Lelant Quay

St.Ives, Cornwall

Historic and Archaeological Recording

Author: Hayley Goacher BA (Hons) PIfA and
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Date: June 2011

Archaeological Consultancy Ltd.

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Acknowledgements

This study was commissioned by Peter Haddock of Hayle Harbour Management Ltd on behalf of Ing Red UK Ltd and carried out by Archaeological Consultancy Ltd.

We are also extremely grateful to the construction team Tony Lee (Site Manager) and Steve Brighton (G.B. Plant Hire) for all their help on site.

Help with the historical research was provided by Jennie Hancock (Cornwall Record Office), Angela Broom (Courtney Library, Royal Institute of Cornwall) and Linda Wyatt (Cornwall Council, Aerial Photography), Kim Cooper (Cornwall Studies Library) Phil Hosken, George Wilson and Kingsley Rickard (Trevithick Society).

We are hugely grateful to the timely and professional assistance of the Devon and Cornwall Constabulary and Royal Navy Bomb Disposal Unit who assessed and disposed of an unidentified iron object and subsequently provided management guidance for the proposed repair works.

Within Archaeological Consultancy Ltd, the Project Manager was Matt Mossop who also directed the fieldwork assisted by Hayley Goacher and Hannah Henderson.

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

Cover illustration

Lelant Quay looking North

Lelant Quay,

St. Ives, Cornwall.

Historic and Archaeological Recording

Author:	**Hayley Goacher BA (Hons) PIfA and Matt Mossop MA, MGSDip MIAI**
Report Date:	**June 2011**
Client:	**Ing Red UK Ltd**
National Grid Reference:	**SW 54985 37812**
Civil Parish:	**St. Ives**
District:	**West 1**
County:	**Cornwall**
Fieldwork dates:	**June-July 2010**
Licence/Accession No:	**N/A**
Project No:	**AC10003E**
Planning Reference:	**10-0069-P**
Statutory Protection:	**World Heritage Site (WHS), Site of Special Scientific Interest (SSSI), Area of Great Scientific Value (AGSV)**

Archaeological Consultancy Ltd.

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Abbreviations

AC Archaeological Consultancy Ltd

AGSV Area of Great Scientific Value

BGS	British Geological Society
CAU	Cornwall Archaeological Unit (now the HES)
CCC	Cornwall County Council
CRO	Cornwall Record Office
DBA	Desk Based Assessment
HER	Cornwall and the Isles of Scilly Historic Environment Record
HES	Historic Environment Service, Cornwall County Council
HLC	Historic Landscape Characterisation
NGR	National Grid Reference
NMR	National Monuments Record, Swindon
OASIS	Online Access to the Index of Archaeological Investigations
OS	Ordnance Survey
RCM	Royal Cornwall Museum, Truro
SMR	Sites and Monuments Record (now the HER)
SSSI	Site of Special Scientific Interest
SW	Southwest
WHS	World Heritage Site

1 Summary

AC Ltd was commissioned by Peter Haddock of Hayle Harbour Management Ltd on behalf of Ing Red UK Ltd to undertake historic and archaeological recording of works associated with the repair of Lelant Quay shuttering. The historic and archaeological recording was required as a condition of planning permission for the proposed repairs. This site is designated as: World Heritage Site (WHS); Site of Special Scientific Interest (SSSI) and as an Area of Great Scientific Value (AGSV).

The site runs alongside the dilapidated shuttering at the western side of Lelant beach from the access ramp at the northwest corner (NGR SW 54979 37849) to the southern access ramp (NGR SW 55027 37751).

This study was undertaken in June and July 2010. It documented evidence for Ward's ship breaking activities including:

- Damaged hull sections making up the upstanding iron shuttering
- An oily layer associated with the ship-breaking activities dating from 1920 to *c*1960.

2 Introduction

2.1 Project Background

Planning permission for repairs to the quay shuttering included condition 2:

No development shall take place within the site until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation and timetabling that has first been submitted to and approved in writing by the local planning authority. The applicant, their agents and any subcontractors should note that where there are other conditions requiring satisfaction in advance of the commencement of works on site; it is the responsibility of the applicant to liaise with the planning officer concerned to ensure that the timetabling of these works is managed. (from Markham 2010)

AC was commissioned to undertake the historic and archaeological recording.

2.2 Site Location

The site lies approximately 200m north-east of Lelant, along the top of the beach adjacent to the dilapidated quay shuttering. The shuttering extends from the northern access ramp leading to what was Norwayman's Quay (Tithe 1839) (NGR SW 54979 37849) to the southern access ramp (NGR SW 55027 37751), immediately beside the granite built section of Lelant Quay, also known as Dynamite Quay.

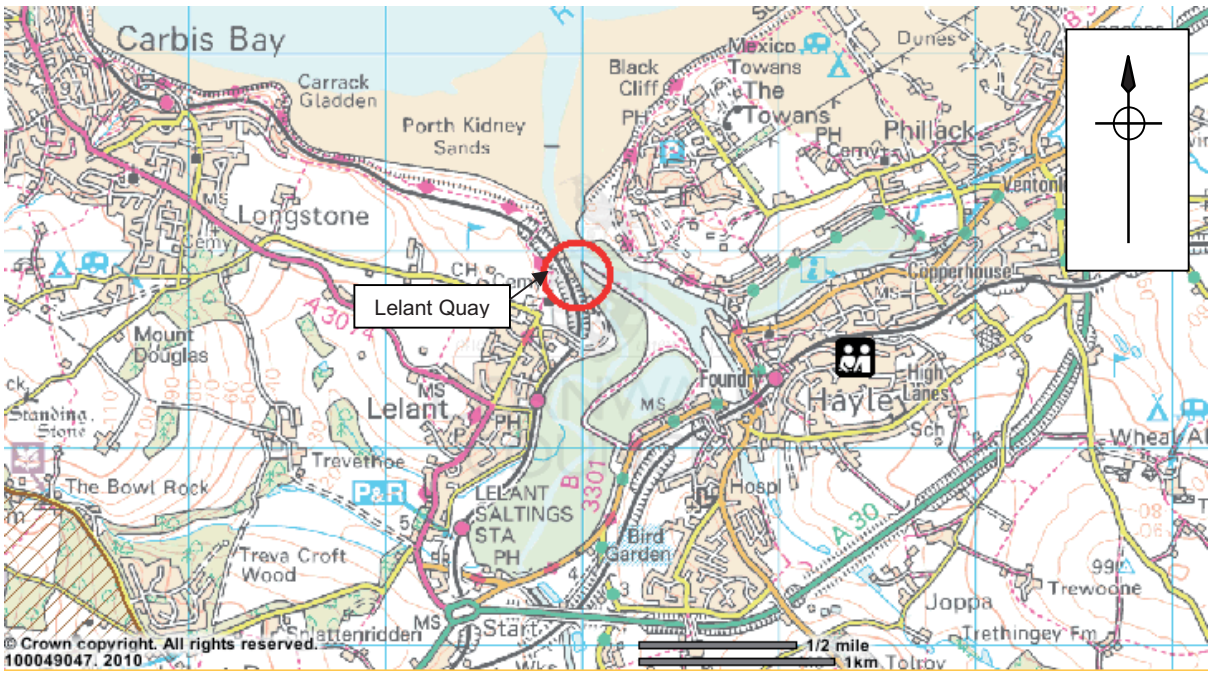

Figure Location Plan, Courtesy of Cornwall Council

2.3 Topography

The north-east facing beach slopes gently down from approximately 4.5m OD at the top of the southern access ramp to a channel of the Hayle River, which flows north-northwest.

2.4 Geology

The bedrock is recorded as being Mid-Late Devonian Period Porthtowan Formation interbedded grey and grey-green slaty mudstone and sandstone (British Geological Survey), with overlying wind-blown sand. The exposed grey-green bedrock on site was found to be soft but clearly laminated at the surface becoming harder with depth.

