

**CHURCH BANK
JARROW
SOUTH TYNESIDE**



**ARCHAEOLOGICAL EVALUATION REPORT
CP. No: 11097
18/11/2014**



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Quality Assurance

This report covers works as outlined in the brief for the above-named project as issued by the relevant authority, and as outlined in the agreed programme of works. Any deviation to the programme of works has been agreed by all parties. The works have been carried out according to the guidelines set out in the Institute for Archaeologists (IfA) Standards, Policy Statements and Codes of Conduct. The report has been prepared in keeping with the guidance set out by Wardell Armstrong Archaeology on the preparation of reports.

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SUMMARY

Wardell Armstrong Archaeology was commissioned by Expedient Training, to undertake an archaeological evaluation at Church Bank, Jarrow, South Tyneside (NGR NZ 33525 65359). This work follows a planning application (Planning Application No. ST/0261/14/FUL) for the construction of a new two-storey office development and a new industrial workshop at the site. Newcastle City Council has granted planning consent for the development, on the condition an archaeological evaluation be undertaken. The work is required as the site lies within close proximity to 19th century colliery and terraced domestic buildings that are of potential archaeological interest. The site is also within close proximity to the Scheduled Monuments of the medieval village of Jarrow and of the monastic site of Jarrow; the western extent of which has not been conclusively located.

The archaeological evaluation was undertaken over two days between the 21st and 22nd October 2014. The evaluation involved the excavation of one trench, totalling 20m² of the development area. No archaeological remains of note were observed. Structural remains were observed in the south-western end of the trench that appears to relate to the outbuildings of the terraced housing shown on the 1827 Ordnance Survey Map.

As this archaeological evaluation was conducted as part of a condition in association with the development of a new office and industrial workshop, no further work is deemed necessary. However, given the high archaeological potential of the area, it is recommended that any future work be subject to a programme of archaeological investigation.

ACKNOWLEDGEMENTS

Wardell Armstrong Archaeology thanks Expedient Training, for commissioning the project, and for all assistance throughout the work. Wardell Armstrong Archaeology would also like to thank Jennifer Morrison, Tyne & Wear Archaeology Officer at Newcastle City Council for her assistance throughout the project.

The archaeological evaluation was undertaken by Scott Vance. The report was written by Scott Vance and the figures were produced by Adrian Bailey. The finds assessment was compiled by Megan Stoakley. The project was managed by Martin Railton, Senior Project Manager for WAA. The report was edited by Richard Newman, Post-excavation Manager for WAA.

1 INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 In October 2014 Wardell Armstrong Archaeology was invited by Expedient Training to undertake an archaeological evaluation on land adjacent to Church Bank, Jarrow, South Tyneside (NGR NZ 33525 65359; Figure 1), prior to the development of a new office block and industrial workshop. The proposed works lie within the immediate vicinity of 19th century colliery buildings with 19th century terraced houses. The site is also located within close proximity to the Scheduled Monuments of the medieval village of Jarrow and of the monastic site of Jarrow. As a result, Jennifer Morrison, Tyne & Wear Archaeology Officer at Newcastle City Council requested a programme of archaeological investigation, prior to the development taking place. This is in line with government advice as set out in Section 12 of the National Planning Policy Framework (NPPF 2012).
- 1.1.2 The archaeological evaluation was undertaken following approved standards and guidance (IfA 2013), and was consistent with the specification provided by Newcastle City Council (Morrison 2014).
- 1.1.3 This report outlines the evaluation work undertaken on-site, the subsequent programme of post-fieldwork analysis, and the results of this scheme of archaeological investigation.

2 METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 A specification for archaeological evaluation was issued by Tyne and Wear Specialist Conservation Team (Morrison 2014 - Appendix 3) in response to a request by Expedient Training, for an archaeological evaluation of the study area. The specification was adhered to in full, and the work was consistent with the relevant standards and procedures set out by the Institute for Archaeologists (IfA).

2.2 THE FIELD EVALUATION

2.2.1 The evaluation consisted of the excavation of a trench covering 20m², of the proposed 1910m² development area. Due to the depth of the geological substrate, the trench had to be stepped to allow safe access, thereby widening the top of the trench from 2m to 3.72m. The purpose of the evaluation was to establish the nature and extent of below ground archaeological remains within the vicinity. All work was conducted according to the recommendations of the Institute for Archaeologists (2013).

2.2.2 In summary, the main objectives of the field evaluation were:

- to establish the presence/absence, nature, extent and state of preservation of archaeological remains and to record these where they were observed;
- to establish the character of those features in terms of cuts, soil matrices and interfaces;
- to recover artefactual material, especially that useful for dating purposes;
- to recover palaeoenvironmental material where it survives in order to understand site and landscape formation processes.

2.2.3 A brick surface and tarmac surface were removed by mechanical excavator under close archaeological supervision. The trial trench was subsequently cleaned by hand and all features were investigated and recorded according to the Wardell Armstrong Archaeology standard procedure as set out in the Excavation Manual (Giecco 2012).

2.2.4 All finds encountered were retained, and were cleaned and packaged according to standard guidelines, and recorded under the supervision of Megan Stoakley, WAA Finds Officer.

2.2.5 All deposits encountered were deemed unsuitable for environmental sampling, and therefore no samples were retained.

2.2.6 The evaluation trench was scheduled to be backfilled at the discretion of the client, following excavation and recording.

2.2.7 The fieldwork programme was followed by an assessment of the data as set out in the Management of Archaeological Projects (2nd Edition, 1991).

2.3 THE ARCHIVE

- 2.3.1 A full professional archive has been compiled in accordance with the specification, and according to the Archaeological Archives Forum recommendations (Brown 2011). The archive will be deposited within The Great North Museum, with copies of the report sent to the County Historic Environment Record at Newcastle City Council, where viewing will be available upon request. The archive can be accessed under the unique project identifier WAA14, CBJ-A, CP 11097.
- 2.3.2 Wardell Armstrong Archaeology, and Newcastle City Council, support the **Online Access to the Index of Archaeological Investigations (OASIS)** project. This project aims to provide an on-line index and access to the extensive and expanding body of grey literature, created as a result of developer-funded archaeological work. As a result, details of the results of this project will be made available by Wardell Armstrong Archaeology, as a part of this national project under the OASIS identifier **wardella2-193788**.

3 BACKGROUND

3.1 LOCATION AND GEOLOGICAL CONTEXT

- 3.1.1 The site at Church Bank, Jarrow is an area of previously developed brown belt land situated in the eastern part of Jarrow, to the east of the ring road. It is located between the monastery to the east, and central Jarrow to the west, in South Tyneside, Tyne and Wear (Figure 1). To the immediate north and west of the site are the thoroughfares of Church Bank road and Priory Road. A railway siding and oil storage depot are located to the immediate east of the site.
- 3.1.2 The underlying geology of the area comprises glacially laid boulder clay, overlying carboniferous sandstone (BGS 2014).

