeds Uncharred	Charcoal >4mm	Charcoal 2-4mm	Charcoal <2mm	Charred Cereal Caryopses	Preservation	Worm Capsules	Land Snail Shells	Modern Roots
1	(1009)	Posthole [1011]	10	<1	<5	50		-	-	**			-	-	**
2	(1032)	Posthole [1033]	10	7	15	20		*	***	*****			-	-	**
4	(1036)	Posthole [1037]	10	<1	<5	60	<i>Chenopodium album</i> *	-	**	***			*	-	*
5	(1030)	Ditch Terminus [1031] in Gully C	10	1	5	80		*	**	***			-	-	**
6	(1044)	Elongated Pit/ Ditch Terminus [1034]	10	1	5	75	<i>Chenopodium album</i> *	*	**	***			**	-	***
7	(1046)	Elongated Pit/ Ditch Terminus [1047]	10	1	5	95	<i>Chenopodium album</i> *	-	*	**			**	-	*
8	(1054)	Elongated Pit [1055]	10	1	5	90	<i>Chenopodium album</i> *	-	**	**			*	-	**
10	(1068)	Gully E Terminus [1069]	10	<1	<5	75		-	*	**			*	*	**
14	(1092)	Gully D Terminus [1093]	10	<1	5	80	<i>Chenopodium album</i> *	-	**	***	<i>Triticum</i> sp. (1) <i>Avena</i> sp. (1)	+++	**	-	**
15	(1100)	Pit [1101]	10	3	10	90		*	***	***			*	-	***
16	(1096)	Posthole [1097]	10	<1	<5	90		*	**	***	<i>Triticum</i> sp. rounded (1)	+++	*	-	***

Table 4: Flot assessment from bulk environmental samples from Treloweth Lane, St Erth.

Quantification: * = 1-10, ** = 11-50, *** = 51-150, **** = 151-250, ***** = >250. Preservation: + = poor, ++ = moderate, +++ = good.

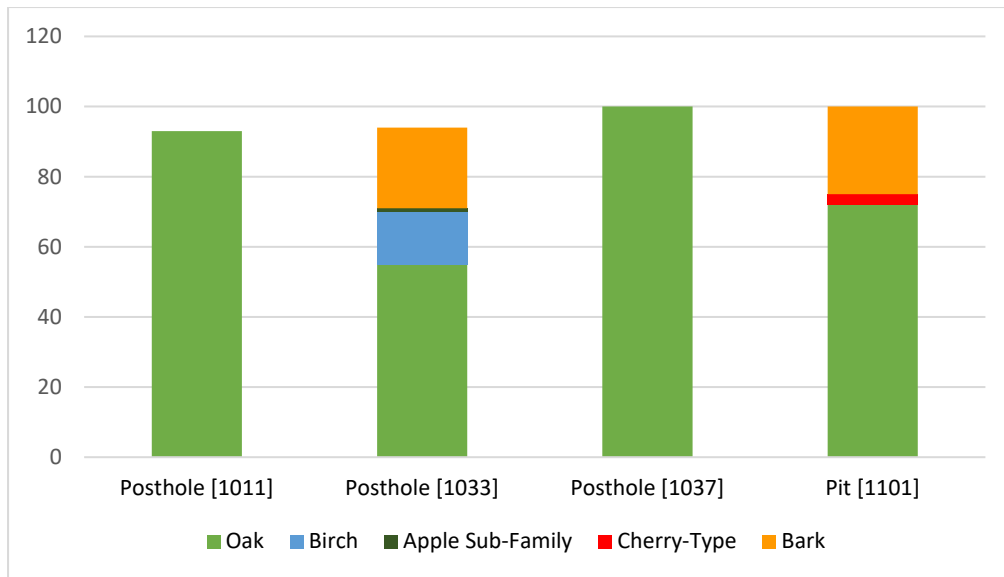


Table 5: Charcoal analysis

Sample Number	Context Number	Context Description	Preservation	Average Ring Number per Wood Fragment	Oak	Birch	Apple sub family; hawthorn, whitebeam, rowan, apple, pear	Plum-type; wild cherry, sour cherry, bird cherry	Indeterminate	Indeterminate Knotwood	Indeterminate Bark Fragment	Radial Cracks	Post-Depositional	Vitrified	Distorted
<1>	(1009)	Posthole [1011]	++	3	93	-	-	-	2	5	-	64	15	50	-
<2>	(1032)	Posthole [1033]	++	3	55	15 rw:3	1	-	-	6	23	20	2	6	9
<4>	(1036)	Posthole [1037]	++	3	100	-	-	-	-	-	-	32	3	24	-
<15>	(1100)	Pit [1101]	+++	5	72 rw:15	-	-	3rw	-	-	25	8	1	1	-

Table 6: Charcoal Analysis from Bulk Environmental Samples

Preservation: + = poor, ++ = moderate, +++ = good. Key: rw = roundwood.

APPENDIX 4: RADIOCARBON DATING TABLES



ISO/IEC 17025:2017-Accredited Testing Laboratory

REPORT OF RADIOCARBON DATING ANALYSES

Stacey Adams

Report Date: June 28, 2023

York Archaeology

Material Received: June 19, 2023

Laboratory Number

Sample Code Number

Conventional Radiocarbon Age (BP) or
Percent Modern Carbon (pMC) & Stable Isotopes

Beta - 666606

TPA_504

3040 +/- 30 BP

IRMS δ13C: -25.7 o/oo

(95.4%)

1401 - 1216 cal BC

(3350 - 3165 cal BP)

Submitter Material: Charcoal

Pretreatment: (charred material) acid/alkali/acid

Analyzed Material: Charred material

Analysis Service: AMS-Standard delivery

Percent Modern Carbon: 68.49 +/- 0.26 pMC

Fraction Modern Carbon: 0.6849 +/- 0.0026

D14C: -315.07 +/- 2.56 o/oo

Δ14C: -321.09 +/- 2.56 o/oo (1950:2023)

Measured Radiocarbon Age: (without d13C correction): 3050 +/- 30 BP

Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.



ISO/IEC 17025:2017-Accredited Testing Laboratory

REPORT OF RADIOCARBON DATING ANALYSES

Stacey Adams

Report Date: June 28, 2023

York Archaeology

Material Received: June 19, 2023

Laboratory Number

Sample Code Number

Conventional Radiocarbon Age (BP) or
Percent Modern Carbon (pMC) & Stable Isotopes

Beta - 666607

TPA_505

1600 +/- 30 BP

IRMS $\delta^{13}C$: -25.9 o/oo

(95.4%)

416 - 545 cal AD

(1534 - 1405 cal BP)

Submitter Material: Charcoal

Pretreatment: (charred material) acid/alkali/acid

Analyzed Material: Charred material

Analysis Service: AMS-Standard delivery

Percent Modern Carbon: 81.94 +/- 0.31 pMC

Fraction Modern Carbon: 0.8194 +/- 0.0031

D14C: -180.60 +/- 3.06 o/oo

$\Delta^{14}C$: -187.80 +/- 3.06 o/oo (1950:2023)

Measured Radiocarbon Age: (without d13C correction): 1610 +/- 30 BP

Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the ¹⁴C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. ^{d13}C values are on the material itself (not the AMS ^{d13}C). ^{d13}C and ^{d15}N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.

Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: $\delta^{13}\text{C} = -25.7$ o/oo)

Laboratory number **Beta-666606**

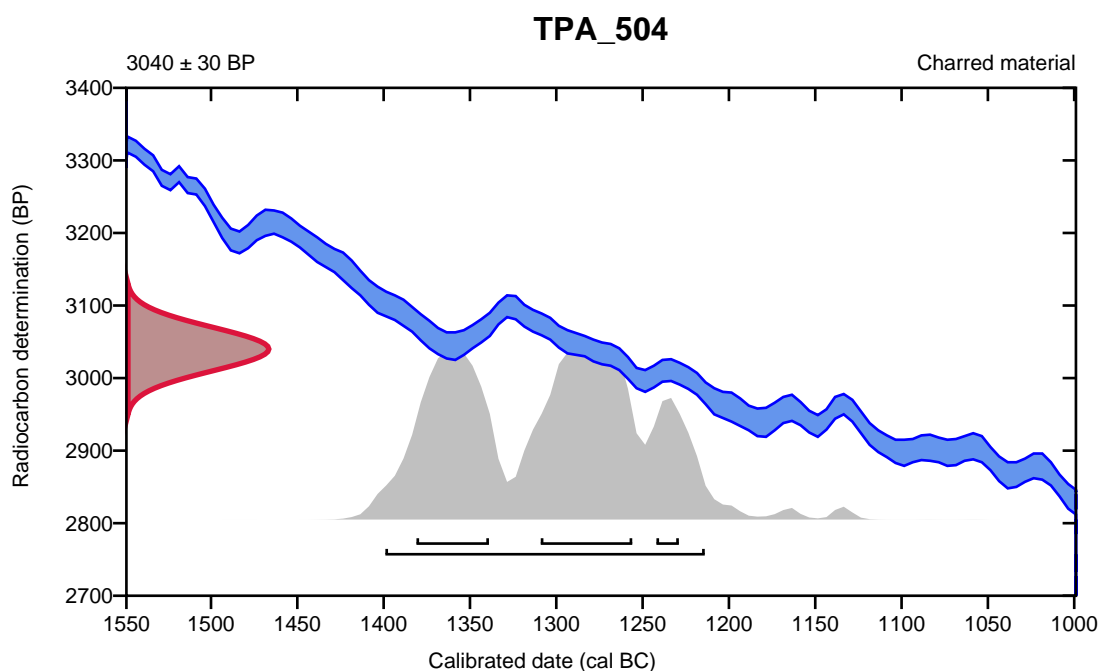
Conventional radiocarbon age **3040 \pm 30 BP**

95.4% probability

(95.4%) 1401 - 1216 cal BC (3350 - 3165 cal BP)

68.2% probability

(35.5%) 1311 - 1258 cal BC (3260 - 3207 cal BP)
(26.5%) 1383 - 1341 cal BC (3332 - 3290 cal BP)
(6.2%) 1244 - 1231 cal BC (3193 - 3180 cal BP)



Database used
INTCAL20

References

References to Probability Method

Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. *Radiocarbon*, 51(1), 337-360.

