Drakewalls Mine, Gunnislake, Cornwall Archaeological watching brief

Cornwall Archaeological Unit

Report No: 2018R025

CORNWALL

Drakewalls Mine, Gunnislake, Cornwall, Archaeological Watching Brief

Drakewalls Mine, Gunnislake, Cornwall

Archaeological watching brief

Client	CORMAC Consultancy
Report Number	2018R025
Date	17 April 2018
Status	Final
Report authors	Ryan Smith and Adam Sharpe
Checked by	Dr Andy Jones
Approved by	Andrew Young

Cornwall Archaeological Unit

Cornwall Council Fal Building, County Hall, Treyew Road, Truro, Cornwall, TR1 3AY Tel: (01872) 323603 Email: enquiries@cau.org.uk Web: www.cau.org.uk

Acknowledgements

This study was commissioned by the CORMAC Consultancy and carried out by Cornwall Archaeological Unit, Cornwall Council.

The Project Manager was Adam Sharpe.

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.



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Cover illustration

View looking north to Matthew's Shaft engine house.

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Abbreviations

CAU	Cornwall Archaeological Unit

- CIFA Chartered Institute for Archaeologists
- EU European Union
- NGR National Grid Reference

1 Summary

The pumping engine house and adjacent structures at Drakewalls (Figure 1) were consolidated as part of an EU funded works package in 1995. The engine house is in a popular open space which has high visitor usage. Unfortunately, the engine house has attracted considerable antisocial behaviour over the last 20 years. The most recent incidents have seen youths getting onto the top of the structure and vandalising the stone work. The rear of the structure was temporarily cordoned off with Heras fencing.

Cornwall Council as owners and managers of the site wished to undertake works to make the structure safe and the wall tops less accessible, to remove rubble resulting from vandalism and to undertake minor repairs to the walls, install a security fence to the rear and side of the building and consolidate stone work which had become damaged.

Cornwall Archaeological Unit was asked to produce a Written Scheme of Investigation and then commissioned to carry out a watching brief to ensure that the works were carried out in a way that respected the heritage value of the site, and to record any features that were exposed during the excavation of pits and during the ground lowering works in the adjacent boiler house. This report presents the results from the archaeological fieldwork.



Figure 5: Location of site.



Figure 6: Extent of site affected by the 2018 works.

2 Introduction

2.1 Project background

The pumping engine house and adjacent structures at Drakewalls were consolidated as part a package of EU funded works in 1995. The engine house is in a popular open space and has a high visitor usage. Unfortunately, the engine house has attracted considerable antisocial behaviour over the last 20 years. The most recent incidents have seen youths getting onto the top of the structure and vandalising the stone work. As a result a barrier was placed at the rear of the structure using temporary Heras fencing.

Cornwall Council as owners and managers of the site wished to undertake works to make the structure safe, to make access to the wall tops more difficult, to remove rubble resulting from vandalism and to undertake minor repairs to the building by:

- Preventing access onto the structure from the rear by installing permanent fencing.
- Preventing access into the structure via the eastern low level wall opening by lowering ground levels adjacent to this feature.
- Restricting access into the structure from the front by installing permanent fencing.
- Removing rubble from the interior of the building and disposing of this at an appropriate location.
- Installing a new wooden lintel within the interior of the building and undertaking minor patch repairs to the fabric of the building.

The scope of and specification for these works had been discussed and agreed with Cornwall Council's Historic Environment Service and with the Cornish Mining World Heritage Site office. The standards for the archaeological recording were set out in the agreed Written Scheme produced by CAU (Appendix 3).

2.2 Aims

The principal aim of the watching brief was to ensure that the works were undertaken to a standard which respected the heritage values of the site and to record any features exposed during the excavation of the pits for the fence posts and the ground reduction carried out in the eastern boiler house.

The objectives were to:

- Obtain and archaeological record of the element of the site during the works.
- Produce a short report summarising the results of the watching brief.

2.3 Methods

All recording was to be undertaken according to the Chartered Institute for Archaeologists (CIfA 2014a; 2014b; 2014c; 2017), Staff followed the CIfA Code of Conduct (2014d). The Chartered Institute for Archaeologists is the professional body for archaeologists in the UK.

