



Perranporth to Goonhavern Saints Trail, Cornwall; Historic Building Records and Archaeological Watching Briefs



Perranporth to Goonhavern Saints Trail, Cornwall

Historic Building Records and Archaeological Watching Briefs

Client	Cormac Solutions Ltd
Report Number	2022R049
Date	November 2022
Status	Draft
Report author(s)	Fiona Fleming and Connor Motley
Checked by	Fiona Fleming
Approved by	Andy Jones
Project number	147125
Site code	
Data location	\\CAU\Archive\Sites\P\Perranporth to Newquay Trail WB and HBR 147125
ADS OASIS online reference	cornwall2-511734
Planning reference	PA20/05207

The project's documentary, digital, photographic and drawn archive is maintained by Cornwall Archaeological Unit.

Cornwall Archaeological Unit

Cornwall Council

Room 4G, Pydar House, Pydar Street, Truro, Cornwall, TR1 1XU

Tel: (01872) 323603

Email: enquiries@cau.org.uk Web: www.cau.org.uk

Acknowledgements

This study was carried out by Cornwall Archaeological Unit, Cornwall Council.

The Project Manager was Dr Fiona Fleming.

The views and recommendations expressed in this report are those of Cornwall Archaeological Unit and are presented in good faith on the basis of professional judgement and on information currently available.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.



Cornwall Archaeological Unit is a Registered Organisation with the
Chartered Institute for Archaeologists

© Cornwall Council 2022

No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the prior permission of the publisher.

Contents

1	Summary	10
2	Introduction	12
2.1	Project background	12
2.2	Location and setting	12
3	Aims and objectives	12
4	Working methods	13
5	Site history	13
5.1.1	Prehistoric (c10, 000 BC–AD 43)	14
5.1.2	Medieval (AD 410-1540)	14
5.1.3	Post-medieval (AD 1540-1900)	14
5.1.4	Modern (AD 1901–present)	14
6	Archaeological results	15
6.1	Historic building record of Cocks Viaduct	15
6.2	Historic building record of Lighthouse Bridge	21
6.3	Historic building record of Reen Rose Bridge	25
6.4	Historic building record of Cocks Hill Bridge	27
6.5	Historic building record of the Bone Mill Leat	31
6.6	Watching briefs at Bolingey Bone Mill and Toad Hall Culvert	36
7	Conclusions	39
8	References	39
8.1	Primary sources (in chronological order)	39
8.2	Publications	39
8.3	Websites	40
	Appendix 1: Photographic plans	41
	Appendix 2: Written Scheme of Investigation	45

List of Figures

Fig 1 Location map.

Fig 2 Site extent.

Fig 3 Historic Landscape Character (HLC).

Fig 4 Section of the c1840 Perranzabuloe Tithe Map which does not show Cocks Viaduct, the location of which is represented in red.

Fig 5 OS 1st Edition 1:2500 map c1880, which does not show Cocks Viaduct, the location of which is represented in red.

Fig 6 OS 2nd Edition 1:2500 map c1907, which shows Cocks Viaduct, represented in red.

Fig 7 COV01 Inscription on pier at east end of Cocks Viaduct, looking west.

Fig 8 COV03 Cocks Viaduct northern parapet, east end, looking north.

Fig 9 COV08 Inscription on pier at west end of Cocks Viaduct, looking east.

Fig 10 COV09 Long shot along Cocks Viaduct, looking east.

Fig 11 COV11 Cocks Viaduct southern parapet and recess, looking south.

Fig 12 COV14 Benchmark on northern parapet of Cocks Viaduct, east end, looking north.

Fig 13 COV32 Pier between the two central arches of Cocks Viaduct, with Railway sign, looking south.

Fig 14 COV34 Western central arch of Cocks Viaduct over the Perran Stream, looking south.

Fig 15 COV36 West central arch, west side, with granite corbels and openings above, looking west.

Fig 16 COV38 Western arch of Cocks Viaduct, looking south.

Fig 17 COV39 Cocks Viaduct, west end of north elevation, looking southwest.

Fig 18 COV42 Cocks Viaduct, west end of north elevation, with brick arch looking southwest.

Fig 19 COV44 Western arch, southwest end, with circular bosses, looking west.

Fig 20 COV45 Cocks Viaduct west end of south elevation, looking northwest.

Fig 21 COV48 Cocks Viaduct, south elevation, western and west central arches, looking northwest.

Fig 22 COV50 Cocks Viaduct, south elevation, east central and eastern arches, looking northeast.

Fig 23 COV53 Cocks Viaduct, south elevation, eastern arch, looking northeast.

Fig 24 COV54 Cocks Viaduct, eastern arch span, looking east.

Fig 25 Section of the c1840 Perranzabuloe Tithe Map which does not show either the Lighthouse or Reen Rose bridges, the locations of which are represented in red.

Fig 26 OS 1st Edition 1:2500 map c1880, which does not show either the Lighthouse or Reen Rose bridges, the locations of which are represented in red.

Fig 27 OS 2nd Edition 1:2500 map c1907, which shows the Chacewater to Newquay railway and both the Lighthouse and Reen Rose bridges, represented in red.

Fig 28 LHB02 Lighthouse Bridge from the east, looking west.

Fig 29 LHB04 Lighthouse Bridge southern abutment, east side retaining wall, looking south.

- Fig 30 LHB05 Lighthouse Bridge southern abutment, looking south.
- Fig 31 LHB07 Lighthouse Bridge, underside brick bridge span, looking east.
- Fig 32 LHB08 Lighthouse Bridge southern abutment railway sign, looking south.
- Fig 33 LHB09 Lighthouse Bridge southern abutment, west side retaining wall looking south.
- Fig 34 LHB11 Lighthouse Bridge southern abutment, brick coping on west side retaining wall, looking south.
- Fig 35 LHB12 Lighthouse Bridge northern abutment, west side retaining wall, looking north.
- Fig 36 LHB13 Lighthouse Bridge northern abutment, looking north.
- Fig 37 LHB14 Lighthouse Bridge northern abutment, east side retaining wall, looking north.
- Fig 38 LHB16 Lighthouse Bridge southern parapet wall, repointed, looking south.
- Fig 39 LHB17 Lighthouse Bridge northern parapet wall, repointed, looking north.
- Fig 40 RRB01 Reen Rose Bridge from the top of the eastern abutment, looking west.
- Fig 41 RRB02 Reen Rose Bridge modern consolidation of the top of the eastern abutment, looking northwest.
- Fig 42 RRB03 Reen Rose Bridge from the top of the eastern abutment, looking east.
- Fig 43 RRB04 Reen Rose Bridge east abutment, north side retaining wall, looking east.
- Fig 44 RRB05 Reen Rose Bridge east abutment, looking east.
- Fig 45 RRB06 Reen Rose Bridge east abutment, south side retaining wall, looking northeast.
- Fig 46 RRB07 Reen Rose Bridge east abutment, railway sign, looking east.
- Fig 47 RRB08 Reen Rose Bridge west abutment, north retaining wall, looking south.
- Fig 48 RRB09 Reen Rose Bridge east abutment, north retaining wall railway sign, looking east.
- Fig 49 RRB10 Reen Rose Bridge west abutment, looking west.
- Fig 50 RRB11 Reen Rose Bridge west abutment, south retaining wall, looking west.
- Fig 51 RRB12 Reen Rose Bridge west abutment, south retaining wall, railway sign, looking west.
- Fig 52 Section of the c1840 Perranzabuloe Tithe Map which does not show a bridge at Cocks Hill, the road ending at the Perran Stream. The location of the historic Cocks Hill Bridge is outlined in blue, and the location of the modern bridge in red.
- Fig 53 The First Edition 1:2500 OS Map c1880 showing the 19th century Cocks Hill Bridge outlined in blue, and the location of the modern bridge in red.
- Fig 54 The Second Edition 1:2500 OS Map c1907 showing the 19th century Cocks Hill Bridge outlined in blue, and the location of the modern bridge in red.
- Fig 55 Sketches of the 19th century Cocks Hill Bridge arch elevations.
- Fig 56 Sketch plan of the 19th century bridge arches (right) in relation to the current bridge (left).
- Fig 57 East elevation of the current bridge at Cocks Hill, looking west.
- Fig 58 East parapet wall of the current bridge at Cocks Hill, looking east.
- Fig 59 West parapet wall of the current bridge at Cocks Hill, looking northwest.

- Fig 60 Remains of the 19th century Cocks Hill Bridge on the south side of the river, looking southeast.
- Fig 61 west elevation of the current bridge at Cocks Hill, looking northwest.
- Fig 62 Remains of the 19th century Cocks Hill Bridge on the north side of the river, looking northeast.
- Fig 63 Section of the c1840 Perranzabuloe Tithe Map showing Bolingey Bone Mill.
- Fig 64 The First Edition 1:2500 OS Map c1880 showing Bolingey Bone Mill and leat system.
- Fig 65 The Second Edition 1:2500 OS Map c1907 showing Bolingey Bone Mill and leat.
- Fig 66 Measured survey of the Bone Mill Leat and surrounding features.
- Fig 67 Northwest elevation of the boundary wall overlying the leat (right of shot), looking southeast.
- Fig 68 West elevation of boundary wall arm extending towards the mill, looking east.
- Fig 69 Southeast elevation of the boundary wall overlying the leat (left of shot), looking northwest.
- Fig 70 Culvert opening in the base of the overlying boundary wall, looking northwest.
- Fig 71 Retaining wall at northeast corner of site, with the sloped ramp beyond, looking northeast towards Bone Mill Road.
- Fig 72 The leat looking southeast from the southeast side of the L-shaped boundary wall.
- Fig 73 The leat looking southeast towards the Cornish hedge boundary at its southeast end.
- Fig 74 Northwest elevation of the Cornish hedge overlying the southeast end of the leat.
- Fig 75 Southeast elevation of the Cornish hedge at the southeast end of the leat showing the stone capped culvert underneath.
- Fig 76 The leat looking northwest from the northwest side of the Cornish hedge boundary.
- Fig 77 Location of Bone Mill ramp watching brief.
- Fig 78 Location of Toad Hall Culvert watching brief.
- Fig 79 Stripped section along the former railway line at Bolingey Bone Mill, looking northwest.
- Fig 80 Stripped section in preparation for the trail where it enters the Bolingey Mill site, looking southeast.
- Fig 81 Section of new trail through the former bone mill site, looking southeast.
- Fig 82 Toad Hall Culvert, looking west.
- Fig 83 Excavated area below Toad Hall Culvert, looking west.
- Fig 84 Photographic archive plan for Cocks Viaduct. Exterior shots in red, interior shots in yellow.
- Fig 85 Photographic archive plan for Lighthouse Bridge.
- Fig 86 Photographic archive plan for Reen Rose Bridge.
- Fig 87 Photographic archive plan for Cocks Hill Bridge.
- Fig 88 Photographic archive plan for the Bone Mill leat.
- Fig 89 Photographic archive plan for Cocks Hill Bridge.
- Fig 90 Photographic archive plan for Bone Mill Ramp watching brief.

Fig 91 Photographic archive plan for Toad Hall Culvert watching brief.

Abbreviations

CAU	Cornwall Archaeological Unit
CIfA	Chartered Institute for Archaeologists
HE	Historic England
HER	Cornwall and the Isles of Scilly Historic Environment Record
LPA	Local Planning Authority
MCO	Monument number in Cornwall HER
NGR	National Grid Reference
OD	Ordnance Datum – height above mean sea level at Newlyn
OS	Ordnance Survey
SDOHE	Senior Development Officer (Historic Environment)
WSI	Written Scheme of Investigation

1 Summary

Cornwall Archaeological Unit (CAU) undertook a programme of archaeological watching briefs and historic building recording during works ahead of the construction of a multi-use trail between Perranporth and Goonhavern as part of the wider Saints Trail Scheme.

The watching briefs recorded a section of a post-medieval leat associated with a historic bone mill at Bolingey, of potentially mid to late 19th century or earlier date. Historic boundary walls of probable mid to late 19th century date within the mill site were also recorded.

The historic building records documented the construction and design of the various bridges and Cocks Hill Viaduct, illustrating the conformity and style of historic railway architecture and the transition during the early 20th century towards using new technologies and materials, such as shuttered concrete to replace the earlier use of stone, brick and granite.

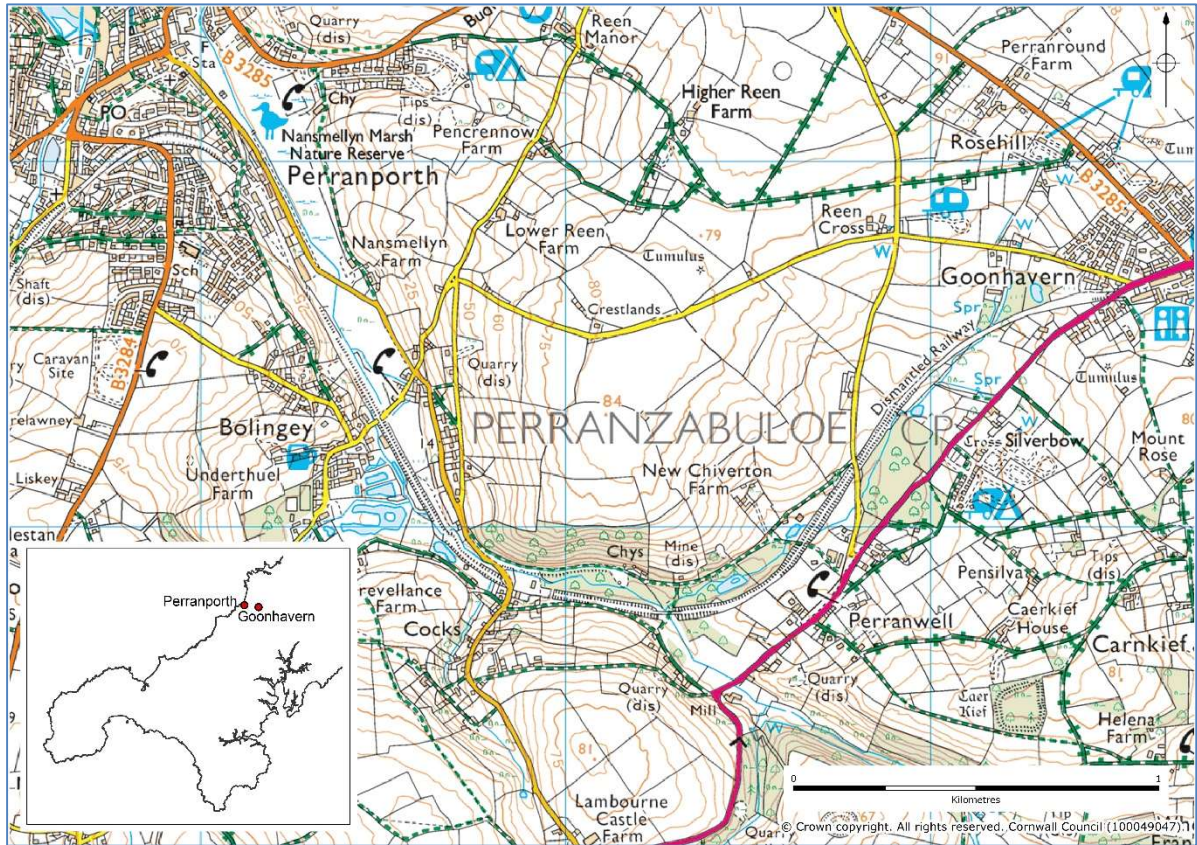


Fig 1 Location map.

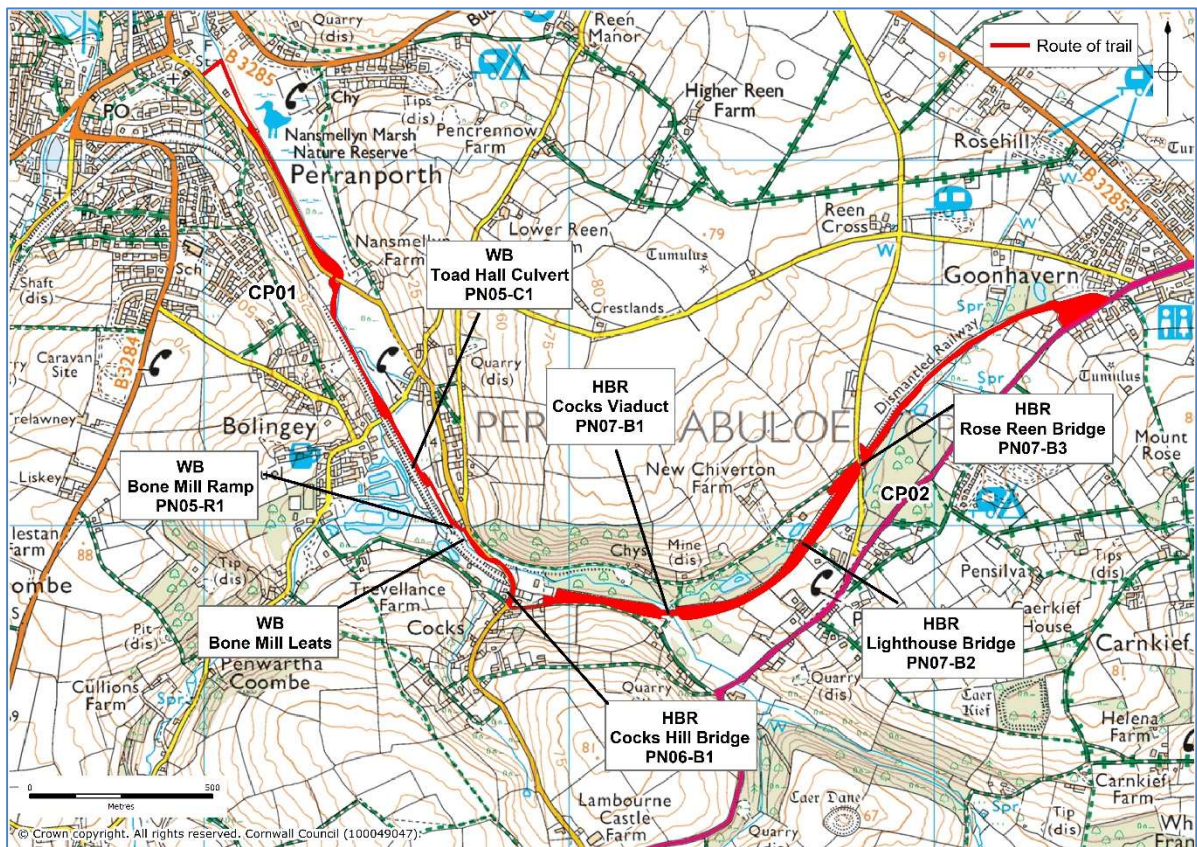


Fig 2 Site extent.

2 Introduction

2.1 Project background

Cornwall Archaeological Unit (CAU) was commissioned to undertake a programme of archaeological watching briefs and historic building recording ahead of the construction of a multi-use trail between Perranporth and Goonhavern as part of the wider Saints Trail Scheme. This work was carried out to satisfy condition 13 of planning application PA20/05207.

The original planning application was for a longer trail proposed to run from Perranporth to Newquay, predominantly along the line of the former Chacewater to Newquay branch railway line. The trail was subsequently shortened to run between Perranporth and Goonhavern. Whilst the scope of the project is smaller, the methodologies employed during the fieldwork principally remained the same. Further details of the background and the aims and methods of the project can be found in the Written Scheme of Investigation (WSI) reproduced here in Appendix 2.

2.2 Location and setting

This report covers the route of the multi-use Saints Trail between Perranporth and Goonhavern (Figs 1 and 2). To the east of Perranporth the trail passes close by the medieval settlements of Nansmellyn and Bolingey. The route of the trail will then take it through the site of the former post-medieval bone mill and leat system at Bolingey. Following the route of the former Chacewater to Newquay branch railway line, the trail crosses a number of historic railway structures, including culverts and bridges as well as the distinctive Cocks Hill Viaduct. The route of the trail passes through a variety of landscapes; in part crossing the low-lying marshes and river flood plains closer to the coast, and in part across areas of higher downland. In between, the route occasionally follows along the floors of small stream valleys, or crosses over these along the viaducts and bridges constructed to take the former railway.

The underlying geology of the study area is Middle Devonian mud, silt and sandstones. At Perranporth the deposits of blown sand forming Penhale, Perran and Reen Sands extend south into the north side of the site.