References to Database INTCAL20

Reimer, et al., 2020, *Radiocarbon* 62(4):725-757.

Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -25.9 o/oo)

Laboratory number **Beta-666607**

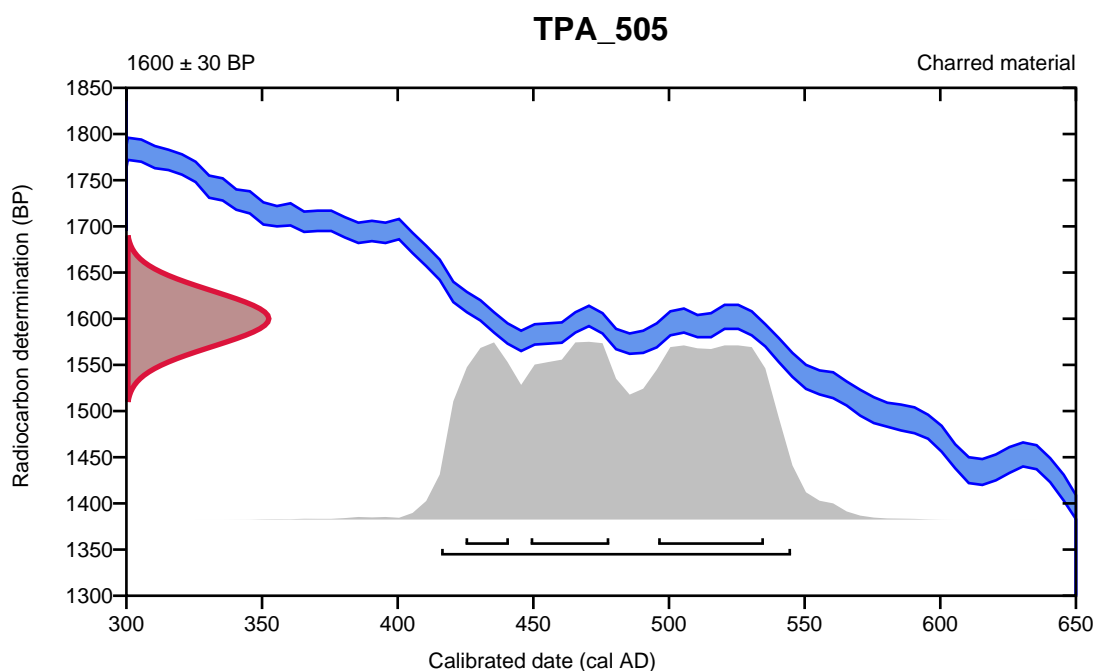
Conventional radiocarbon age **1600 ± 30 BP**

95.4% probability

(95.4%) 416 - 545 cal AD (1534 - 1405 cal BP)

68.2% probability

(32%)	496 - 535 cal AD	(1454 - 1415 cal BP)
(23.4%)	449 - 478 cal AD	(1501 - 1472 cal BP)
(12.7%)	425 - 441 cal AD	(1525 - 1509 cal BP)



Database used
INTCAL20

References

References to Probability Method

Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. *Radiocarbon*, 51(1), 337-360.

References to Database INTCAL20

Reimer, et al., 2020, *Radiocarbon* 62(4):725-757.



ISO/IEC 17025:2017-Accredited Testing Laboratory

Quality Assurance Report

This report provides the results of reference materials used to validate radiocarbon analyses prior to reporting. Known-value reference materials were analyzed quasi-simultaneously with the unknowns. Results are reported as expected values vs measured values. Reported values are calculated relative to NIST SRM-4990C and corrected for isotopic fractionation. Results are reported using the direct analytical measure percent modern carbon (pMC) with one relative standard deviation. Agreement between expected and measured values is taken as being within 2 sigma agreement (error x 2) to account for total laboratory error.

Report Date: June 28, 2023
Submitter: Ms. Stacey Adams

QA MEASUREMENTS

Reference 1

Expected Value: 0.44 +/- 0.04 pMC

Measured Value: 0.44 +/- 0.04 pMC

Agreement: Accepted

Reference 2

Expected Value: 129.41 +/- 0.06 pMC

Measured Value: 129.44 +/- 0.37 pMC

Agreement: Accepted

Reference 3

Expected Value: 96.69 +/- 0.50 pMC

Measured Value: 96.24 +/- 0.30 pMC

Agreement: Accepted

COMMENT: All measurements passed acceptance tests.

Validation:


Digital signature on file

Date: June 28, 2023

APPENDIX 5: OASIS FORM

OASIS ID:	iscaarch2-509666
Project Name	Land at Treloweth Lane, St Erth, Hayle, Cornwall
Project Type:	Archaeological Strip, Map, and Sample
Short description of the project	An archaeological strip, map and sample was undertaken by ISCA Archaeology between 9 - 20 January 2023 at Land at Treloweth Lane, St Erth, Hayle, Cornwall, prior to the development of 44 new residential dwellings and associated landscaping and services. The archaeology present was dispersed across the site (totalling 2310m ²). The archaeological programme of works identified a total of 28 archaeological features which broadly validated, an expanded upon, the results of the previous geophysical survey and evaluation trenching within the site. The archaeology present was located to the northern half of the excavated area. These features indicated possible dispersed prehistoric settlement or agricultural activity consisting of stock enclosures, gullies, postholes, and pits are likely to have formed temporary structures associated with animal husbandry and prehistoric settlement activity, which is also evident within the wider landscape. Bronze Age pottery was recovered from four of the archaeological features. Charcoal from several features is significant in that charcoal remains from Bronze Age deposits across Cornwall is at present limited. Also significant is an unusual early post Romano-British date from an isolated posthole located to the far east of the SMS area.
Project dates	9 – 20 January 2023
Previous/Future work	Heritage Impact Assessment - South West Archaeology 2018 Geophysical Survey - South West Archaeology 2018 Trial Trench Evaluation - South West Archaeology 2019
Associated project reference codes	Site code: TLE22 Planning application: PA17/12089
Site status	None
Reason for Investigation	National Planning Policy Framework
Position in planning process	Condition
Current land use	Pasture
Monument type	None
Significant finds	None
Methods and techniques	Targeted excavation
Development type	Housing
PROJECT LOCATION	
Site location	Land at Treloweth Lane, St Erth, Hayle, Cornwall
Study area (size)	2310m ²
Site coordinates	SW 54602 35281
Height aOD	19.47m (max), 15.75m (min)

PROJECT CREATORS

Name of Organisation	ISCA Archaeology
Project Manager	Simon Sworn
Project supervisors	Simon Sworn
Type of sponsor/ funding body	Developer

PROJECT ARCHIVES

Physical	Pottery
Digital	Photographs, survey, report
Paper	Context sheets, Sample register, Photograph register, Drawings
Archive destination	Royal Cornwall Museum

PROJECT BIBLIOGRAPHY

ISCA Archaeology 2023 *Land at Treloweth Lane, St Erth, Hayle, Cornwall: Archaeological Evaluation*. **ISCA typescript report P02-0022-2**

APPENDIX 6: REPORT FIGURES



Figure No.

5

Figure Title

General view of the SMS Area prior to excavation. View to south-east..



Figure No.

6

Figure Title

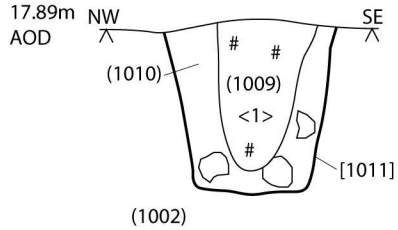
General view of the SMS Area during excavation. View to south-east.





Scale at 0.3m. View to north-east

Section AA

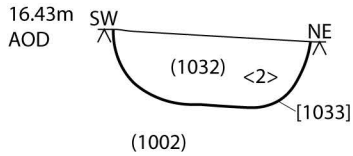


<p>Figure No. 7</p>	<p>Figure Title Posthole 1011. Section AA.</p>	
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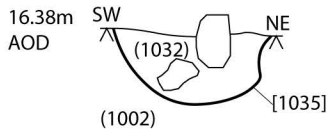


Scale at 0.3m. View to north-west

Section BB



Section CC

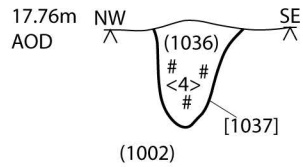


<p>Figure No. 8</p>	<p>Figure Title Charcoal filled postholes 1033 (top left) and 1035. Sections BB and CC.</p>	
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Scale at 0.3m. View to north-east

Section DD

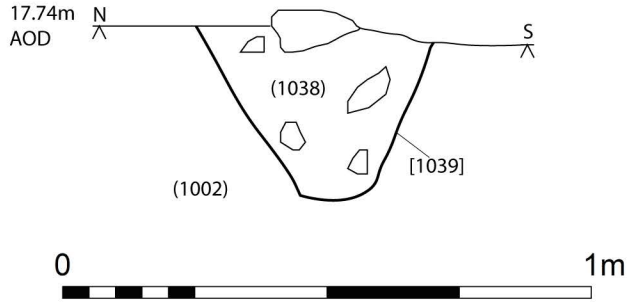


<p>Figure No. 9</p>	<p>Figure Title Posthole 1037. Section DD.</p>	
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Scale at 0.3m. View to east

Section EE

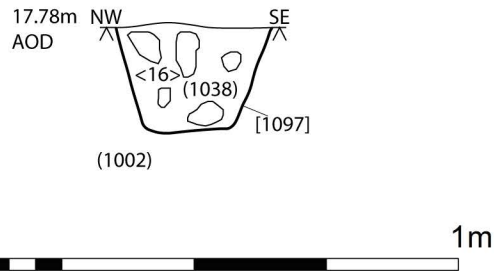


<p>Figure No. 10</p>	<p>Figure Title Posthole 1039. Section EE.</p>	
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Scale at 0.4m. View to north-east