2.3.1 Fieldwork

The archaeological fieldwork at Drakewalls Mine commenced on the 9th April 2018. This involved the observation of the results of the hand excavation of a series of 10 postholes by CORMAC staff in preparation for the installation of a security fence around the western and northern sides of the main engine house. These works were completed on the following day and an area measuring 3m by 1.5m was then excavated and landscaped in the eastern boiler room adjacent to the wall shared with the engine house to ensure that there was at least 2m between ground level and the cill of the wall opening.

3 Designations

3.1 National

The site lies within Area 10 of the Cornwall and West Devon Mining Landscapes World Heritage Site.

3.2 Regional/county

None.

3.3 Local

None.

4 Location, setting and site history

Drakewalls mine lies about three quarters of a mile to the south-southwest of Gunnislake in the Tamar Valley Mining District at NGR SX 242566 70712 (Figures 1 and 2). The site has views extending eastwards across steep woodland adjoining the Tamar and Morwell's arable fields towards Dartmoor. The mine was at work before 1850 and produced tin, copper and arsenic; some ores of lead, silver, wolfram and molybdenum were also raised.

Drakewalls worked two main lodes - Stringer's (or Main) Lode and No.2 (or North) Lode from Engine Shaft, Matthew's Shaft and Brunton's Shaft. Between 1877 and 1897 the mine was run by a number of companies including 'Drakewalls United' and 'The British Mining and Metal Co. Ltd.' The mine was in liquidation between 1897 and 1898, was suspended in 1904, and between 1911 and 1913 it was said to be 'keeping levels open'.

In recent years, the spoil tips and the dressing floors where the ore was processed have been landscaped, covered in earth, and seeded with grass and flowers. Paths have been created around the site. The Tamar Valley Centre is sited adjacent to the conserved pumping engine house. This building form an interpretation point for visitors to the Tamar Valley Area of Outstanding Natural Beauty (AONB) and is used as a community resource. The Centre is also home to the Tamar Valley AONB team, Calstock Parish Archive Trust and Calstock Parish Council.

5 Archaeological results

In February 2018 CORMAC installed a new wooden lintel and repointed the interior wall of the main engine house (Figure 4).

The archaeological watching brief comprised the recording of ten postholes to hold the fence and the lowering of an area adjacent to the engine house. Full descriptions of the recorded layers are given in Appendix 2.

Ten postholes (Figures 3 and 6) were excavated around the north and west perimeter of the engine house, seven of which were located one metre from the walls, the remaining three were excavated in closer proximity to them.

All pits were excavated by hand to a depth not exceeding 0.72m, but averaging 0.5m – 0.6m, dependant on location. No pit exceeded 0.3m in diameter. Once the post was installed into the pit, they were backfilled with a mix of Postcrete and water; once this had set the remaining space was backfilled with material removed from the posthole.



Figure 7: Location of postholes and the excavated area (shown in red).

Posthole 1 (Figure 3)

The corner post was set back by one metre from the corner of the north wall of the engine house. The topsoil (1001) was a dark deposit of decayed organics and vegetation, containing loose stones and some demolition rubble 0.2m deep. This overlaid deposit (1002), which was a yellowish brown clay soil containing some small fragments of stone; this appeared to be a natural subsoil but could be redeposited material. The posthole had a maximum depth of 0.72m

Posthole 2 (Figure 3)

The topsoil was a dark deposit of decayed organics and vegetation with a depth of 0.15m; this overlaid (1003), a dark gritty sandy deposit made up of greyish stones, fragmented brick and decayed lime mortar. A large iron nut was recovered from this posthole.

Posthole 3 (Figure 3)

The topsoil at this location was a dark deposit of decayed organics and vegetation, depth was 0.3m; this overlaid (1004), a dark yellowish-brown clay/soil mix which was loose and easy to excavate; it contained some smaller fragments of rubble. A small fragment of broken glass was observed within this deposit.

Posthole 4 (Figure 3)

The topsoil was a dark deposit of decayed organics and vegetation with a depth of 0.15m; this overlaid (1005), a dark reddish clay/soil mix with small fragments of stone and brick, which appeared as a single deposit.