The Historic Landscape Character (HLC) of the landscape through which the trail passes is predominantly Recently Enclosed Land (Farmland: Post Medieval) (Cornwall County Council 1996). This is farmland that was typically enclosed between the 17th to 19th centuries, usually from land that was previously upland rough ground and often medieval commons. At Cocks, the trail passes along the edges of Anciently Enclosed Land (Farmland; Medieval); ancient agricultural heartland which has been settled and farmed since prehistory but whose field and settlement patterns were formalised during the medieval period, although often preserving older boundary lines (Herring 1998). Parts of the route pass through or beside pockets of Upland Rough Ground, and much of the former railway line between Cocks and Goonhavern is now Plantation and Scrub. The route also passes through some areas of Settlement: C20, where it leaves Perranporth and tracks through the east side of Bolingey, and then into Goonhavern (Fig 3).

3 Aims and objectives

The principal aim of the study was to gain a better understanding of the archaeology of the development area in order to inform the prehistory and history of the area (see WSI, Appendix 2).

The objectives were to:

- Obtain an archaeological record of the site prior to development.
- Produce historic building records for the historic structures present within the site.
- Guide further mitigation of the archaeological resource.

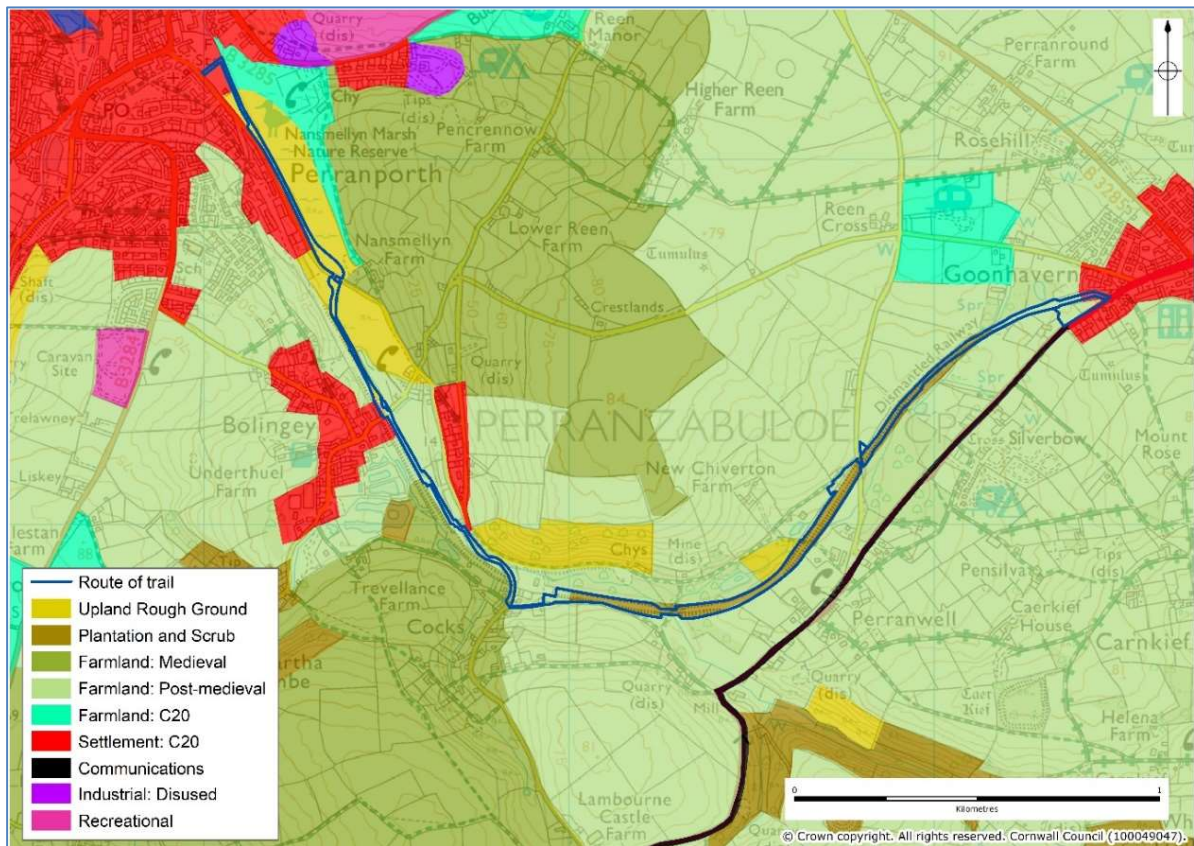


Fig 3 Historic Landscape Character (HLC).

4 Working methods

Continuous watching briefs were carried out at the Bolingey Bone Mill and Toad Hall Culvert sites, during vegetation clearance and groundworks carried out in preparation for the trail construction. Vegetation clearance was undertaken by machine using a toothed bucket and shredder, topsoil stripping and ground reduction by machine using a toothless bucket. The topsoil strip was watched either down to the surface of the subsoil or during removal of any overburden and surface debris. The subsoil was not exposed in all cases. No below ground features were identified during the works and no context numbers were issued. No finds were recovered. A photographic record was made of the structural features revealed during the works at both sites.

Level 2 Historic Building Records were carried out for Cocks Hill Bridge, Cocks Viaduct, Lighthouse Bridge and Reen Rose Bridge, comprising a photographic record and annotated descriptions using elevation and plan drawings produced by the client where available. A measured survey and digital plan was undertaken of the bone mill leat prior to it being covered over by the new track (see Fig 66). The photographic archive plans produced for each site are reproduced in Appendix 1 (Figs 84-90). These correlate with the photographic archive deposited with ADS.

A WSI (see Appendix 2) was produced for the original project, the scope of which was subsequently reduced. The methodologies employed during the fieldwork for the reduced scheme principally remained the same.

5 Site history

**Sites recorded in the Cornwall and Scilly Historic Environment Record, accessed via the Heritage Gateway, are given with prefix MCO, in brackets. Summary extracted from Fleming 2020.*

5.1.1 Prehistoric (c10, 000 BC–AD 43)

There are no prehistoric sites within the area of the trail. The site of a possible round (MCO8794) is recorded within 50m of the trail, to the southeast of Perranporth. A field named 'Round Field' is documented in the tenement of Nansmellyn in the c1840 Perranzabuloe Tithe Award (plot 707) and this place-name is usually indicative as the site of a round settlement. The location of the site close to the floodplain is unusual for this type of settlement site, which is more typically located along the higher valley sides, but the contours along the valley sides suggest a low spur or mound of higher ground at this point, which may have been considered a suitable location for a small settlement.

5.1.2 Medieval (AD 410-1540)

During the medieval period pockets of land to the southeast of Perranporth and across a wider area in the eastern half of the study area would have been well-settled arable farmland. The higher downland within the central belt of the study area would more typically have been unenclosed downland or commons during this period. The medieval settlements in the area typically consisted of small, scattered farmsteads, which are commonly situated on the lower valley sides and valley bottoms.

The start of the trail at Perranporth is situated at the mouth of the Perran Stream, on what would have been a shallow stream valley bordered by medieval farmland and small medieval settlements at Hendrawna (MCO14856), Nansmellyn (MCO15851) and Bolingey (MCO13473). Bolingey (MCO13473) is first recorded as Mellingey in 1516. The name is Cornish and derives from the place-name elements 'mellin' and 'Chy' meaning 'Mill-House', implying the existence of a mill hereabouts in the early 16th century. Nansmellyn was first recorded in 1337. The name is also Cornish, deriving from the place-name elements 'nans' and 'mellin', meaning Valley Mill, implying the existence of a mill hereabouts in the early 14th century. Hendrawna was also first recorded in 1337, when it is spelt 'Hendregavena'. The name is Cornish and contains the element hendre meaning 'home farm', plus an unknown second element.

On the south side of the river from Bolingey is the early medieval settlement and manor of Trevellance (MCO17874). The manor holding is formed of a large curvilinear enclosure, positioned between a fork in the river. A number of the mills located along the river may have served the manor; a tucking mill is recorded in the c1840 Perranzabuloe Tithe Award approximately 200m west of Trevellance (Fig 4).

5.1.3 Post-medieval (AD 1540-1900)

Even by the mid-19th century much of the higher ground within Perranzabuloe parish was still open upland ground and commons. The settlement of Perranporth was still relatively contained around the harbour, with the Wheal Leisure mine workings (MCO130201) on the open ground between the settlement and the mouth of the Perran Stream, and East Leisure mine (MCO12417) to the east of the Perran Stream mouth.

Post-medieval sites within and adjacent to the trail are predominantly industrial or related to historic structures such as bridges or mills.

A corn mill (MCO29108) is recorded as Bolingey Mill at the easternmost settlement (within Nansmellyn tenement) on the OS 1st Edition map, possibly indicating the site of the medieval mill from which Bolingey takes its name.

The site of a grist (or bone) mill (MCO29105) is recorded in plot 700 to the south of Bolingey in the c1840 Perranzabuloe Tithe Award. The mill is also shown on the OS 1st and 2nd Edition maps, where it is named as a corn mill. A leat is also shown running along its southwest side towards Bolingey Mill to the northwest; a short section of leat links with this along the north side of the mill (see Figs 63-65). The bone mill is probably a post-medieval structure but may replace an earlier mill at this location.

5.1.4 Modern (AD 1901–present)

The Chacewater and Newquay branch line (MCO55865) was a late addition to the Great Western Railway (GWR) lines in Cornwall. The line ran from a triangular junction at Blackwater to St Agnes, Perranporth, Shepherds and Newquay. Construction began in

1903 and finished in 1905; between Shepherds and Newquay the line made use of the 1874 Shepherds to Newquay section of the former Cornwall Minerals Railway (MCO55883). The branch line closed in 1963 during the period of the Beeching cuts. Along the route of the proposed trail there are a number of historic structures associated with the former railway line. These include a number of railway bridges, viaducts and accommodation bridges of early 20th century date.

6 Archaeological results

6.1 Historic building record of Cocks Viaduct

(Figs 4-24)

Cocks Viaduct is first recorded on the OS 2nd Edition map c1907, where the Chacewater to Newquay railway crosses over the Perran Stream. To the south of the viaduct, a weir marks the point where a leat diverts off the north side of the stream to run west through the site of New Chiverton Mine (MCO12286). A second arm of the leat heads east, showing as partially disused by c1907 (Fig 6). The current structure, centred at NGR SW77276 52761, survives complete. At the time of the site visit the trail surface had been lain across the viaduct, overlying the older railway ballast, and most of the inner side of the parapet walls had been repointed with lime mortar (see Fig 10).

The main construction of the viaduct comprised random coursing of dressed square and rectangular blocks of local mud/slate stone set into a hard grey cement mortar. Coping stones along the tops of both parapet walls were of rusticated granite (Fig 8). There were a series of square open recesses within the parapet walls, with three iron safety railings set into the stonework on either side (see Fig 11). On the inner side of the northern parapet wall, towards its eastern end, a benchmark was carved into one of the stones (Fig 12). On the south pier at the western end of the viaduct, and the northern pier at the eastern end, the upper stone facing was flat and undressed and bore the engraving '1903 J.C. Inglis Engineer. Arthur Carkeek Contractor' (Figs 7 and 9). James Charles Inglis was a civil engineer who undertook much work for South Devon and Cornwall Railways, later part of the Great Western Railway Company. In 1903 Sir James Inglis was appointed general manager and consulting engineer of the Great Western Railway, the year coinciding with the construction of Cocks Viaduct (Grace's Guide 2021). An online search into Arthur Carkeek found that he was documented as having been born in Redruth in 1861, entering his father's building business at 24 with projects including the development of the Truro to Newquay railway (Cornubian and Redruth Times 1904).

The viaduct abutments were constructed against the sides of the stream valley at its east and west ends, with three central piers and four arches spanning the valley floor. The abutments at both ends were partially set into the bank, suggesting the bank had been re-landscaped around the finished construction (see Figs 17, 18 and 20) The two central piers of the viaduct were measured at 1.9m and 1.85m wide on their southern outer faces. The piers were constructed of dressed local mud/slate stone with rusticated rock-cut granite quoins. Topping the piers were rusticated pecked shuttered concrete imposts that formed the arch springers (Fig 13). The internal elevations of the piers contained a row of five intermittent protruding granite corbels, spaced evenly across each pier, and above each block was a rectangular 0.4m high and 0.2m wide socket, some infilled by slate stone and a crumbly cement mortar of a different type to the main build (Fig 15). The sockets and corbels were beam slots and supports for timber falseworks on which the arch stones would have been laid during construction (J Smith, pers comm 2022).

The viaduct arches were formed of shuttered concrete with imitation voussoirs with chamfered 'V' profile imitation joints, topped by a decorative course of bullnose headers formed of blue engineering bricks (see Figs 13 and 21). In places, marks of the timber shuttering were still visible on the underside of the concrete arches. On the south side of the westernmost arch, two small plain circular marks were visible, carved into one of the granite quoins and on the underside of one of the imitation voussoirs, function unknown (Fig 19). The two central arches measured 16.6m across, taken from the top of the

imposts. The westernmost arch measured 12.2m across at the same point. The easternmost arch and abutment were largely buried in the bank.

The external elevations on both sides of the viaduct were constructed of dressed local mud/slate stone, with a double proud stone string course at the base of the upper parapet walls (see Figs 18, 21-23). Measured from the top of the bullnose header course above the central point of the easternmost pier, the stone elevation was 5.35m high to the top of the parapet wall. At both ends of the viaduct the parapet ends had stone piers built on a base of granite blocks, with the piers constructed slightly proud against the main external elevations (see Fig 18). Adjacent to the end piers, and also set proud against the main elevations, were stone abutments edged with granite quoins (see Figs 17 and 20). Measured at the eastern end of the viaduct, on the north elevation, the end pier was 1.55m wide, the abutment beyond was 6m long. Above both end arches, on both sides of the viaduct, two iron strengthening ties were bolted into the external stone elevations, a shorter one below, a longer one above (see Figs 16, 21 and 23).

On the north side of the viaduct, at its western end, the abutment sat above random courses of rough irregular stone blocks, different to those used in the main build, and exposed above and following the line of the bank (Fig 18). Towards the base of the bank, and set into this rougher construction, was the top of a 0.4m deep brick arch. The sides and base of the arch were covered by the bank. Above and east of the brick arch there was a small rectangular socket in the stonework of the main build. The abutment was constructed on top of the rougher masonry, which probably formed part of the footings for the abutment, with the brick arch a relieving arch set into these.

Two railway signs were recorded on the west side of the eastern central arch, on both the north and south elevations (see Fig 13). The signs were painted in black on a painted white background and contained the letters TNQ above the numbers 8 and 52. The symbol TNQ refers to Truro to Newquay, as the trains actually departed from and terminated at Truro, not Chacewater. The numbers 8 and 52 are a distance measurement in miles and chains from Blackwater Junction (J Smith, pers comm 2022).



Fig 4 Section of the c1840 Perranzabuloe Tithe Map which does not show Cocks Viaduct, the location of which is represented in red.

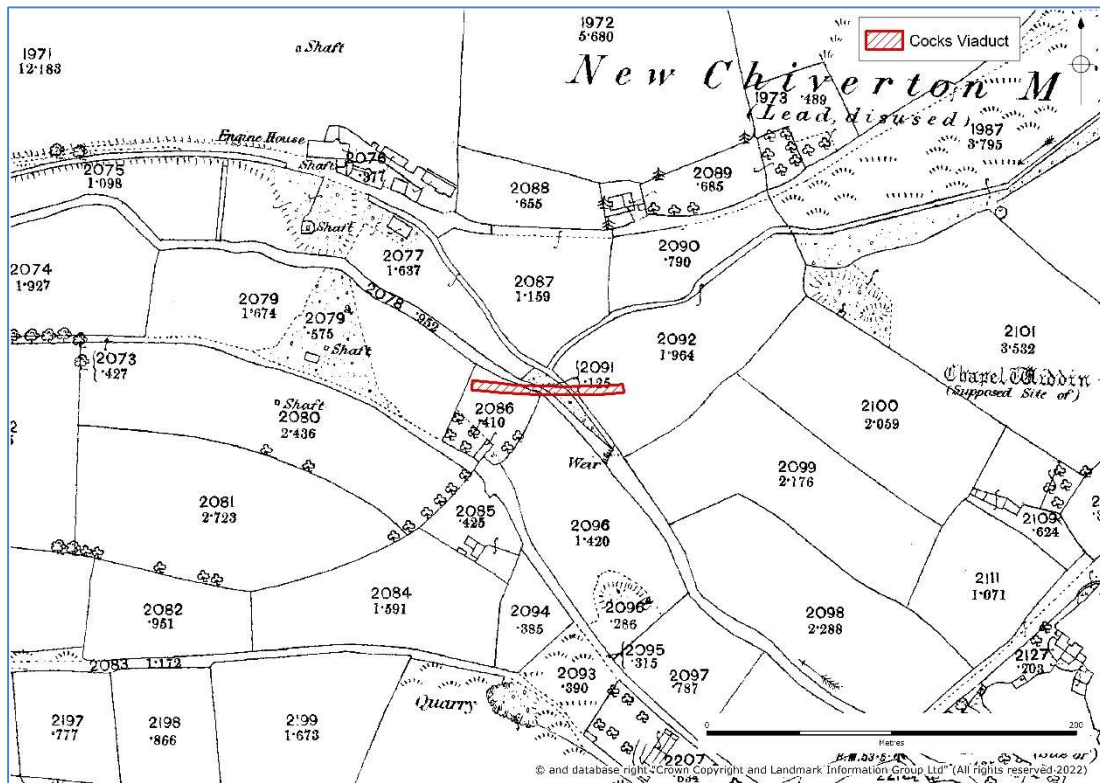


Fig 5 OS 1st Edition 1:2500 map c1880, which does not show Cocks Viaduct, the location of which is represented in red.

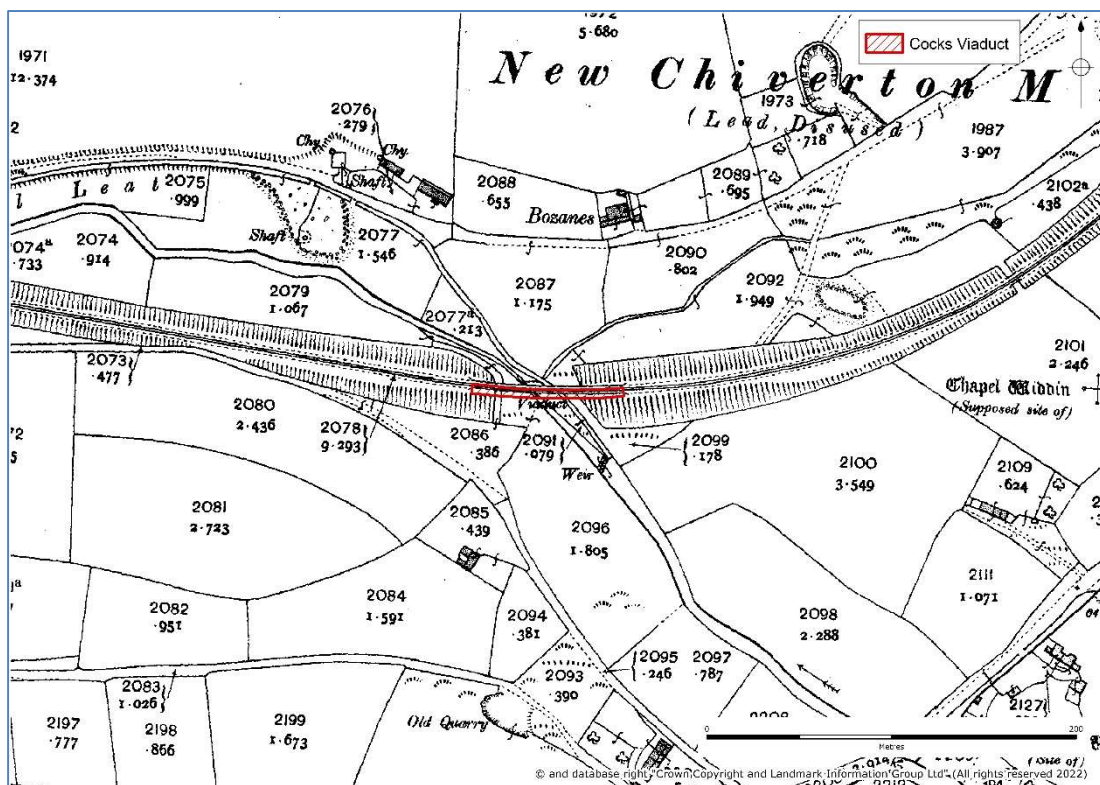


Fig 6 OS 2nd Edition 1:2500 map c1907, which shows Cocks Viaduct, in red.