Section FF

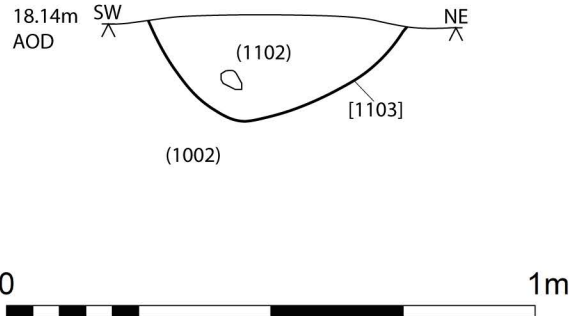


<p>Figure No. 11</p>	<p>Figure Title Posthole 1097. Section FF.</p>	
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Scale at 0.3m. View to north-west

Section GG



<p>Figure No. 12</p>	<p>Figure Title Posthole 1103. Section GG.</p>	
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Scale at 0.3m. View to north-east

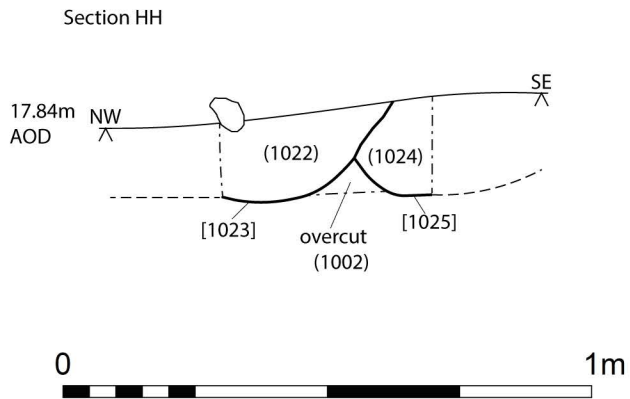


Figure No. 13
Figure Title Intercutting pits 1023 (left) and 1025 (right). Section HH.



Scale at 0.4m. View to east

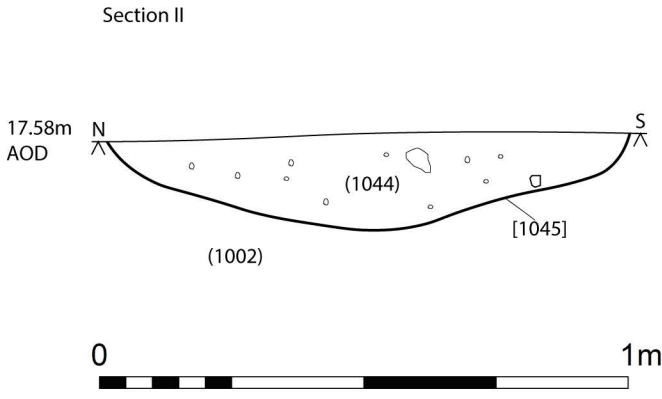


Figure No. 14
Figure Title Elongated pit/ditch 1045, northern terminus. Section II.



Scale at 0.4m. View to north

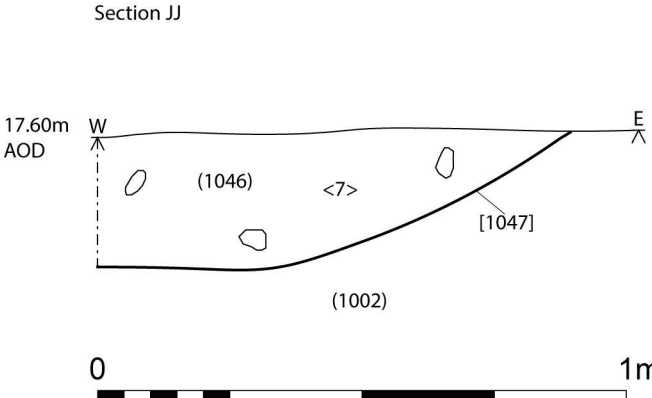


Figure No. 15
Figure Title Elongated pit/ditch 1047, south-western terminus. Section JJ.





Scale at 0.4m. View to north

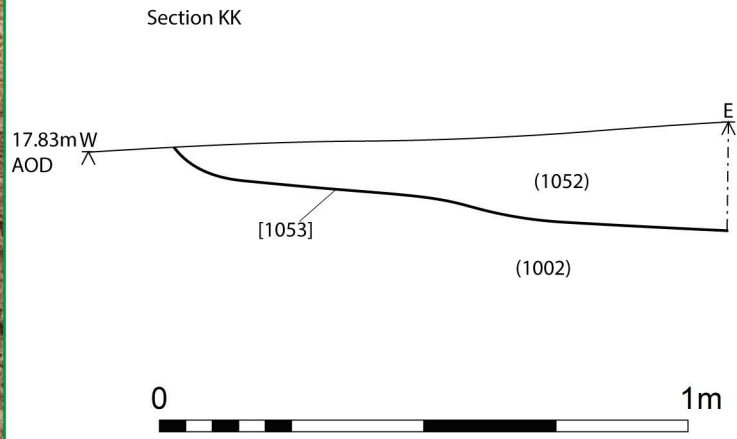


Figure No. 16
Figure Title Elongated pit/ditch 1053, western terminus. Section KK.



Scale at 1m. View to west

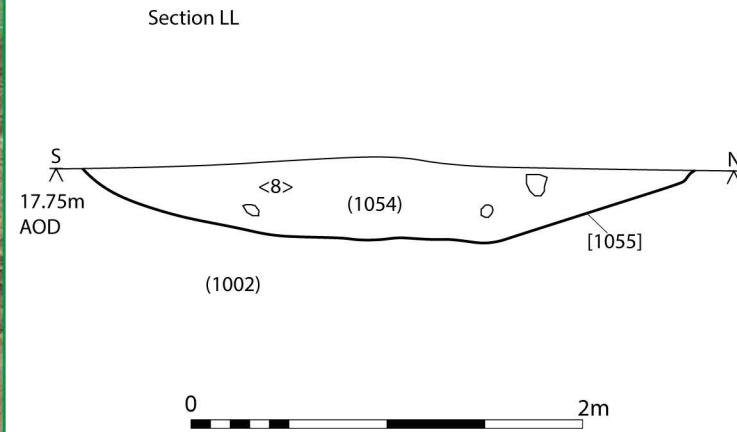


Figure No. 17
Figure Title Elongated pit 1055. Section LL.



Scale at 1m. View to west

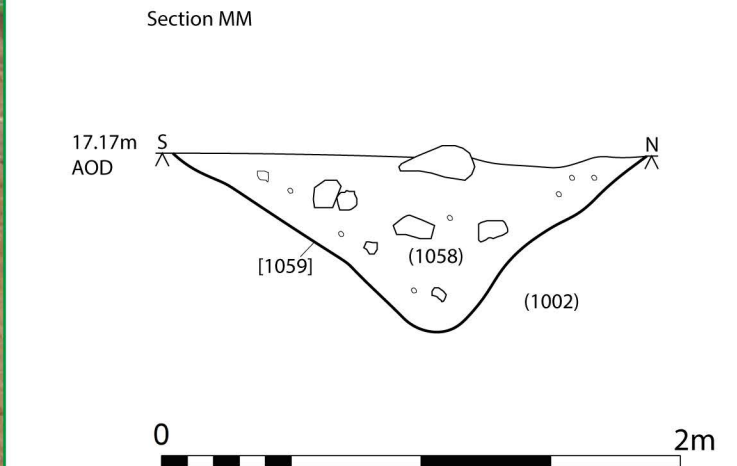


Figure No. 18
Figure Title Elongated pit 1059. Section MM.



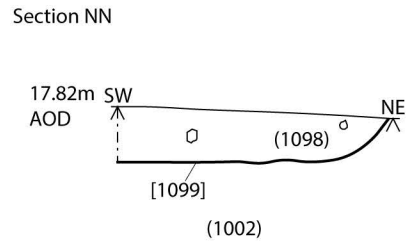


Scale at 1m. View to north-west

<p>Figure No. 19</p>	<p>Figure Title Elongated pit 1059, with Gullies D and E in background.</p>	
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Scale at 0.4m. View to north-west



<p>Figure No. 20</p>	<p>Figure Title Elongated pit 1099, Section NN, with posthole 1097 behind.</p>	
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Scales at 1m. View from eastern extent of evaluation Trench 2, to west

<p>Figure No. 21</p>	<p>Figure Title General view of the Site, showing elongated pits/ditches to the north and south of the former evaluation trench.</p>	
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Scale at 0.4m. View to north

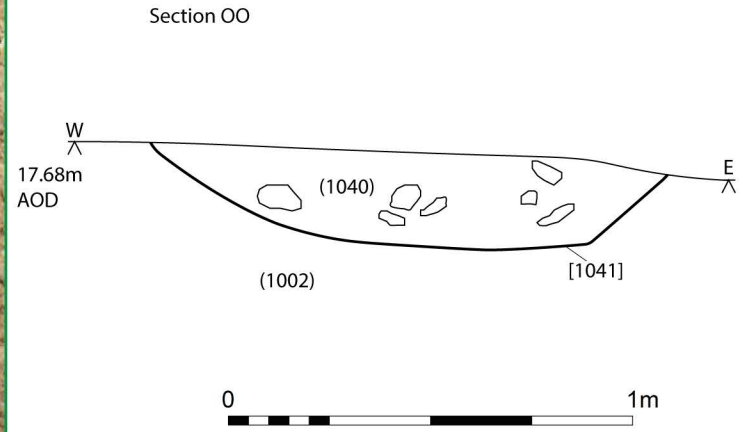


Figure No.	Figure Title
22	Pit 1041. Section OO.

Figure No.	Figure Title	
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Scale at 0.5m. View to south-east

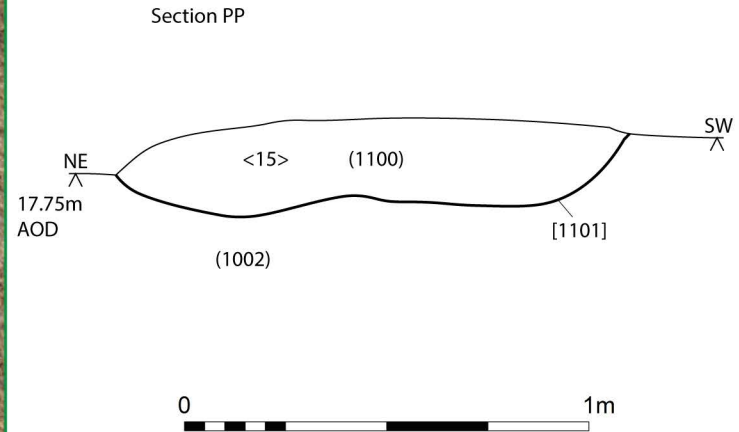


Figure No.	Figure Title
23	Pit 1101. Section PP.