Posthole 5 (Figure 3)

The topsoil (1006) was a reddish-brown loose clay/silt topped with vegetation and was 0.3m deep; below this was (1007), a darker greyish-black loose gritty soil containing some small fragments of stone. This posthole was excavated less than 0.2m from the wall of the engine house.

Postholes 6/8 (Figure 3)

The topsoil here was a dark deposit of decayed organics and vegetation with a depth of 0.3m; this overlaid (1008), a yellowish-reddish brown clay/silt, incorporating fragments of stone and a single sherd of striped blue pottery and a lump of corroded iron which appears have been associated with the mine tramway.

The pit was initially intended to house one of the uprights for the security fence but was subsequently expanded to locate a wooden fence post alongside, measuring 0.5m long, 0.3m wide combined.

Posthole 7 (Figure 3)

The topsoil was a dark deposit of decayed organics and vegetation with a depth of 0.15m; this covered (1009), a layer of demolition rubble 0.2m deep incorporating fragments of granite, slate and other material associated with the engine house together with a gritty deposit which appears to be decayed lime mortar.

Posthole 9 (Figure 3)

The topsoil was a dark deposit of decayed organics and vegetation, depth was 0.15m, this posthole was excavated alongside the retaining wall orientated northwest to south east. The lower fill (1010) was comprised of fragmented smaller pieces of stone and greyish grit associated with decayed lime ash cement.

Posthole 10 (Figure 3)

The topsoil was a dark deposit of decayed organics and vegetation with a depth of 0.15m. This posthole was excavated near the junction of the retaining wall orientated northwest to southeast and the back wall of the engine house. The lower fill (1011)

comprised fragmented smaller pieces of stone and greyish grit deriving from decayed lime mortar.

Boiler house floor (Figures 3 and 5)

The brief for the boiler room floor was to lower the floor level underneath the wall opening so that it would be at least 2m from its cill over a length of one metre to each side of the wall opening; the edges of the excavated area were to be graded to gentle slopes.

Prior to excavation the cill of the wall opening was 1.6m above ground level, requiring a reduction in ground by 0.4m. Excavation revealed an area strewn with rubble (1012), but also part of a possible flue or drain; at 0.4m below the surrounding ground level several stones and bricks aligned north-south were revealed which appeared to have been bonded with lime mortar. The bricks [1013] appeared to represent the remains of a wall, possibly that bounding a boiler side flue, while to its south were several flat stones or purpose made tiles set in a bed of loose greyish gritty material which again appeared to be decayed lime mortar. To the north of the eastern end of the wall was an area of red silty clay (1014); an area 0.4m wide and 0.7m long was exposed at the northern edge of the excavation. Finds from this area were all of post-medieval/modern date and included the neck of a glass bottle, an iron bolt and a sherd of white glazed ceramic (see finds list in Appendix 2).

6 Conclusions/discussion

The site is known to have undergone clearance during the early 1990s (Buck 1994; 2002), including the thinning of trees, the removal of scrub vegetation; features revealed during the works were archaeologically recorded at the time (Buck 2002).

The layer immediately below the topsoil in the majority of the postholes excavated in 2018 contained fragments of stone and lime mortar, confirming the presence of demolition material not far below the present ground levels; this layer was generally less than 0.2m deep. The depth at which the probable subsoil was encountered suggests that the site was levelled into the slope prior to the construction of the buildings.

Landscaping of the some areas of the site such as within the buildings appears to have been more limited. The presence of a surviving brick floor and the low wall possibly relating to the Smithy to the north west of the engine house indicate that archaeological remains survive relatively undisturbed within this part of the site. Other buried features associated with the boiler house such as the boiler beds and flues may well therefore survive *in situ*.

The eastern boiler house had been strimmed prior to excavation of its floor; it was noted that ivy rooted here was growing prolifically on the walls of the buildings – this will eventually cause damage to the wall pointing through infiltration unless it is cut back and prevented from re-growing.

7 References

Ordnance Survey, MasterMap Topography

Buck, C, 1994. Derelict Land Grant Scheme: Drakewalls Mine, Gunnislake. Cornwall Archaeological Unit.