2.5 Archaeological and Historical Background

St Ives Bay has been designated as Landscape Characterisation Area CA05, the site above the high water mark is described as Hard Rock Lowlands (Landscape Description Unit (LDU) 137) classified as Recreational, in this case associated with the Golf Course and below the high water mark as Marine Levels (LDU 146).

'Human occupation around the Hayle estuary has probably been continuous since early Prehistory' (Buck, 2006; 10).

Mesolithic activity is well documented in Penwith with diagnostic flint scatters typically found just inland of the coast (Peters, 2005; 37). The sites of Trencrom Hill and Carnsew provide Prehistoric evidence and overlook the estuary from the southwest and southeast respectively. Trencrom Hill has yielded Mesolithic microliths whilst the form of the hilltop enclosure is arguably of Neolithic date. A variety of Neolithic flint tools have been recovered though they have no known direct relationship with the ramparts. Continuity of use is indicated by artefacts dating until the Late Iron Age and beyond into the Medieval period (Herring, 1999; 18, Noall, 1977; 13).

Remains of a Roman fort are possibly preserved in the outline of Lelant Parish Church graveyard as it is of archetypal rectangular shape and would have been well placed to control the estuary (Buck, 2006; 10-11).

Buck (2006; 11) asserts that the Hayle estuary was important in the Early Medieval Period (5-7th Centuries AD), facilitating the export of tin in exchange for wine, oil, pottery and cloth from the Continent and Ireland. It was a key staging point for the transfer of goods overland to St. Michael's Mount to avoid the dangerous Land's End passage.

Lelant's increased significance is attested by the presence of a custom house and the granting of market rights by King Edward I in 1295 to the Manor of Lelant and Trevetho. The name 'Lelant' is derived from 'Lan-Anta' meaning 'Church-site of Saint Anta.' A reference of 1495 mentions a Chapel of St. Anta at the mouth of the Hayle River that may have had a light to guide ships. However, the Parish Church of Lelant is dedicated to St. Euny, who is

supposed to have established himself there (Blight, 1989; 224. Noall, 1977; 16. Padel, 1988; 108).

The quantity of shipwrecks around Lelant, recorded in Lloyds of London Records of Shipwrecks, demonstrate that considerable activity continued through the Medieval period (Larn R and B, 1995). Lloyds does not specify the exact location of the wrecks and it seems likely that shipping was forced further north in the period. Lelant declined in the Later Medieval Period as the sheltered estuary silted up; probably as a result of tin streaming inland (Buck, 2006; 11. Noall, 1977; 13). From the 14th Century St. Ives began to dominate trade as it did not suffer from silting. Later references to fishing boats over-wintering up the estuary suggest a channel must have been repeatedly dredged into the Post Medieval Period when the area was once again subject to industrial growth.

In the late Post-Medieval Period the Tyringham family owned the majority of the surrounding area (Tithe map and apportionment). The present Lelant Quay, locally referred to as 'Dynamite Quay,' was built in granite in the 1870s at approximately the same time as the railway. A spur from Lelant Station to the Quay was added in 1877 and fragments of this branch line are visible on the 1877, 1908 and 1936 Ordnance Survey Maps. The Quay was accessible to ships drawing 17ft at high tide and formed part of the sale of property by RWG Tyringham in 1920., as recorded by the tithe map apportionments (1839). At the time of the sale the Quay was divided into two land parcels; one let to WB Gilbert as a coal yard and the second to Thomas Pomeroy as a weighbridge. The Quay was bought by Thomas W Ward Ltd the ship-breakers for £2800 in 1920 (Adams, 2009; Naval History Website).

Thomas W Ward Ltd was a prominent and pioneering ship-breaker in the 1920s when the industry was at its height. Ward had acquired thirteen yards in England and Scotland by the 1920s including Lelant Quay and one across the river at Hayle (both bought in 1920) to undertake the breaking of commercial cargo ships, liners and naval vessels.

The Naval History Website records:

> *'After the first world war, most naval vessels built pre-1910 were declared redundant and the Admiralty started selling them from Spring 1919, including 22 Dreadnought battleships and battlecruisers, totalling about 500,000 tons.'*

These were broken by a number of companies across the country. In 1936, despite the rapid decline of the industry, Ward obtained 34 old warships, predominantly destroyers plus two sloops, in exchange for the liner Majestic (Naval History Website). Although these cannot be directly linked to Lelant, the time period and vessel type provide the strong possibility that some of the breaking work was completed here and led to the erection of the iron shuttering quay from the waste products. The line of the shuttering first appears on the 1936 Ordnance Survey Map **(Figure 1)** with a siding running alongside it which presumably facilitated the dismantling.

Lelant Quay was used as a breakers yard at least until World War II when Bickford Smith (later part of ICI) undertook the loading of fuses for explosives and the unloading of coal (Adams, 2009). The remnants of the ship-breaking and war-time activities form the physical archaeology recorded in this study.

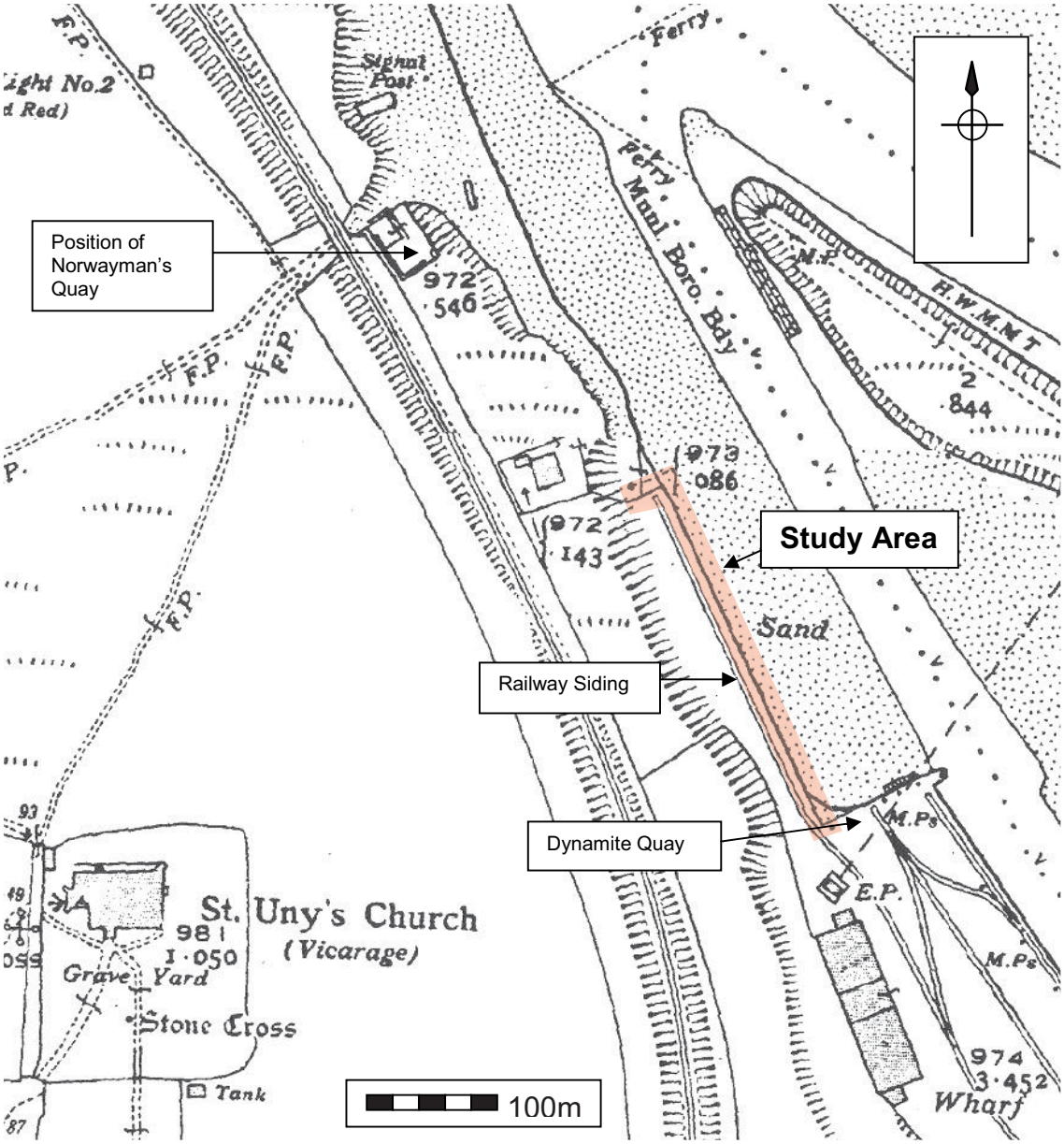

Figure 1 Study Area shown on the Ordnance Survey 1936, reproduced with the kind permission of Cornwall Studies Library