3.2 HISTORICAL CONTEXT

- 3.2.1 *Introduction:* this historical background is compiled mostly from secondary sources, and is intended only as a brief summary of historical developments specific to the study area. References to the County Historic Environment Record (HER) are included where known.
- 3.2.2 *Prehistoric:* there is little known about the area of Jarrow during the Prehistoric period. Finds from the period have included two flint implements from the estuary of the Don and a flint axe in the town itself.
- 3.2.3 *Roman:* antiquarian accounts of the monastery of St Paul attest to a pre-existing Roman fort at Jarrow, the site of which was utilized by the later monastic site. Two inscribed stones were observed within the walls of the monastery during repair work in 1782. Roman artefacts have also been recovered in the surrounding area such as coins and oil lamps but investigations in the area have found no structural evidence or features that suggest a Roman fort within the area (Peters 2014).
- 3.2.4 *Early Medieval:* the earliest reference to the Anglo Saxon Monastery attests to a donation of land in 681 allowing the building of a monastery by monks from Monkwearmouth to begin in 682. The church was consecrated in 685 but abandoned after the Viking attacks of 874-5. The site was rebuilt in 1072 by Aldwin, Prior of Winchcombe, who found the buildings in ruins before the site became a cell of Durham in 1083 (*ibid*). The monastery is a Scheduled Monument (SM 16). Associated with the monastery is the site of an Anglo Saxon cemetery that was encountered during excavations undertaken to the south of the Church of St Paul.
- 3.2.5 *Medieval:* the Church of St Paul continued well into the medieval period and was restructured in the post medieval period in 1782-3 and again in 1866. It is a Grade I Listed Building. A village would have been established to support the monastery, and that at Jarrow, dating to probably the 11th century, is thought to have been located to the east of the monastery (SM 46).
- 3.2.6 *Post-medieval and Modern:* the post medieval period saw industry arrive to the area and saw the illegal dumping of ballast from ships within the surrounding area. The first

large scale mining operation came to Jarrow in 1803 with the sinking of the Alfred Pit in 1803. Jarrow Hall, an extent Grade II Listed Building was constructed within this period and is located 255m to the east of the development site.

- 3.2.7 By the time of the census of 1831, there were just over 600 dwellings in Jarrow (WAA 2014), the majority of which were colliery cottages. At some point between 1823 and c.1834, the settlement extended to the south side of the present Church Bank.
- 3.2.8 By the mid 1800s, industrialisation of this eastern area of Jarrow was developing at a fast pace, with several known sites in the vicinity established by this period. Palmer's Shipbuilding and Iron Works, was opened in 1851. St Bede's Works was established by 1839 with a smithy, two brickfields, Lampblack factory, Slake Chemical Works, Jarrow Chemical Works, Timber Dock, Brown Ware Pottery, Jarrow Corn Mill and Springwell Staithes all being established by the production of the First Edition Ordnance Survey Map of 1855.
- 3.2.9 The expanse of industry and settlement at Jarrow continued through the late 19th century, with several sites dating to this period in the vicinity of the proposed development site, first seen on the Second Edition Ordnance Survey Map. These include the Mineral Water Works, Timber Ponds, Jarrow Cement Works, Hedworth Barium Works, Mercantile Dry Docks, and Jarrow Forge Engineering Works.
- 3.2.10 The period leading up to World War I saw great increases at Palmer's Yard. After the war came the depression, with the steelworks being closed for much of the 1920s, eventually closing in 1931, and the shipyard closing in 1933. With poverty at a new high, parts of Jarrow were subjected to slum clearance during the 1930s, and this included the post medieval village area to the east of the monastic site.
- 3.2.11 No buildings are shown within the proposed development site on the A-Z plan of 1979, and on subsequent South Tyneside Official Street Plans of the 1980s and 1990's, until the OS Explorer Map of 2000. The present layout within the proposed development site itself was established by at least 2000.

3.3 PREVIOUS WORK

- 3.3.1 Several previous investigations in the vicinity have been undertaken at the monastic site of Jarrow, including Cramp's 1959-88 excavations and two watching briefs monitoring excavations for new interpretation panels at the site by North Pennines Archaeology in 2008 (Horn 2008) and by Tyne & Wear Museums in 2011. Only a possible cobbled surface was encountered by the watching briefs (Horn 2008). Of specific importance to the present proposed development site was the fact that Cramp's excavations did not find the western limits of the monastic site.
- 3.3.2 Excavations carried out by Tyne and Wear Museums (Bidwell & Foley 1990) on the Shell Oil Depot site 250m to the east of site uncovered remains of a medieval settlement that could represent the main settlement that was dependant on the monastery.
- 3.3.3 Several watching briefs carried out along Church Bank Road itself have failed to locate any archaeological traces, although natural was not encountered during any of them

(Tyne & Wear Museums 2002; Hart 2003). Brigantia Archaeological Practice undertook an assessment and evaluation on the site of the Bede Ale House, on the north side of Church Bank, to the north-west of the site, and found that the site had remained in agricultural use until the mid 19th century, with the pub being built between 1834 and 1856 (Walsh 2005). This site was located just to the west of the proposed development site. The subsequent evaluation was devoid of any archaeological features (Turnbull 2005). Another watching brief was undertaken some distance to the north-west of the present site, encountering waste from the former Hebburn Colliery (Muncaster & Inkster 1999).

4 ARCHAEOLOGICAL EVALUATION RESULTS

4.1 INTRODUCTION

4.1.1 The evaluation was undertaken over two days from 21st to 22nd October 2014. The trench was excavated using a tracked 8 tonne machine with toothless ditching bucket. A stratigraphic matrix can be found within Appendix 2.

4.2 RESULTS

4.2.1 **Evaluation Trench (Figure 2 & 3):** The evaluation trench was located toward the north-east corner of the development area and was aligned north-east/south-west. The trench was excavated to a maximum depth of 1.85m revealing the geological substratum of mid greyish brown clay (**136**). Overlying the geology were two undated deposits. The first was a band of mid bluish grey clay (**135**) with frequent flecks of charcoal that measured 0.26m thick, below 0.40m of mid greyish brown clayey silt (**134**). It is likely that deposit (**134**) represented a buried subsoil from when the area was used for arable farming prior to the construction of terraced housing shown on the First Edition Ordnance Survey Map of 1855.

4.2.2 The next phase within the trench was represented by a series of dumps to raise the ground prior to the construction of the domestic terraces. The lowest layer comprised dark bluish grey clayey silt (**133**) with frequent inclusions of brick fragments c. 0.26m thick. Five sherds of post-medieval pottery were recovered from the deposit; an analysis of which can be found in Section 5. The other layers comprised mid greyish brown clayey silt (**132**) 0.45m thick, light yellowish brown coarse sand (**131**) 0.28m thick, and dark reddish brown coarse sand (**127**) 0.08m thick.

4.2.3 Within the dumped material, two construction cuts were observed for brick structures. The first construction cut [**130**] was only observed in section (refer to Figure 3) and measured 0.86m wide and 0.5m deep with a flat base and vertical sides. Within the cut, brick structure {**129**} comprised five courses of brick bonded with a light yellowish grey lime mortar. The dimensions of the brick structure and its form indicated that it was likely to be the remains of a brick drain that was located in the back yard of the 19th century terraced housing. The brick structure contained dark brownish grey silty coarse sand (**128**) 0.44m deep that had likely infilled the drain when the terraces were demolished.

4.2.4 At the south-west end of the trench, construction cut [**126**] was observed that measured 3.82m across the width of the trench and 3.82m north-east/south-west to the limit of excavation. The cut was irregular in section, had vertical sides and measured 0.55m deep at the northern end before dropping to a depth of 1.19m at the southern end. The change of depth was caused by a ceramic drainage pipe (**124**) running down vertically from Structure {**137**}. The pipe measured 0.16m in diameter and 0.72m in length before disappearing into the section. The deepest section of the construction cut was then backfilled with a mid greyish brown clayey silt (**125**) 0.79m

deep that raised the level of the base of the cut to a uniform height before the construction of Structure {137}.