Fig 7 COV01 Inscription on pier at east end of Cocks Viaduct, looking west.



Fig 8 COV03 Cocks Viaduct northern parapet wall, east end, looking north.



Fig 9 COV08 Inscription on pier at west end of Cocks Viaduct, looking east.



Fig 10 COV09 Long shot along Cocks Viaduct, looking east.



Fig 11 COV11 Cocks Viaduct southern parapet and recess, looking south.



Fig 12 COV14 Benchmark on northern parapet wall of Cocks Viaduct, east end, looking north.



Fig 13 COV32 Pier between the two central arches of Cocks Viaduct, with Railway sign, looking south.



Fig 14 COV34 Western central arch of Cocks Viaduct over the Perran Stream, looking south.



Fig 15 COV36 West central arch, west side, with granite corbels and openings above, looking west.



Fig 16 COV38 Western arch of Cocks Viaduct, looking south.

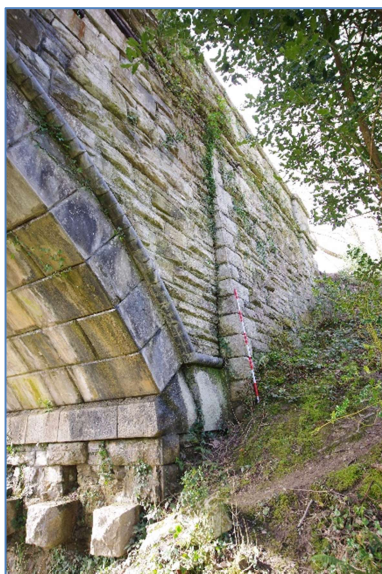


Fig 17 COV39 Cocks Viaduct, west end of north elevation, looking southwest.



Fig 18 COV42 Cocks Viaduct, west end of north elevation, with brick arch looking southwest.



Fig 19 COV44 Western arch, southwest end, with circular bosses, looking west.



Fig 20 COV45 Cocks Viaduct west end of south elevation, looking northwest.



Fig 21 COV48 Cocks Viaduct, south elevation, western and west central arches, looking northwest.



Fig 22 COV50 Cocks Viaduct, south elevation, east central and eastern arches, looking northeast.



Fig 23 COV53 Cocks Viaduct, south elevation, eastern arch, looking northeast.



Fig 24 COV54 Cocks Viaduct, eastern arch span, looking east.

6.2 Historic building record of Lighthouse Bridge

(Figs 25-39)

Lighthouse Bridge is first recorded on the OS 2nd Edition map c1907, the lane it crosses once part of the access to New Chiverton Mine (MCO12286) (Fig 27). The current structure, located at NGR SW77653 52953, retains the wall abutments and the original bridge span and is a fine example of a skew-arch elliptical bridge. At the time of the site visit the trail surface had been prepared across the bridge, and both upper inner bridge parapet walls had been repointed (Figs 38 and 39).

The construction of the bridge abutments and retaining walls comprised rock cut rusticated granite blocks with cement pointing and narrow flat strip moulding to the quoin edges (see Figs 30 and 36). The tops of the retaining walls had a coping of glazed bluish grey engineering bricks, curved on the upper exterior edges (Fig 34). The two bridge arches were topped by four courses of splayed brick voussoirs. Above these there was a proud granite string course forming the base of the upper granite parapets walls (Fig 24). The tops of the parapet walls also had glazed bluish grey brick coping (Figs 38 and 39). The underside of the bridge arch was formed of skewed brick courses in a pattern that roughly consisted of between 16 and 18 courses of brick stretchers interspersed by single courses of brick headers (Fig 31).

A railway sign was recorded on the east abutment of Lighthouse Bridge, painted in yellow on a painted black background. Most of the sign was illegible but the figure 8 and the letter m were still visible. The figures probably refer to the distance from Blackwater Junction – 8 miles and an unknown number of chains (Fig 32).



Fig 25 Section of the c1840 Perranzabuloe Tithe Map which does not show either the Lighthouse or Reen Rose bridges, the locations of which are represented in red.

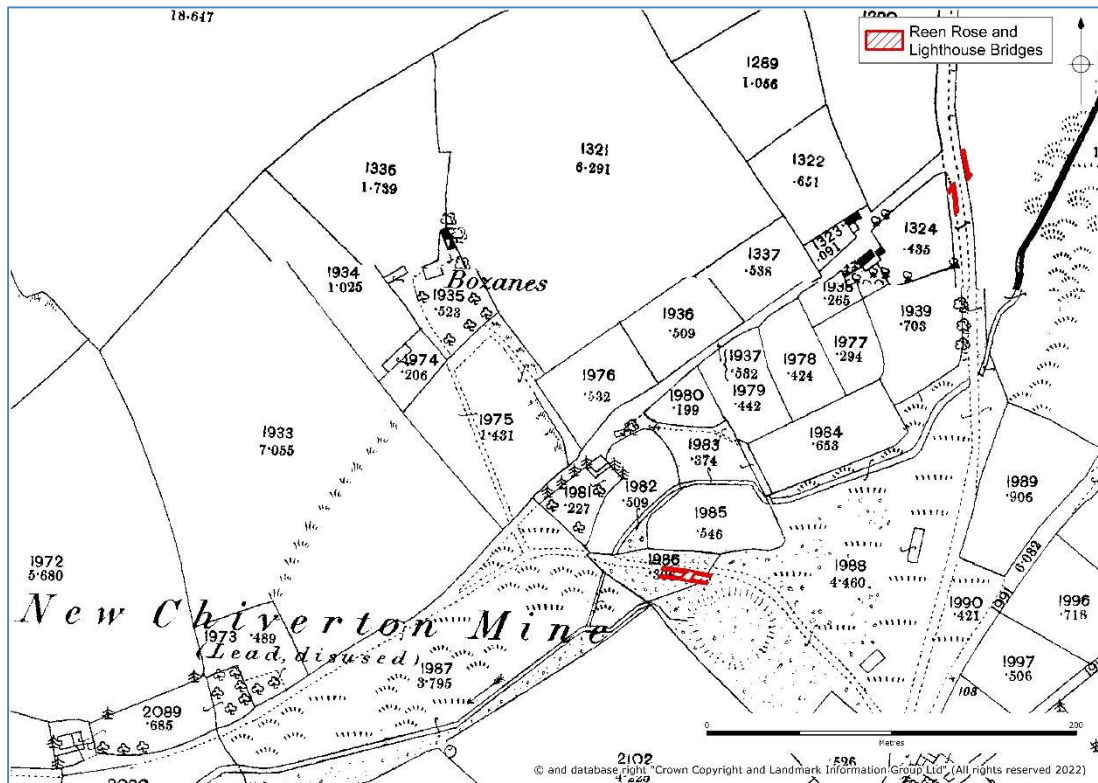


Fig 26 OS 1st Edition 1:2500 map c1880, which does not show either the Lighthouse or Reen Rose bridges, the locations of which are represented in red.

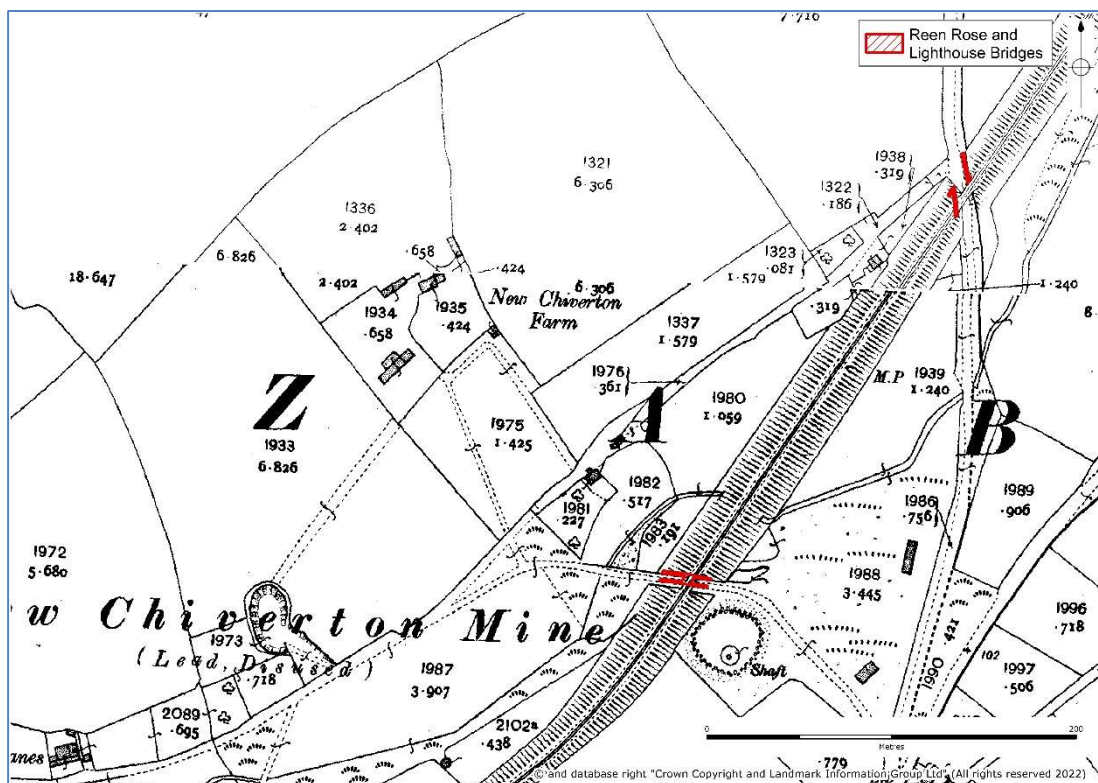


Fig 27 OS 2nd Edition 1:2500 map c1907, which shows the Chacewater to Newquay railway and both the Lighthouse and Reen Rose bridges, represented in red.



Fig 28 LHB02 Lighthouse Bridge from the east, looking west.



Fig 29 LHB04 Lighthouse Bridge southern abutment, east side retaining wall, looking south.

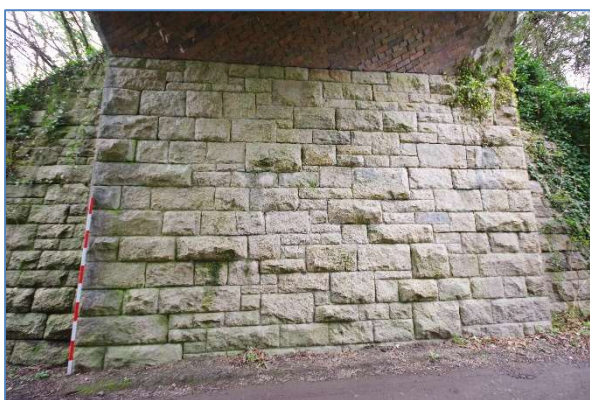


Fig 30 LHB05 Lighthouse Bridge southern abutment, looking south.



Fig 31 LHB07 Lighthouse Bridge, underside brick bridge span, looking east.



Fig 32 LHB08 Lighthouse Bridge southern abutment railway sign, looking south.



Fig 33 LHB09 Lighthouse Bridge southern abutment, west side retaining wall looking south.



Fig 34 LHB11 Lighthouse Bridge southern abutment, brick coping on west side retaining wall, looking south.



Fig 35 LHB12 Lighthouse Bridge northern abutment, west side retaining wall, looking north.



Fig 36 LHB13 Lighthouse Bridge northern abutment, looking north.



Fig 37 LHB14 Lighthouse Bridge northern abutment, east side retaining wall, looking north.



Fig 38 LHB16 Lighthouse Bridge southern parapet wall, repointed, looking south.



Fig 39 LHB17 Lighthouse Bridge northern parapet wall, repointed, looking north.

6.3 Historic building record of Reen Rose Bridge

(Figs 25-27 and 40-51)

Reen Rose Bridge is first recorded on the OS 2nd Edition map c1907 (Fig 27). The current structure, located at NGR SW77800 53164, retains the wall abutments only, with the former bridge section now removed (see Fig 40). At the time of the site visit the trail surface had been prepared up to the edge of the western bridge abutment and continued from just beyond the eastern abutment (see Fig 42).

The abutments walls were constructed of large rectangular blocks of rusticated slate/mudstone, of varying size, with large granite quoins on the abutment ends (see Figs 44 and 49). These had a flattened strip moulding around the edges, in a rusticated style also seen on the Lighthouse Bridge and the Cocks Hill Viaduct (see 6.1 and 6.2 above). Slate/mudstone block retaining walls extended along the roadside from either side of the abutments, with one of the retaining walls on the western abutment returning west into the roadside bank. The retaining walls also had granite quoins at the ends and a coping of glazed bluish grey bricks, curved on the upper exterior edges, the same as Lighthouse Bridge (see Figs 43, 45 and 50). Pointing generally appeared to be cement ribbon strap pointing. There were ceramic pipe weepholes within the structures in several places. The tops of the abutments had seen some modern consolidation (assumed to be following the removal of the bridge span) consisting of concrete, brick and some engineering brick (Figs 40 and 41).

The remnants of railway signage, in black painted letters and numbers on a white painted background, and in white painted letters and numbers on a black painted background, were still visible on the eastern wall abutment and two of the retaining walls (Figs 46, 48, 51). Where legible these seemed to be:

- Eastern abutment, northern retaining wall – white on black - 9m 5½, with a small c above (Fig 48).
- Western abutment, southern retaining wall – white on black - 9m 5½ (Fig 51).
- Eastern abutment, north side – black on white - TNQ and below, 9 05 (Fig 46).

As with Cocks Viaduct and Lighthouse Bridge, the symbol TNQ refers to Truro to Newquay. The distances are in miles and chains, to which the small letter c above referred. The distances given are from Blackwater Junction (J Smith, pers comm 2022).



Fig 40 RRB01 Reen Rose Bridge from the top of the eastern abutment, looking west.



Fig 41 RRB02 Reen Rose Bridge modern consolidation of the top of the eastern abutment, looking northwest.



Fig 42 RRB03 Reen Rose Bridge from the top of the eastern abutment, looking east.



Fig 43 RRB04 Reen Rose Bridge east abutment, north side retaining wall, looking east.



Fig 44 RRB05 Reen Rose Bridge east abutment, looking east.



Fig 45 RRB06 Reen Rose Bridge east abutment, south side retaining wall, looking northeast.



Fig 46 RRB07 Reen Rose Bridge east abutment, railway sign, looking east.



Fig 47 RRB08 Reen Rose Bridge west abutment, north retaining wall, looking south.



Fig 48 RRB09 Reen Rose Bridge east abutment, north retaining wall railway sign, looking east.



Fig 49 RRB10 Reen Rose Bridge west abutment, looking west.



Fig 50 RRB11 Reen Rose Bridge west abutment, south retaining wall, looking west.



Fig 51 RRB12 Reen Rose Bridge west abutment, south retaining wall, railway sign, looking west.

6.4 Historic building record of Cocks Hill Bridge

(Figs 52-62)

The c1840 Perranzabuloe Tithe Map shows the road from Cocks (Cocks Hill) leading up to and ending at the Perran Stream (Fig 52). By the time of the OS 1st Edition map of c1880, the road extends across the stream and heads west towards Bolingey (Fig 53). The modern road post-dates the OS 2nd Edition map of c1907 (Fig 54) and now diverts a short distance to the west of the original road, with the 19th century bridge now out of use.

The present Cocks Hill Bridge is a modern late 20th century concrete structure with stone cladding, centred at NGR SW 76818 52891. There is a parapet wall to either end of the bridge which has a tarmac surface (Figs 57-59). The walls beneath the bridge do not have any stone cladding.

On the east side of the bridge are the remains of the 19th century bridge, and the bases of the bridge's arch are visible (Figs 60 and 62). The arch bases measure approximately 8m wide and are constructed of shillet, with granite blocks to the base on the south bank. It was not possible to access the arch bases to determine the nature of the bonding. On the north bank between the new and old bridges is a section is a randomly coursed shillet wall with no visible bonding. On the south side between the new and old bridges is a granite block wall with no visible bonding (see Fig 55). There are modern water height monitoring posts built within both arches which has removed part of the arch where the surrounding area has been rebuilt (Figs 60 and 62).

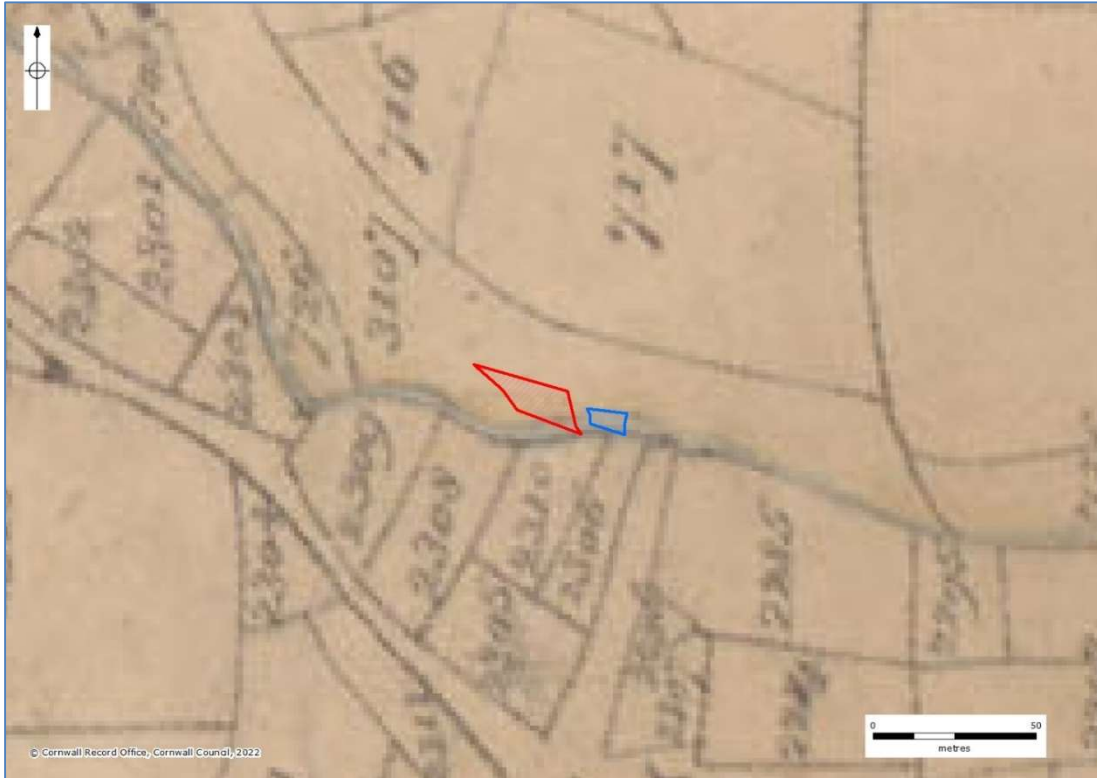


Fig 52 Section of the c1840 Perranzabuloe Tithe Map which does not show a bridge at Cocks Hill, the road ending at the Perran Stream. The location of the historic Cocks Hill Bridge is outlined in blue, and the location of the modern bridge in red.