2.6 Project Aims and Objectives

The principal aims were to:

- Establish the presence/absence of archaeological remains
- To record and interpret the nature of the site, and its significance
- Disseminate the findings appropriately.

2.7 Methodology

2.7.1 Desk-based assessment (DBA), walk over and photographic survey

The DBA concentrated on SMR records and WHS information, in addition to photographic records at the Cornwall Studies Library, Courtney Library, aerial photographs at Cornwall Council and a map regression exercise.

On completion of fieldwork, additional research focussed on early-mid 20th Century developments, specifically Thomas W Ward Ltd ship-breaking, although searches at Cornwall Records Office and Cornwall Studies Library returned no material for this company. The Imperial War Museum and the National Archives, Kew, similarly had no documents relating to Lelant for the specific study period.

A walk-over and photographic survey recorded the iron quay shuttering in advance of controlled sand-stripping. The scaled monochrome photographic survey documented the east and north elevation of the quay in advance, during repair works and associated archaeological recording. Scaled digital colour photography augmented this to provide general and detailed shots and to illustrate this report. All negatives and contact prints will be included in the archive accompanied by a photographic register detailing feature number or name, location and direction of shot.

2.7.2 Controlled sand strip and associated archaeological recording

Sand was removed by machine with a grading bucket, under archaeological supervision down to the bedrock, the top of any archaeological deposits, or to the base of the trench, as appropriate. The backfill behind the iron shuttering included large quantities of asbestos formerly used to insulate parts of ship engines and associated machinery. Small amounts of asbestos were also found in the sand during excavation. Monitoring of all sand excavation was undertaken with personnel standing upwind of excavations where possible. The damp sand effectively held the asbestos down minimising the spread of this hazardous material. A specialist asbestos team disposed of all identified asbestos in advance of continued excavation and recording. Full hooded disposable overalls and dust masks were provided for relevant personnel.

The oily sand layers were cleaned by hand, photographed (see above) and recorded at 1:20 (sections) and 1:200 (plans).

An unidentified iron object **(Plate 16)** was removed from site and later detonated in a controlled explosion by the Royal Navy Bomb Disposal Unit. Metal detection in advance of all further work did not reveal any objects of a similar nature.

The beach sand included considerable quantities of unstratified late 20th Century rubbish which was not recorded. Stratified 20th Century metalwork was recorded by context. The metalwork was cleaned, photographed, measured, weighed and analysed, but not retained in accordance with a discussion with Jane Marley (RCM Curator of Archaeology). No sampling was necessary.

2.7.3 Report

This report describes the results of the archaeological work. Copies of the report will be submitted to: the client; the County Historic Environment Record (HER); Cornwall Record Office; National Monuments Record (NMR) in Swindon and all significant contributors where (with the exception of the client's and contributors' copies) they will be available for public consultation.

2.7.3.1 Site Archive

The documentary archive will be deposited with the Cornwall Record Office, within two months of the completion of the final report. A summary of the contents of the archive is included in this report.

The online OASIS record will be completed when the report is submitted.

3 Results

3.1 Shuttering

Three areas of collapse had occurred prior to archaeological work commencing and a fourth area was considered similarly unstable. Concrete and iron debris had held the iron shuttering in place from behind whilst the front was secured by wooden uprights. In the areas of collapse, ship worm had compromised the base of the wooden uprights which had then broken under the weight of the concrete and iron debris behind. Each area of collapse included several panels of the iron shuttering which had fallen outwards on to the beach, covered by the concrete and iron debris. The surviving iron shuttering included two distinct types of iron sheeting: those with portholes and those without, both seemingly derived from ships hulls.

The panels with portholes were predominately found towards the northern end of the site and on the north face of the shuttering **(Plate 12)**. The panels were placed with the portholes at the top. Each porthole was surrounded by approximately 10 rivets and each had characteristic semicircular iron reinforcements around the top of the hole. These reinforcements have been identified on numerous early 20th Century ships specifically including British destroyers.

In the remaining panels substantial damage and repairs were evident. The largest obvious damage was in a 'star' shape with the central patch measuring 0.35m by 0.3m and radial repairs reinforcing an area of *c.*3.5m diameter repaired with metallic mesh and welded iron **(Plate 15)**. There are numerous iron patches averaging 0.2m-0.3m diameter which have repaired punctures to the hull.

3.2 Trenches

Four trenches were dug along the length of the shuttering and following it around the right-angle along the north face. The trenches were numbered from one at this northern end to four at the southern access ramp. Due to the risk of

further collapse the trenches were not dug so that the shuttering formed the limit of excavation on the west and southern edges.

3.2.1 Trench 1

Trench 1 measured 12 metres north to south by 2.8 metres by 0.45 metres maximum depth along the north side of the shuttering. There were three fairly distinct areas of activity visible in the base of the trench. Deposits **(21)** and **(23)** similarly consisted of mid-dark grey oily sand with occasional angular burnt slate. These two are divided by **(22)**; a burnt spread of mid-dark, grey-brown sand and oil positioned around the right angle of the trench.

3.2.2 Trench 2

Trench 2 measured 7 metres north-south by 5 metres with a maximum depth of 0.70 metres. Section 4 along the northern edge of Trench 2 clearly indicates the layers of contaminated sand above the bedrock. The light green and orange slate bedrock **(3)** was recorded right across the trench, continuing below the base. The upper surface of the bedrock was increasingly soft and fell towards the east suggesting a large amount of erosion, probably exaggerated by dredging of the main channel to the east. Above the slate **(3)** a 0.12 metre thick layer of light yellow-brown sand **(7)** was sealed by a 0.05 metre thick layer of dark orange-pink sand **(6)** which included burnt stone and iron fragments. Over this a second layer of light-mid brown sand **(5)** up to 0.16 metres thick also included occasional electrical wires and white glazed earthenware. Above this a burnt layer of pink-orange sand **(4)** up to 0.12 metres thick extended across most of the trench. This included oily sand, 2% sub-angular slate fragments up to 0.1 metre maximum diameter, reddened slate fragments and pieces of iron. The relatively sterile light yellow-brown beach (2) sand sealed this layer

3.2.3 Trench 3

Trench 3 was interrupted by an existing electrical trench on an east-west axis which could not be disturbed for safety reasons. The excavation measured 5.6 metres north-south by 4 metres. The northern end was deliberately expanded to determine the limit of a light grey brown oily sand **(18)**. It included fragments of plate glass and white glazed earthenware in addition to frequent iron and angular slate and occasional shell inclusions similar to layer **(4)** in Trench 2. Immediately to the west of **(18)**, a grey oily sand **(20)** and a light yellow brown sand **(19)** were recorded. The remaining area was a sandy layer **(24)** extremely similar to deposits **(7)** and **(25)** found in Trenches 2 and 4.