- 4.2.5 Structure {137} (Plate 1) comprised brick walls {122} and {123}. Brick wall {122} measured 0.64m in height and was orientated north-west/south-east across the trench. The wall consisted of six courses of brick in English Bond with the wall measuring one brick wide (0.24m). The bricks were bonded with a light yellowish grey lime mortar. Brick wall {123} was observed at the south-western end of the trench and measured 0.43m in height, orientated north-west/south-east across the trench and measured 0.40m wide. Six courses were visible in section and were bonded in a light yellowish grey lime mortar in English Bond. The structure was set above ceramic pipe (124) that would have originally fed into the structure.



Plate 1: Structure {137}. Looking north-east. 2 x 1m scales.

- 4.2.6 Between the two brick walls, a series of ground raising dumps/leveling deposits were observed. They comprised light yellowish brown silty sand (121) 0.10m thick, black coarse sand (120) 0.07m thick, mid brownish grey silty clay (119) 0.18m thick, dark brownish grey sandy clay (118) 0.10m thick, light brownish grey crushed mortar (117)

- 0.07m thick and dark brownish grey silty coarse sand **(116)** 0.18m thick. Five sherds of pottery were recovered from leveling deposit **(118)**; an analysis of which can be found in Section 5.
- 4.2.7 A leveling deposit was also observed to the south-west of wall **{123}** that comprised dark brownish grey coarse sand **(112)** c.0.20m thick. A corroded metal gas pipe **(114)** was observed that measured 44mm in diameter and had been set into deposit **(112)**. Further leveling deposits were noted on the north-east side of the structure that comprised dark brownish grey silty coarse sand **(115)** that measured 0.15m in depth and dark reddish brown coarse sand **(111)** measuring 0.15m in depth.
- 4.2.8 Overlying the leveling deposits were three concrete surfaces **(109)**, **(110)**, & **(113)**. Surface **(109)** was located to the north-east of Structure **{137}**, **(110)** was situated to the south-west of wall **{123}** and concrete surface **(113)** set between walls **{122}** & **{123}**. The surfaces were all c.0.10m thick.
- 4.2.9 Structure **{137}** most likely relates to the outbuildings at the back of the terraced housing shown on the Ordnance Survey Map of 1897 with associated concrete yard surfaces. No remains of the terraces survive above the concrete surfaces.
- 4.2.10 A demolition layer of dark brownish red crushed brick **(108)** was observed over the remains of the structure that measured 0.23m thick and 9.11m north-east/south-west to the limit of excavation. A service was noted cut into the demolition layer that comprised of service trench **[107]** that measured 0.60m wide and ran across the width of the trench. It contained cable **(106)** and was backfilled with mid greyish brown fine sand **(105)** 0.06m thick and a light brownish yellow dolomite layer **(104)** c.0.30m thick.
- 4.2.11 A leveling deposit of light brownish yellow dolomite **(103)** c.0.26m thick was observed running across the trench that represented a bedding deposit for the modern tarmac car park **(102)**. At the north-eastern end of the trench, a bedding deposit of mid yellowish brown fine sand **(101)** 0.06m thick was overlying the dolomite that formed the base of a brick surface **{100}** at the north-east corner of the proposed development area.
- 4.2.12 No archaeological features of note were observed (Plate 2).



Plate 2: Overview of Trench. Looking east-north-east. 2 x 1m, 1 x 2m scales.

4.3 ARCHAEOLOGICAL FINDS AND ENVIRONMENTAL SAMPLING

4.3.1 An assessment of the archaeological finds can be found within Section 5. No environmental samples were retained during the fieldwork.

5 FINDS

5.1 FINDS ASSESSMENT

- 5.1.1 A total of 14 artefacts, weighing 7462g, were recovered from four contexts during an archaeological evaluation on land at Church Bank, Jarrow, South Tyneside.
- 5.1.2 All finds were dealt with according to the recommendations made by Watkinson & Neal (1998) and to the Institute for Archaeologists (IfA) Standard & Guidance for the collection, documentation, conservation and research of archaeological materials (2008b). All artefacts have been boxed according to material type and conforming to the deposition guidelines recommended by Brown (2011) and the Great North Museum.
- 5.1.3 The material archive has been assessed for its local, regional and national potential and further work has been recommended on the potential for the material archive to contribute to the relevant research frameworks.
- 5.1.4 The finds assessment was compiled by Megan Stoakley.
- 5.1.5 Quantification of finds by context is visible in Table 1.

Cxt	Material	Qty	Wgt (g)	Date	Comments
123	CBM	1	3672	PM	Complete brick
129	CBM	1	3624	PM	Complete brick
133	CBM	1	126	PM	Brick fragment
118	Pottery	6	25	PM	Transfer print
133	Pottery	5	15	PM	CRE; RWE
TOTAL		14	7462		

Table 1: Quantification of Bulk Finds by Context

5.2 POST-MEDIEVAL CERAMICS

- 5.2.1 Eleven fragments of post-medieval pottery, weighing 40g, were recovered from two deposits (Table 1). The artefacts are in good condition and display little evidence of abrasion or post-depositional damage.
- 5.2.2 Ceramic wares comprise Willow Pattern Transfer Print, Buckley-type coarse red earthenware and refined white earthenware. The artefacts are of late 19th to early 20th century date and vessel types comprise plates, cups and bowls.
- 5.2.3 No further analysis is necessary on the post-medieval pottery.

5.3 CERAMIC BUILDING MATERIAL

- 5.3.1 Three fragments of ceramic building material, weighing 7422g, were recovered from three contexts (Table 1). The artefacts are in moderate to good condition, displaying some evidence of post-depositional damage.
- 5.3.2 The artefacts comprise a partial brick fragment recovered from deposit (**133**) and two complete bricks from {**123**} and {**129**}.
- 5.3.3 A broad date of 19th to 20th century has been attributed to these artefacts.
- 5.3.4 No further analysis is necessary on these fragments.

5.4 STATEMENT OF POTENTIAL

- 5.4.1 The small finds assemblage provides dating evidence for the deposits and provides evidence of post-medieval domestic activity on the site, however, the artefactual assemblage is of low archaeological significance.

6 CONCLUSIONS

6.1 CONCLUSIONS

- 6.1.1 During the archaeological evaluation at Expedient Training, Church Bank, Jarrow, one trench was excavated, covering 20m² of the proposed 1910m² development area. The purpose of the evaluation was to establish the nature and extent of below ground archaeological remains within the vicinity, the evaluation trench being located to provide a representative sample of the development area. The trench was excavated down to the top of the natural substrate.
- 6.1.2 The trench was devoid of any archaeological features pre-dating the late 19th century. A possible buried subsoil horizon was observed near the base of the trench but remains undated due to lack of dating material. The structure observed within the south-west corner of the trench seems to relate to the outbuildings at the back of the 19th century terraced housing (shown in Figure 4) with associated concrete yard surfaces. The terraces were all demolished in the 20th century during 'slum' clearance within Jarrow.
- 6.1.3 Artefacts recovered during the evaluation comprised fragments of 19th to 20th century pottery, a single brick fragment and two complete bricks. The finds provide evidence of domestic activity on the site during the later post-medieval period. However, the finds assemblage does not add a significant amount of information towards understanding the site in its broader context and is therefore of low archaeological significance.
- 6.1.4 The results obtained during the present evaluation, and from previous archaeological investigations suggest that the study area has been extensively developed from the 19th century onwards in the form of terraced housing and associated structures. Prior to this the area was used for agricultural purposes.
- 6.1.5 The archaeological evaluation results indicate that no further archaeological work need be undertaken as part of the developed programme.