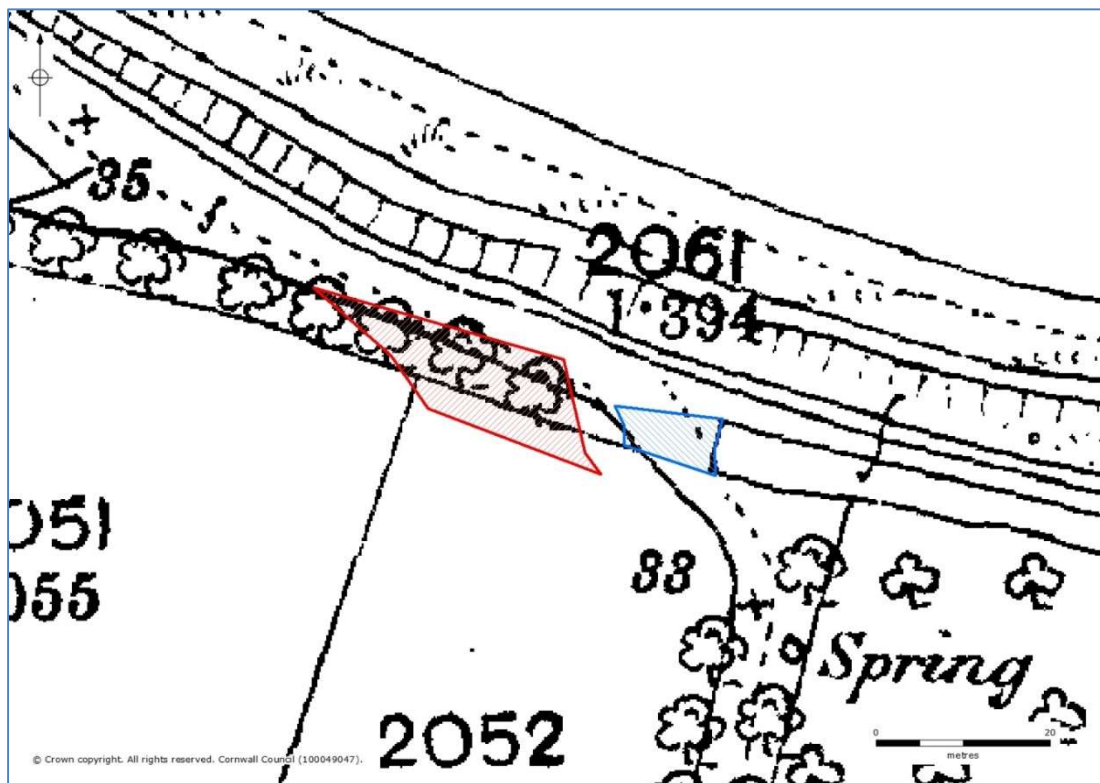


Fig 53 The First Edition 1:2500 OS Map c1880 showing the 19th century Cocks Hill Bridge outlined in blue, and the location of the modern bridge in red.

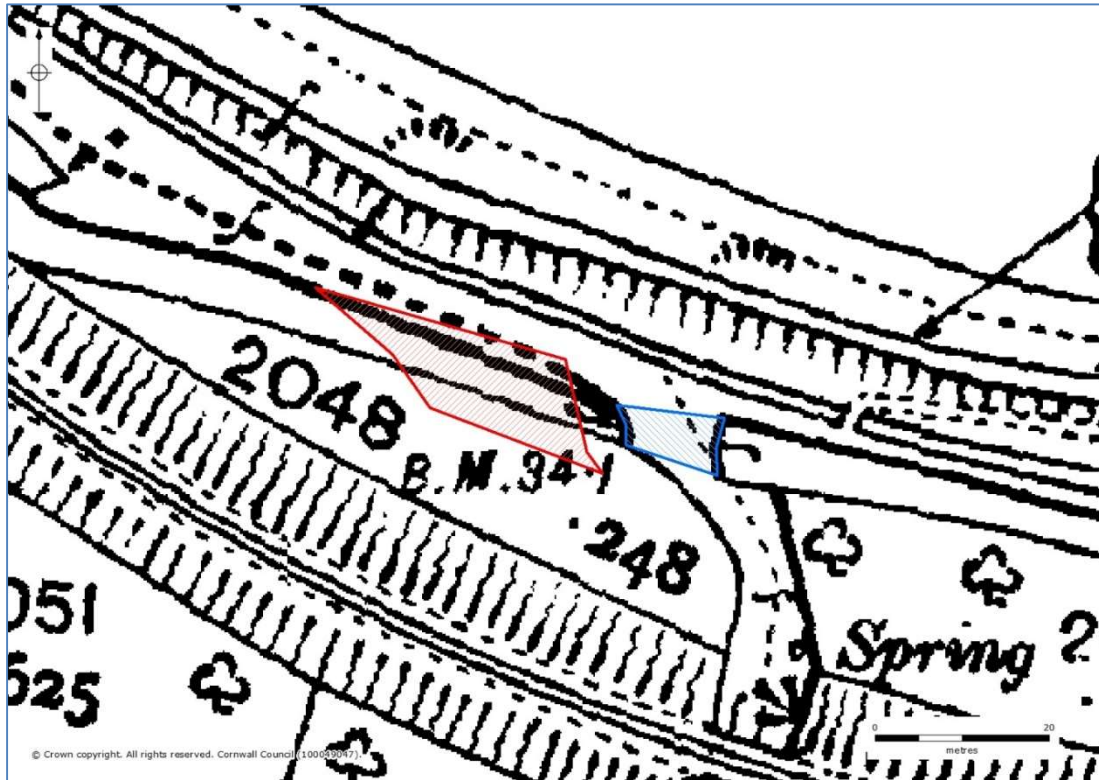


Fig 54 The Second Edition 1:2500 OS Map c1907 showing the 19th century Cocks Hill Bridge outlined in blue, and the location of the modern bridge in red.

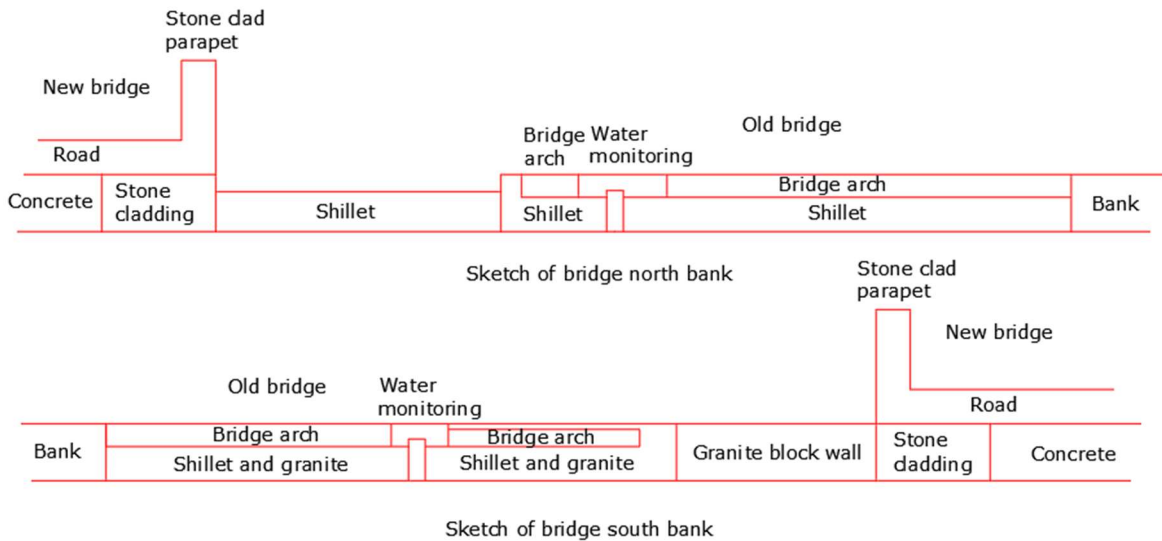


Fig 55 Sketches of the 19th century Cocks Hill Bridge arch elevations.

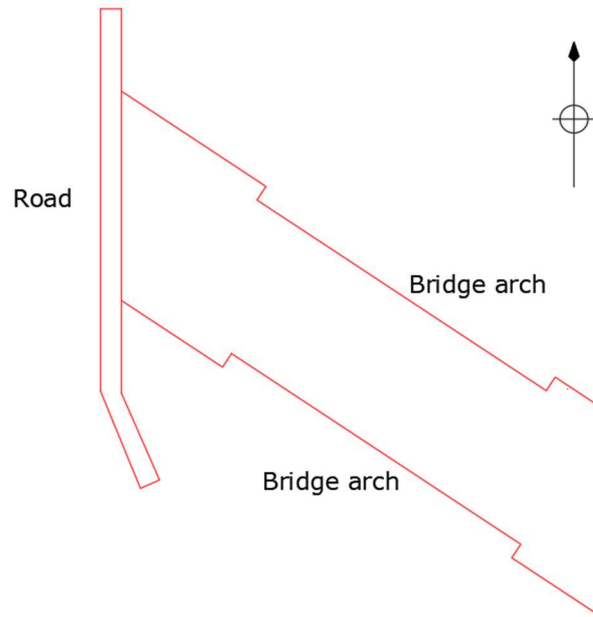


Fig 56 Sketch plan of the 19th century bridge arches (right) in relation to the current bridge (left).



Fig 57 East elevation of the current bridge at Cocks Hill, looking west.



Fig 58 East parapet wall of the current bridge at Cocks Hill, looking east.



Fig 59 West parapet wall of the current bridge at Cocks Hill, looking northwest.



Fig 60 Remains of the 19th century Cocks Hill Bridge on the south side of the river, looking southeast.



Fig 61 west elevation of the current bridge at Cocks Hill, looking northwest.



Fig 62 Remains of the 19th century Cocks Hill Bridge on the north side of the river, looking northeast.

6.5 Historic building record of the Bone Mill Leat

(Figs 63-76)

A grist mill (MCO29105) is recorded to the south of Bolingey, within Nansmellyn Tenement, in the c1840 Perranzabuloe Tithe Award. Plot 700 which records the mill is described as a grist mill, garden and court. The detail on the associated Tithe Map is poor but plot 700 appears to comprise a building corresponding with the present Bone Mill, a garden plot to the south and a possible lane to the north linking into Plot 704, recorded as House and Court, also part of Nansmellyn Tenement (Fig 63). Both Plots are owned by the Earl of Falmouth and occupied by William Moore. A leat runs into Plot 704 from the north on the c1840s Tithe Map but does not appear to continue south to the Bone Mill, although the 'lane' does follow the route of the leat as recorded on the OS 1st Edition map (see Fig 64). This perhaps indicates the leat was either culverted or carried along an elevated timber race along this section, dependent on whether the mill had an undershot or overshot wheel to power it.

The mill is recorded as a Bone Mill on the OS 1st Edition map, and a Corn Mill on the OS 2nd Edition map (Figs 64 and 65). By c1880 the leat is shown to extend to the mill, running along its southwest side and then southeast across the garden plot to meet Bone Mill Road; a short section of leat links with this along the north side of the mill (Fig 64). This configuration is the same on the OS 2nd Edition map of c1907 (Fig 65). This may indicate an open leat system by this date but how that relates to the leat system as recorded on the c1840s Perranzabuloe Tithe Map remains uncertain.

The Bone Mill watching brief recorded the section of the historic leat running along the west side of the former bone mill, from just southwest of the mill building and south eastwards along the west side of Bone Mill Road; NGR SW 76703 52990 to NGR SW 76725 52964. The site had previously been cleared of vegetation but at the time of the site visit this had somewhat regrown, making it difficult to clearly see some of the construction detail for the historic leat and surrounding historic walling.

The section of the leat that was recorded measured approximately 33m in length and varied in width from 0.5-1.5m in width. Its construction consisted of a U-shaped trench cut into the earth, with no visible lining. At its northwest end, the leat ran below the western end of an L-shaped earth bonded stone boundary wall, via a 0.5m wide stone

capped culvert at its base (Figs 67, 69 and 70). The cut of the leat on the northwest side of this wall was not evident at present ground levels.

At its northeast end, the L-shaped boundary wall returned northwards towards the southwest corner of the mill building (Fig 68). On the northeast side of this return there was a further short section of stone boundary wall with a gate opening at its southwest end. At its northeast end the boundary wall met a taller stone-built wall which retained the west side of a sloping earth ramp that ran up to the west side of Bone Mill Road, possibly a former access lane (Fig 71).

The historic wall sections were constructed of local killas stone with earth bonding. They correspond with the historic enclosure boundaries recorded to the southeast of the mill building on the c1840s Perranzabuloe Tithe Map and OS 1st Edition map, suggesting they are at least early 19th century in date (see Figs 63 and 64).

Along most of its length the leat was substantially infilled. At the southeast end of the surveyed area the leat ran below a Cornish hedge boundary, recorded on the OS 1st Edition map (Figs 74 and 75 and see Fig 64). The western end of this boundary may be the same as shown on the c1840s Perranzabuloe Tithe Map, which was possibly extended to the east as part of the construction of Bone Mill Road during the middle to later 19th century (see Figs 64 and 65). A prior watching brief at this location during vegetation clearance in January 2021 exposed part of the Cornish hedge boundary and a stone capped culvert opening at its base. The Cornish hedge where it ran over the leat was 0.9m wide and 0.9m-1m high and was constructed of upright coursed rubble stones with earth bonding. The top of the culvert was capped by a large slate stone which appeared to have cut or shaped edges at its base (Fig 75). On the east side of the Cornish hedge the cut of the leat was approximately 1.5m wide with a flattish base. The sides of the leat were degraded and slumped and heavily vegetated. On the west side of the leat the Cornish hedge disappeared below a mound of deposited earth and stone (see Fig 66). Sections of stone walling were visible within the base of the mound, and the dumped material included loose rubble stones. It was presumed that the mound comprised a relatively modern dump of material over the western section of the Cornish hedge boundary, which may survive to some extent below this. The leat extended beyond the surveyed area for approximately 600m where it disappeared below the west side of Bone Mill Road.

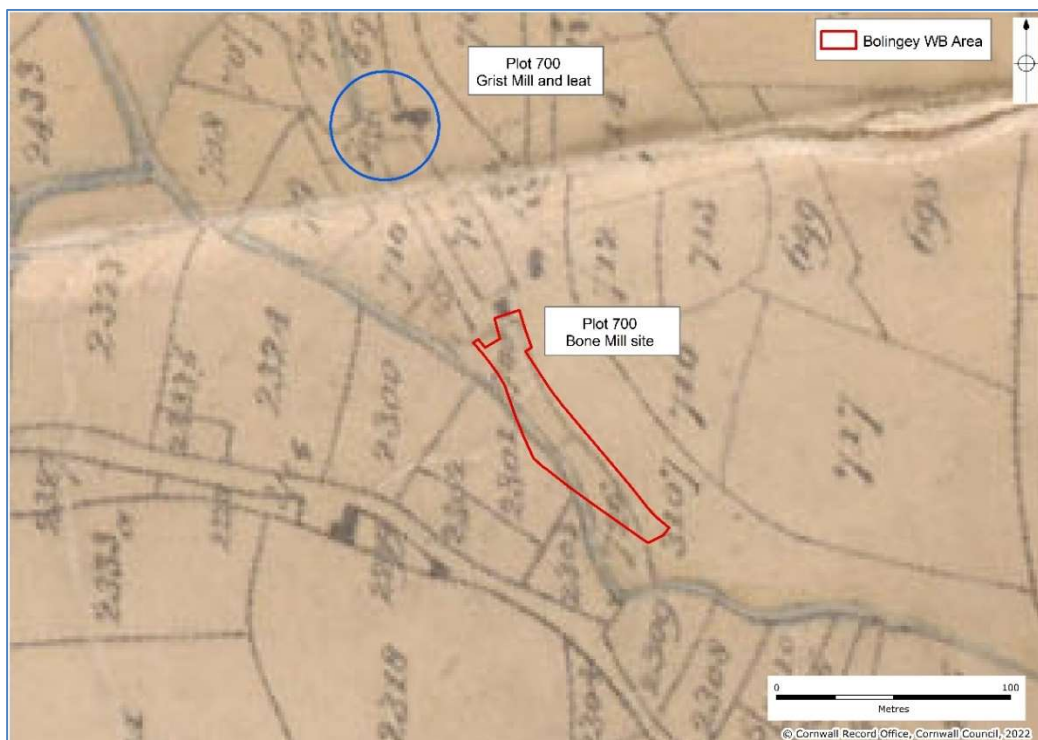


Fig 63 Section of the c1840 Perranzabuloe Tithe Map showing Bolingey Bone Mill.

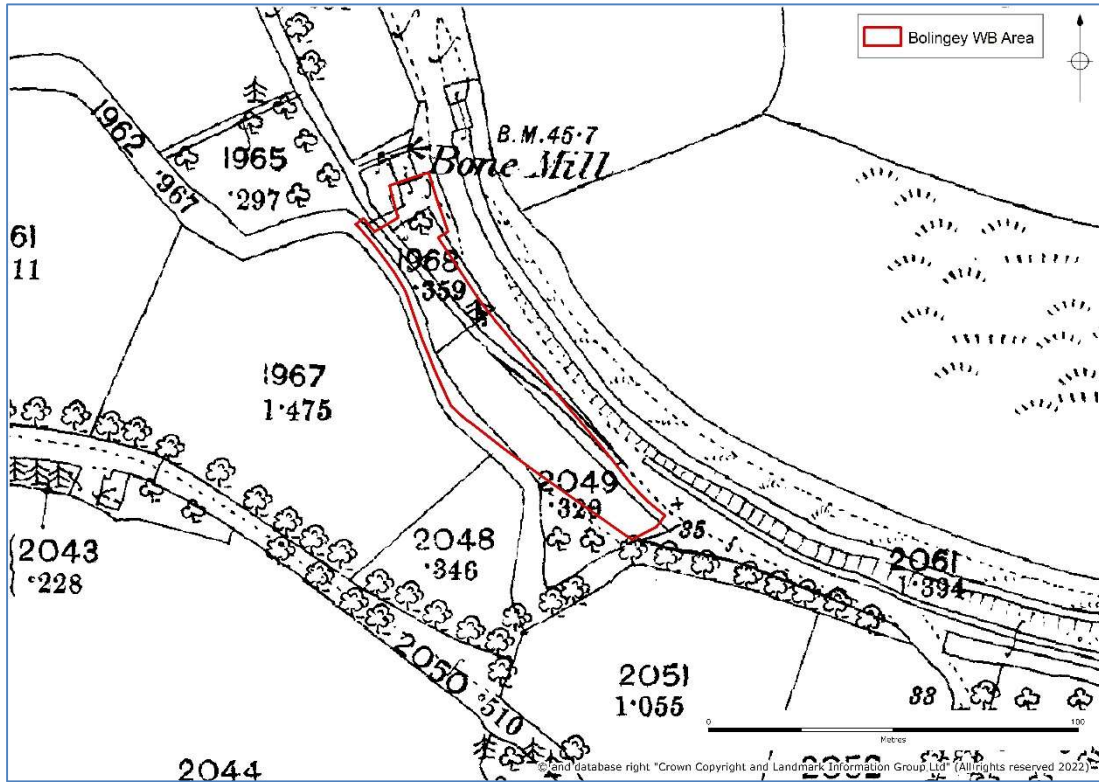


Fig 64 The First Edition 1:2500 OS Map c1880 showing Bolingey Bone Mill and leat system.

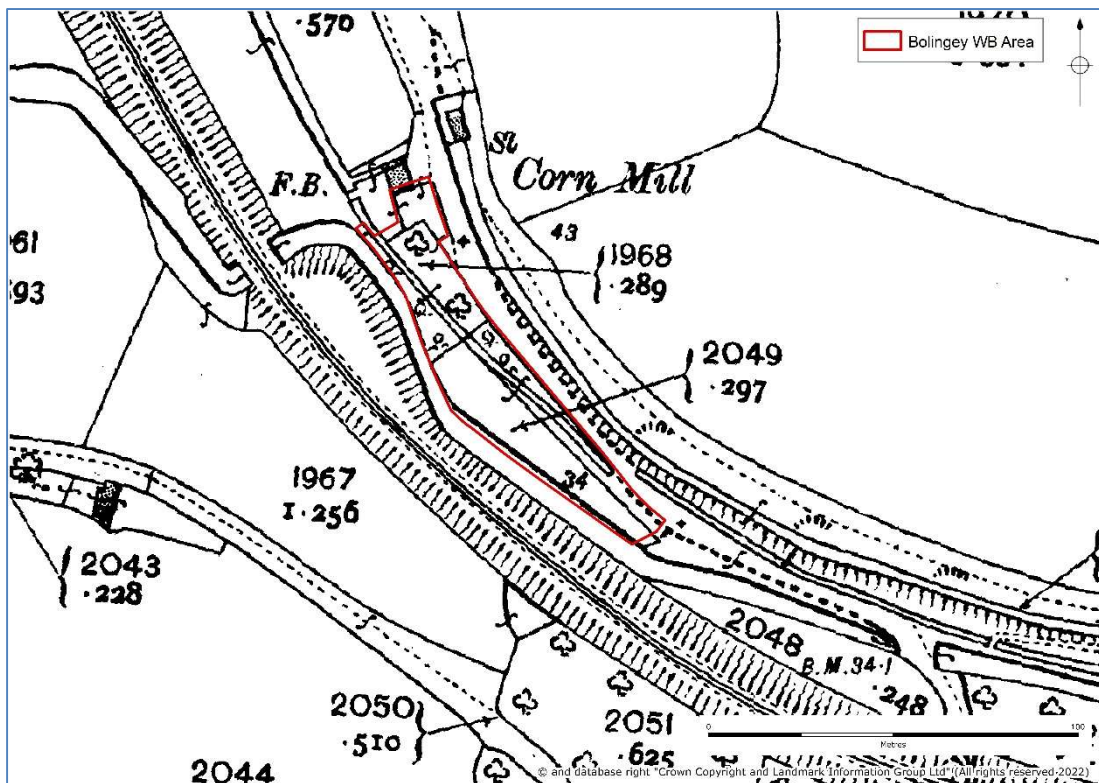


Fig 65 The Second Edition 1:2500 OS Map c1907 showing Bolingey Bone Mill and leat.