Figure No.	Figure Title	
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Scale at 0.4m. View to north-west

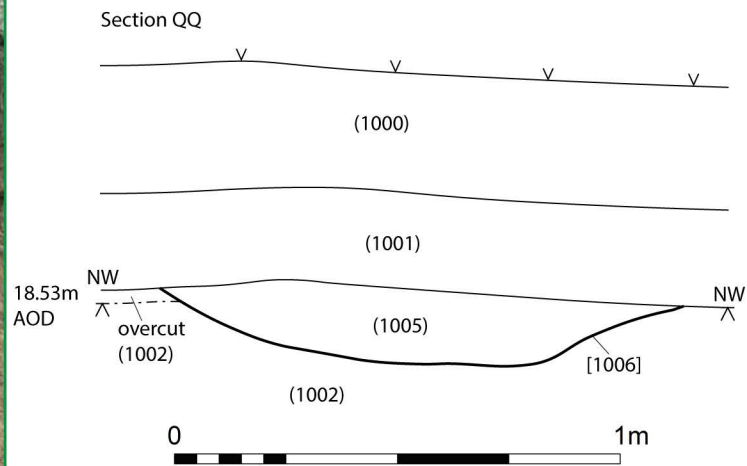
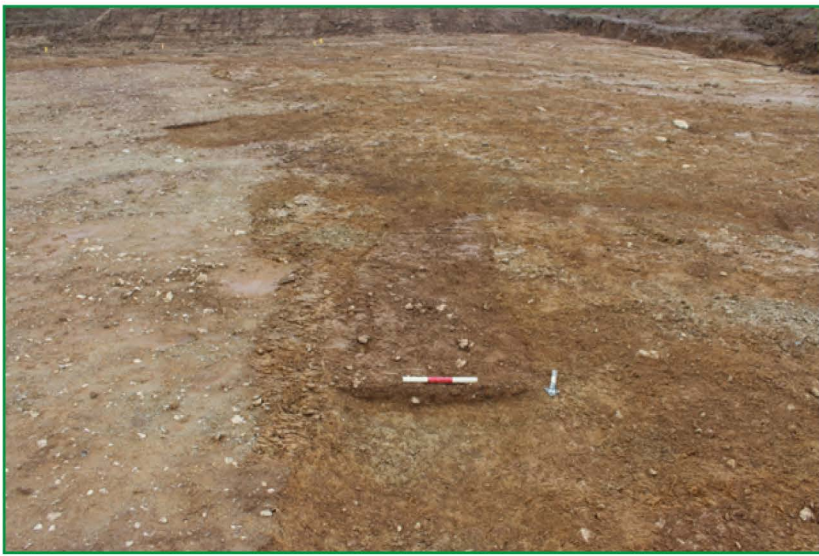
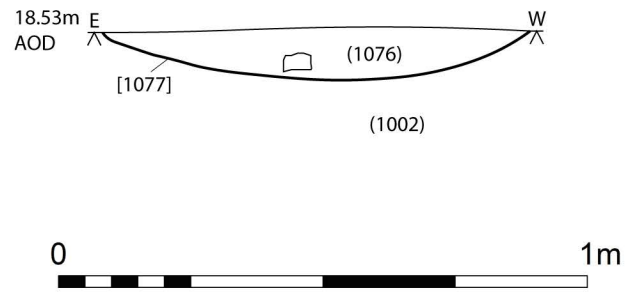


Figure No.	Figure Title
24	Gully A. Cut 1006. Section QQ.

Figure No.	Figure Title	
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Section RR

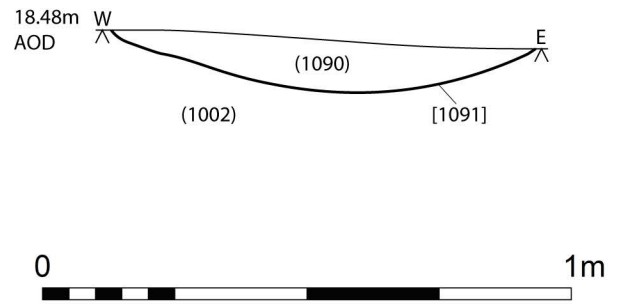


Scale at 0.3m. View to south

<p>Figure No. 25</p>	<p>Figure Title Gully A. Cut 1077. Section RR.</p>	
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Section SS

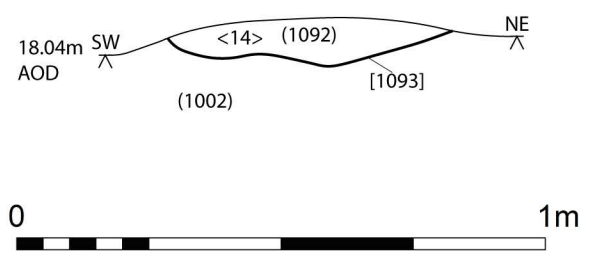


Scale at 0.4m. View to north

<p>Figure No. 26</p>	<p>Figure Title Gully A, southern terminus. Cut 1091. Section SS.</p>	
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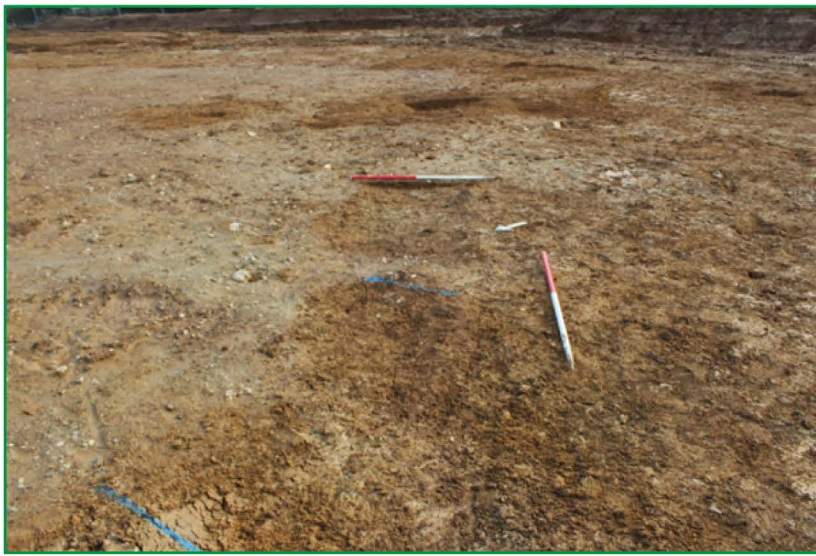


Section TT



Scale at 0.3m. View to north-west.

<p>Figure No. 27</p>	<p>Figure Title Gully B, southern terminus. Cut 1093. Section TT.</p>	
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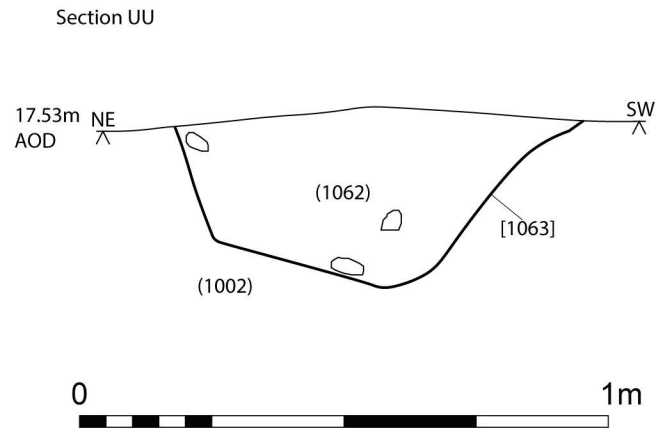


Scales at 1m. View to south-east

<p>Figure No. 28</p>	<p>Figure Title Gully B, general view.</p>	
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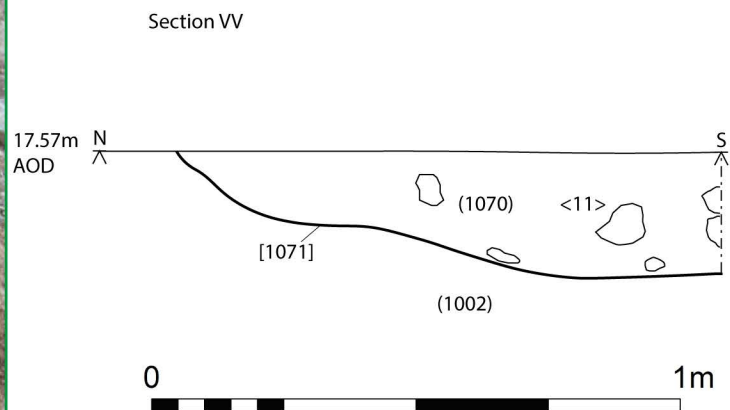
Scale at 0.4m. View to south-east



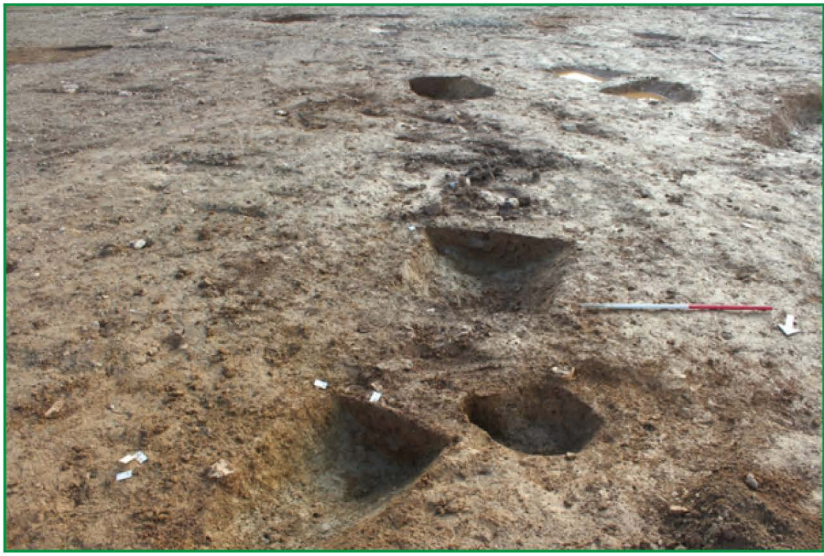
<p>Figure No. 29</p>	<p>Figure Title Gully C, Cut 1063. Section UU.</p>	
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Scale at 0.4m. View to east