3.2.4 Trench 4

Trench 4 measured 46.4 metres north-south by 4.8 metres. The west side of the trench was 0.40 metres in depth and due to the shelving of the beach reduced to 0.20 metres at the eastern edge of the trench.

On the base of the trench, burnt deposits (8, 9, 10 and 16), filled a shallow linear channel [11 and 15] running intermittently along the trench (Figure 3)

(Plate 9), averaging 0.8m wide by at least 0.07m deep. Black silts (8 and 9) included burnt wood and slate, whilst (8) also included an iron hexagonal nut, sheeting fragments and the iron object **(Plate 16, Plate 17, Plate 18)** discussed previously. The iron object measured 175mm long by 26mm-32mm diameter and weighed 835g (7" x 1"-1 ¼" and 1lb 13oz), with a circular marking on the thinner end resembling a percussion cap. Dark-grey oily sand (10) included occasional mussel shells, whilst black oily sand (16) included fragments of sub-angular burnt slate.

Dark grey oily sand (13) and light yellow-brown sand with occasional oil patches (14) filled a circular anomaly [12] exposed at the base of the trench measuring 2.7m in diameter. A smaller circular patch of mid-dark brown clay (17) at the south end of the trench included fragments of sub-angular burnt slate and measured 1.2m diameter. These features were not excavated as they were exposed at the base of the excavated trench.