Buck, C, 2002. Cornish Archaeology Nos 37-38 1998-9, 196, Cornwall Archaeological Society

CIfA, 2014a. Standard and guidance for archaeological field evaluation, CIfA, Reading

CIfA, 2014b. Standard and guidance for an archaeological watching brief, CIfA, Reading

CIfA, 2014c. Standard and guidance for archaeological excavation, CIfA, Reading

CIfA, 2014d. Code of Conduct, CIfA, Reading

CIfA, 2017. Standard and guidance for historic environment desk-based assessment, CIfA, Reading

7.1 Websites

http://www.heritagegateway.org.uk/gateway/ Online database of Sites and Monuments Records, and Listed Buildings

8 Project archive

The CAU project number is 146757

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

Electronic data is stored in the following location:

\\CAU\Archive\Sites D\Drakewalls Mine Watching Brief 146757

Drawing GRE 906

Historic England/ADS OASIS online reference: cornwall2-314337



Figure 8: Lintel replacement and stone repairs carried out within the engine house interior.



Figure 9: Possible wall remains associated with a side flue within the boiler house.



Figure 10: Security fence installed to the rear and side of the engine house.

Appendix 1: Table of contexts

Context Number	Description
(1001)	Topsoil at the top end of the site. A dark deposit of decayed organic material covered with vegetation; very rooty containing small fragments of loose stone, some pieces of probable demolition rubble, varied in depth amongst the postholes between 0.15m and 0.3m.
(1002)	Lower deposit of posthole 1: A yellowish-brown clay soil, containing small fragments of stone, appeared to be subsoil with some contamination from demolition material in its upper part. Maximum depth of posthole was 0.72m (this was the gate corner support hole and the deepest of all of the postholes).
(1003)	Lower fill of posthole 2: A dark greyish gritty sandy deposit made up of greyish stones. Fragmented brick and decayed lime mortar, mixed in with the topsoil.
(1004)	Lower fill of posthole 3: A dark yellowish-brown clay/soil mix, loose and easy to excavate, containing small fragments of stone and decayed lime mortar; a small fragment of broken glass was observed within this deposit.
(1005)	Lower fill of posthole 4: A soft dark reddish clay/soil mix, containing small fragments of stone and brick.
(1006)	Topsoil of posthole 5: A 0.3m thick dark reddish-brown loose clay/silt topped with vegetation; this pit was adjacent to the west wall of the main engine house.
(1007)	Lower fill of posthole 5: A dark greyish-black loose gritty soil containing smaller fragments of stone.
(1008)	Lower fill of postholes 6 and 8: A yellowish-red-brown clay/silt containing fragments of stone and a single sherd of striped ceramic pottery, also a lump of iron which appears to be a tramway track chair. Posthole 6 was excavated to accommodate the security fence, pothole 8 was included within the excavation to accommodate the wooden boundary fence.
(1009)	Lower fill of posthole 7: A 0.2m thick layer of demolition rubble, containing fragments of granite, slate, decayed fragments of lime mortar. Below this was the subsoil (1002).
(1010)	Lower fill of posthole 9: A layer of fragments of smaller pieces of stone and greyish grit associated with decayed lime mortar. This posthole was excavated alongside the retaining wall and was orientated northwest to south east.
(1011)	Lower fill of posthole 10: A layer of fragmented smaller pieces of stone and greyish grit associated with decayed lime mortar. This posthole was excavated alongside the rear wall of the engine house and the retaining wall.
(1012)	A layer of demolition rubble mixed in with a 0.2m thick dark organic deposit of peaty silt. The demolition rubble comprised of fragmented stone and greyish gritty lime mortar.
1013	Possible wall orientated north to south, made up of at least two bricks bonded with lime mortar and laid into a bed of similar material. The bricks and associated stones appeared to form a coherent structure but were at

	the maximum depth for the clearance (0.4m) from the original level. There appeared to be a continuation to the south of larger flatter bricks which may be related to the feature.
(1014)	To the north of the east of the wall feature was an area of red silty clay, 0.4m wide and 0.7m long, as measured from the northern edge of the excavation.

Appendix 2: Finds summary

Context	Object
(1003)	Iron nut.
(1008)	Sherd of modern glazed blue striped pottery.
(1008)	Lump of iron, possibly related to the raised tramway.
	Neck of modern glass bottle green in colour.
(1012)	Iron bolt.
	Glazed modern white pottery.