<p>Figure No. 30</p>	<p>Figure Title Gully C, northern terminus. Cut 1071. Section VV.</p>	
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Scale at 1m. View to south

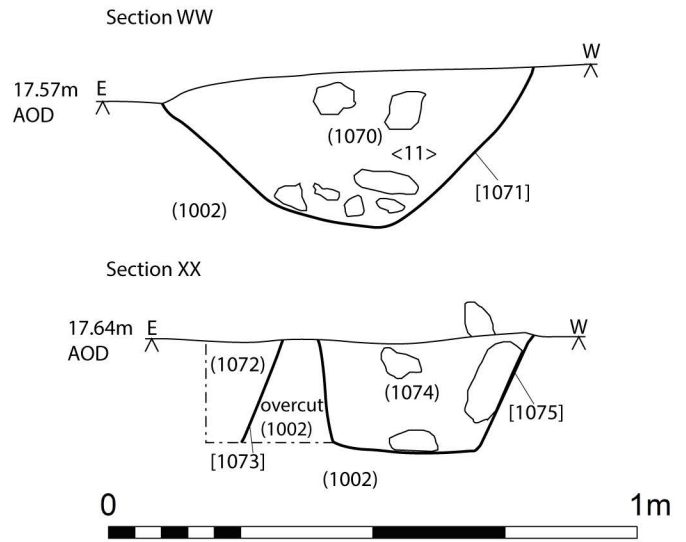


Figure No. 31 **Figure Title** Gully C. Northern terminus 1071, Section WW in foreground, with posthole 1075, Section XX to bottom right.



Scale at 0.4m. view to north-west

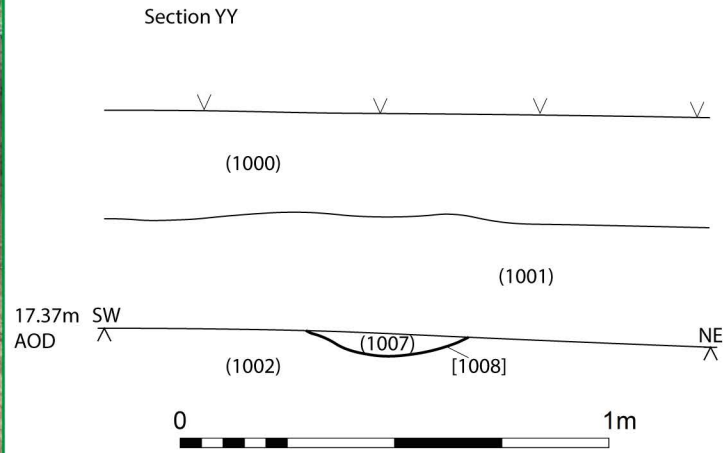


Figure No. 32 **Figure Title** Gully D. Cut 1008. Section YY.



Scale at 0.4m. View to west

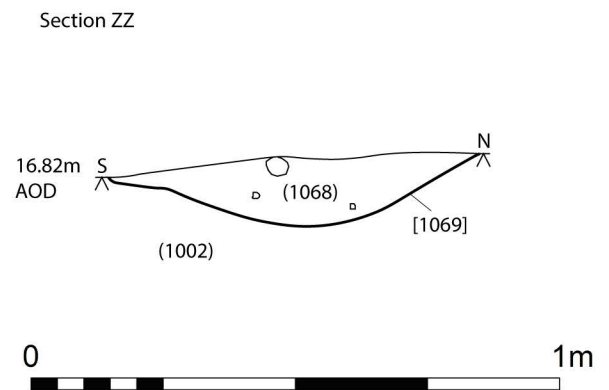


Figure No. 33 **Figure Title** Gully E, south-east terminus. Cut 1069. Section ZZ.



APPENDIX 7: WRITTEN SCHEME OF INVESTIGATION

Land at Treloweth Lane, St Erth, Hayle, Cornwall

Written Scheme of Investigation for an Archaeological Strip, Map and Sample



ISCA Archaeology Limited

39D New Bridge Street

Exeter

Devon

EX4 3AH

07943204239

contactus@iscaarch.co.uk

For: **ebc Partnerships Ltd**

ISCA Project: **P02-0022**

ISCA Report: **R02-0022-1**

September 2022

Project Name: Land at Treloweth Lane
Location: St Erth, Hayle, Cornwall
Type: Archaeological Strip, Map, and Sample
National grid reference (NGR): SW 54602 35281
Planning authority: Cornwall Council
Planning Application: PA17/12089
Proposed date of fieldwork: tbc
Site Code: TLE22
Location of Archive: Royal Cornwall Museum
Museum Reference Code: tbc
Report number: R02-0022-1
Report written by: Tim Brown
Produced by ISCA for: ebc Partnerships Ltd

OASIS number: iscaarch2-509666

SUMMARY

This Written Scheme of Investigation sets out a proposed methodology and programme of works for an archaeological strip, map, and sample and the subsequent analysis and reporting as required as part of the planning condition. The development will comprise the erection of 44 new build houses and associated landscaping and services.

An archaeological evaluation undertaken by South West Archaeology in 2019 demonstrated that a previous geophysical survey was broadly replicated by the archaeological record. A concentration of archaeological features was uncovered within an evaluation trench to the north-west of the site. These linear features, along with a series of associated postholes, were interpreted to represent an area of prehistoric settlement activity.

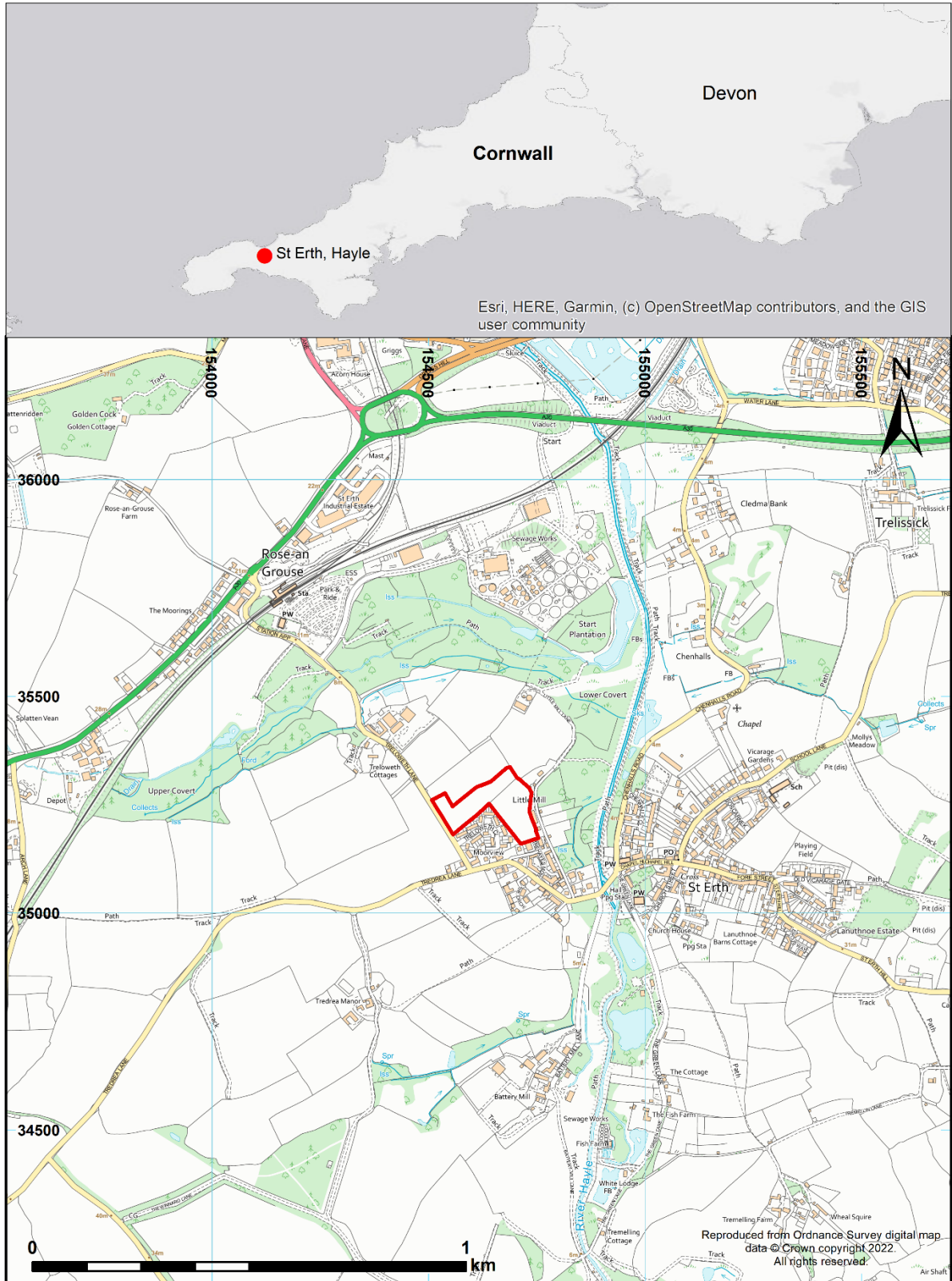
Subsequently, the proposed strip, map, and sample area, totalling c. 2310m², will be targeted on the location of features recorded by the evaluation trench and geophysical anomalies in close proximity.