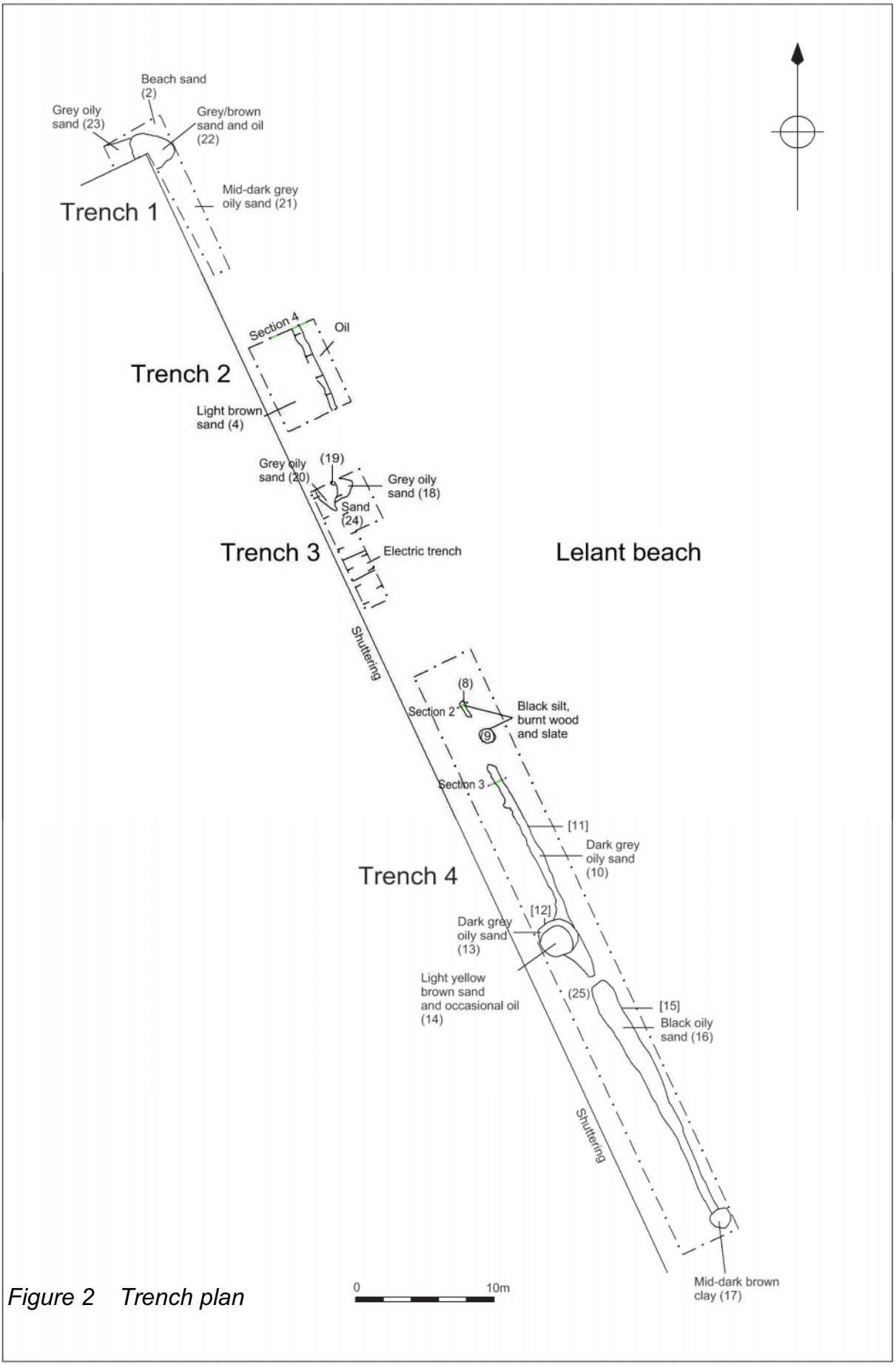

Figure 2 Trench plan

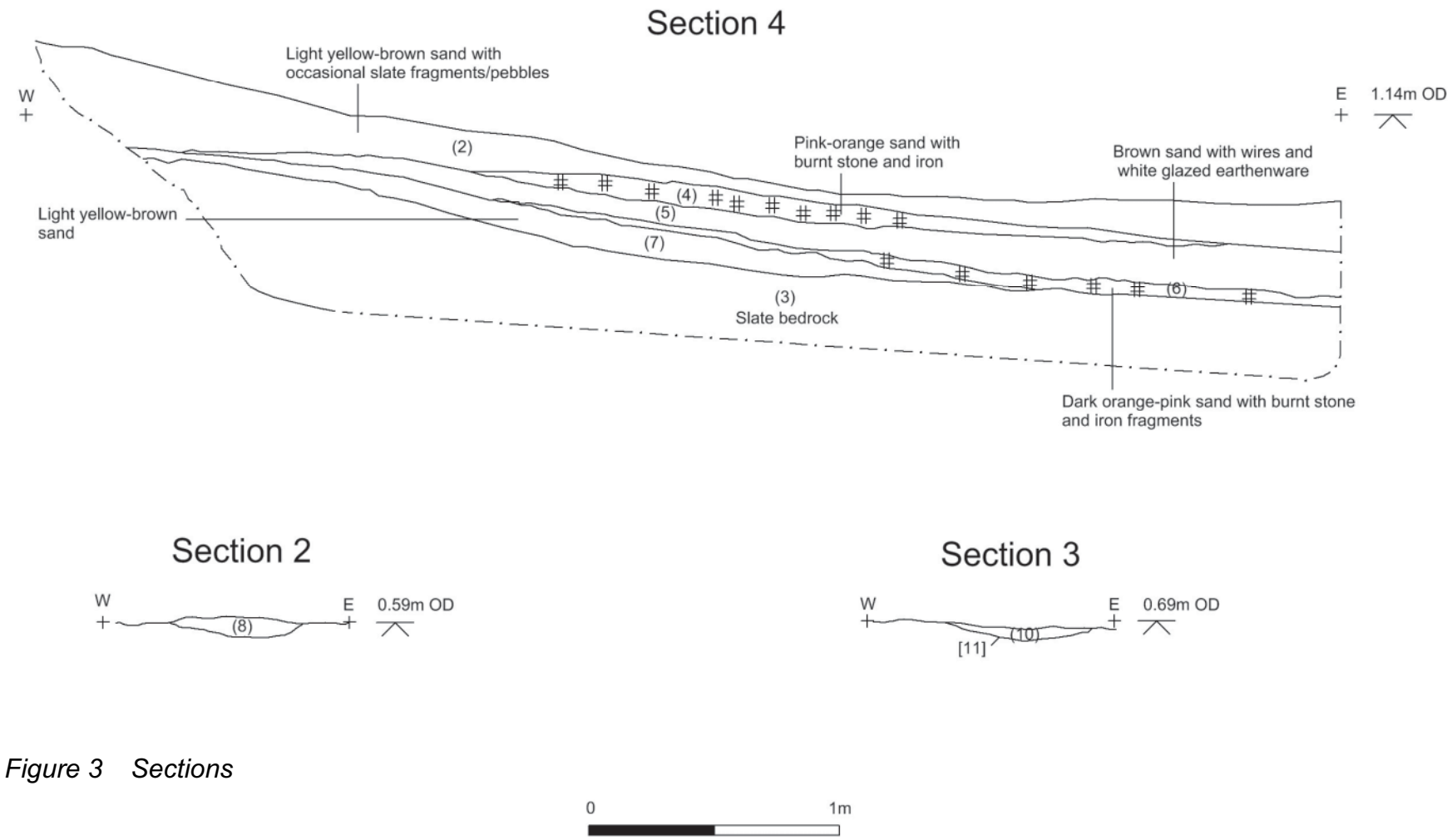

Figure 3 Sections

Plate 1 Granite mooring on Dynamite Quay looking north

Plate 4 Concrete filled iron mooring on Dynamite Quay

Plate 2 Iron mooring on Dynamite Quay looking east

Plate 5 Dynamite Quay looking east

Plate 3 Anti aircraft battery foundation on Dynamite Quay looking south

Plate 6 Anti aircraft battery foundation on Dynamite Quay looking north

Plate 7 Multiple phases of build and repair on Dynamite Quay looking south

Plate 9 Trench 4 burnt deposits looking south

Plate 8 Iron framed building on Dynamite Quay looking south

Plate 10 South-facing section of burnt layers in Trench 2

Plate 11 Granite footing of northern access ramp looking south

Plate 13 Damage to iron shuttering

Plate 12 North-facing elevation of shuttering with portholes

Plate 14 Detail of iron shuttering

Plate 15 East facing elevation of shuttering showing patching and radial re-enforcement

Plate 16 Iron object from burnt deposit (8), Trench 4

Plate 17 End of iron object from burnt deposit (8), Trench 4

Plate 19 Copper wiring from ship electrical system (sand layer (5), Trench 2)

Plate 18 End of iron object from burnt deposit (8), showing possible percussion cap

Plate 20 Iron hex nut and fragment of iron sheeting from burnt deposit (8), Trench 4

4 Discussion

4.1 Shuttering

The straightened Quayside at Lelant is first shown on in 1936 (OS map) at the same time as the new railway siding. It seems likely that this map depicts the existing shuttering, shoring up the dunes for the new railway siding, built sometime between 1911 (Urban Electric Supply Co. Ltd. map) and 1936 (OS map).The siding itself seems likely to have been constructed by Ward to facilitate ship-breaking, probably allowing a crane to lift off parts of ships directly onto wagons for onward transport or reduction. The iron panels making up the shuttering appear to be derived from ships hulls, presumably dismantled on site between 1920 when Ward bought the site and 1936.

Langley and Small (1988) attribute the panels to the port side and superstructure of a torpedo boat destroyer, built into the bank around 1920. At this time Ward was breaking redundant vessels from World War I and they suggest that the ship could be a veteran of Jutland (Langley and Small).

The reinforced portholes, are characteristic of vessels of appropriate date and the extensive damage appears consistent with a naval vessel, involved with significant conflict. It seems probable that Langley and Small are correct with their assertion though it is just possible that the siding and shuttering is a later development at the site associated with the 1936 deal between Thomas Ward Ltd and the admiralty.

Damage caused by grounding or collision with submerged objects is likely to be linear or irregular in form. The extensive puncture damage noted on the hull sections **(Plate 13 Plate 15)** appears more consistent with shell fire or other projectiles, presumably above the water-line allowing the numerous repairs to be effected and the vessel to be reclaimed.

4.2 Trenches

The clearest stratigraphy for the site can be found in section 4, the north edge of Trench 2 **(Plate 10)**. Layers **(4)** and **(6)** appear to represent two distinct phases of ship breaking resulting in burning, spilt oil and iron fragments. They are separated by sand layer **(5)**, which although contaminated, is cleaner and may be an attempt to clean back the debris of the earliest activity, at least in this area. Similar phasing may be evident in the remaining trenches but is less clearly separated by a relatively sterile sand layer.

In Trench 4, the shallow linear channel **[11]** and **[15]** may have resulted from the dragging of heavy articles along to a hoisting point on the siding as part of the ship breaking process demonstrating a surprising level of preservation of the early 20th Century ship breaking activities in the soft beach sand.

5 Conclusion

No evidence for pre-20th century activity was recorded on site, though the heavily damaged hull forming the shuttering appears to be a poignant reminder of the naval casualties of World War I.

6 The Archive

The AC Ltd project number is **AC10003E**

The project's documentary, photographic and drawn archive is housed at the offices of Archaeological Consultancy Ltd, Goodagrane, Halvasso, Penryn, Cornwall, TR10 9BX prior to transferral to the CRO. The contents are summarised below.

Record	A5*	A4*	A3*	A2*	A1*	≥ A0*	**Total Number**	Location
Drawing sheets				2			2	Roll
Site notes		2					2	Folder
Primary record sheets		3					3	Folder
Project management		2					2	Folder
B&W 35mm Negatives		2					2	Folder
B&W Contact print sheets		2					2	Folder

7 Recommendations

Following the completion of archaeological work stipulated by the Written Scheme of Investigation, no further archaeological work is recommended for this development.

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Appendix 1

BRIEF FOR HISTORIC RECORDING AND ARCHAEOLOGICAL INVESTIGATION

Date: 11th May 2010

Site: Lelant Quay, Lelant, St Ives

Application: 10-0069-P

Applicant: ING RED UK Ltd, Tim Armstead, Development Manager, ING Real Estate Development UK Limited, 60 London Wall, London EC2M 5TQ tel. 020 7767 5324 email. tim.armstead@ingrealestate.com

Historic Environment Planning Advice Officer: Phil Markham, Cornwall Council, Historic Environment Service, Kennall Building, Old County Hall, Truro TR1 3AY. tel. 01872 322546 email. pmarkham@cornwall.gov.uk

Local Planning Authority Officer: Zoe McAden, Cornwall Council, Planning & Regeneration, St Clare, Penzance TR18 3QW tel. 01736 336549 email. zoe.mcaden@cornwall.gov.uk

This brief is only valid for six months. After this period the Historic Environment Planning Advice Officer (HEPAO) should be contacted. Any written scheme of investigation (WSI) resulting from this brief shall only be considered for the same period. The contractor is strongly advised to visit the site before completing their WSI as there may be implications for accurately costing the project.

Contractors Written Scheme of Investigation (WSI)

No ground works are to be undertaken until the HEPAO and the Local Planning Authority (LPA) have approved the archaeological contractor's WSI.

1 Introduction

This brief has been written by the HEPAO and sets out the minimum requirements for archaeological recording at the above site to discharge the archaeological recording condition placed on the consent.

2 Site Location and Description

The site is located on the coast approximately 200m north-east of Lelant at OS grid reference SW 55016 37748. The bedrock is recorded as being Gramscatho Beds (Mudstone & Sandstone) underlying soils recorded as being Sandwich (Dune Sand). The north-east facing site is gently sloping from approximately 10m to sea level.

3 Planning Background

Planning application 10-0069-P was submitted on the 14th January 2010 and was for seafront bank stabilisation works to include the provision of a temporary access ramp. This application has been approved subject to 4 conditions. Condition 2 states:

No development shall take place within the site until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation and timetabling that has first been submitted to and approved in writing by the local planning authority.