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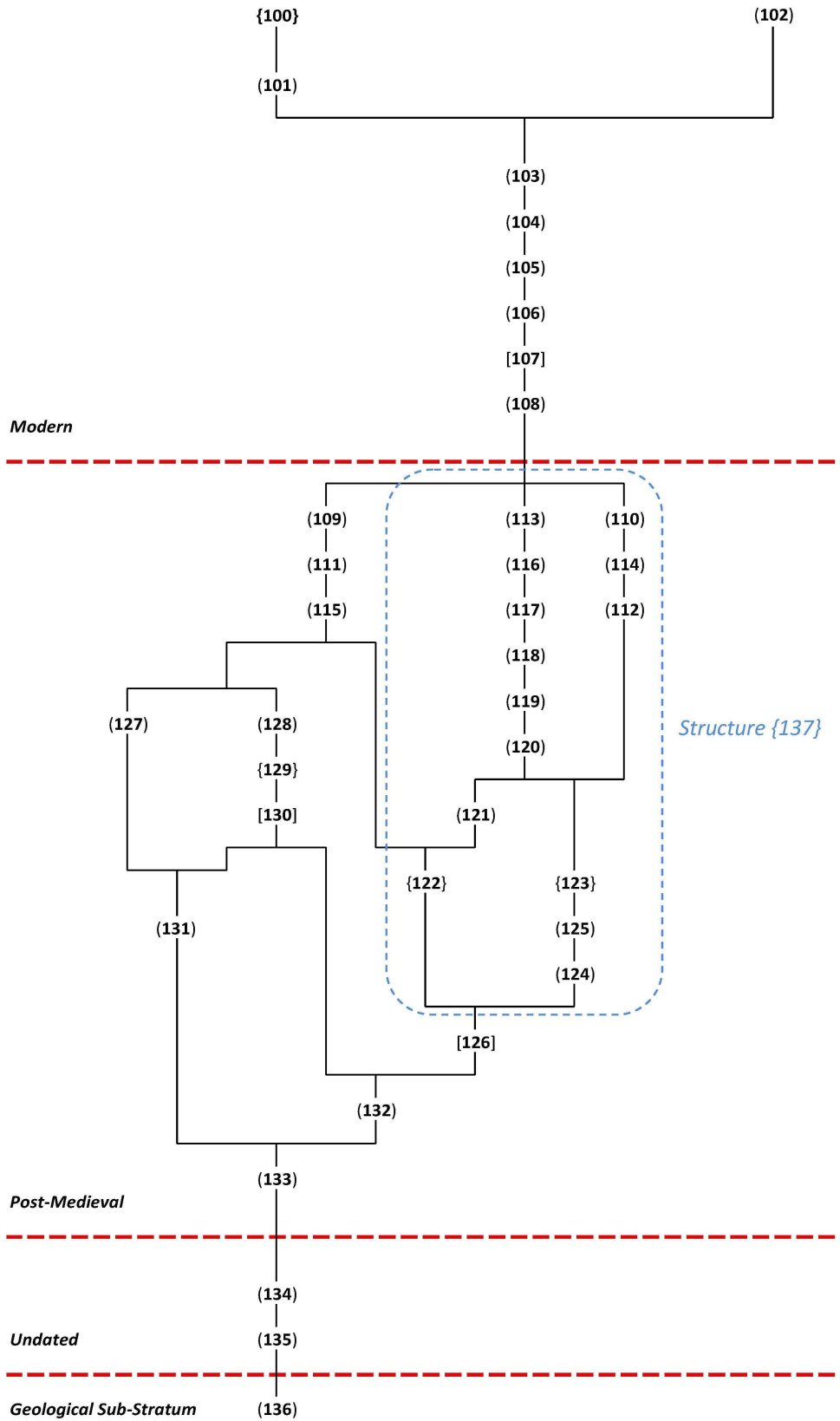
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APPENDIX 1: CONTEXT TABLE

Context Number	Context Type	Description
100	Masonry	Brick Surface
101	Deposit	Bedding for (100)
102	Deposit	Tarmac Surface
103	Deposit	Dolomite layer
104	Fill	Fill of cable trench [107]
105	Fill	Fill of cable trench [107]
106	Cable	Electricity Cable
107	Cut	Cut for cable (106)
108	Deposit	Ground raising dump
109	Deposit	Concrete surface
110	Deposit	Concrete surface
111	Deposit	Levelling deposit
112	Deposit	Levelling deposit
113	Deposit	Concrete surface
114	Pipe	Metal Pipe
115	Deposit	Ground raising dump
116	Deposit	Ground raising dump
117	Deposit	Ground raising dump
118	Deposit	Ground raising dump
119	Deposit	Ground raising dump
120	Deposit	Ground raising dump
121	Deposit	Ground raising dump
122	Masonry	Brick wall
123	Masonry	Brick wall
124	Pipe	Ceramic drain pipe
125	Fill	Fill around pipe (124)
126	Cut	Construction cut for walls {122} & {123} – Structure No. {137}
127	Deposit	Ground raising dump
128	Fill	Infill of brick structure {129}
129	Masonry	Brick structure
130	Cut	Construction cut for brick structure {129}
131	Deposit	Ground raising dump
132	Deposit	Ground raising dump?
133	Deposit	Ground raising dump?
134	Deposit	Buried sub-soil?
135	Deposit	Clay layer
136	Deposit	Superficial Geology
137	Masonry	Structure No. For walls {122}, {123} & concrete surfaces (113) , (110)

List of Contexts issued during the Archaeological Evaluation

APPENDIX 2: STRATIGRAPHIC MATRIX



APPENDIX 3: PROJECT SPECIFICATION

Tyne and Wear Specialist Conservation Team

Specification for Preliminary Archaeological Evaluation at Expedient Training, Church Bank, Jarrow, South Tyneside

Planning Application: ST/0261/14/FUL

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Date: 18 August 2014

County Archaeologist's Reference Number: MON11676

The Tyne and Wear Specialist Conservation Team is the curatorial service for archaeology, industrial archaeology and historic buildings throughout the Tyne and Wear districts. It helps and advises Newcastle, Gateshead, North Tyneside, South Tyneside and Sunderland Councils to carry out their statutory duties to care for the precious historic environment of Tyneside and Wearside. The Team can be found at the Housing, Planning and Transport Division of the Environment & Regeneration Directorate of

Introduction

Site grid reference: NZ 3350 6539

Planning permission has been granted for the demolition of the current single storey office building and the construction of a new two storey [modular] office building including a new industrial unit for plant operative training.

An archaeological desk based assessment has been produced (Wardell Armstrong, 2014).

The desk-based assessment has established that there are several sites of potential archaeological interest, located by cartographic regression analysis, within the proposed development site boundary at Church Bank/ Priory Road. These consist of early-mid 19th century possible colliery buildings in the extreme north of site, with later 19th century terraced houses directly to the south of these. The site is also located within close proximity to the Scheduled Monuments of the Medieval Village of Jarrow and of the Monastic Site of Jarrow, the western extent of which has not been conclusively located.

There is supposed to be a Roman Fort at Jarrow, according to antiquarians. There is plenty of evidence of Roman activity in Jarrow – two Roman inscribed stones were built into the church walls and into those of Jarrow Hall, Roman coins have been found, an oil lamp and a trumpet brooch.

The Anglo-Saxon monastery was built between 682 and 685. It was abandoned after Viking attacks in 874-5. In 1072 the ruined monastery was re-opened. It became a cell of Durham in 1083. The monastery had a graveyard.

Archaeological excavations have thus far failed to find the western boundary of the monastic precinct. It could lie within the development site.

The medieval church of St. Paul incorporated two late 7th century churches. It was restructured in 1782-3 and again in 1866. The church has an associated churchyard.

The village to the immediate east of the monastery is thought to date to the 11th century. There was also a settlement north of the monastery (Bede's World site).