CONTENTS

SUMMARY	1
1. INTRODUCTION	3
2. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	7
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1. INTRODUCTION

- 1.1. This document sets out details of a *Written Scheme of Investigation (WSI)* by ISCA Archaeology (ISCA) for an Archaeological strip, map and sample at Land at Treloweth Lane, St Erth, Hayle, Cornwall (henceforth referred to as ‘the Site’), centred at SW 54602 35281 (Fig. 1). The evaluation has been commissioned by ebc Partnerships Ltd. as part of Condition 12 of the decision notice for outline consent (PA17/12089) which was granted at appeal. This WSI sets out the methodology for the archaeological works ahead of the proposed development, and for related off-site analyses and reporting. The WSI and the schedule of work therein were drawn up in consultation with Peter Dudley (Senior Development Officer (Historic Environment) – Archaeologist) of Cornwall Council’s Historic Environment Planning (Archaeology) (HEP (Arch)).
- 1.2. The proposed development Site is located within an area characterised by the Cornwall and Scilly Historic Landscape Characterisation (HLC) as post-medieval enclosed land. It is bordered by plantation/scrub land with areas of medieval farmland to the south and south-west. The Site was subject to a Heritage Assessment, geophysical survey and subsequent archaeological evaluation carried out by South West Archaeology (SWARCH) in 2019. The results of the archaeological evaluation confirmed the presence of a penannular feature of prehistoric date with a series of associated post-holes suggesting limited prehistoric settlement activity. Consequently, Condition 12 of the planning application requests an archaeological strip, map and sample excavation to be carried out in relation to the area of prehistoric activity.
- 1.3. The results of the archaeological strip, map, and sample will inform the discharge of Condition 12 of the planning application prior to the construction of 44 residential dwellings.
- 1.4. Archaeological work within the Site will take the form of an archaeological strip, map and sample which will be implemented prior to any construction works to allow for the identification, investigation and recording of any exposed archaeological or artefactual deposits. The results of the fieldwork and any post-excavation analysis undertaken will be presented in a detailed and illustrated report.



PROJECT TITLE

**Land at Treloweth Lane, St Erth,
Hayle, Cornwall.**

FIGURE TITLE
Site Location

FIGURE NO.
1

 **Site Boundary**

- 1.5. This WSI has been guided in its composition by *Standard and Guidance for Archaeological Excavation* (Chartered Institute for Archaeologists (CIfA) 2014), *Management of Research Projects in the Historic Environment PPN 3: Archaeological Excavation* (Historic England, 2015) and *Management of Research Projects in the Historic Environment: Project Manager's Guide* (Historic England, 2015), and in accordance with paragraph 199 of the *National Planning Policy Framework* (2019), and with Policy EN6 (Nationally and Locally Important Archaeological Sites) which states:

'Development that would harm locally important archaeological remains or their settings will only be permitted where the need for the development outweighs the damage to the archaeological interest of the site and its setting. There is a presumption in favour of preservation in situ in the case of nationally and locally important remains. Preservation of locally important remains by record will be required where the need for the development outweighs the need to preserve the remains in situ.'

- 1.6. Furthermore, this WSI has been informed and guided by *The Cornwall Local Plan: Strategic Policies (2010 – 2030) (Adopted November 2016)*. With regard to archaeological remains, section 2.185 of the plan stipulates that:

'Applications which have the potential to impact on archaeological remains will need to be accompanied by assessments and field evaluations sufficient to define their significance prior to the submission of applications. Applicants should outline any mitigation measures and the steps to be taken to record, retain, incorporate, protect, enhance and where appropriate manage the archaeological interest, as part of the proposals.' (Cornwall Council, 2016, 79).

- 1.7. In regard to identified Heritage Assets, 'Policy 24: Historic Environment' of the local plan goes on to state:

'All development proposals should be informed by proportionate historic environment assessments and evaluations (such as heritage impact assessments, desk-based appraisals, field evaluation and historic building reports) identifying the significance of all heritage assets that would be affected by the proposals and the nature and degree of any effects and

demonstrating how, in order of preference, any harm will be avoided, minimised or mitigated' (Cornwall Council, 2016, 80).

- 1.8. The HEP (Arch) have made no additional comments to those already made on Condition 12 of the decision notice for outline consent (PA17/12089). Condition 12 states:

'No development shall take place until a Written Scheme of Investigation has been submitted to and agreed in writing by the Local Planning Authority. It shall include a strip-map-sample exercise in relation to the area (c. 60m x 35m) encompassing all of the eastern part of Trench 02 and the associated geophysical anomalies, as set out within the 'Results of an Archaeological Evaluation, dated 30 January 2019, by South West Archaeology Ltd. The Scheme shall include:

- a) An assessment of significance;
- b) the programme and methodology of site investigation and recording;
- c) the programme for post-investigation assessment;
- d) the provision to be made for analysis of the site investigation and recording; and
- e) the provision to be made for the publication and dissemination of the analysis and records of the site investigation.

The scheme of investigation shall be carried out in accordance with the approved details prior to the commencement of construction works' (Cornwall Council HEP (Arch), 2021).

THE SITE

- 1.9. The site is located west of the village of St Erth, off the A30, and is situated between Treloweth Farm (to the north-west) and Treloweth Close (to the south-east) on the edge of the extant settlement (Fig. 1). The site comprises two fields located on a north-east facing slope, rising from the south-east to the north-west between altitudes of 9m and 19m AOD. The fields are located close to the end of a shallow spur between the two arms of the River

Hayle which was navigable as far as St Erth Bridge in the medieval period. The site consists of an area measuring approximately 1.9ha and is currently in use as pasture.

- 1.10. The soils of this area are the well-drained fine loamy soils over slate, variably affected by groundwater, of the Denbigh 2 Association (SSEW 1983). These overlie the slates and siltstones of the Mylor Slate Formation (BGS 2022).

2. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 2.1. The Site has been the subject of a combined Heritage Impact Assessment and Geophysical Survey (SWARCH, 2018) (Fig. 2). The following sections utilise information contained in those documents, which should be referred to for full archaeological details.
- 2.2. St Erth is located in the Hundred and Deanery of Penwith (Lysons, 1814), the place-name (meaning St. Ergh's [church]) being derived from the 13th century church dedication. The alternative name (Lanuthinoch) is derived from the Old Cornish Lann (meaning church or religious enclosure) and an unknown suffix (Watts, 2010). The site is located to the west of the St Erth churchtown, in the former Manor of Treloweth, first documented in 1301.
- 2.3. A limited amount of archaeological fieldwork has been undertaken in this area, the majority relating to the works at the St Erth Multi-Modal Hub at St Erth Railway Station, including assessments, geophysical survey (Cornwall Archaeological Unit (CAU), 2006; 2009; 2010) and monitoring works, which exposed part of a medieval ditch and the line of a 19th century road (SWARCH, 2016; 2017). The Cornwall and Scilly Historic Environment Record (HER) provides evidence for human activity in the surrounding area from the prehistoric through to the modern periods.
- 2.4. Very few prehistoric or Romano-British sites are recorded in the immediate area: a poorly located Bronze Age axe head (HER 31980), a fieldname at Penponds (Park-an-Chamber) (HER 31123), and the undated cropmark of an enclosure (no reference) just to the south of 1 and 2 Tredrea Lane. However, this absence is likely to be more apparent than real, as Bronze Age barrows and Iron Age and Romano-British settlements are commonly encountered within Anciently Enclosed Land. It is possible (Lower) Treloweth sits within a round, and tentatively also a possible Roman fort.

- 2.5. The main farms and settlements in the area are first recorded in the 14th and 13th century AD: Lannutherno in 1233 (HER 31076) and Treloweth (Trelwyth) in 1301 (HER 29973). The church of St Erth is thought to date to the 15th century, although likely sits on the location of an earlier site (NHLE 331131).
- 2.6. The bridge at St Erth is a rebuild of the former 1663 bridge, on a medieval site. The majority of the structures and features within the St Erth Conservation Area date to this period, mainly from the 18th century onwards. A number of buildings within St Erth are Grade II Listed, with the Church of St Erth Grade I Listed (NHLE 331131).

ARCHAEOLOGICAL EVALUATION (Fig. 2)

- 2.7. The Site was subject to a phase of archaeological evaluation works by SWARCH in 2019, and although the section below summarises the results, the original document should be consulted for full details.
- 2.8. The evaluation identified a total of 18 features, most of which are likely to be post-medieval or modern in date and relating to the existing field-system, land drainage and services. Of these, five ditches are roughly aligned with the existing field boundaries, and may represent removed boundaries and or associated drainage. Further ditches correspond with sinuous features identified on the geophysical survey and may also be post-medieval in origin, though may reflect earlier activity. Few of the features produced dating evidence, only one ditch contained prehistoric flint debitage, the remaining artefacts all being recovered from topsoil layers. The apparent association of many of the features with the existing field system would suggest that the majority of features are post-medieval in date.
- 2.9. A series of features including post-holes and ditches were identified in trench 02. These ditches, which represented a penannular feature identified on the geophysical survey, appeared to be of prehistoric date. Along with a series of associated post-holes, results suggest some limited prehistoric settlement activity.

3. AIMS AND OBJECTIVES

- 3.1. The primary objective of the programme of archaeological work is to appropriately investigate and ensure the preservation by record of any significant archaeological remains at the site which will be impacted upon by the proposed development, in line with the National Planning Policy Framework (MHCLG 2019).
- 3.2. A specific objective of the archaeological work is to further investigate and characterise the prehistoric archaeological features recorded by the previous geophysical survey and trial trench evaluation (SWARCH, 2019). The strip, map, and sample aims to determine the presence or absence of archaeological deposits and/or remains, and if present, to record the character, date, location, and preservation of any archaeological remains, and to record the nature and extent of any previous damage to archaeological deposits or remains on site.

4. METHODOLOGY - ARCHAEOLOGICAL EXCAVATION

- 4.1. The definition of an archaeological excavation is:

‘a programme of controlled, intrusive fieldwork with defined research objectives, which examines, records, and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, in an inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design’ (CifA, 2020).

- 4.2. The purpose of an archaeological excavation is to:

‘to examine the archaeological resource within a given area or site within a framework of defined research objectives, to seek a better understanding of and compile a lasting record of that resource, to analyse and interpret the results, and disseminate them’ (CifA, 2020).