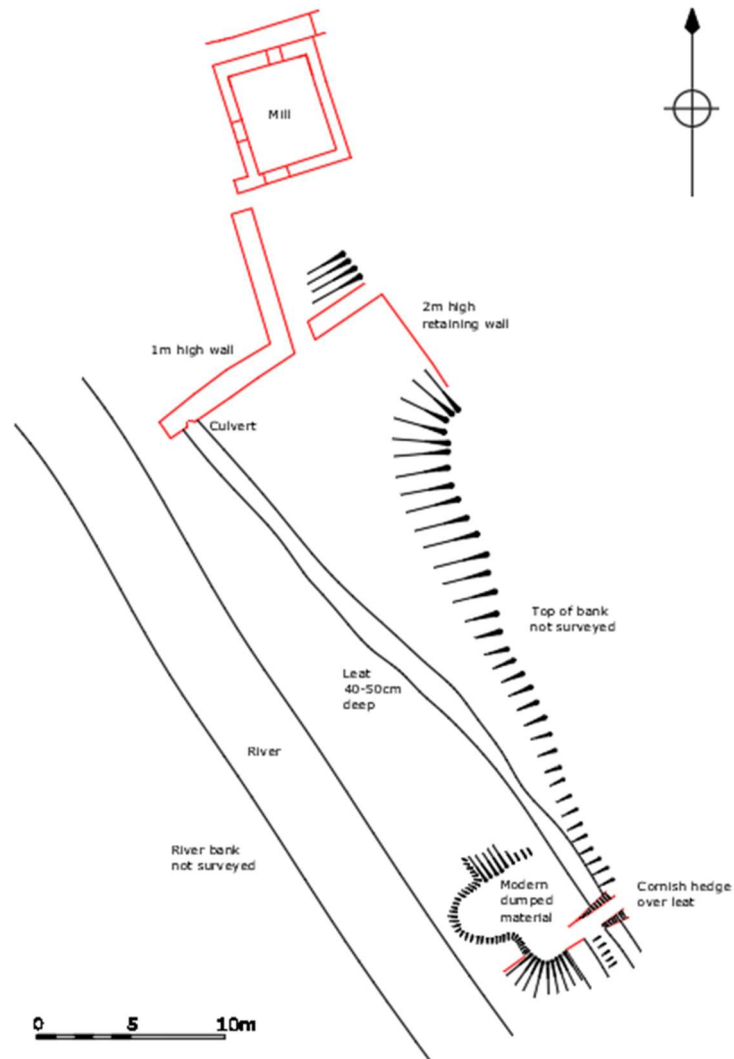


Fig 66 Measured survey of the Bone Mill Leat and surrounding features.



Fig 67 Northwest elevation of the boundary wall overlying the leat (right of shot), looking southeast.



Fig 68 West elevation of boundary wall arm extending towards the mill, looking east.



Fig 69 Southeast elevation of the boundary wall overlying the leat (left of shot), looking northwest.



Fig 70 Culvert opening in the base of the overlying boundary wall, looking northwest.



Fig 71 Retaining wall at northeast corner of site, with the sloped ramp beyond, looking northeast towards Bone Mill Road.

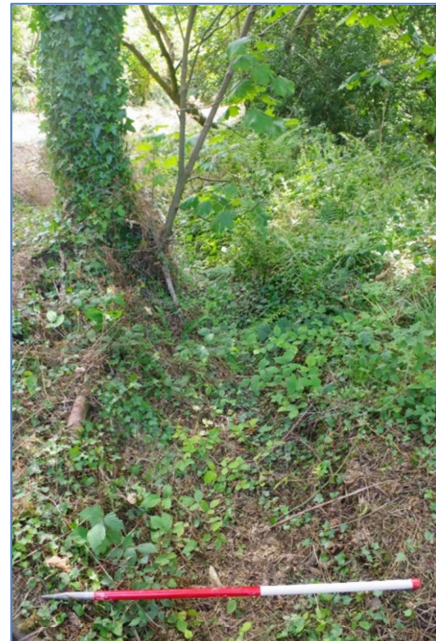


Fig 72 The leat looking southeast from the southeast side of the L-shaped boundary wall.



Fig 73 The leat looking southeast towards the Cornish hedge boundary at its southeast end.



Fig 74 Northwest elevation of the Cornish hedge overlying the southeast end of the leat.



Fig 75 Southeast elevation of the Cornish hedge at the southeast end of the leat showing the stone capped culvert underneath.



Fig 76 The leat looking northwest from the northwest side of the Cornish hedge boundary.

6.6 Watching briefs at Bolingey Bone Mill and Toad Hall Culvert

(Figs 77-83)

A watching brief was undertaken in the area of excavation for part of the trail and a ramp at Bolingey Bone Mill, to run from alongside a modern drainage channel on the east side of the former railway line and then into the bone mill site at its northwest corner (see Figs 77, 79-81). A watching brief was also undertaken at Toad Hall Culvert, during vegetation clearance and groundworks (Figs 78, 82 and 83).

The OS 2nd Edition map shows the line of the former Chacewater and Newquay railway where it ran along the west side of the former bone mill, crossing the Perran Stream (see Fig 65). The bone mill ramp watching brief revealed that the ground had been altered significantly on the east side of the former railway bank during the later 20th Century (Figs 79 and 80). This was part of a water management scheme which involved the creation of a flood relief channel diverting off the river along the east side of the railway bank and creating ponds on the west side. The ground contained modern plastic, stone and metal caging.

Toad Hall Culvert was constructed of local slate/mudstones with a lime mortar and cement repointing below a coping of blue engineering brick. The round arch comprised a double course of brick around the culvert opening, the arch of the culvert was also constructed of brick (Fig 82). It is probably contemporary with the construction of the railway.

The Toad Hall Culvert watching brief area measured 4.5m by 4.5m with a stepped/sloped 0.5m wide buffer, to a depth of approximately 2m (Fig 83). The excavation showed that the area had been entirely built-up on top of the natural soil, with decaying plant matter, plastic netting and wood appearing towards the bottom of the excavation.



Fig 77 Location of Bone Mill ramp watching brief.



Fig 78 Location of Toad Hall Culvert watching brief.



Fig 79 Stripped section along the bank of the flood relief channel at Bolingey Bone Mill, looking northwest.



Fig 80 Stripped section in preparation for the trail where it enters the Bolingey Mill site, looking southeast.



Fig 81 Section of new trail through the former bone mill site, looking southeast.



Fig 82 Toad Hall Culvert, looking west.



Fig 83 Excavated area below Toad Hall Culvert, looking west.

7 Conclusions

A series of archaeological watching briefs were undertaken within the Bolingey Bone Mill site and at Toad Hall Culvert ahead of the construction of a multi-use trail that predominantly followed the line of the former Chacewater to Newquay railway line. Historic building records were also made for some of the historic structures along the intended route, comprising Cocks Hill Bridge, Cocks Viaduct, Lighthouse Bridge and Reen Rose Bridge.

The watching briefs at Bolingey revealed sections of the post-medieval leat system associated with the former bone mill. The leat was simply constructed as an earth-cut culvert, potentially prior to some later field boundaries and garden walls within the Bolingey mill site being built. A leat is recorded to the northwest of Bolingey Bone Mill in the c1840s Perranzabuloe Tithe Award, but its form southwards of the mill on the associated Tithe Map is not clear and it is possible that the section of the leat recorded by the watching briefs is a later 19th century extension and/or modification of an older leat, although this is not certain. The historic mapping also suggests a possible reconfiguring of the boundary walls within the mill site during the later 19th century. The standing walls recorded during the watching brief most closely correspond with those recorded on the OS 1st Edition map of c1880, indicating they date to at least that period, although with possible earlier elements.

The recording of the bridges, culverts and viaduct along the section of the Chacewater to Newquay railway utilised by the Saints Trail are excellent examples of the changes in technology and design that were taking place at the beginning of the 20th Century. Traditional railway architecture and materials, such as local stone, granite and engineered brick were still in use and demonstrated a conformity and unification of design that was still coherent with railway structures built during the previous century. New technologies and materials were being introduced, however, with shuttered concrete being increasingly used, either as blocks or in mass form, as demonstrated at Cocks Viaduct.

8 References

8.1 Primary sources (in chronological order)

Tithe Map and Apportionment, c1840. Parish of Perranzabuloe (licensed digital copy at Kresen Kernow)

Ordnance Survey, c1880. 25 Inch Map First Edition (licensed digital copy at CAU)

Ordnance Survey, c1907. 25 Inch Map Second Edition (licensed digital copy at CAU)

Ordnance Survey, MasterMap Topography

8.2 Publications

Cornubian and Redruth Times, 1904. Mr Arthur Carkeek [online]. Available at: [Mr. Arthur Carkeek, C.C. | Cornubian and Redruth Times | Saturday 12 March 1904 | British Newspaper Archive](#) [accessed 17th November 2022]

Cornwall County Council, 1996. *Cornwall landscape assessment 1994*. A report prepared by Landscape Design Associates and Cornwall Archaeological Unit

Fleming, F, 2020. *Perranporth to Newquay Multi-Use Trail, Cornwall, Heritage Impact Assessment*. Truro, Cornwall Archaeological Unit, Cornwall Council

Graces Guide, 2021. *James Charles Inglis* [online]. Available at: [James Charles Inglis - Graces Guide](#) [accessed 15th Nov 2022]

Herring, P, 1998. *Cornwall's Historic Landscape: presenting a method of historic landscape character assessment*. Truro, Cornwall Archaeological Unit, Cornwall County Council and English Heritage

Padel, O J, 1985. *Cornish Place-Name Elements*. Nottingham, English Place-Name Society

8.3 Websites

British Geological Survey 2022. *Geology of Britain Viewer* [Geology of Britain viewer | British Geological Survey \(BGS\)](#)

Cranfield University 2022. *Soilscapes Viewer* [Soilscapes soil types viewer - National Soil Resources Institute. Cranfield University \(landis.org.uk\)](#)

Heritage Gateway 2012. [Heritage Gateway - Home *](#)

Appendix 1: Photographic plans

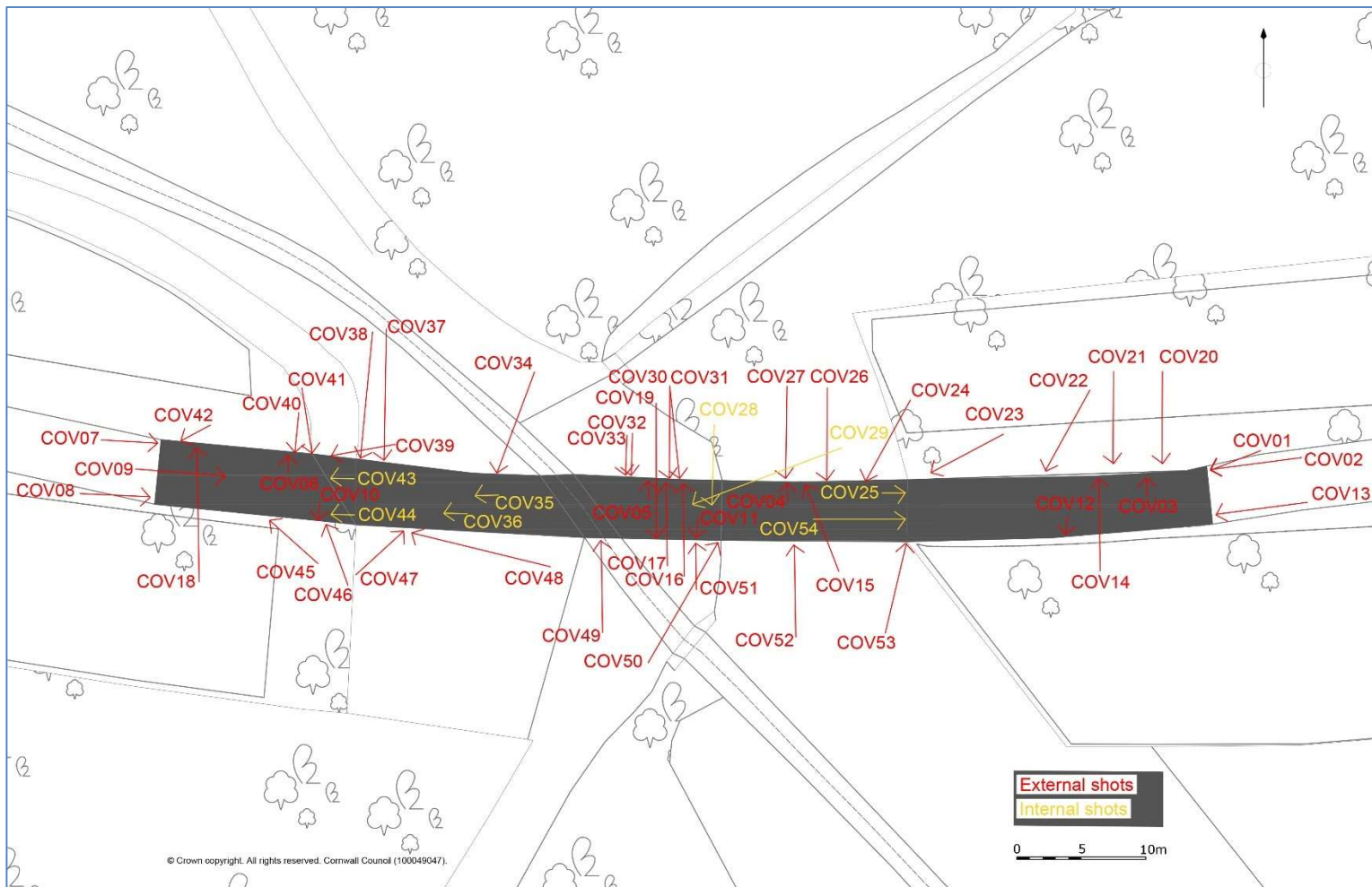


Fig 84 Photographic archive plan for Cocks Viaduct. Exterior shots in red, interior shots in yellow.

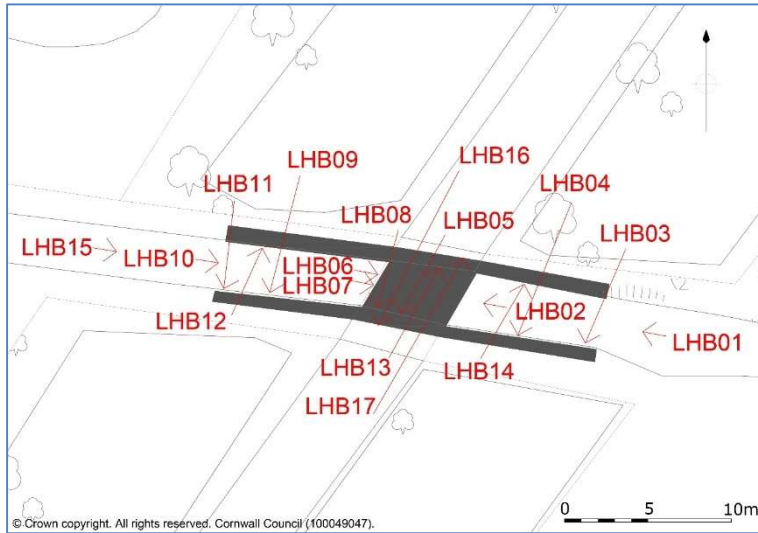


Fig 85 Photographic archive plan for Lighthouse Bridge.

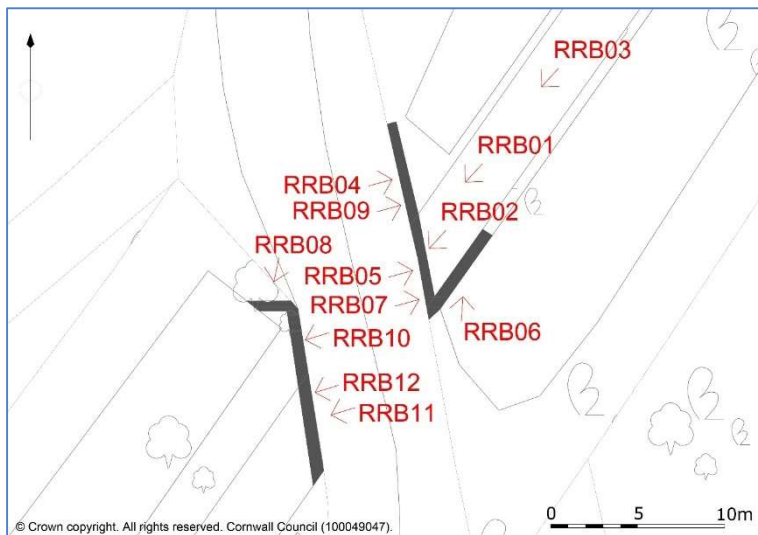


Fig 86 Photographic archive plan for Reen Rose Bridge.

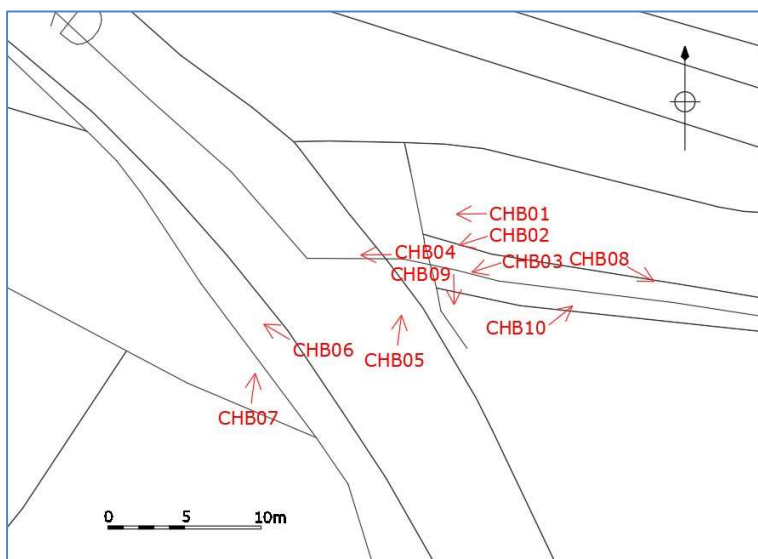


Fig 87 Photographic archive plan for Cocks Hill Bridge.