Appendix 3: Summary of Written Scheme of Investigation

Client: CORMAC CONSULTANCY

Site name: Drakewalls pumping engine house

Site location:

Planning ref: N/R

Summary project background

The pumping engine house and adjacent structures at Drakewalls were consolidated as part of EU funded works in 1995. The engine house is in a popular open space and has a high visitor usage. Unfortunately, the engine house has attracted considerable antisocial behaviour over the last 20 years. The most recent incidents have seen youths getting onto the top of the structure and vandalising the stone work. The rear of the structure is currently guarded by temporary Heras fencing.

Cornwall Council as owners and managers of the site wish to undertake works to make the structure safe, to remove rubble resulting from vandalism and to undertake minor repairs to the building by:

- Preventing access onto the structure from the rear by installing permanent fencing;
- Preventing access into the structure via the eastern low level window opening by lowering ground levels adjacent to this feature;
- Restricting access into the structure from the front by installing permanent fencing;
- Removing rubble from the interior of the building and disposing of this at an appropriate location;

• Installing a new wooden lintel within the interior of the building and undertaking minor patch repairs to the fabric of the building.

The scope of and specification for these works have been discussed and agreed with Cornwall Council's Historic Environment Service and with the Cornish Mining World Heritage Site office.

This document sets out a Written Scheme of Investigation (WSI) by Cornwall Archaeological Unit (CAU) for an archaeological watching brief during the works programme to ensure that the works are carried out in ways that respect the heritage values of the site investigation and to record any features exposed during the hand excavation of pits for the fencing or during ground lowering activities.

Aims and objectives

The principal aims of the watching brief are to ensure that the works are undertaken to a standard which respects the heritage values of the site and to record any features exposed by pitting or ground lowering works.

The objectives are to:

- Obtain an archaeological record of the element of the site during the works.
- Produce a short report summarising the results of the watching brief.

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.

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

The WHS office and CCHES have advised that a watching brief will be required on the site during. This work will be guided by CIfA's guidance on undertaking watching briefs (CIfA 2014b).

All groundworks which might potentially intersect archaeological features will be undertaken under archaeological supervision. This will include any removal of soil across the site, the excavation of pits for the fencing or other activities which would result in the lowering of the present site levels. All excavation will be undertaken by hand. Should significant archaeological features be revealed, excavation will be halted and the exposed features cleaned up by hand to determine their significance prior to their recording. The contractor will allow reasonable time for the excavation and recording of any features thus revealed. The site archaeologist will also monitor and record minor repair works proposed to the building.

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.

- 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.
- The photographic recording will comprise colour photography using a digital SLR camera (with a resolution of 10 million pixels or higher. Photographs will include a record of significant features and general working shots. A metric scale and a north arrow where appropriate, will be included in all record shots.

Treatment of finds

The fieldwork may 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 GNSS 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 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.

Creation of site 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 (context sheets, photographs, etc.) will be ordered, catalogued and stored in an appropriate manner (according to CAU guidelines).
- 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.

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.

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 archiving will comprise the following:

- 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.
- A2 drawn archive storage (plastic wallets for the annotated record drawings).

- The project archive will be deposited initially at ReStore PLC, Liskeard and in due course (when space permits) at Cornwall Record Office.
- Digital data will be stored on the Cornwall Council network which is regularly and frequently backed up.
- Digital data forming part of the site archive will be deposited with the ADS.

Timetable

The study is anticipated to take place during the winter of 2017/18. 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 Ann Reynolds of CCHES.

- CCHES will monitor the work and will be kept regularly informed of progress.
- Notification of the start of work shall be given preferably in writing to CCHES at least one week in advance of its commencement.
- Any variations to the WSI will be agreed with CCHES 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 CCHES to discuss the most appropriate way forward.

Monitoring points during the study will include:

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

This WSI was produced by: Adam Sharpe BA MCIfA Archaeology Projects Officer 27 October 2017 Cornwall Archaeological Unit Cornwall Council Fal Building, County Hall, Treyew Road, Truro, Cornwall. TR1 3AY Tel: 07968 892146 Email: asharpe@cau.org.uk Drakewalls Mine, Gunnislake, Cornwall, Archaeological Watching Brief

Cornwall Archaeological Unit

Fal Building, County Hall, Treyew Road, Truro, Cornwall, TR1 3AY