The development site remained in agricultural use until around 1834, when buildings were constructed south of Church Bank. In 1808 it was within 'Spring Well Field'.

The assessment concludes that there is moderate potential for buried archaeological remains to survive within the site.

The proposed buildings are likely to impact on any surviving remains of 1823-24 buildings and the east side of Hope Street, built between 1855 and 1897. Beneath the post medieval remains, earlier archaeological deposits could survive.

The appointed archaeologist must familiarise themselves with the results of the archaeological desk based assessment before starting work.

In accordance with paragraph 141 of the National Planning Policy Framework and Development Management Policy DM6, a programme of archaeological evaluation is required.

The trees on the site are to be protected. Their roots must not be damaged by the archaeological work. Keep the trench out from under the tree canopy.

Research Aims and Objectives

The evaluation report should make reference to Regional and Thematic Research Frameworks.

‘Shared Visions: The North-East Regional Research Framework for the Historic Environment’ by David Petts with Christopher Gerrard, 2006 notes the importance of research as a vital element of development-led archaeological work. It sets out key research priorities for all periods of the past allowing commercial contractors to demonstrate how their fieldwork relates to wider regional and national priorities for the study of archaeology and the historic environment. The aim of NERRF is to ensure that all fieldwork is carried out in a secure research context and that commercial contractors ensure that their investigations ask the right questions.

See <http://www.algao.org.uk/Association/England/Regions/ResFwks.htm>

‘Frontiers of Knowledge’ edited by Matthew FA Symonds and David JP Mason 2010 is the Research Framework for Hadrian’s Wall, part of the Frontiers of the Roman Empire World Heritage Site. The aim of the publication is to assess the existing knowledge base for our understanding of the monument, to identify and prioritise key themes for future research and to set out a strategy and action plan by which the initial set of objectives might be achieved.

For the English Heritage Research Agenda see <http://www.english-heritage.org.uk/professional/protection/national-heritage-protection-plan/>

Where appropriate note any similar nationwide projects using ADS, internet search engines, ALSF website, HEEP website, OASIS, NMR excavation index.

All staff on site must understand the project aims and methodologies.

Methods statement

One evaluation trench is needed to inform the Planning Authority of the character, nature, date, depth, degree of survival of archaeological deposits on this site. The excavation must be carried out by a suitably qualified and experienced archaeological organisation. The work will record and environmentally sample any archaeological deposits of importance found on the plot. The purpose of this brief is to obtain tenders for this work. The report must be the definitive record for deposition in the Tyne and Wear HER, and it must contain recommendations for any further archaeological work needed on this site.

The commissioning client needs to be aware that the purpose of the preliminary evaluation is merely to ascertain if archaeological remains survive on this site and if they do, to determine their broad date, nature and function. Where archaeological remains are found in the preliminary trenches, and if these remains are at threat by the proposed development, further archaeological excavation and or a watching brief will be required before and during development work.

All staff employed by the Archaeological Contractor shall be professional field archaeologists with appropriate skills and experience to undertake work to the highest professional standards.

The work will be undertaken according to English Heritage Guidelines - Managing Archaeological Projects 2nd Edition ('MAP2') 1991 (www.english-h.gov.uk/guidance/map2/index.htm) and Management of Research Projects in the Historic Environment (MoRPHE) – The MoRPHE Project Managers' Guide, Project Planning Notes and Technical Guides 2006 (www.english-heritage.org.uk/publications).

The work will be undertaken according to MoRPHE Project Planning Notes 2006 - PPN3 – Archaeological Excavation and PPN6 – Development of Procedural standards and guidelines for the historic environment.

All work must be carried out in compliance with the codes of practice of the Institute of Field Archaeologists and must follow the IFA Standard and Guidance for Archaeological Field Evaluations, Excavation or Watching Briefs as appropriate. www.archaeologists.net

Notification

The County Archaeologist needs to know when archaeological fieldwork is taking place in Tyne and Wear so that he can inform the local planning authority and can visit the site to monitor the work in progress. The Archaeological Contractor must therefore inform the County Archaeologist of the start and end dates of the Evaluation. He must also keep the County Archaeologist informed as to progress on the site. The CA must be informed of the degree of archaeological survival and of any significant finds. The Client will give the County Archaeologist reasonable access to the development to undertake monitoring.

PROJECT INITIATION

PROJECT DESIGN

Because this is a detailed specification, the County Archaeologist does **not** require a Project Design from the appointed archaeologist. The appointed archaeologist is expected comply with the requirements of this specification.

HEALTH AND SAFETY AND RISK ASSESSMENT

A health and safety statement and risk assessment, identifying potential risks in a risk log (see template in appendix 2 of The MoRPHE Project Manager's Guide) and specifying suitable countermeasures and contingencies, is required to be submitted to the commissioning client.

The Client may wish to see copies of the Archaeological Contractor's Health and Safety Policies.

The Archaeological Contractor must maintain a Site Diary for the benefit of the Client, detailing the nature of work undertaken on a day by day basis, with full details of Site Staff present, duration of time on site, etc. and contact with third parties.

The Management of Research Projects in the Historic Environment (MoRPHE) – The MoRPHE Project Managers' Guide 2006 contains general guidance on Risk management (section 2.3.2, Appendix 2).

Risk assessments must be produced in line with legislative requirements (for example the Health and Safety at Work Act 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Substances Hazardous to Health (COSHH) Regulations 2002 and the Personal Protective Equipment at Work Regulations 2002) and best practice e.g. as set out in the FAME (Federation of Archaeological Managers & Employers) formerly SCAUM (Standing Conference on Archaeological Unit Managers) Health and Safety Manual www.famearchaeology.co.uk www.scaum.org/uk

The Risk Assessment will identify what PPE (hard hats, glasses/goggles, steel toe cap and instep boots, gloves, high-viz clothing etc) is required.

Other potentially applicable legislation:

Working at Heights Regulations 2005, Manual Handling 1992

'Safe use of ladders and stepladders: An employers' guide' HSE Books 2005

Some archaeological work (such as those that last more than 30 days or involve more than 500 person days) may be deemed notifiable projects under C.D.M Regulations 1994 (amended 2007). Where C.D.M Regs apply, the HSE must be notified. A CDM Co-ordinator and principal contractor must be appointed. The CDM-C will produce a Health and Safety file. The PC will prepare the Construction Phase Plan. The HSE website includes a Power Point presentation on CDM training.

Detailed information on hazards and how to carry out a risk assessment can be obtained from the Health and Safety Executive (www.hse.gov.uk) and the local authority health and safety department.

Specific guidance for land contamination and archaeology can be obtained from the Institute for Archaeologists (www.archaeologists.net), the Construction Industry Research and Information Association (www.contaminated-land.org) and the Association of Geotechnical and Geoenvironmental Specialists (www.ags.org.uk).

See also Environment Agency, 2005 "Guidance on Assessing the Risk Posed by Land Contamination and its Remediation on Archaeological Resource Management".

The Archaeological Contractor must be able to provide written proof that the necessary levels of Insurance Cover are in place.

The Archaeological Contractor must detail measures taken to ensure the safe conduct of excavations, and must consult with the client's structural engineers concerning working in close proximity to the foundations of the surrounding buildings.

Excavation trenches should:

- Be protected from vehicles and guarded off for pedestrians
- not have steep sides or must be shored
- have good access and egress

The archaeologists must not work near overhead power lines.