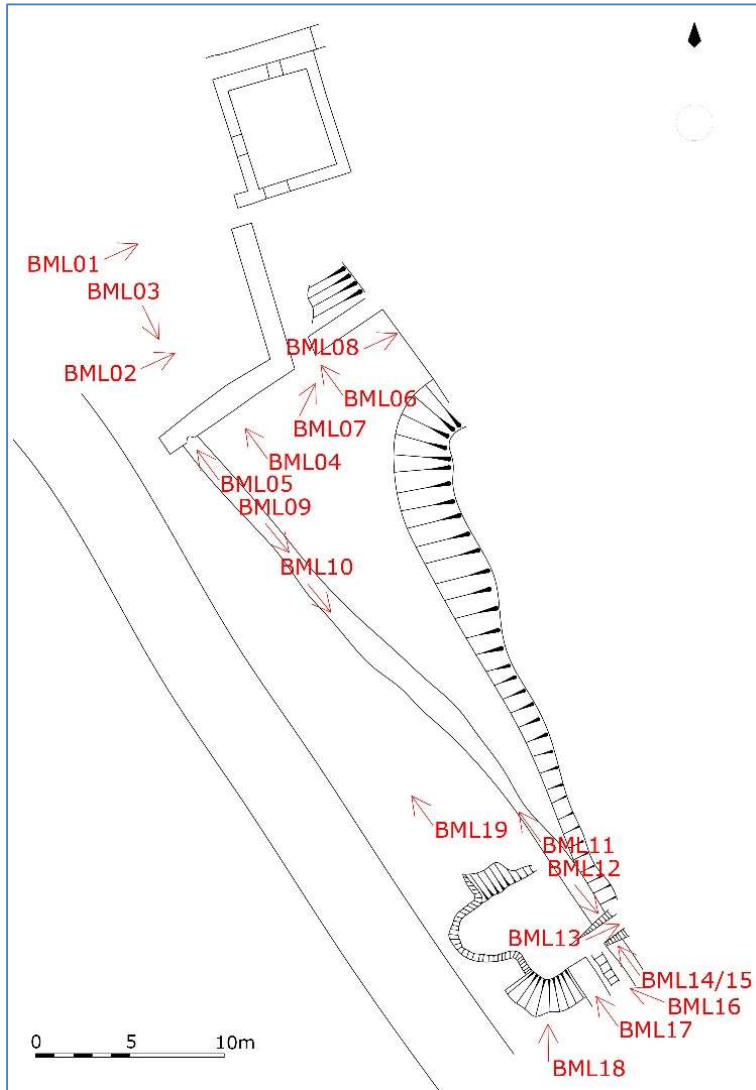


Fig 88 Photographic archive plan for the Bone Mill leat.

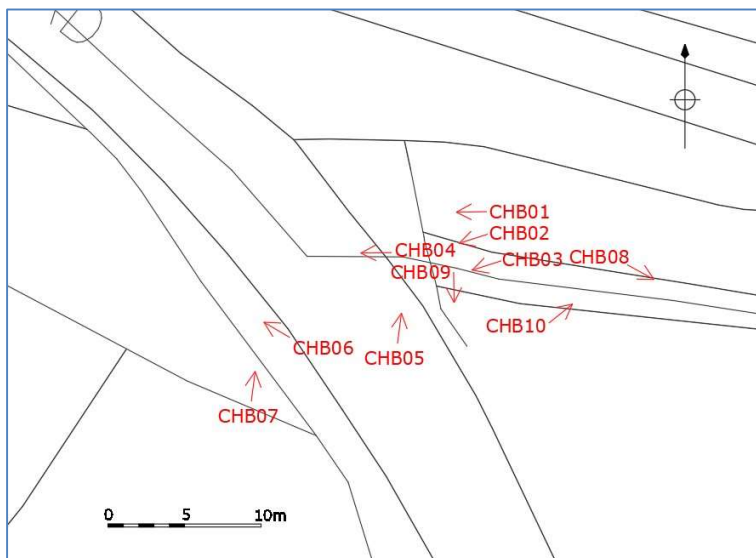


Fig 89 Photographic archive plan for Cocks Hill Bridge.

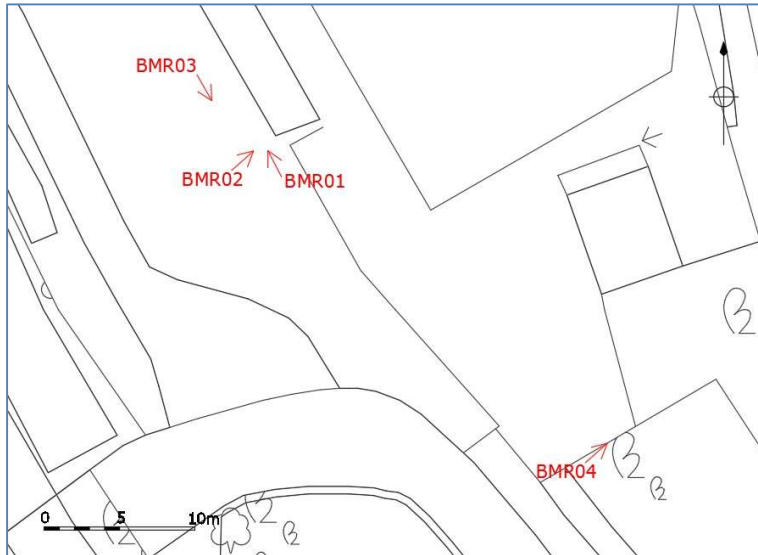


Fig 90 Photographic archive plan for Bone Mill Ramp watching brief.

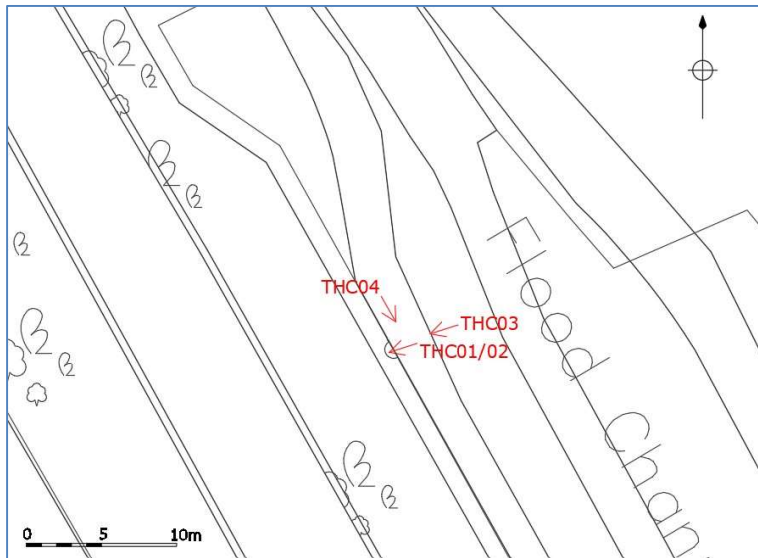


Fig 91 Photographic archive plan for Toad Hall Culvert watching brief.

Appendix 2: Written Scheme of Investigation

Perranporth to Newquay Saints Trail, Cornwall

Client: James Lantsbery, Cormac Solutions Ltd

Planning ref: PA20/05207

Project background

A new multi-use trail between Perranporth and Newquay is proposed as part of a scheme to improve connectivity for cyclists, pedestrians and equestrians across an area geographically focussed within 8km of the A30 Chiverton to Carland Cross road scheme. The proposed dualling of the A30 between Chiverton and Carland Cross offers an opportunity to develop and deliver a range of additional strategic improvements to the transport network and designated funds have been allocated to Cornwall Council and Highways England by the Department of Transport as part of a funding package set aside for Cycling Safety and Integration (CSI). The proposals for the routes are intended to be deliverable independent of the A30 dualling scheme.

The Perranporth to Newquay route is proposed to start from the carpark on Station Road on the east side of Perranporth at NGR SW 75999 54239 (Fig 1). The route will then continue alongside Station Road to Nansmellyn Farm, crossing the road to pass through the site of the former bone mill at Bolingey from where it will pick up the route of the former Chacewater to Newquay railway line. After a short detour via road through Cocks Hill, the route will again follow along the former railway line as far as Goonhavern, where a short road detour then picks up with the former railway line once more at the site of Goonhavern Halt.

From Goonhavern Halt the route will follow the former railway as far as Mitchell and Newlyn Halt then divert southeast through the site of the former East wheel Rose Mine (Fig 1). From here it will pass through fields at Lappa and Trevilson as far as Metha Bridge, passing through the site of the medieval settlement of Lappa and Lappa Mill. At Metha Bridge the route will cross the line at the Lappa Valley Steam Railway and follow the former railway once more as far as Benny Bridge. Although the trail is eventually intended to follow a route that takes it around Trewerry to re-join the former railway line, this section is not included at present and will form part of a later scheme of works.

From the north side of Trewerry the route will follow the former railway line as far as Gwills and then continue along the line of the former railway through fields, passing to the north of Trevithick to meet the main A3075 road (Fig 1). Crossing the road, the trail will continue on a short distance within the site of the former Trevemper goods yard at NGR SW 82356 60266. The trail will then link to an existing bridleway and signed cycle route into Newquay.

A Heritage Impact Assessment was carried out for the site by Cornwall Archaeological Unit (Fleming 2020) and this document sets out a Written Scheme of Investigation (WSI) by Cornwall Archaeological Unit (CAU) for a programme of archaeological investigation arising from that report. The work will comprise a series of watching briefs along selected sections of the route where ground disturbance will be necessary, to include written descriptions and digital photographs of any historic hedgerows breached as part of the trail's construction. It will also include Level 2 historic building records of all the structures along the route that will be subject to any degree of removal or modification by the scheme of works.

The work has been requested by Cornwall Council's Senior Development Officer Historic Environment (SDHOE) (archaeology) – comment date 12th October 2020 – and is required to fulfil condition 13 of the planning consent granted by Cornwall Council under application number PA20/05207. The planning condition states that:

A) Prior to the commencement of the development hereby approved in whole or to any section of the development (including ground works) which cannot be undertaken by the

Highway Authority, a programme of archaeological recording work including a Written Scheme of Investigation shall have been submitted to and approved by the Local Planning Authority in writing. The scheme shall include an assessment of significance and research questions, and:

1. The programme and methodology of site investigation and recording 2. The programme for post investigation assessment 3. Provision to be made for analysis of the site investigation and recording 4. Provision to be made for publication and dissemination of the analysis and records of the site investigation 5. Provision to be made for archive deposition of the analysis and records of the site investigation 6. Nomination of a competent person or persons/organisation to undertake the works set out within the Written Scheme of Investigation

B) No development within any section shall take place other than in accordance with the Written Scheme of Investigation approved under condition (A).

C) The development, or any section, shall not be brought into use until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the Written Scheme of Investigation approved under condition (A) and the provision made for analysis, publication and dissemination of results and archive deposition has been secured.

D) The archaeological recording condition will normally only be discharged when all elements of the WSI including on site works, analysis, report, publication (where applicable) and archive work has been completed.

Reason: To ensure that provision is made to record finds of archaeological interest in accordance with the aims and intentions of Policy 24 of the Cornwall Local Plan Strategic Policies 2010-2030 and paragraph 199 of the National Planning Policy Framework 2019. A pre-commencement condition is necessary in this instance due to the need to ensure that a programme and methodology of site investigation and recording of archaeological features is undertaken before physical works commence on site.

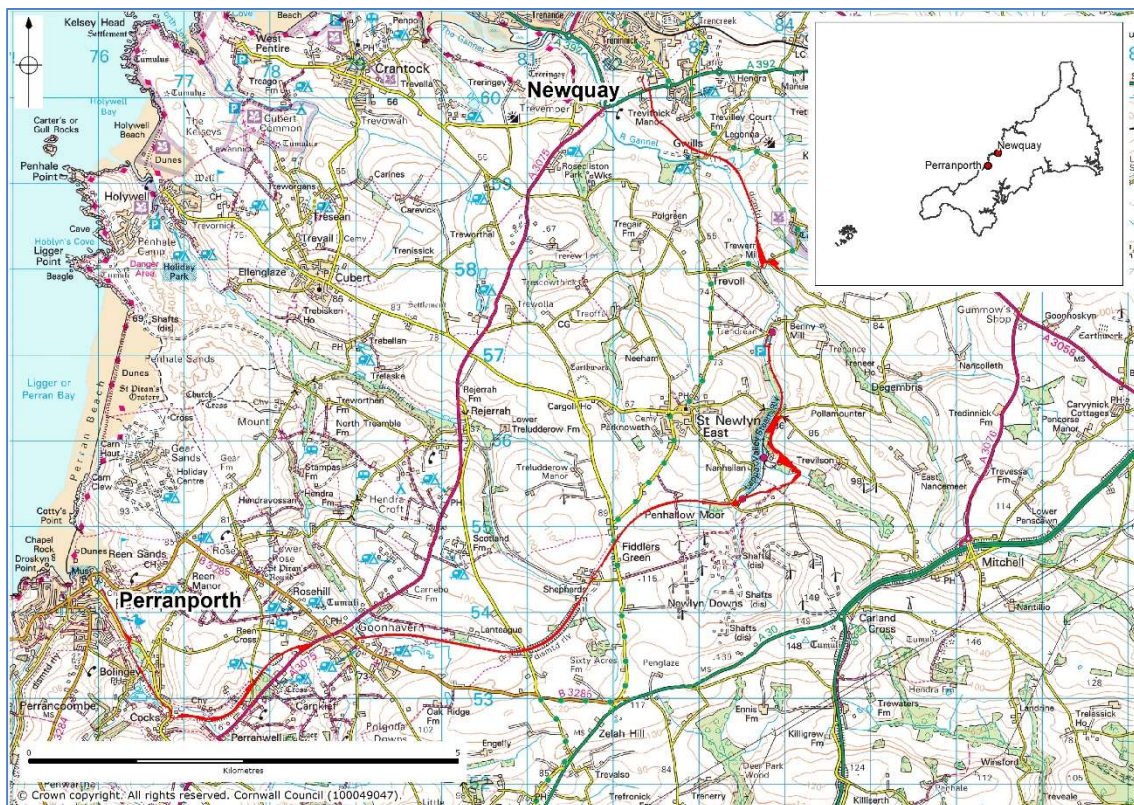


Figure 1 Site location map with the trail's boundary outline in red.

Site history

The area under investigation has previously been the subject of a Heritage Impact Assessment (Fleming 2020). This has informed the rest of this section.

The proposed trail will start on the east side of Perranporth and will pass through a range of historic landscapes and archaeological sites on route to Newquay. To the east of Perranporth the trail will pass close by the medieval settlements of Nansmellyn and Bolingey. The route of the trail will then take it through the site of the former post-medieval bone mill and leat system at Bolingey. Following the route of the former Chacewater to Newquay railway line, the trail will cross a number of historic railway structures, including culverts and bridges as well as the distinctive Cocks Hill Viaduct. The former Goonhavern and Newlyn Halts also survive in some form, although Goonhavern is now reduced to the upper part of the brick-built halt platform.

Between Goonhavern and Newquay there are a number of post-medieval mining setts that the trail will pass through or adjacent to, and from Shepherds the former railway re-uses a section of the earlier Cornwall Minerals Railway, with a range of older structures associated with this construction.

Between Metha Bridge and the point at which the trail meets with the A3075 the trail passes through, or close to, the sites of several more medieval settlements; at Lappa, Trewerry and Trevithick. Crossing the A3075, the trail ends at the site of the former Trevemper goods yard, formerly associated with both the Cornwall Minerals Railway and the later Chacewater to Newquay railway line, although much of the industrial character of this site has now been lost.

The underlying geology of the study area is divided between Lower Devonian (in the north) and Middle Devonian (in the south) mud, silt and sandstones. At Perranporth the deposits of blown sand forming Penhale, Perran and Reen Sands extend south into the north side of the site.

Historic Landscape Character (HLC)

The site principally follows the route of the former Chacewater to Newquay railway branch line, which passes through rural countryside presenting a range of different Historic Landscape Characters (HLC). The predominant of these is Anciently Enclosed Land (Farmland; Medieval). This is ancient agricultural heartland which has been settled and farmed since prehistory but whose field and settlement patterns were formalised during the medieval period, although often preserving older boundary lines. This HLC type is mainly located to the south of Newquay, extending as far south as St Newlyn East (Fig 2). To the east of Perranporth small pockets of medieval farmland are located within a wider area of Recently Enclosed Land (Farmland: Post Medieval) (Cornwall County Council 1996). This is farmland that was typically enclosed between the 17th to 19th centuries, usually from land that was previously upland rough ground and often medieval commons (Herring 1998). In places it may include extended or modified medieval farmland, where sub-division of older fields creates numerous new and more regular boundary lines.

Along the length of the proposed route the site passes through or along the edges of small pockets of landscape whose historic character is predominantly that of Farmland: C20 (land enclosed and taken into farming in recent times); Industrial: Disused (often former mining setts); and Upland Rough Ground. The route will pass through some areas of Settlement: C20, where it leaves Perranporth and tracks through Goonhavern and the southern edges of Newquay. Through the Lappa Valley the trail will pass close along the edge of a small tract of Ancient Woodland (Fig 2).

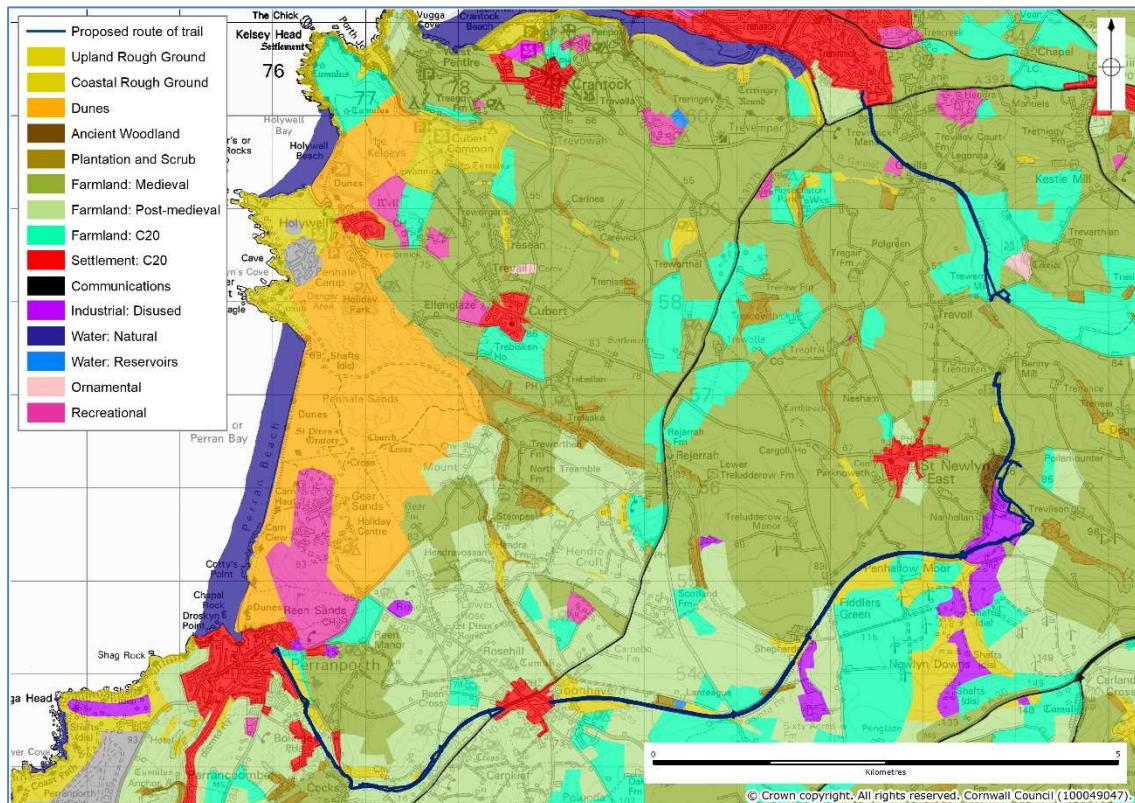


Figure 2: Historic Landscape Character (HLC) with trail boundary outline in blue.

Known archaeological sites

*Sites recorded in the Cornwall and Scilly Historic Environment Record have record numbers, prefix MCO, in brackets.

The site of a possible Iron Age/Romano-British enclosed settlement or 'round' (MCO8794) is recorded close to the route of the trail at Bolingey.

To the east of Perranporth the trail passes close to the medieval settlements of Nansmellyn (MCO32542) and Bolingey (MCO32544). After Newlyn Halt the trail passes through the site of the former medieval settlement (MCO15337) and mill (MCO26454) at Lappa. Further towards Newquay it will pass through or close by the medieval settlements of Trewerry (MCO18028), Gwills (MCO14680) and Trevithick (MCO17592). The 'Tre' place name in the case of Trewerry and Trevithick indicates a settlement of early medieval origin. Fragments of possible medieval field systems associated with these and neighbouring settlements, are recorded close to the site of the trail; at Bolingey (MCO32544), Nansmellyn (MCO32542), Perranwell (MCO32592) and Little Lanteague (MCO32357), for example. The remains of a probable medieval strip field system (MCO26447) still survive to the west of Trevilson and the trail will pass through the south and west sides of this.