Reason: *In the interests of the archaeological value of the site.*

The applicant, their agents and any subcontractors should note that where there are other conditions requiring satisfaction in advance of the commencement of works on site; it is the responsibility of the applicant to liaise with the planning officer concerned to ensure that the timetabling of these works is managed.

4 Historic Building/Structure Background

The Cornwall and Scilly Historic Environment Record (HER) records the following for Norwayman's Dock*: Norwayman's Dock (site of) at Lelant, where Baltic timber was unloaded from ships too large to enter the harbour area, was marked on the 1842 Tithe Map somewhat to the north of the northern end of Lelant Quay where there is today some form of retaining sheeting and timbering holding the dunes back from the beach. The sheeting is made up of metal panelling from the ships cut up here when the quay was used as breakers yard (most of the early C20), backed with stacked redundant concrete lampposts, but standing at the northern end upon a base of granite with some scoria slag, which is probably the remains of the Norwayman's Dock itself. The remains of the dock is visible stretching for a length of approx. 131m along the edge of the estuary bank and was plotted as part of the NMP.*

5 Archaeological Background

The Cornwall and Scilly Historic Environment Record (HER) records a number of sites around the proposed site and note that it is within the Cornwall and West Devon Mining World Heritage Site. The HER sites include Norwayman's Dock (see above), an anti aircraft battery and a quay.

The HER records the following for the anti aircraft battery: *The site of a light anti-aircraft battery is visible on air photographs and was plotted as part of the NMP. The site appears to consist of three circular gun emplacements, although records suggest that there were only two guns. These were 40mm Bofors Guns on MkII platforms. This was battery no. 3 out of a series of nine defending the power station and aviation fuel stores at Hayle. Earliest reference is 20 June 1942. Site PRN 166471 may be a duplicate of this site.*

The HER records the following for the quay: *A quay is shown on the site of the later wharf on the Lelant Tithe Map of 1842 - the present wharf is shown clearly on the 1877 1st Edition OS map (25-inch). It was served by a short branch line coming off the main Great Western line that runs from St. Erth to St. Ives; both line and wharf were brand new in 1877. The railway company provided a 600 ft granite quay allowing access for ships of 17 ft draft at all tides with warehouses, steam crane and weighbridge. The line (the last to be built with the Great Western's 7 ft broad gauge) had been truncated by the time of the 2nd Edition mapping of 1907. The mooring posts may be contemporary with the wharf; a crane is noted at the northern end (1907 2nd Edition OS). Mainly used for explosives traffic in the late C19, and as a breaker's yard in the early/mid C20, it was partially rebuilt by the Royal Navy in WWII, and afterwards used by Bickford's/ICI to ship dynamite.*

The quay stands unaltered, built of granite with the cap-stones joined together by lozenge shaped plugs, with a projecting spur at the northern end, and several flights of steps leading down to the water. Apart from a small amount of rubble and scoria at the south end of the wharf, there is no clear evidence of the pre-1842 quay. A large early C20 metal framed building without cladding stands on the quay.

6 Requirement for Work

6.1 Site Recording

The present proposals will culminate in the destruction of material remains of the dock; it is therefore important that the site is recorded to an appropriate level and that the results are made available to interested parties. In this particular instance, for the photographic record, the recorder needs to consider:

- Site layout and organisation
- Function
- Materials, method of construction
- Original fixtures and fittings
- Date/period of initial build and subsequent alterations

6.2 Archaeological Recording

Ground works associated with the development may disturb buried archaeological remains. It is therefore important that a suitably qualified archaeologist(s) is/are present during these works in order to identify and record any features of interest.

The site specific aims are to:

- Establish the presence/absence of archaeological remains
- Determine the extent, condition, nature, character, date and significance of any archaeological remains encountered
- To establish the nature of the activity on the site
- To identify any artefacts relating to the occupation or use of the site
- To provide further information on the archaeology of Lelant from any archaeological remains encountered

7 General Methodology

7.1 All stages of the investigation shall be supported by a written scheme of investigation (WSI).

7.2 The archaeological contractor is expected to follow the code of the Institute for Archaeologists (IfA).

7.3 Details including the name, qualifications and experience of the site director and all other personnel (including specialist staff) shall be included within the WSI.

7.4 All of the latest Health and Safety guidelines shall be followed on site.

7.5 The IfA's Standards and Guidance should be used for additional guidance in the production of the WSI, the content of the report and the general execution of the project.

7.6 Terminology will be consistent with the English Heritage Thesaurus.

8 Building Recording Methodology

8.1 Prior to the commencement of on site works archaeological contractor should familiarise themselves with the site by examining the information held by the Cornwall and Scilly Historic

Environment Record (HER), the Cornwall records Office at Truro and the Cornwall Centre at Redruth, where appropriate.

8.2 Details of how the structure is surveyed and recorded shall be provided. The site plan will be tied to the national grid.

8.3 The photographic record shall be a comprehensive record to archive standard of the existing structures. This should be undertaken with black and white contact prints and negatives. Colour photography may be utilised for general shots and where it is appropriate for detail shots (negatives and where appropriate CD shall be included in the archive). For both general and specific photographs, a photographic scale shall be included. The photographic record shall be accompanied by a photographic register detailing as a minimum, feature number, location and direction of shot.

9 Archaeological Recording Methodology

9.1 Prior to the commencement of on site works the archaeological contractor should familiarise themselves with the site by examining the information held by the Cornwall and Scilly Historic Environment record (HER), the Cornwall Records Office at Truro and the Cornwall Centre at Redruth, where appropriate.

9.2 An archaeologist shall be present during all ground works associated with the development, unless circumstances dictate a different approach. A toothless ditching bucket can be used for the removal of any overburden until the first archaeological horizon is exposed. This will then be hand cleaned as appropriate. This may not be possible due to health and safety issues over the presence of asbestos.

9.3 Any surviving remains which will be disturbed or destroyed by the development shall be archaeologically excavated and recorded, where possible.

9.4 Details of how all archaeological contexts and artefacts will be excavated, surveyed, recovered and recorded shall be provided. The site will be tied into the national grid.

9.5 Details of the site planning policy shall be given in the WSI. The normal preferred policy for the scale of archaeological site plans is 1:20 and sections 1:10, unless circumstances indicate that other scales would be more appropriate.

9.6 The photographic record shall consist of prints in both black and white and colour together with the negatives. Digital photography may be used for report illustration. For both general and specific photographs, a photographic scale shall be included. In the case of detailed photographs it may be appropriate to include a north arrow. The photographic record shall be accompanied by a photographic register detailing as a minimum, feature number, location and direction of shot.

9.7 If significant archaeological deposits are exposed, all works must cease and a meeting convened with the client and the HEPAO to discuss the most appropriate way forwards.

10 Finds

10.1 All finds, where appropriate, will be retained from each archaeological context excavated.

10.2 All finds, where appropriate, shall be washed.

10.3 All pottery, and other finds, where appropriate, shall be marked with the site code and context number.

10.4 The WSI shall include an agreed list of specialist consultants, who may be required to conserve and/or report on finds, and advise or report on other aspects of the work including environmental sampling.

10.5 The requirements for conservation and storage shall be agreed with the appropriate museum prior to the start of work, and confirmed in writing to the HEPAO.

10.6 Finds work should be to accepted professional standards and adhere to the Institute for Archaeologists *Guidelines for Finds Work*.

10.7 Environmental sampling should be guided by *Environmental Archaeology* (English Heritage Centre for Archaeological Guidelines. 2001/02).

10.8 Further English Heritage guidance that may be helpful includes *Geoarchaeology* (2004) and *Archaeometallurgy* (2001).

10.9 The English Heritage Advisor for Archaeological Science will be able to provide archaeological science advice if required (Vanessa Straker 0117 975 0689).