Underground services can be easily damaged during excavation work. If proper precautions are not taken, it is all too easy for workers to hit these services resulting in a risk of

- heat, flame and molten metal from electric cables
- escaping gas from gas pipes
- flooding of the excavation when a water pipe is damaged
- interruption of services

Excavation work in the public highway, kerbside or pavement can only be undertaken by those with a Street Works certificate of competence. Before the excavation takes place the person supervising the digging must have been given service plans and be trained in how to read them. All persons involved in the excavation must know about safe digging practice and emergency procedures. A locator must be used to trace the line of any pipe or cable or to confirm that there are no pipes or cables in the way. The ground will be marked accordingly. There must be an emergency plan to deal with damage to cables and pipes.

PROJECT EXECUTION

1) Archaeological evaluation

The trench is shown on the accompanying plan. The dimensions of the trench are 2m x 10m in plan **at base**.

Trench locations can be adjusted to avoid services or for practical or safety purposes.

The appointed archaeologist **must** be able to get into the trench to plan, photograph and sample excavate any archaeological features which are found. In order to do this safely, where archaeological features lie over 1.2m below present

ground level, trenches **must** be widened (if feasible) to allow safe access, otherwise shoring will be required.

Trench positions should be accurately surveyed prior to excavation and tied in to the national grid.

The trenches should be excavated to the maximum depth of natural subsoil if this can be reached safely.

Trenches must avoid known services.

Trenches must stay a safe distance away from pylons and overhead power lines.

The commissioning client will advise of any ecological or biodiversity issues which need to be taken into consideration.

The commissioning client will advise of any protected trees which must be avoided by the evaluation. Damage to trees covered by a Tree Protection Order carries a substantial fine.

Trenches must avoid any **Japanese Knotweed** (it is the commissioning client's responsibility to advise their archaeologist if Japanese Knotweed is present on the site). Japanese knotweed was introduced into Britain in the 19th century as an ornamental plant. Over time it has become widespread in a range of habitats, including roadsides, riverbanks and derelict buildings. It out-competes native plants and animals and is now classed as an invasive species. It spreads through its crown, rhizome (underground stem) and stem segments, rather than its seeds. The weed can grow a metre in a month and can grow through concrete and tarmac, damaging buildings and roads. Studies have shown that a 1cm section of rhizome can produce a new plant in 10 days. Rhizome segments can remain dormant in soil for twenty years before producing new plants.

In the UK there are two main pieces of legislation that cover Japanese Knotweed. These are:

Wildlife and Countryside Act 1981

Listed under Schedule 9, Section 14 of the Act, it is an offence to plant or otherwise cause the species to grow in the wild. This lists over 30 plants including Japanese knotweed, giant hogweed and parrot's feather. An offence under the Wildlife and Countryside Act can result in a criminal prosecution.

Environmental Protection Act 1990

Japanese Knotweed is classed as 'controlled waste' and as such must be disposed of safely at a licensed landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991. Soil containing rhizome material can be regarded as contaminated and, if taken off a site, must be disposed of at a suitably licensed landfill site and buried to a depth of at least 5 m. An infringement under the Environmental Protection Act can result in enforcement action being taken by the Environment Agency which can result in an unlimited fine. You can also be held liable for costs incurred from the spread of Knotweed into adjacent properties and for the disposal of infested soil off site during development which later leads to the spread of Knotweed onto another site.

See also the Environment Agency 'Japanese Knotweed Code of Practice'.

It's down to landowners to control these plants, but they don't have to remove them. However, causing the plants to spread by removing or disposing of them incorrectly [i.e. disturbing them through archaeological excavation] would be illegal {info taken from www.environment-agency.gov.uk and www.devon.gov.uk}.

Tasks

Hand excavation, recording and environmental sampling (as stipulated below) of deposits down to the depth specified above.

Any modern overburden or levelling material can be machined-off using a wide toothless ditching bucket under strict archaeological supervision and the remaining deposits are to be excavated by hand.

All faces of the trench that require examination or recording will be cleaned.

Excavation is to be carried out with a view to avoid damage to any archaeological features which appear to worthy of preservation in-situ.

Excavation is to be carried out by single context planning and recorded on *pro forma* context sheets. Features over 0.5 m in diameter can be half sectioned.

Environmental sampling (and where relevant scientific dating) are compulsory parts of the evaluation exercise. All tenders will give a price for the assessment, full analysis, report production and publication per environmental and scientific dating sample as a contingency.

Samples will be taken of bricks from any brick-built structures. The dimensions of the bricks and the type of bonding must be recorded.

Scientific investigations should be undertaken in a manner consistent with "The Management of Archaeological Projects", English Heritage 1991 and with "Archaeological Science at PPG16 Interventions: Best Practice for Curators and Commissioning Archaeologists", English Heritage, 2003. Advice on the sampling strategy for environmental samples and samples for scientific dating etc. must be sought from Jacqui Huntley, English Heritage Regional Advisor for Archaeological Science (jacqui.huntley@english-heritage.org.uk or 07713 400387) **before** the evaluation begins. See Appendix 1 for more information.

See Appendix 2 for guidance on procedures relating to human remains.

See Appendix 4 for guidance on Treasure Act procedures.

The spoil can be kept close-by and rapidly backfilled into the trenches at the conclusion of this work.

Recording

A full written, drawn (accurate scale plans, elevations and section drawings) and photographic record (of all contexts in **either** black and white print and colour

transparency **or** with a digital camera) will be made. All images must include a clearly visible graduated metric scale.

All photographs forming part of the record should be in sharp focus, with an appropriate depth of field. They should be adequately exposed in good natural light or, where necessary, sufficiently well-lit by artificial means.

Use of digital cameras

Use a camera of 10 megapixels or more.

For maximum flexibility digital Single Lens Reflex cameras offer the best solution for power users. 10 megapixels should be considered a minimum requirement.

When photographing with digital SLR cameras, there is often a magnifying effect due to smaller sensor sizes.

If the JPEG (Joint Photographic Experts Group) setting is used, set the camera for the largest image size with least compression. The JPEG format discards information in order to reduce file size. If the image is later manipulated, the quality will degrade each time you save the file.

For maximum quality, **the preferred option** is that the RAW (camera-specific) setting is used. This allows all the information that the camera is capable of producing to be saved. Because all of the camera data is preserved, post processing can include colour temperature, contrast and exposure compensation adjustments at the time of conversion to TIFF (Tagged Interchangeable File Format), thereby retaining maximum photographic quality.

The RAW images must be converted to TIFF before they are deposited with the HER and TWAS because special software from the camera manufacturer is needed to open RAW files.

Uncompressed formats such as TIFF are preferred by most archives that accept digital data.

Post photography processing:

The submitted digital images must be 'finished', ready to be archived.

Post photography processing workflow for RAW images:

- 1 Download images
- 2 Edit out unwanted shots & rotate
- 3 Batch re-number
- 4 Batch caption
- 5 Batch convert to TIFF
- 6 Edit in Photoshop or similar
- 7 Save ready to burn to CD
- 8 Burn to CD
- 9 Dispatch

Batch caption – the image files should be named to reflect their content, preferably incorporating the site or building name. Consistent file naming strategies should be used. It is good practice not to use spaces, commas or full stops. For advice, go to <http://ads.ahds.ac.uk/project/userinfo/deposit.html#filenaming> . In order to find images at a future date and for copyright the site or building name, photographer's name and/or archaeological unit etc must be embedded in the picture file. The date can be appended from the EXIF data. Metadata recording this information

must be supplied with the image files. A list of images, their content and their file names should be supplied with the image files on the CDs.

Batch conversion to TIFF – any white balance adjustments such as ‘daylight’ or ‘shade’ be required then this can be done as part of the conversion process. Ensure that any sharpening settings are set to zero.

Edit in ‘Imaging’ software such as Photoshop – tonal adjustments (colour, contrast) can be made. Rotate images where necessary, crop them to take out borders, clean the images to remove post-capture irregularities and dust. Check for sensor dust at 100% across the whole image.