Trewerry Mill (MCO26451) is a 17th century mill standing on the site of an earlier medieval mill. The current building is documented as the manorial mill for Trerice 'bearing the initials of John Arundell and his wife Margret, and the date 1639, over its beautifully carved granite doorway' (see HER record).

Bolingey bone mill (MCO29105) is a post-medieval mill that probably replaces an earlier mill at this location. The site of a grist (or bone) mill and the name 'Mill Field' are recorded in two plots (700 and 701) to the south of Bolingey in the c1840 Perranzabuloe Tithe Award. The mill and associated leats are recorded as a corn mill on the OS 1st and 2nd Edition maps.

A number of post-medieval mines are recorded along the proposed route of the trail; Tywarnhayle (MCO12738), Wheal Albert (MCO12806), Old Shepherds (MCO12357), East

Wheal Rose (MCO12081), North Wheal Rose MCO12330), Rickards Wheal Rose (MCO12479), Rose Consols (MCO12482) and Wheal Dyke (MCO12904).

Post-medieval bridges within the site buffer and associated with river crossings include Metha Bridge (MCO9630) and the bridge at Trewerry Mill (MCO9762), which may have medieval origins and is Grade II Listed (NHLE1141423).

The site of a post-medieval mansion (MCO11782) is recorded at Trevithick on the OS 1st and 2nd Edition. The building was Listed and was described as a house of probable 17th or 18th century date incorporated into a modern house. The house was recorded as no longer extant in 1970.

The Newquay to Shepherds branch of the Cornwall Minerals Railway (MCO55883; 9250) opened in 1874. The section from Newquay to East Wheal Rose was originally built as part of the Treffry horse-drawn tramway system and opened in 1849. A number of post-medieval (and some early 20th century) railway bridges and accommodation bridges are still extant along this section of the former railway, which was reconstructed in 1905 as part of the GWR Chacewater to Newquay branch line (MCO55865). The Newquay terminus of the Cornwall Minerals Railway was at Trevenper Siding (MCO53910).

The Chacewater and Newquay branch line (MCO55865) was constructed between 1903 and finished in 1905. The line ran from a triangular junction at Blackwater to St Agnes, Perranporth, Shepherds and Newquay; between Shepherds and Newquay the line made use of the 1874 Shepherds to Newquay section of the former Cornwall Minerals Railway (MCO55883). The branch line closed in 1963 during the period of the Beeching cuts.

Historic structures associated with the former railway line include a number of railway bridges, viaducts and accommodation bridges of early 20th century date. The proposed trail will pass through the sites of former stations at Goonhavern Halt (MCO53895), Shepherds (MCO53897) and Mitchell and Newlyn Halt (MCO53897). Those at Goonhavern and Shepherds are now partly or wholly demolished, but Mitchell and Newlyn Halt retains a length of modern concrete platform and a corrugated iron shelter. A section of the line between East Wheal Rose and Benny Halt is currently still in use by the Lappa Valley Steam railway.

Heritage assets

** Sites are grouped by the numbered trail sections established for planning purposes, prefix PN*

Designated heritage assets

There are no Scheduled Monuments within a 50m radius of the proposed route of the trail.

There are five Grade II Listed Buildings closely adjacent to the proposed route of the trail. These are:

- Section PN06: C18 house, Chynowen Cottage, Cocks (NHLE 1328681).
- Section PN07: Early to mid-C19 terrace of two houses and one cottage at Cocks; Nos 1 (Meadowside), 2 and 3, including front garden walls (NHLE 1136959).
- Section PN20: Late C17 Trewerry Mill, rebuilt early C19 (NHLE 1328732).
- Section PN20: Mid-C19 viaduct opposite Trewerry Mill (NHLE 1137437).
- Section PN20: Possible medieval bridge, rebuilt late C19; Road Bridge at Trewerry Mill (NHLE 1141423).

Non-Designated heritage assets

For much of the proposed trail the route follows the line of the former Chacewater and Newquay railway branch line (MCO55865). Between Shepherds and Newquay (Sections 12-22) this re-used part of the former Cornwall Minerals Tramway (MCO55883).

Non-designated sites closely adjacent to the proposed route of the trail comprise:

- Section PN01:
 - Modern fire station, Perranporth (MCO54389).
 - Medieval settlement, medieval corn mill, Nansmellyn (MCO15851).

- Section PN03:
 - Medieval field system, Nansmellyn (MCO32542).
- Section PN04:
 - Post-medieval bridge, Bolingey (MCO9512) * documentary evidence.
 - Modern railway bridge, Bolingey (MCO53886).
- Section PN05:
 - Iron Age/Romano-British Round, Trevellance (MCO8794).
 - Post-medieval bone mill, Trevellance (MCO29105).
 - Modern railway bridge, Bolingey (MCO53891).
- Section PN07:
 - Modern railway viaduct, Cocks (MCO53892).
 - Modern railway bridge, New Chiverton (MCO53893).
- Section PN11:
 - Modern railway station, Goonhavern (MCO53895).
 - Post-medieval mine, Tywarnhayle (MCO12738).
 - Post-medieval mine, Wheal Albert (MCO12806).
 - C19 engine house, Wheal Albert (MCO56586).
 - Modern accommodation bridge, Lanteague (MCO54337).
 - Modern railway bridge, Lanteague (MCO53896).
 - Post-medieval mine, Old Shepherds (MCO12357).
 - Modern railway station, Shepherds (MCO53897).
- Section PN12:
 - Post-medieval railway bridge, Fiddlers Green (MCO48020).
 - Post-medieval extractive pit, Fiddlers Green (MCO33595).
- Section PN13:
 - Post-medieval accommodation bridge, Penhallow (MCO53898).
- Section PN14:
 - Modern railway station, Mitchell and Newlyn Halt (MCO53899).
 - Modern railway bridge, East Wheal Rose (MCO53900).
 - Post-medieval mine, East Wheal Rose (MCO12081).
- Section PN15:
 - Medieval settlement, Lappa (MCO15337).
 - Medieval corn mill, Lappa (MCO26454).
 - Medieval field system, Trevilson (MCO26447).
 - Post-medieval mine, North Wheal Rose (MCO12330).
 - Modern auxiliary hide, Newlyn East (MCO42544).
- Section PN16:
 - Post-medieval railway bridge, Metha (MCO53901).
 - Post-medieval bridge, Metha Bridge (MCO9630).
- Section PN17:
 - Post-medieval mine, Rickards Wheal Rose (MCO12479).
 - Post-medieval bridge, Benny Bridge (MCO9501).
 - Post-medieval railway bridge, Benny Mill (MCO53902).
- Section PN20:
 - Early medieval settlement; medieval settlement, Trewerry (MCO18028).
 - Medieval bridge, Trewerry Mill (MCO9762).
 - Post-medieval corn mill, post-medieval water wheel, Trewerry Mill (MCO26451).
 - Post-medieval railway bridge, Trewerry (MCO53905).
 - Modern railway station, Trewerry (MCO53903).
 - Modern railway siding, Trewerry (MCO53906).
 - Post-medieval mine, Wheal Dyke (MCO12904).
 - Modern railway bridge, Legonna (MCO53907).

- Modern accommodation bridge, Legonna (MCO53908).
- Post-medieval mine, Rose Consols (MCO12482).
- Post-medieval railway bridge, Gwills (MCO53909).
- Section PN21:
 - Medieval settlement, Gwills (MCO14680).
 - Post-medieval corn mill, Gwills (MCO26449).
 - Early medieval settlement, medieval settlement, Trevithick (MCO17952).
 - Post-medieval country house, Trevithick (MCO11782).
- Section PN22:
 - Post-medieval goods yard, Trevemper (MCO53910).
 - Post-medieval railway siding, Trevemper (MCO23087).

Archaeological potential

Generally, where the trail will pass through fields whose historic character is 'Anciently Enclosed Land' (AEL) there is the potential for below ground remains to survive from medieval and earlier periods. This will predominantly relate to the sections of trail between East Wheal Rose and Metha Bridge, and Trewerry and Trevithick.

The prevalence of early medieval and medieval settlements closely adjacent to the trail indicates long-settled landscapes with the potential for below ground remains from these periods to still survive, even within areas of more recently enclosed land within these sections (at Trewerry, for example). Particularly, there is the potential for below ground remains to survive associated with the early medieval/medieval settlements of Lappa, Trevilson, Trewerry, Gwills and Trevithick.

At Bolingey there are surviving above ground remains of the historic leat(s) associated with the former bone mill, which survives in ruinous condition adjacent to the site of the proposed trail. There is the potential for additional structures and sections of leat to survive below the current vegetation. There is also the potential for below ground remains to survive associated with the upstanding mill as well as with former mill structures on this site.

The site of the East Wheal Rose mining sett is largely overtopped by a modern landfill site. Mining-related structures and/or below ground remains may survive beneath the land fill, which are unlikely to be disturbed by any works associated with the proposed trail although this cannot be entirely ruled out.

Where works along the route of the former railway line are carried out there is the potential to disturb or expose surviving structures and/or below ground remains associated with this. In particular this may be the case at Cocks Hill Viaduct, Goonhavern Halt, Newlyn Halt and Ilgram Bridge. Along the section between Shepherds and Newquay there is the potential for surviving structures and/or below ground remains associated with the former Cornwall Minerals Railway and/or the horse-drawn tramway that preceded this. In particular this may be the case at Trewerry, Legonna Bridge and Trevemper Siding. The section of railway between Gwills and Trevithick has been removed but below-ground remains may survive in this area within the now open fields.

Project extent

*See Figure 3

The extent of the project comprises the sections of the proposed multi-use trail between Perranporth and Benny Bridge and then Trewerry and Trevemper Siding. The section between Benny Bridge and Trewerry will form a separate scheme of works.

The proposed fieldwork will consist of intermittent archaeological watching briefs along the sections of the trail that will run through open fields. Continuous archaeological watching briefs will be carried out during vegetation clearance and groundworks associated with specific structures to be exposed or modified during the construction works (see below).

Level 2 historic building records will be made of specific structures to be exposed or modified during the construction works (see below). A photographic record will be made of Newlyn Halt, which may undergo reconstruction as part of a later scheme of works.

Written descriptions and digital photographs of all hedgerow breaches will also be undertaken, with additional measured drawings for examples of particular interest or significance.

The construction scheme will be divided into ten stages, or construction packages (CP). The breakdown of archaeological fieldwork to be carried out within each CP is as follows (the PN prefix refers to the individual route section numbers):

- CP1 - Bolingey:
 - Level 2 Historic building recording of leat and associated structures
 - Watching brief during clearance/groundworks associated with:
 - Toad Hall Culvert - PN05-C1
 - Bone Mill Ramp - PN05-R1
 - Level 2 Historic building record of Cocks Hill Bridge - PN06-B1
- CP2 - Cocks Viaduct:
 - Level 2 Historic building record of Cocks Viaduct - PN07-B1
 - Watching brief during ballast removal on Cocks Viaduct - PN07-B1
 - Level 2 Historic building record of The Lighthouse Bridge - PN07-B2
 - Level 2 Historic building record of Rose Reen Bridge - PN07-B3
- CP3 – No work
- CP4 – Goonhavern:
 - Level 2 Historic building record of Goonhavern Halt - PN11-H1
 - Watching brief during clearance of Goonhavern Halt - PN11-H1
 - Level 2 Historic building record of Lanteague Farm Bridge - PN11-B1
- CP5 – Newlyn East:
 - Photographic record of Newlyn East Halt PN13-H1
 - Level 2 Historic building record of Ilgram Bridge – PN13-B1
 - Watching brief during any groundworks associated with Ilgram Bridge – PN13-B1
- CP6 – Lappa:
 - Watching brief during groundworks for trail construction through fields at Lappa and Trevilson
 - Watching brief during groundworks associated with construction of East Wheal Rose Culvert – PN15-C1
 - Watching brief/recording of hedgerow breaks
- CP7 – No work
- CP8 – Future stage of work
- CP9 – Trewerry:
 - Level 2 Historic building record of Legonna Bridge – PN20-B1
 - Watching brief during ballast removal on Legonna Bridge – PN20-B1
 - Watching brief during groundworks for trail construction through field
 - Watching brief/recording of hedgerow breaks
- CP10 – Trevithick:
 - Watching brief during groundworks for trail construction through fields between Gwills and Trevithick
 - Watching brief/recording of hedgerow breaks

Aims and objectives

The principal aim of the study is to gain a better understanding of the archaeology of the development area in order to inform the prehistory and history of the area. Also, to understand the historic character and development of the traditional Cornish hedges in the area.

The objectives are to:

- Obtain an archaeological record of the site prior to development;
- Guide further mitigation of the archaeological resource.

Research objectives might include:

- Address Aim 30 in Theme A of the South West Archaeological Research Framework (SWARF) – Develop and test methodologies to identify Early Medieval rural settlement (Grove and Croft 2012).
- Address Aim 45 in Theme B of SWARF – Broaden understanding of post-medieval to modern technology and production (Grove and Croft 2012).
- Address Aim 15 in Theme B of SWARF – Use innovative techniques and methodologies to ask sophisticated questions of post-medieval to modern artefacts and buildings (Grove and Croft 2012).
- Address Aim 48 (53) in Theme E of SWARF – Widen understanding of post-medieval and modern transport and communications (Grove and Croft 2012).

Working methods

All recording work will be undertaken according to the Chartered Institute for Archaeologists (CIfA) guidance (CIfA 2014a; 2014b; 2014c; 2017). Staff will follow the CIfA *Code of Conduct* (2014d). The Chartered Institute for Archaeologists is the professional body for archaeologists working in the UK.

All recording work will be undertaken ensuring social distancing, complying with UK Government (2020), industry (CIfA 2020; FAME 2020) and Cornwall Council (2020) guidelines to reduce the risk of COVID-19 transmission.

Creation of the physical and digital archive

Following review with the CAU Project Manager the results from the fieldwork will be collated as an archive.

This will involve the following.

- All finds, etc., will be washed, catalogued, and stored in a proper manner (being clearly labelled and marked and stored according to CAU guidelines).
- All records (drawings, context sheets, photographs, etc.) will be ordered, catalogued and stored in an appropriate manner (according to CAU guidelines).
- Any black and white negative film will be catalogued and deposited with the site archive.
- Colour digital images taken as part of the site archive will be either converted from colour to black and white negative film and added to the site archive or deposited with the Archaeology Data Service (ADS).
- Completion of the Historic England/ADS OASIS online archive index.
- All correspondence relating to the project, the WSI, and a single paper copy of the report, stored in an archive standard (acid-free) documentation box.
- Drawn archive storage (plastic wallets for the annotated record drawings).
- Additional digital data (survey, external reports, etc).

Archive deposition

An index to the site archive will be created and the archive contents prepared for long term storage, in accordance with CAU standards.

- The physical archive will go to an accredited archive repository, when a dedicated space becomes available. Until that time material will be stored at CAU offices.
- Digital data will be stored on the Cornwall Council network which is regularly and frequently backed up.
- Digital data (CAU reports, external reports, survey data, geophysics data, digital photographs etc) forming part of the site archive will be deposited with the ADS.
- All correspondence relating to the project, the WSI, and a single paper copy of the report, stored in an archive standard (acid-free) documentation box.

CAU uses the following file formats for stored digital data:

- DOCX Word processed documents
- XLSX Spreadsheets
- PDF Exports of completed documents/reports/graphics
- JPG Site graphics and scanned information

- DNG or TIF Digital photographs
- DWG AutoCAD drawings, measured surveys
- MXD ArcView GIS (electronic mapping) data
- AI Adobe Illustrator graphics

Pre-fieldwork

In advance of the fieldwork CAU, will discuss and agree with the client:

- Working methods and programme.
- Health and Safety issues and requirements.

Fieldwork: watching brief

To fulfil the planning condition the SDOHE (archaeology) has advised that intermittent watching briefs are required during groundworks for the trail sections within fields, and that continuous watching briefs are required during vegetation clearance and groundworks carried out on the historic structures being destroyed or adapted as part of the scheme (see above and Fig 3). Additionally, the recording of historic field boundaries will be undertaken for all hedge breaches. The above work will be guided by CIfA's guidance on undertaking watching briefs (CIfA 2014b).

All groundworks which might potentially contain archaeological features will be undertaken under intermittent or continuous archaeological supervision as required. This will include any removal of soil or (in the case of Cocks Hill Viaduct and Legonna Bridge) ballast across the site, the excavation of footing or service trenches, or other activities which would result in the lowering of the present site levels. All soil (or ballast) stripping should be undertaken by a machine equipped with a toothless grading bucket where possible. Should archaeological features be revealed, mechanical excavation will be halted and the exposed features cleaned up by hand to determine their significance prior to either their recording or further mechanical excavation. The developer will allow reasonable time for the excavation and recording of any features thus revealed. If significant archaeology is found during the intermittent watching briefs these may need to move to continuous watching briefs in selected areas. There will be ongoing liaison between CAU, the developer and the SDOHE during the works. Where a temporary stop of work is required the site archaeologist will request this via the developer and the SDOHE.

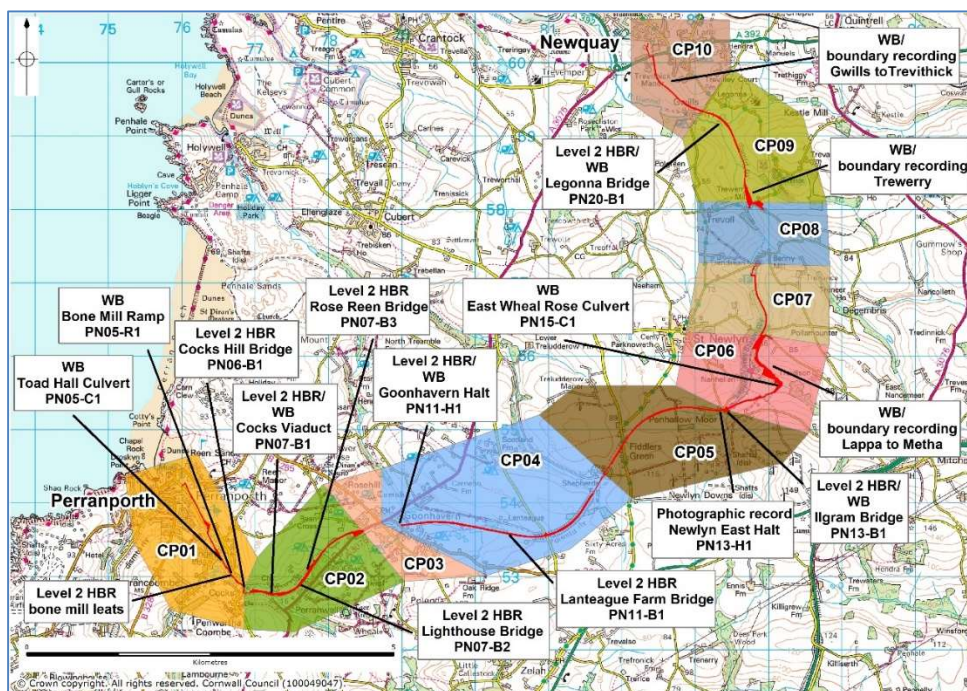


Figure 3 Map showing where fieldwork will be required within each construction package (CP) with trail boundary outline in red.

Recording

During the archaeological recording the archaeologist will:

- Identify and record any archaeological features that are revealed; the level of recording will be appropriate to the character/importance of the archaeological remains.
- Record all exposed field boundary sections on both sides of the breach through written description and scaled photography. Measured survey will be included for any boundaries are of particular interest (e.g., where buried soils or evidence of multiple rebuilds are present). The terminology used will follow that established by CAU for the Bodmin Survey (Johnson and Rose 1994).
- Site drawings (plans and sections) will be made by pencil (4H) on drafting film; all drawings will include standard information: site details, personnel, date, scale, north-point.
- All features and finds will be accurately located at an appropriate scale.
- All archaeological contexts will be described to a standard format linked to a continuous numbering sequence.
- Photographic recording will comprise colour photography using a digital SLR camera (with a resolution of 10 million pixels or higher; CAU will follow Historic England (2015) guidance on digital image capture and storage). Photographs will include a record of significant features and general working shots. A metric scale, site and context identifier, and a north arrow where appropriate, will be included in all record shots.