11 Human Remains

11.1 Any human remains which are encountered must initially be left in situ and reported to the HEPAO and the appropriate authorities (the Coroner), where appropriate. If removal is necessary this must comply with the relevant Government regulations. If burials are encountered their legal status must be ascertained and recording and/or removal must comply with the legal guidelines.

11.2 If human remains are not to be removed their physical security must be ensured, preferably by back filling as soon as possible after recording.

11.3 If human remains are to be removed this must be done with due reverence and in accordance to current best practice and legal requirements. The site must be adequately screened from public view. Once excavated, human remains must not be exposed to public view.

12 Results Building Recording

12.1 The full report including any specialist assessments shall be submitted within a length of time (but not exceeding six months) to be agreed between the applicant and the archaeological contractor, Cornwall County Council Historic Environment Service and the Royal Cornwall Museum. A further digital copy shall be supplied on CD-ROM preferably in 'Adobe Acrobat' PDF format.

12.2 The archaeological contractor will undertake the English Heritage/ads online access to the index of archaeological investigations (OASIS).

12.3 This report will be held by the Cornwall and Scilly Historic Environment Record (HER) and made available for public consultation.

12.4 The report must contain:

- A concise non-technical summary of the project results.
- The aims and methods adopted in the course of the investigation.
- A discussion of the archaeological findings in terms of both the site specific aims and the desk based research.
- A location map, a drawing showing those areas examined as part of the recording. All plans shall be tied to the national grid.
- Any specialist reports and assessments.
- A summary of the archive contents and date of deposition.
- A copy of the brief and the approved WSI will be included as an appendix.

12.5 A contingency shall be made within the costs for full publication in an appropriate journal. The HEPAO will notify the contractor of such a need within four weeks of receipt of the report.

13 Results Archaeological Recording

13.1 The full report including all specialist assessments of artefact assemblages shall be submitted within a length of time (but not exceeding six months) to be agreed between the applicant and the archaeological contractor, Cornwall County Council Historic Environment Service and the Royal Cornwall Museum. A further digital copy shall be supplied on CD-ROM preferably in 'Adobe Acrobat' PDF format.

13.2 This report will be held by the Cornwall and Scilly Historic Environment Record and made available for public consultation.

13.3 The report must contain:

- A concise non-technical summary of the project results.
- The aims and methods adopted in the course of the investigation.
- A discussion of the archaeological findings in terms of both the site specific aims and the desk based research.
- A location map, a drawing showing those areas examined as part of the archaeological recording, and copies of any archaeological plans and sections. All plans shall be tied to the national grid.
- All specialist reports and assessments.
- A summary of the archive contents and date of deposition.
- A context register with brief descriptions shall be included as an appendix.
- A copy of the brief and the approved WSI will be included as an appendix.

13.4 A contingency shall be made within the costs for full publication in am appropriate journal. The HEPAO will notify the contractor of such a need within four weeks of the receipt of the report.

14 Archive Deposition

14.1 An ordered and integrated site archive will be prepared in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006* upon completion of the project. The requirements for archive storage shall be agreed with the Royal Cornwall Museum.

14.2 If the finds are to remain with the landowner a full copy of the documentary archive shall be housed with the Cornwall County Record Office and with the Courtney Library of the Royal Institution of Cornwall.

14.3 The archive including a copy of the written report shall be deposited with the Royal Cornwall Museum within two months of the completion of the full report and confirmed in writing with the HEPAO.

14.4 Where there is only a documentary archive this will be deposited with the Cornwall Record Office.

14.5 A copy of the report will be supplied to the National Monuments Record (NMR) in Swindon.

14.5 A summary of the contents of the archive shall be supplied to the HEPAO.

14.6 Only on completion of 14.1 to 14.5 (inclusive) will there be a recommendation for the discharge of any archaeological recording condition.

15 Monitoring

15.1 The HEPAO will monitor the work and should be kept regularly informed of progress.

15.2 Notification of the start of work shall be given preferably in writing to the HEPAO at least one week in advance of its commencement.

15.3 Any variations to the WSI shall be agreed with the HEPAO, preferably in writing, prior to them being carried out.

Lelant Quay, Cornwall.

Historic and Archaeological Recording: Written Scheme of Investigation.

Author:	**Tim Carter FdSc and Matt Mossop MA MGSDip MIAI**
Report Date:	**26.05.2010**
Client:	**Ing Red UK**
Project No:	**AC10003E**
Planning Reference:	**10-0069-P**
Statutory Protection:	**World Heritage Site (WHS), Site of Special Scientific Interest (SSSI), Area of Great Scientific Value**
Proposal:	**Seafront bank stabilisation works**
Parish:	**St Ives**
District:	**West 1**
County:	**Cornwall**
Country:	**England**
National Grid Reference:	**SW 54985 37812**

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1 Summary

The site at Lelant Quay, in Lelant, St Ives is designated as part of a World Heritage Site, a SSSI, and an Area of Great Scientific Value and it lies within a Kilometre of a conservation area.

Archaeological Consultancy Limited (AC) have been commissioned by Peter Haddock of Hayle Harbour Management Ltd on behalf of Ing Red UK Ltd, to provide a Written Scheme of Investigation in advance of historic and archaeological assessment, in accordance with a brief provided by Phil Markham, Historic Environment Advisor (Archaeology), in advance of stabilisation works.

2 Site location

2.1 Location

The site is located on the coast approximately 200m north-east of Lelant at OS grid reference SW 55016 37748. (See figure 1).

2.2 Topography

The north-east facing site is gently sloping from approximately 10m to sea level.

2.3 Geology

The bedrock is recorded as being Gramscatho Beds (Mudstone & Sandstone) underlying soils recorded as being Sandwich (Dune Sand). (Markham 2010).

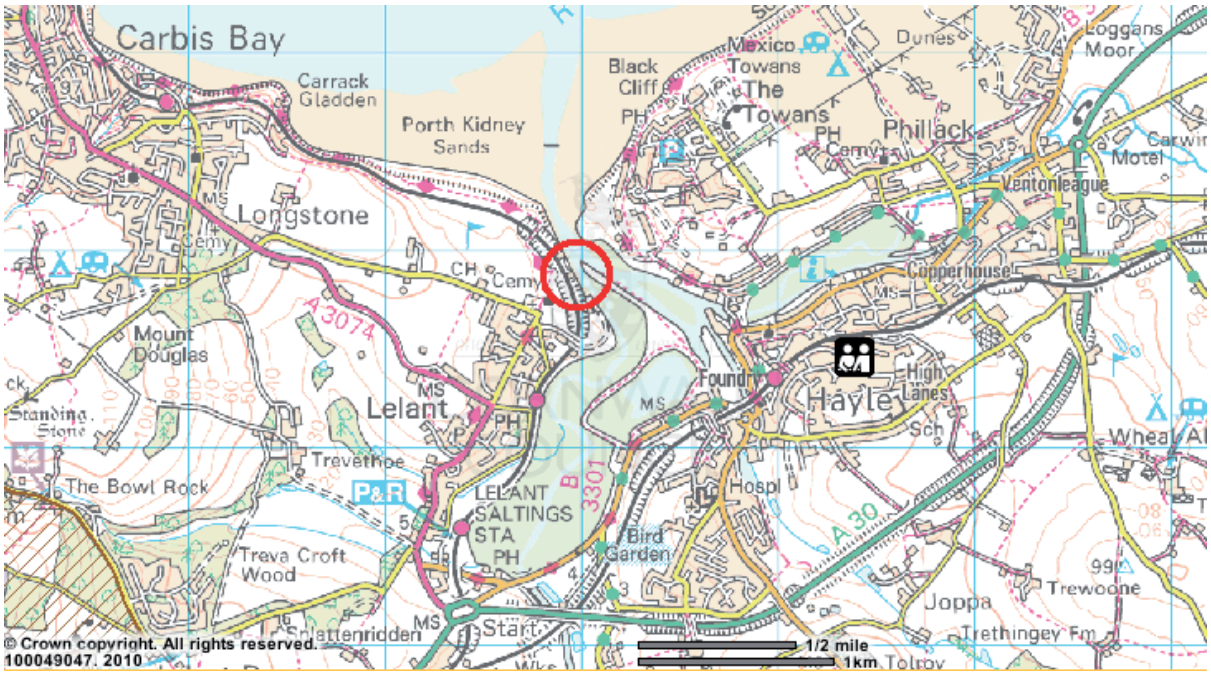

Figure 1: Site Location. Courtesy of Cornwall County Council.