- 4.3. The strip, map, and sample will comprise of a single excavation area. The excavation covers an area of approximately 2310m², encompassing the majority of Trench 02 from the previous SWARCH evaluation (2019) and the associated geophysical anomalies (Fig. 2).

- 4.4. The strip, map, and sample area will be set out on OS National Grid (NGR) co-ordinates using Leica GPS and scanned for live services by trained ISCA Archaeology staff using CAT and genny equipment in accordance with the ISCA Safe System of Work for avoiding underground services (ISCA SSOW 1.3). The position of the area may be adjusted on-site to account for services or other constraints, with the approval of HEP (Arch).
- 4.5. The excavation area will be excavated using a tracked 360° excavator equipped with a toothless grading bucket. All machining will be conducted under constant archaeological supervision and will cease when the first archaeological horizon or natural substrate is revealed (whichever is encountered first). Topsoil and subsoil will be stored separately at a distance of more than 1m from edge of the excavations.
- 4.6. Following machining, any archaeological features revealed will be investigated, planned using Leica GPS, and recorded.
- 4.7. Where archaeological features are exposed, as a minimum, features and deposits will be investigated using hand tools to the following sample levels; either between 50-100% excavation of small discrete features (pits, postholes etc) but a sample only of features present in high numbers, (e.g., stakeholes), half-sectioning (50%) of larger discrete features and, long linear features (e.g. ditches) will be sampled along their length to a maximum percentage of 10% of their total length. Terminals, junctions, and relationships between features will also be investigated. Discrete features of particularly large size or of post-medieval and modern age will be recorded in plan and machine excavated where appropriate to establish their maximum dimensions. Should the above percentage proportions not yield sufficient information to allow the form and function of archaeological features/deposits to be determined, then full excavation of such features/deposits may be required. Each context will be recorded on a pro-forma context sheet by written and measured description. Additional excavation may also be needed for the taking of paleoenvironmental samples and recovery of artefacts. Features that are clearly of modern or later post medieval date may not be excavated. Should *in-situ* structural remains be encountered, then sufficient excavation will be undertaken to confirm the function, sequence, chronology, and method of construction.
- 4.8. All excavation of exposed archaeological features shall be carried out stratigraphically by hand and recorded according to ClfA guidelines and best practice. All features/deposits will be recorded by drawn plans (scale 1:20 or 1:50, or electronically using Leica GPS as

appropriate) and drawn sections (scale 1:10 or 1:20 as appropriate). All scale drawings shall be undertaken at a scale appropriate to the size and/or significance/complexity of the archaeological features to allow accurate depiction and interpretation.

- 4.9. If either complex or extensive archaeological features, stratigraphy, or deposits that are worthy of preservation *in-situ* are exposed, then excavation will cease so as not to compromise the integrity of the archaeological record. The client and the Local Planning Authority (LPA) archaeologist will be informed and no further works on these features will be undertaken until a suitable mitigation strategy has been agreed by all parties.
- 4.10. If significant archaeological features are identified near the edge of the SMS area it may be necessary to extend the area of the SMS to recover further evidence. Any extension will need to be agreed by HEP (Arch), ISCA Archaeology and the developer.
- 4.11. An adequate digital photographic record of all the archaeological works will be compiled in both section and plan. All excavated features and deposits will be photographed. A selection of representative feature group/area shots will also be taken along with general working shots to illustrate the general nature of the works. A photographic scale and north arrow will be included in detailed photographs.
- 4.12. Upon completion of the strip, map, and sample, at the request and agreement of the client and if required, the area will be backfilled by mechanical excavator, with topsoil and subsoil replaced in original order.

ARTEFACTS

- 4.13. Any artefacts will be recovered and retained for processing and analysis in consultation with relevant specialists. Artefacts from topsoil, subsoil and unstratified contexts will normally be noted and may be discarded unless they are of intrinsic interest, or their further examination is considered necessary for the interpretation of a site. All artefacts from stratified excavated contexts will be collected, except for large assemblages of post-medieval or modern material. Such material may be noted and discarded or, if appropriate, a representative sample may be retained. Spoil will be examined for the recovery of artefacts; a metal detector may be used to enhance the recovery of metal finds as required.
- 4.14. All metal finds, and other typologically distinct or closely dateable artefacts will be recorded three-dimensionally.

ENVIRONMENTAL REMAINS

- 4.15. Due care will be taken to identify deposits which may have environmental potential and, where appropriate, a programme of environmental sampling will be initiated in preparation for scientific assessment/analysis/dating in accordance with English Heritage guidelines (English Heritage 2011). The sample strategy will either consist of bulk soil samples (sampling 100% or 40 litres, in labelled 10 litre plastic sample tubs) or vertical sediment columns – ‘monolith tins’ and will be examined for diatoms, insect, plant macrofossils and molluscs. The sampling strategy will be adapted for the specific circumstances of this site but will follow the general selection parameters set out in the following paragraphs.
- 4.16. All samples will be fully recorded and labelled with a register of samples made and sampling pro-forma record sheets completed for all samples taken which will include the following information: sample type, reason for sampling, sample size, context, sample number, spatial location, date, context description, method and the percentage of the context sampled. The samples will be recorded on the relevant site section drawing and photographs of the sample locations taken.
- 4.17. Bulk samples will be stored in sealed containers until off-site. Bulk samples will be processed using the standard flotation methods with the following mesh sizes: 5.6mm, 4mm and 500 micron Bulk samples will be sub-sampled as appropriate.
- 4.18. Monolith tin samples, up to 500mm in length, will be overlapped in the standard way to allow for a continuous sample of an entire sequence.
- 4.19. Secure, phased deposits, especially those relating to settlement activity and/or carbonised or waterlogged organic deposits will be considered for sampling for the recovery of charcoal, charred plant and mineralised remains. Any cremation-related deposits will be sampled appropriately for the recovery of cremated human bone and charred remains. If any evidence of potential in-situ metal working is found, suitable samples for the recovery of slag and hammerscale will also be taken.
- 4.20. If sealed waterlogged deposits are encountered, a sampling strategy will be considered for the recovery of waterlogged remains. The taking of sequences of samples for the recovery of molluscs and/or waterlogged remains will be considered through any suitable deposits. Monolith samples may also be taken from suitable deposits as appropriate. All samples will be recovered and recorded using current guidelines (English Heritage 2011).

- 4.21. The project will be organised so that specialist consultants (such as OSL, archaeomagnetic dating and dendrochronology) and the regional Historic England science advisor, can be called upon to advise the works if/when necessary.
- 4.22. Sample processing and reporting will be undertaken by relevant specialists.

TREASURE

- 4.23. Upon discovery of treasure, these will be removed to a safe place and reported to the local coroner within 14 days in accordance with the Treasure Act 1996 and the Code of Practice referred to therein. Suitable security measures will be taken to protect the finds from theft. The definition of 'Treasure' is provided within the Code of Practice of the above act and primarily refers to items of gold and/or silver.









HUMAN REMAINS

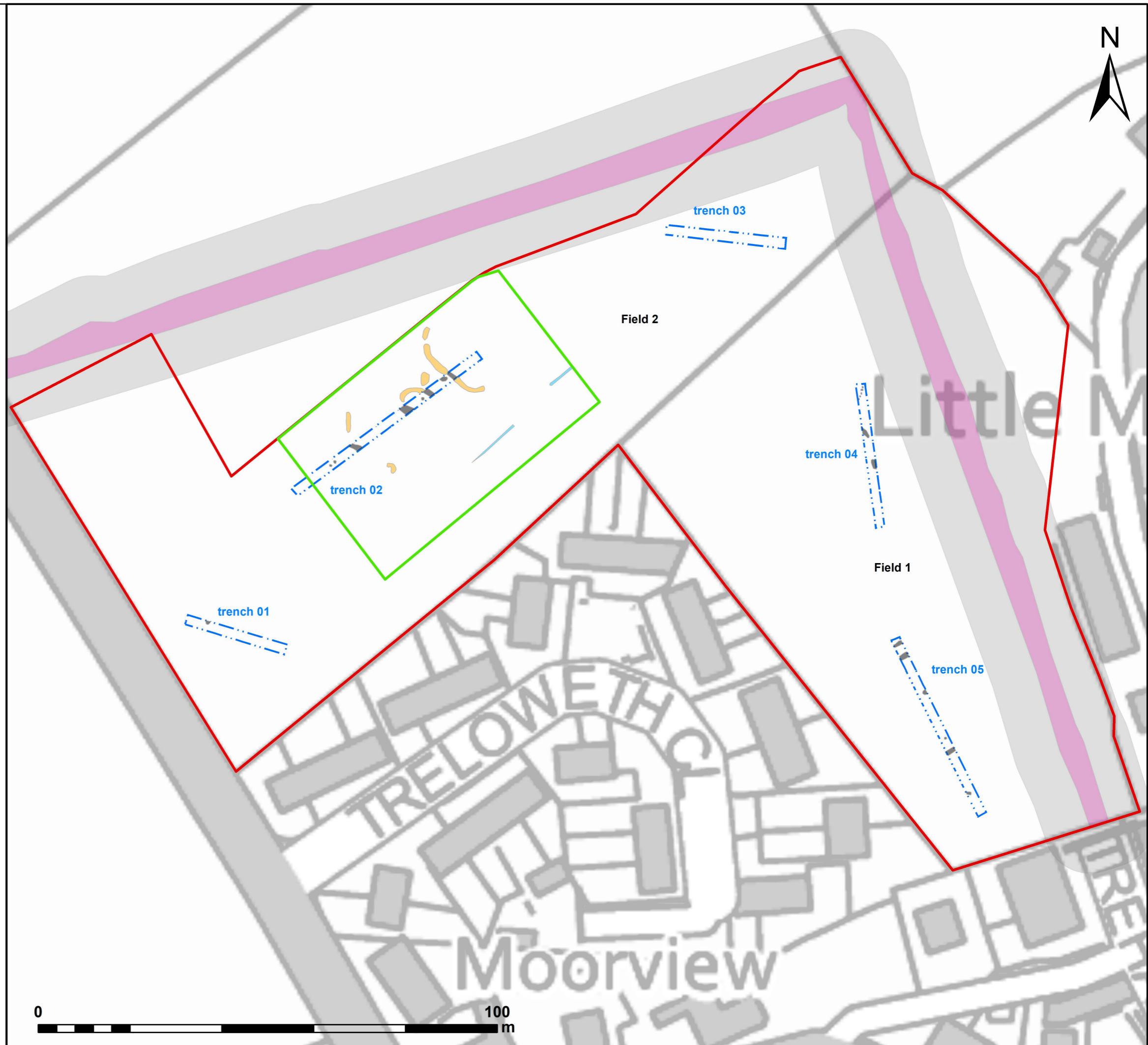
- 4.24. If the presence of potential human remains is encountered, then small slots will be hand-excavated across any suspected burial features (inhumations or cremated bone deposits) in order to confirm the presence and condition of any human bone. Where disturbance is unavoidable, or where full exhumation of the remains is deemed necessary, then their excavation and removal will only be undertaken on receipt of the appropriate licence from the Ministry of Justice. All excavation of human remains and associated post-excavation processes will be in accordance with the standards set out in ClfA Technical Paper No 7: *Guidelines to the Standards for recording Human Remains* (ClfA 2004).
- 4.25. All works will be carried out in accordance with the *Code of Approved Practice* as set out by the Chartered Institute for Archaeologists. Accordingly, the project team will abide by the ClfA's code of approved practice.
- 4.26. Any variation of the above will be undertaken in consultation with the Local Planning Authority (LPA).