Fieldwork: historic building record

The equivalent of a Level 2 Building Survey (as defined by Historic England 2016) will be produced for all the historic structures identified in the Project Extent, above.

Recording will include external and internal architectural features annotated to copies of existing measured external elevations and plans supplied by the client.

Analysis of the fabric will be undertaken on site (recorded as notes) to allow a description to be written up at the archive report stage.

Measured plans and elevations of the building/structure will be annotated to show phased development and architectural detail.

Photographic recording will include colour photography using a digital SLR camera (with a resolution of 10 million pixels or higher). Supporting black and white photographs will be taken (the negatives to form a stable archive) or colour digital images taken as part of the site archive will be either converted from colour to black and white negative film and added to the site archive or deposited with the Archaeology Data Service (ADS).

CAU follows Historic England guidance on digital image capture and file storage (2014).

The photo record will comprise:

- General views.
- All external elevations.
- All internal elevations/spaces (where relevant).
- Examples of structural and architectural detail.

Methodology for the archive standard photography is set out as follows:

- Photographs of details will be taken with lenses of appropriate focal length.
- When necessary, a tripod will be used to take advantage of natural light and slower exposures.
- Difficulties of back-lighting will be dealt with where necessary by balancing the lighting by the use of flash.

A metric scale will be included in all views, except where health and safety considerations make this impractical.

Treatment of human remains

- If human remains are discovered within an archaeological context on the site the client, the SDOHE, and Public Health, Cornwall Council will be informed.
- Any human remains should only be excavated and removed if it is considered that they will contribute towards further scientific understanding.
- A coroner's license must be obtained from the Ministry of Justice before any remains are disturbed.
- Any consents or licenses required will be obtained on behalf of the client by CAU
- If human remains are uncovered, which require excavation, they will be excavated with due reverence. The site will be adequately screened from public view. Once excavated, human remains must not be exposed to public view. If human remains are not to be removed their physical security will be ensured, by backfilling as soon as possible after recording.

Treatment of finds

The fieldwork is likely to produce artefactual material. The following recording and retention policies will be followed:

- In the event that objects containing precious metal(s) are encountered, the coroner will be informed as per the provisions of the Treasure Act 1996.
- Significant finds in stratified contexts will be plotted on a scaled base plan or with a Leica GPS unit and recorded as small finds.
- All finds will be collected in sealable plastic bags which will be labelled immediately with the site code, the context number or other identifier, the type of material, and the finder's initials. The only exception to this policy will be that large assemblages of modern (post-1800) material may be representatively sampled.
- Modern (post-1800) finds may be disposed of at the cataloguing stage. This process will be reviewed ahead of its implementation.
- Finds will be processed according to CAU guidelines and stored in standard archive finds boxes. They will be stored at CAU offices until an archive repository (for example, the Royal Cornwall Museum, is available to accession them).

Treatment of samples

The fieldwork may produce environmental samples. The following collection, recording and processing policies will be followed:

- Sealed/undisturbed archaeological contexts in the form of buried soils, layers or deposits within significant archaeological features that have the potential to contain palaeoenvironmental evidence and/or material suitable for scientific dating will be sampled.
- Where bulk samples are taken a minimum of 40 litres will be sampled from these deposits where feasible.
- In the event that significant organic remains are encountered, advice may be sought from the Historic England Regional Advisor for Archaeological Science.
- All samples will be described to a standard format linked to a continuous numbering sequence.
- Bulk samples will be processed using flotation with appropriate mesh sizes.

Reporting

The results from the project will be drawn together and presented in a concise report. The scope of the report will be dependent on the scale and significance of the results from the project.

In the case of negative results, the findings will be presented in a CAU short report format. In the case of limited results, the findings will be presented in a concise archive report. Which type of report is most appropriate will be agreed by CAU and the SDOHE at the conclusion of the fieldwork stage.

In the case of significant and/or extensive results a post excavation assessment report will be produced in accordance with CIfA's guidelines for post-excavation assessment

(2014c). This will include a summary of the site archive and work carried out for assessment, a discussion of the potential of the data, and an updated project design (UPD) setting out proposals for analysis and publication.

The report will include the following elements:

- Summary
- Project background
- Site history
- Historic building record
- Archaeological results
- Chronology/dating evidence
- Conclusions
- References
- Project archive index
- Supporting illustrations: location map, historic maps, plans, elevations/sections, photographs
- This WSI as an appendix

Timetable

The study is anticipated to commence during spring/summer 2021. CAU will require at least 2 weeks' notice before commencement of work, in order to allocate field staff and arrange other logistics.

The archive report will be completed within 3 months of the end of the fieldwork. The deposition of the archive will be completed within 3 months of the completion of the archive report.

Monitoring and Signing Off Condition

Monitoring of the project will be carried out by the SDOHE. Where the SDOHE is satisfied with the archive report and the deposition of the archive, written discharge of the planning condition will be expected.

- The SDOHE will monitor the work and should be kept regularly informed of progress.
- Notification of the start of work shall be given preferably in writing to the SDOHE at least one week in advance of its commencement.
- Any variations to the WSI will be agreed with the SDOHE, in writing, prior to them being carried out.
- If significant detail is discovered, all works must cease and a meeting convened with the client and the SDOHE to discuss the most appropriate way forward.

Monitoring points during the study will include:

- Approval of the WSI
- Completion of fieldwork
- Completion of archive report
- Deposition of the archive

References

- CIfA, 2014a. *Standard and guidance for archaeological field evaluation*, Reading, CIfA
- CIfA, 2014b. *Standard and guidance for an archaeological watching brief*, Reading, CIfA
- CIfA, 2014c. *Standard and guidance for archaeological excavation*, Reading, CIfA
- CIfA, 2014d. *Code of Conduct*, Reading, CIfA
- CIfA, 2017. *Standard and guidance for historic environment desk-based assessment*, Reading, CIfA
- CIfA, 2020. COVID-19: Advice for site working – 24 March 2020
https://www.archaeologists.net/sites/default/files/CIfA%20coronavirus%20briefing%20-%2024%20March%202020_0.pdf (accessed 26/10/2020)

Cornwall Council, 2020. Information about Coronavirus (Covid-19) <http://cornwallcouncilintranet.cc.cornwallonline.net/good-to-know/news/carousel-items/information-about-coronavirus-covid-19/> (internal intranet link accessed 26/10/2020)

FAME, 2020. Coronavirus (COVID-19) and Archaeology <https://famearchaeology.co.uk/coronavirus-covid-19-and-archaeology/> (accessed 26/10/2020)

Grove, J, and Croft, B, 2012. *South West Archaeological Research Framework Research Strategy 2012 – 2017*, Taunton, Somerset County Council

Historic England, 2015. *Guidance note on Digital Image Capture and File Storage*, Swindon, Historic England

Johnson, N, and Rose, P, 1994. *Bodmin Moor: An Archaeological Survey – Volume 1: the Human Landscape to c1860*, Truro, Cornwall Archaeological Unit, Cornwall County Council, English Heritage

UK Government, 2020. Staying at home and away from others (social distancing) <https://www.gov.uk/government/publications/full-guidance-on-staying-at-home-and-away-from-others> (accessed 26/10/2020)

Cornwall Archaeological Unit

Cornwall Archaeological Unit is part of Cornwall Council. CAU employs 20 project staff with a broad range of expertise, undertaking around 120 projects each year.

CAU is committed to conserving and enhancing the distinctiveness of the historic environment and heritage of Cornwall and the Isles of Scilly by providing clients with a number of services including:

- Conservation works to sites and monuments
- Conservation surveys and management plans
- Historic landscape characterisation
- Town surveys for conservation and regeneration
- Historic building surveys and analysis
- Maritime and coastal zone assessments
- Air photo mapping
- Excavations and watching briefs
- Assessments and evaluations
- Post-excavation analysis and publication
- Outreach: exhibitions, publication, presentations

Standards



CAU is a Registered Organisation with the Chartered Institute for Archaeologists and follows their Standards and Code of Conduct.

<http://www.archaeologists.net/codes/ifa>

Terms and conditions

Contract

CAU is part of Cornwall Council. If accepted, the contract for this work will be between the client and Cornwall Council.

The views and recommendations expressed will be those of CAU and will be presented in good faith on the basis of professional judgement and on information currently available.

Project staff

The project will be managed by Dr Fiona Fleming who will:

- Discuss and agree the detailed objectives and programme of each stage of the project with the client and the field officers, including arrangements for health and safety.
- Monitor progress and results for each stage.
- Edit the project report.
- Liaise with the client regarding the budget and related issues.

Work will be carried out by CAU field staff, with assistance from qualified specialists and sub-contractors where appropriate. All staff will follow CAU's Health and Safety Policy and work in accordance with a site-specific risk assessment.

The project team is expected to include:

Dr Fiona Fleming, Senior Archaeologist

Educational and Professional qualifications

BSc (Hons) Archaeology (1st Class), 2008, University of Plymouth; MA Landscape Archaeology, 2009, University of Exeter; PhD Archaeology, 2013, University of Exeter. Member of the Chartered Institute for Archaeologists (MCIfA) since 2008.

Employment history

I have been a professional archaeologist for 14 years, combining self-employed and voluntary work with my full-time studies. Following successful completion of my PhD with the University of Exeter, I joined Cornwall Archaeological Unit in July 2013. I am currently a Senior Archaeologist, managing and undertaking a wide range of projects.

Key experience

I have extensive experience in designing, delivering and managing a wide range of archaeological projects, particularly specialising in historic landscape assessment, historic characterisation, historic building recording and producing conservation management plans for clients and partners in heritage and other sectors, such as Natural England, English Heritage and the Tate Gallery. Since 2015 I have worked as part of CAU's Aerial Investigation and Mapping (AIM) team.

Major projects include: Camel Creek Adventure Park Evaluation (project manager); Camel Creek Resort Open Area Excavation (project manager); Saints Trail Cycle Routes Scheme (Heritage Impact Assessments); Palais de Danse CMP; Inner Humber Estuary AIM and RCZAS; Dorset Stour AIM; Marshwood Vale AIM; Cornwall South Coast RCZAS; Cornish Ports and Harbours; Chysauster Ancient Village CMP; Dodman Point CMP and Stage Two excavation and recording works; Redruth Brewery excavation, watching briefs and historic building recording; Redruth Brewery archaeological assessment; Devon Extensive Urban Survey; Totnes and Tiverton.

Key skills and knowledge:

I am a skilled Landscape Archaeologist and researcher, with a particular interest in Late Roman and Early Medieval landscape and settlement transition. I have extensive experience of complex projects for clients such as Historic England, English Heritage, the National Trust and Natural England, incorporating heritage assessment and survey and conservation management planning. I am an experienced user of AutoCAD and GIS and I am one of CAU's Digital Champions, assisting with the integration of new digital software and IT processes. I am a skilled report writer, having brought large complex projects into publication. My PhD thesis was published as a BAR report in 2016. I hold a First Aid at Work certificate and current CSCS card (Management and Professional Health Safety and Environment).

Selected Bibliography

- Fleming, F, 2014. *Dodman Point, St Goran, Cornwall - Archaeological Assessment and Management Plan*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, and Thomas, N, 2014. *The Former Redruth Brewery, Cornwall - Historic Environment Impact Assessment*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, 2016. A Study of Continuity and Regionality in the Roman and Early Medieval Rural Settlement Patterns of Norfolk, Kent and Somerset, *BAR Brit Ser 626*. Oxford, BAR Publishing
- Fleming, F, 2016. *The Dodman, St Goran, Cornwall - Archaeological Survey, evaluation and watching briefs*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, 2016. *Chysauster Ancient Village, Gulval, Cornwall - Conservation Management Plan*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, 2016. *Cornish Ports and Harbours Assessment: Penzance*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, 2016. *Cornish Ports and Harbours Assessment: Newlyn*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, 2016. *Cornish Ports and Harbours Assessment: Fowey*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, 2020. *Camel Creek Adventure Park, St Issey, Cornwall, Archaeological Evaluation*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, 2020. *St Agnes to Truro Multi-Use Trail, Cornwall, Heritage Impact Assessment*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, forthcoming. *Palais de Danse, St Ives, Cornwall, Conservation Management Plan*. Truro: Cornwall Archaeological Unit, Cornwall Council
- Fleming, F, and Royall, 2019. *The Inner Humber Estuary Rapid Coastal Zone Assessment: Aerial Investigation and Mapping Project*. Truro: Cornwall Archaeological Unit, Cornwall Council, Historic England Research Report Series **86-2019**
- Fleming, F, and Royall, C, 2020. *Dorset Stour River Catchment Aerial Investigation and Mapping Project*. Truro: Cornwall Archaeological Unit, Cornwall Council, Historic England Research Report Series **224-2020**

Carl Thorpe, Senior Archaeologist

Educational and Professional qualifications

Sheffield University 1980 - 1983. BSc (Hon's) Geology, 3rd Class.

Elected as a Practitioner Member of the Chartered Institute for Archaeologists (PCIfA), 2018.

Employment history

I have been a professional archaeologist for 34 years. After working for the Institute of Cornish Studies, and a variety of commercial archaeological organisations on the Isles of Scilly, Wales and France I joined Cornwall Archaeological Unit in February 1995. I am currently a Senior Archaeologist, managing and undertaking a wide range of projects.

Key experience

I have extensive fieldwork experience including excavations at Tintagel, several churches (St Mawgan in Pydar, Mullion, Bodmin Friary, Tintagel), Duckpool, Truro TEDC and miscellaneous watching briefs over 24 years covering a wide range of sites dating from the Neolithic to the post-Medieval. I also have experience in undertaking desk-based assessments and writing Written Schemes of investigation.

As an artefacts specialist I have undertaken numerous post-excavation projects, major ones being Gwithian, Trethurgy, Trevelgue Head, Tintagel, Stannon, Tremough, Boden, Restormel Castle, Duckpool and many others.

Key skills and knowledge

I am a national specialist in post-Roman Ceramics, both native and imported (Analysis and report published in the University of Glasgow's publication of Excavations at Tintagel). I have a detailed knowledge of Cornish Bronze Age, Iron Age, and Romano-British pottery.

A Specialist in stone artefacts I also have a detailed knowledge of Medieval and post-medieval ceramics found in Cornwall and a wide knowledge of other categories of finds (i.e. glass, metalwork etc) from most periods.

I am also an archaeological artefact illustrator with numerous published examples including material from Tintagel and Trethurgy.

My research interests include the post-Roman period in Britain and its trade connections. Medieval graffiti and graffiti games, Early Medieval inscribed stones, and the Romans in Cornwall.

Having experienced a range of projects for a variety of clients I believe I have a flexible and adaptable approach to undertaking tasks.

I am a holder of a valid CSCS card (Management and Professional Health Safety and Environment).

Selected Bibliography.

Nowakowski, J and Johns C, 2015. *Bypassing Indian Queens, Archaeological Excavations 1992-1994. Investigating prehistoric and Romano-British settlement and landscapes in Cornwall*. Truro. **Ceramic report and finds illustrations.**

Taylor, S, and Johns, C, 2015. Restormel Castle, Cornwall: archaeological recording, 2006 – 2008. *Cornish Archaeology* **54**, 89 - 137. **Artefact report, ceramic analysis and finds illustrations.**

Jones, A, 2014, Hay Close, St Newlyn East: excavations by the Cornwall Archaeological Society, 2007, *Cornish Archaeology* **53**, 115-155. **Artefact report and finds illustrations.**

Thorpe, C, 2013. Tintagel Castle: Recent work. *Cornish Archaeology* **52**, 247- 256.

Nowakowski, J, Quinnell, H, 2011. Trevelgue Head, Cornwall: the importance of C K Croft Andrew's 1939 excavations for prehistoric & Roman Cornwall. CCC/EH monograph. 2011R044 **Artefact illustrations, post-Roman, and Medieval pottery reports.**

Jones, A, Taylor, S. 2010. Scarecewater, Pennance - Archaeological excavation of a Bronze Age & Roman landscape. *BAR British Series* **516**. **Artefact illustrations, post Prehistoric pottery report.**

Taylor, S and Johns, C, 2009 -2010. Archaeological recording of a multi-period site at Dolphin Town, Tresco, Isles of Scilly 1999-2003. *Cornish Archaeology* **48 -49**, 99 – 125. **Artefact illustrations, post Prehistoric pottery report.**

Barrowman, R, Batey, C, and Morris, CD, 2007. *Excavations at Tintagel Castle, Cornwall, 1990-1999*. Society of Antiquaries. **Artefact illustrations, post-Roman pottery report.**

Herring, P, Thorpe, C, Quinnell, H, Reynolds, A, and Allan, J, 2000. *St Michael's Mount Archaeological Works 1995-98 (including watching briefs on a foul water sewer trench and a land drain, surveys at the summit and on the lower slopes, and archaeological trenching at the summit)*. HES/CCC 2000R088.

Batey, C, Sharpe, A, Thorpe, C. 1993. Tintagel castle: Archaeological investigation of the Steps area 1989 and 1980. *Cornish Archaeology* **32**. **Artefact illustrations, and Pottery Report.**

Connor Motley, Assistant Archaeologist

Educational and Professional qualifications

BA (Hons) 2018, Archaeology, University of York

Elected as a Practitioner of the Chartered Institute for Archaeologists in 2019

Employment history

I joined Cornwall Archaeological Unit in 2019 with previous experience of voluntary archaeology work in Cornwall, Wales and England. Prior to this I was employed in the antiquarian book trade.

Key experience

My current role is to assist with and undertake projects primarily relating to historic buildings. These have included a number of Heritage Impact Assessments and Historic Building Recordings. At university I undertook training in field walking, geophysics, GIS, total station and measured survey. I have extensive experience of archival research and work in archives, having undertaken conservation work at York Minster Library, and archival research and management for a major London bookselling firm. I helped set up the Brecon Beacons Young Archaeologists Club and I have good experience of excavation, having volunteered at a number of sites across the UK including Cornwall.

Key skills and knowledge

I have a strong knowledge of AutoCAD, used in creating floorplans of buildings and drawing archaeological features in detail. I also have a good working knowledge of photogrammetry software (Autodesk Recap and Agisoft Metashape), and of photo editing software (Adobe Photoshop). I also have a good working knowledge of GIS.

Projects

Godrevy Farm, Historic Building Recording
Greeb Cottage, Land's End, Heritage Impact Assessment
Hall for Cornwall, Evaluation
Heskyn Mill, Tideford, Heritage Impact Assessment
Kirk House, Polperro, Heritage Impact Assessment
Lanhydrock House, Historic Building Recording
Maker Heights, Conservation Management Plan
Palais de Danse, St Ives, Historic Building Recording
Port Eliot, Historic Building Recording & Watching Brief
Salt Cellar, Porthleven, Historic Building Recording
Arundell House, Flushing, Heritage Impact Assessment

Report distribution

Paper copies of the report will be distributed to the client, to local archives and national archaeological record centres.

A digital copy of the report, illustrations and any other files will be held in the Cornwall HER and also supplied to the client on CD or other suitable media.

Copyright

Copyright of this Written Scheme of Investigation will be reserved to Cornwall Archaeological Unit, Cornwall Council. It may only be used/reproduced with permission from Cornwall Archaeological Unit.

Existing copyrights of external sources will be acknowledged where required.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.

CAU will ensure that all information arising from the project shall be held in strict confidence to the extent permitted under the Act. However, the Act permits information to be released under a public right of access (a "Request"). If such a Request is received CAU may need to disclose any information it holds, unless it is excluded from disclosure under the Act.

Health and safety statement

CAU follows Cornwall Council's *Statement of Safety Policy*.

Prior to carrying out on-site work CAU will carry out a site-specific Risk Assessment.

Insurance

CAU is covered by Cornwall Council's Public and Employers Liability Insurance, with a policy value of £50m. The Council also has Professional Negligence insurance with a policy value of £10m.

Dr Fiona Fleming

Senior Archaeologist

08/02/2021

Cornwall Archaeological Unit

Cornwall Council

Fal Building, County Hall,

Treyew Road,

Truro, Cornwall. TR1 3AY

Tel: 07483 357270

Email: Fiona.Fleming@cau.org.uk

Cornwall Archaeological Unit

Pydar House, Pydar Street, Truro, Cornwall
TR1 1XU



(01872) 323603
enquiries@cau.org.uk
www.cau.org.uk