3 Project background

3.1 Development background

Planning permission has been accepted for the site, in preparation of removal of dilapidated shuttering in place of a granite stepped revetment. The acceptance of the planning permission included condition 2:

"No development shall take place within the site until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation and timetabling that has first been submitted to and approved in writing by the local planning authority. The applicant, their agents and any subcontractors should note that where there are other conditions requiring satisfaction in advance of the commencement of works on site; it is the responsibility of the applicant to liaise with the planning officer concerned to ensure that the timetabling of these works is managed".

3.2 Archaeological and Historical background

The Cornwall and Scilly Historic Environment Record (HER) records that*:*

Norwayman's Dock (site of) at Lelant, is made up of metal panelling from the ships

cut up here when the quay was used as a breakers yard.

The remains of the dock are visible stretching for a length of approx. 131m along the edge of the estuary bank and were plotted as part of the NMP. (Historic Environment Record (HER) 2010)

A quay is shown on the site on the Lelant Tithe Map of 1842 - the present wharf is shown clearly on the 1877 1st Edition OS map (25-inch).

*The quay was mainly used for explosives traffic in the late C19, and as a breaker's yard in the early/mid C20, it was partially rebuilt by the Royal Navy in WWII, and afterwards used by Bickford's/ICI to ship dynamite. (*HER 2010)

It is also important to note that burials were discovered to the west of the site during construction of the branch line running behind the site in 1875, with cist graves and a building interpreted as a church being found two years later in the immediate vicinity. (HER 2010).

The temporary compound is sited on the site of a previous anti-aircraft battery, an additional battery and pill boxes have been identified in the vicinity.

4 Project aims and objectives

The principal aims will be to:

- Establish the presence/absence of archaeological remains
- To record and interpret the nature of the site, and its significance
- Disseminate the findings appropriately.

To achieve these aims the report will:

- Characterise and draw together the historical and archaeological information about the site and its environs.
- Record any evidence that may be associated with the World Heritage Site and 20th C industries.

5 Method statement

5.1 General methodology

AC complies with the guidelines set out in the IfA's Standards and Guidance and follows the IfA code of conduct.

Given large scale C20th disturbance on site, which is likely to include dredging, excavations for the formation of the C20th revetment and tidal erosion, any archaeological deposits before the mid C20th are considered extremely unlikely.

The C20th revetment is packed with considerable quantities of asbestos sheeting from C20th ship mechanical insulation etc. If un-stratified asbestos is encountered in front of the revetment, dust masks will be worn by AC staff, who will re-position up-wind and use water sprays as necessary, to enable recording to continue. Asbestos will be disposed of by the client. The risk assessment will detail appropriate personal protective equipment and more detailed working practice. The project will be carried out in two main stages:

5.2 Stage 1: Desk-based assessment (DBA), walk over and photographic survey

An initial DBA will concentrate on SMR, WHS, photographic records at the Cornwall Studies Library and a map regression exercise.

Further research will be undertaken as necessitated by the findings.

A walk over and comprehensive photographic survey will record any extant visible remains on the site. The scaled monochrome photographic survey will document the east and north elevations of the quay in advance and during repair works and any associated archaeological recording. Scales digital colour photography may augment this to provide general and detailed shots and may be used within the report. All negatives contact prints and where appropriate, Cd's will be included in the archive accompanied by a photographic register detailing as a minimum, feature number, location and direction of shot.

5.3 Stage 2: Controlled sand strip and associated archaeological recording

Sand will be removed by machine with a grading bucket, under archaeological supervision down to the bedrock, the top of any archaeological deposits, or to the base of the trench, as appropriate.

Any significant archaeological remains shall be excavated by hand, photographed (see above) and recorded at 1:10 (sections) and 1:20 (plans) as standard, though other scales may be used.

The beach sand is likely to include considerable quantities of unstratified late C20th rubbish which will not be recorded. Significant C20th (which may relate to ship dismantling, other industries or water transport) and earlier material will be bagged where practical and labelled by context. Significant finds will be cleaned, stabilised and marked with accession and context number and packed in accordance to RCM's guidelines.

Finds will be described and illustrated as appropriate in advance of any necessary specialist analysis, conservation, or discard. Any discard follows

guidance from RCM and will be more specifically advised on at post-excavation stage.

The requirements for conservation and storage shall be agreed with the RCM prior to the start of work, and confirmed in writing to the HEPAO.

Due to the afore-mentioned C20th disturbance, paleo-environmental sampling is not likely to be necessary.

Any human remains which are encountered will initially be left in situ and reported to the HEPAO and Coroner, as appropriate, and accorded appropriate respect.

If very significant archaeological deposits are exposed, or objects with very significant conservation costs, all work will cease and a meeting will be convened with AC staff, the client, the HEPAO and relevant RCM staff member if appropriate, to discuss the most appropriate way forwards.

5.4 Report and Archive

5.4.1 Report

A single archive report will be prepared to describe the results of the archaeological work. A digital version will also be supplied on CD-ROM. The final report will contain: summary, aims and methods, discussion, conclusions, location and other relevant plans tied in to the OS grid.

Copies of the archive report will be submitted to: the client; the County Historic Environment Record (HER); Cornwall Record Office; National Monuments Record (NMR) in Swindon and all significant contributors where (with the exception of the client's and contributors' copies) they will be available for public consultation.

5.4.2 Archive

The site archive will be prepared in line with the brief.

The archive is likely to be of a documentary nature and will be deposited in a suitable form with the Cornwall Record Office, within two months of the completion of the final report and confirmed in writing with the HEAA. A summary of the contents of the archive shall be supplied to the HEPAO.

5.5.2 Web-based publications

The online OASIS record will be completed when the report is submitted.

6 Project management and structure

6.1 Staff

The project will be undertaken predominantly by Matt Mossop (AC) who will undertake the desk-based assessment, walk-over survey and photographic survey and compile the report.

Matt Mossop MA MGSDip MIAI Project Manager

Matt has extensive archaeological experience in England, France and Ireland from 1992 onwards, becoming a licensed director in Ireland (2001). He has directed numerous excavations and presented papers for the World Archaeological Congress, Royal Society of Antiquaries of Ireland, universities and local groups in Ireland and the UK.

Whilst we endeavour to avoid changes to senior project staff, AC reserve the right to change the nominated personnel if necessary.

6.2 Project facilities and infrastructure

The project will be based at the AC office in Halvasso, Penryn. AC has a computer network running Windows XP Professional and Vista. Report texts are generated in Word 2007.

6.3 Timetable

The fieldwork is anticipated to commence as soon as we have approval from the Historic Environment Advisor. The fieldwork stage of the project, is expected to take one to three days.

An archive report will be completed within 6 months of the end of the fieldwork. If the site proves complex or specialist reports are required, an interim statement will be produced in the same time-frame. The deposition of the archive will be completed within 2 months of the completion of the report.

6.2 Health and safety

AC complies to all relevant heath and safety guidelines and legislation. A risk assessment will be prepared for the site work and all staff will be briefed on the contents of the final version. PPE will be issued and used as required.

6.3 Insurance

AC has adequate insurance for employer's liability, public liability and professional indemnity. Further details are available on request.