Save ready for deposit – convert to TIFF and save. Retain the best colour information possible – at least 24 bit.

If the JPEG setting has been used and the image has been manipulated in any way it should be saved as a TIFF to prevent further image degradation through JPEGing.

Burn to CD – the NMR recommends using Gold CDs. Use an archive quality disk such as MaM-E gold. Gold disks have a lower burn speed than consumer disks.

Disks should be written to the ‘Single Session ISO9660 – Joliet Extensions’ standard and not UDF/Direct CD. This ensures maximum compatibility with current and future systems.

Images should be placed in the root directory not in a folder.

The CD will be placed in a plastic case which is labelled with the site name, year and name of archaeological contractor.

For more guidance on digital photography:

Digital Imaging Guidelines by Ian Leonard, Digital Archive Officer, English Heritage 22 September 2005)

Understanding Historic Buildings – A guide to good recording practice, English Heritage, 2006

Duncan H. Brown, 2007, “Archaeological Archives – A guide to best practice in creation, compilation, transfer and curation”

IFA, Guidance on the use and preservation of digital photographs

FISH (Forum on Information Standards in Heritage), September 2006 v.1, A Six Step Guide to Digital Preservation, FISH Fact Sheet No. 1

Visual Arts Data Service and Technical Advisory Service for Images, Creating Digital Resources for the Visual Arts: Standards and Good Practice http://vads.ahds.ac.uk/guides/creating_guide/contents.html

AHDS Guides to Good Practice – Julian Richards and Damian Robinson (eds), Digital Archives from Excavation and Fieldwork: Guide to Good Practice, Second Edition

Printing the images:

In view of the currently unproven archival performance of digital data it is always desirable to create hard copies of images on paper of archival quality.

A selection of the images will be printed in the finished report for the HER, two images per A4 page.

When preparing files for printing, a resolution of 300dpi at the required output size is appropriate.

A **full set** of images will also be professionally printed in black and white and colour for submission as part of the site archive.

Use processing companies that print photos to high specifications. Commercial, automatic processing techniques do not meet archival standards and must not be used.

All prints for the archive must be marked on the back with the project identifier (e.g. site code) and image number.

Store prints in acid-free paper enclosures or polyester sleeves (labelled with image number)

Include an index of all photographs, in the form of running lists of image numbers

The index should record the image number, title and subject, date the picture was taken and who took it

The print sleeves and index will either be bound into the paper report or put in an A4 ringbinder which is labelled with the site name, year and archaeological unit on its spine.

Plans and drawings

The finished report must include a plan and section of each trench (even where no archaeological remains are recorded) plus plans and sections through excavated archaeological features.

The plans will include at least two site grid points and will show section line end points.

The plans will depict building material (i.e. brick and stone) where a complex of structures has been found.

Where there is a complex of interlocking multi-phased structures, a phasing plan will also be included.

There will be elevation drawings of any standing structures such as walls.

Pro-forma context sheets will be used.

All deposits and the base of the trench will be levelled. Levels will be expressed as metres above Ordnance Datum.

Stratigraphy shall be recorded even when no archaeological features have been recognised.

A 'Harris' matrix will be compiled where stratified deposits are recorded.

2) Post-excavation and report production

Finds Processing and Storage

The Archaeological Contractor will process and catalogue the finds in accordance with Museum and Galleries Commissions Guidelines (1992) and the UKIC Conservation Guidelines, and arrange for the long term disposal of the objects on behalf of the Client. A catalogue of finds and a record of discard policies, will be lodged with the finds for ease of curation.

Finds shall be recorded and processed in accordance with the IFA Guidelines for Finds Work

Finds will be assessed by an experienced finds specialist.

See 'Investigative Conservation. Guidelines on how the detailed examination of artefacts from archaeological sites can shed light on their manufacture and use', English Heritage, 2008.

Human and animal bone assemblages should be assessed by a recognised specialist (see Appendices 2 and 3 for more information).

Industrial slag and metal working debris will be assessed by a specialist.

Assessment should include x-radiography of all iron objects (after initial screening to exclude recent debris) and a selection of non-ferrous artefacts (including all coins). Refer to "Guidelines on the x-radiography of archaeological metalwork, English Heritage, 2006.

Brick dimensions will be measured and a note made of the bonding material.

If necessary, pottery sherds and bricks should be recommended for Thermo-luminescence dating. See 'Luminescence Dating: guidelines on using luminescence dating in archaeology', English Heritage, 2008.

Inductively-coupled plasma spectroscopy (ICPS) and thin sectioning can be used to establish the chemical composition of clay fabric (pottery), which helps to locate production sites and identify the products of known sites.

Finds processing, storage and conservation methods must be broadly in line with current practice, as exemplified by the IFA "Standard and guidance for the collection, documentation, conservation and research of archaeological materials", 2001. Finds should be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication "First Aid for Finds" (Watkinson and Neal 1998). Proposals for ultimate storage of finds should follow the UKIC publication "Guidelines for the Preparation of Excavation Archives for Long-term Storage" (Walker 1990). Details of methodologies may be requested from the Archaeological Contractor.

Other useful guidance – “A Strategy for the Care and Investigation of Finds”, English Heritage, 2003, “Finds and Conservation Training Package”, English Heritage, 2003.

All objects must be stored in appropriate materials and conditions to ensure minimal deterioration. Advice can be sought from Jacqui Huntley of English Heritage (07713 400387) where necessary.

PRODUCTS

The report

1. The Archaeological Contractor must produce an interim report of 200 words minimum, **two weeks after the completion of the field-work**, for the Client and the Planning Authority, with a copy for information to the County Archaeologist. This will contain the recommendations for any further work needed on site.

2. The production of Site Archives and Finds Analysis will be undertaken according to English Heritage Guidelines - Managing Archaeological Projects 2nd Edition ('MAP2') 1991 and Management of Research Projects in the Historic Environment (MoRPHE) 2006.

3. A full archive report or post-excavation assessment, with the following features should be produced **within six months of the completion of the field-work**. All drawn work should be to publication standard. The report must include:

- * Location plans of trenches and grid reference of site
- * Site narrative – interpretative, structural and stratigraphic history of the site
- * Plans showing major features and deposit spreads, by phase, and section locations
- * Sections of the two main trench axes and through excavated features with levels
- * Elevation drawings of any walls etc. revealed during the excavation
- * Artefact reports – full text, descriptions and illustrations of finds
- * Tables and matrices summarising feature and artefact sequences.
- * Archive descriptions of contexts, grouped by phase (not for publication)
- * Deposit sequence summary (for publication/deposition)
- * Colour photographs of trenches and of archaeological features and finds
- * Laboratory reports and summaries of dating and environmental data, with collection methodology.
- * A consideration of the results of the field-work within the wider research context (ref. NERRF).
- * Recommendations for further work on site, or further analysis of finds or environmental samples
- * Copy of this specification

4. One bound and collated copy of the report needs to be submitted:

- for deposition in the County HER at the address on the first page.

Four digital copies (pdf of the report on CD) must be submitted:

- one for the commissioning client
- one for the planning authority (South Tyneside Council) – this must be formally submitted by the developer to the planning department with the appropriate fee.
- one for deposition in the County HER at the address below. This CD will also include all of the digital images as TIFFs and the accompanying metadata.

PLEASE DO NOT ATTACH THE HER'S CD TO THE PAPER REPORT AS THEY ARE STORED SEPARATELY

The report and CD for the HER must be sent by the archaeological consultant or their client directly to the address below. If the report is sent via the planning department, every page of the report will be stamped with the planning application number which ruins the illustrations. The HER is also often sent a photocopy instead of a bound colour original which is unacceptable.