PROJECT TITLE
**Land at Treloweth Lane, St Erth,
 Hayle, Cornwall.**

FIGURE TITLE
Proposed Archaeological Mitigation

FIGURE NO.
2

-  Site Boundary
-  Proposed Strip, Map and Sample Area
-  Evaluation Trenches (SWARCH, 2019)
-  Archaeological Features (SWARCH, 2019)
-  Geophysical Anomaly within SMS Area (SWARCH, 2018)
-  Probable Field Drain (SWARCH, 2018)
-  Gas Main
-  Gas Main 10m Buffer Zone



DRAWN BY TB PROJECT NO. P02-0022
 CHECKED BY TB DATE 26/09/2022
 APPROVED BY TB SCALE 1:800

5. STAFF AND TIMETABLE

- 5.1. The project will be under the management of Simon Sworn, MCIfA, Senior Project Officer - Fieldwork Manager. Simon Sworn has 26 years of experience in commercial archaeology. Other members of the team will all have suitable and relevant knowledge and experience of both the archaeological works and the heritage landscape (details available upon request).
- 5.2. The staffing structure will be organised thus: the Project Manager will direct the overall conduct of the fieldwork as required during the period of fieldwork. Day to day responsibility, will rest with the Project Leader who will be on-site throughout the project, although this may be one and the same. The evaluation will be carried out by permanent staff members of ISCA Archaeology, all with suitable experience of this type of investigation and adhering to the ClfA's Code of Conduct.
- 5.3. The duration of the monitoring and recording on the Site is expected to last roughly two weeks, though this will depend on access, ground conditions, and assuming all Health and Safety conditions are met. Analysis of the results and subsequent reporting will take up to a further four weeks, longer if dictated by specialist reporting, etc.
- 5.4. Depending upon the nature of the deposits and artefacts encountered it may be necessary to consult a number of local and/or national specialists who will be invited to advise and report on specific aspects of the project. A list of these potential specialists is displayed in table 1.1 below.

<i>Specialist</i>	<i>Expertise</i>	<i>Period</i>	<i>Organisation</i>
John Allan	Ceramic	Medieval/ Post-medieval	Freelance
Henrietta Quinnell	Ceramic	Prehistoric	Freelance
Imogen Wood	Ceramic	All	Freelance
Ed McSloy	Ceramic and Metalwork	All	Cotswold Archaeology
Gary Saunders	Metalwork	All	Freelance
Jacky Sommerville	Flint	All	Cotswold Archaeology
Andy Clarke	Animal Bone	All	Cotswold Archaeology
Matilda Holmes	Animal Bone	All	Freelance

<i>Specialist</i>	<i>Expertise</i>	<i>Period</i>	<i>Organisation</i>
Sharon Clough	Human Remains	All	Cotswold Archaeology
Stacey Addams	Environmental Remains	All	Trent and Peak Archaeology
Sarah Wyles	Environmental Remains	All	Cotswold Archaeology

Table 1.1 – List of Specialists

6. POST-EXCAVATION, ARCHIVING AND REPORTING

- 6.1. Prior to work commencing, a museum reference code for the project will be obtained from the Royal Cornwall Museum. Following the completion of the fieldwork, any artefacts and environmental samples will be processed, assessed, conserved, and packaged in accordance with all relevant guidelines. The museum reference number for this project will be added once it has been issued.
- 6.2. The level of reporting will be confirmed with the LPA on completion of the evaluation. If few or no archaeological deposits are exposed, this is likely to restrict its publication value and it would be anticipated that only a short Historic Environmental Record (HER) entry will be produced (with the WSI also included as a final appendix to the report).
- 6.3. If an illustrated report is required, then this will be compiled based on the fieldwork results. The extent and nature of this report will be confirmed with the LPA upon completion of the fieldwork. A draft copy of the report will be provided pre-submission to HEP (Arch) for informal comment via email correspondence. At the completion of this correspondence, copies of the report (PDF format) will be distributed to the client for submission to the LPA. The report may vary depending on the nature and extent of any archaeological deposits present, but at a minimum will consist of:
- 🌀 A report number, date and the OASIS reference number;
 - 🌀 a non-technical summary;
 - 🌀 a description and analysis of the methodology;
 - 🌀 a summary of the historical background of the area and the site;
 - 🌀 a description of the results;
 - 🌀 an assessment of any artefact/palaeoenvironmental analysis undertaken;
 - 🌀 a plan showing location of the site;

- 🌀 plans and sections of any archaeology present and a selection of appropriate photographs;
- 🌀 relevant historic maps - if appropriate;
- 🌀 an index of contexts as an appendix;
- 🌀 a copy of this WSI as a final appendix; and
- 🌀 an OASIS report;

6.4. Once the report has been approved by HEP (Arch) and a copy formally submitted and accepted by the LPA, a summary of information will be entered onto the OASIS online database of archaeological projects in Britain, which will include the OASIS reference number, and the report uploaded before the planning condition will be discharged.

6.5. The project archive will be held by ISCA at its office in Exeter until such time as all archaeological works at the site have been confirmed as completed. ISCA will then notify the LPA and make arrangements with the Royal Cornwall Museum for the deposition of the site archive and, subject to agreement with the legal landowner(s), the artefact collection. In the event that the Royal Cornwall Museum is unable to accept such deposition, ISCA will consult with HEP (Arch) to arrange appropriate deposition with an alternative accredited museum. A digital archive (comprising digital photographs and other relevant born-digital data) will be submitted to the Archaeological Data Service (ADS).

6.6. The archive will be concluded within 6 months of the completion of the final report.

6.7. If significant results are revealed by the strip, map, and sample, further publication may be required in a relevant journal, in agreement with HEP (Arch).

7. HEALTH AND SAFETY

7.1. All archaeological staff will operate under ISCA's Health and Safety Policy, and any other additional requirements set out by main site contractor. All works will be carried out in accordance with (but not limited to) the Health and Safety at Work Act 1974 and all subsequent Health and Safety legislation. A site-specific Project Health and Safety Plan will be formulated prior to commencement of fieldwork, setting out the site-specific health and safety policies that will be enforced in order to reduce to an absolute minimum any risks to health and safety.

- 7.2. In accordance with ISCA Health and Safety Policy, the archaeological site representative will be responsible for ensuring that all operations under his/her control are carried out in accordance with all details laid out in this Section.
- 7.3. All archaeological staff will not work, or be asked to work, in unsafe or unhealthy conditions, even where not to do so may result in the possible under-recording of the archaeological resource.
- 7.4. All site staff carry Construction Skills Certification Scheme (CSCS) cards and senior members will have up-to-date first aid qualifications.
- 7.5. On-site archaeologists will undertake any site safety induction course provided by the Client. The Client will also provide any details of all known buried services or other below- and above-ground hazards and provide specific guidance on how works should be undertaken around those hazards. Health and safety requirements will be always observed by all archaeological staff working on site, particularly when working with machinery, deep excavations, standing buildings and any other hazards.
- 7.6. Appropriate PPE will be always employed. As a minimum: high-visibility jackets, safety helmets and protective footwear will be worn. Additional PPE (such as gloves, glasses etc) will be worn as and when required.
- 7.7. If the depth of any excavations or trenching exceeds either 1.2 metres or is excavated through unstable ground, a dynamic risk assessment will be undertaken to determine the stability of the excavation. If necessary, excavated sides will be shored or stepped to enable the archaeologists to examine and if appropriate record any features. A vigorous risk assessment methodology (shoring, stepping etc.) for work in any deeper trenches will be developed with the Client and the groundcrew to ensure only the safest possible working conditions for ISCA and all on-site personnel.
- 8. INSURANCES AND QUALITY CONTROL**
- 8.1. ISCA carries Public Liability Insurance to a limit of £5,000,000 and Professional Indemnity Insurance to a limit of £250,000.
- 8.2. ISCA is constantly committed to the highest standard of professional ethics and technical standards and adheres to the ClfA and Historic England guidelines.

- 8.3. The products and work undertaken will be carried out by professional archaeologists overseen by supervisors of at least ACIfA-level competence.

9. MONITORING

- 9.1. Notification will be made to HEP (Arch) at least one week prior of the start of site works so that there will be opportunities to visit the site and check on the quality and progress of the work if required. ISCA will keep HEP (Arch) informed of the works as they progress, and once on-site works are complete, there will be a post-fieldwork monitoring meeting (email/phone call) to discuss the next stages regarding the fieldwork results. Access will also be facilitated for visits by any specialists if deemed necessary and within the present government guideline. The project is currently anticipated to commence in late 2022 or early 2023.

10. QUALITY ASSURANCE

- 10.1. ISCA endorses the *Code of Conduct* (CIfA 2020) and the *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* (CIfA 2020). All ISCA Project Managers and Project Officers will uphold these to their fullest.

11. REFERENCES

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