Publication

If significant archaeological features are found during the evaluation, the results may also warrant publication in a suitable archaeological journal. The tender should therefore include an estimated figure for the production of a short report of, for example 20 pages, in a journal such as *Archaeologia Aeliana*, the *Arbeia Journal*, *Industrial Archaeology Review* or *Durham Archaeological Journal*. This is merely to give the commissioning client an indication of potential costs.

Before preparing a paper for publication, the archaeological contractor must discuss the scope, length and suitable journal with the County Archaeologist.

Archive Preparation and Dissemination

The archive should be a record of every aspect of an archaeological project – the aims and methods, information and objects collected, results of analysis, research, interpretation and publication. It must be as complete as possible, including all relevant documents, records, data and objects {Brown, 2007, 1}.

The site archive (records and materials recovered) should be prepared in accordance with *Managing Archaeological Projects*, Second Edition, 5.4 and appendix 3 (HBMC 1991), MoRPHE Project Planning Notes 2006 PPN3 – *Archaeological Excavation*, “Archaeological documentary archives” IFA Paper No. 1, “Archaeological Archives – creation, preparation, transfer and curation” *Archaeological Archives Forum* etc., *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990) and “Archaeological Archives – A guide to best practice in creation, compilation, transfer and curation” by Duncan H. Brown, *Archaeological Archives Forum*, July 2007.

Documentary Archive

The documentary archive comprises all records made during the archaeological project, including those in hard copy and digital form.

This should include written records, indexing, ordering, quantification and checking for consistency of all original context sheets, object records, bulk find records, sample records, skeleton records, photographic records (including negatives, prints, transparencies and x-radiographs), drawing records, drawings, level books, site note-books, spot-dating records and conservation records, publication drafts, published work, publication drawings and photographs etc.

A summary account of the context record, prepared by the supervising archaeologist, should be included.

All paper-based material must at all times be stored in conditions that minimise the risk of damage, deterioration, loss or theft.

Do not fold documents

Do not use self-adhesive labels or adhesive or tape of any kind

High quality paper (low-acid) and permanent writing materials must be used.

Original drawings on film must be made with a hard pencil, at least 4H.

Do not ink over original pencil drawings.

Use polyester based film for drawings (lasts longer than plastic).

Store documents in acid-free, dust-proof cardboard boxes

Store documents flat

All documents must be marked with the project identifier (e.g. site code) and/or the museum accession number.

All types of record must use a consistent terminology and format.

Use non-metal fastenings, and packaging and binding materials that ensure the longevity of documents.

Copies of reports and appropriate drafts, with associated illustrative material, must be submitted for inclusion with the archive.

Material Archive

The material archive comprises all objects (artefacts, building materials or environmental remains) and associated samples of contextual materials or objects.

All artefacts and ecofacts retained from the site must be packed in appropriate materials.

All finds must be cleaned as appropriate to ensure their long-term survival

All metal objects retained with the archive must be recorded by x-radiograph (except gold or lead alloys or lead alloys with a high lead content and objects too thick to be x-rayed effectively e.t.c.)

The archive should include all environmental remains recovered from samples or by hand, all vertebrae remains not used for destructive analysis, environmental remains extracted from specialist samples (such as pollen preparations in silicone oil).

All finds must be marked or labelled with the project and context identifiers and where relevant the small-finds number

Use tie-on rot-proof labels where necessary

Bulk finds of the same material type, from the same context, may be packed together in stable paper or polythene bags

Mark all bags on the outside with site and context identifiers and the material type and include a polyethylene label marked with the same information

Use permanent ink on bags and labels

Sensitive finds must be supported, where appropriate, on inert plastic foam or acid-free tissue paper. It is not advisable to wrap objects in tissue as the unwrapping could cause damage.

The archive will be placed in a suitable form in the appropriate museum (Tyne and Wear Museums).

Contact Alex Croom at Arbeia Roman Fort (0191 4544093).

A letter will be sent to the County Archaeology Officer within six months of the report having been submitted, confirming where the archive has been deposited.

Digital Archive

Copy of the report on CD as a pdf plus all of the digital images as TIFFs.

See MoRPHE Technical Guide 1 – Digital Archiving & Digital Dissemination 2006.

Archaeology Data Service

The digital archive including the image files can, if the appointed archaeologist and commissioning client choose to, be deposited with the ADS (The Archaeology Data Service) which archives, disseminates and catalogues high quality digital resources of long-term interest to archaeologists. The ADS will evaluate datasets before accepting them to maintain rigorous standards (see the ADS Collections Policy). The ADS charge a fee for digital archiving of development-led projects. For this reason deposition of the images with the ADS is optional.

Archaeology Data Service
Department of Archaeology

University of York
King's Manor
York
YO1 7EP
01904 433 954

Web: <http://ads.ahds.ac.uk>

SIGNPOSTING

OASIS

The Tyne and Wear County Archaeologist supports the Online Access to the Index of Archaeological Investigations (OASIS) project. This project aims to provide an online index/access to the large and growing body of archaeological grey literature, created as a result of developer-funded fieldwork.

The archaeological contractor is therefore required to register with OASIS and to complete the online OASIS form for their evaluation at <http://www.oasis.ac.uk/>. Please ensure that tenders for this work takes into account the time needed to complete the form.

Once the OASIS record has been completed and signed off by the HER and NMR the information will be incorporated into the English Heritage Excavation Index, hosted online by the Archaeology Data Service.

The ultimate aim of OASIS is for an online virtual library of grey literature to be built up, linked to the index. The unit therefore has the option of uploading their grey literature report as part of their OASIS record, as a Microsoft Word document, rich text format, pdf or html format. The grey literature report will only be mounted by the ADS if both the unit and the HER give their agreement. The grey literature report will be made available through a library catalogue facility.

Please ensure that you and your client understand this procedure. If you choose to upload your grey literature report please ensure that your client agrees to this in writing to the HER at the address below.

For general enquiries about the OASIS project aims and the use of the form please contact: Mark Barratt at the National Monuments Record (tel. 01793 414600 or oasis@english-heritage.org.uk). For enquiries of a technical nature please contact: Catherine Hardman at the Archaeology Data Service (tel. 01904 433954 or oasis@ads.ahds.ac.uk). Or contact the Tyne and Wear Archaeology Officer at the address below.

The tender

Tenders for the work should contain the following:-

1. Brief details of the staff employed and their relevant experience
2. Details of any sub-contractors employed
3. A quotation of cost, broken down into the following categories:-
 - * Costs for the excavation, incl. sub-headings of staff costs on a person-day basis, transport, materials, and plant etc.
 - * Post-excavation costs, incl. storage materials

- * Cost of Environmental analysis and scientific dating per sample
 - * Estimated cost for full publication of results in an archaeological journal
 - * Overheads
4. An indication of the required notification period (from agreement to start date) for the field-work; the duration of fieldwork and the expected date for completion of the post-excavation work (a maximum of 6 months after completion of the fieldwork)

Monitoring

The Archaeological Contractor will inform the County Archaeologist of the start and end dates of the excavation to enable the CA to monitor the work in progress.

Should important archaeological deposits be encountered, the County Archaeologist must be informed. If further archaeological evaluation is required on this site, then the archaeological contractor must submit a written scheme of investigation for approval by the CA before extending the size of the trenches.

APPENDICES

1 Environmental Sampling, Scientific Analysis and Scientific Dating

This is a compulsory part of the evaluation exercise.

Advice on the sampling strategy for environmental samples and samples for scientific dating etc. must be sought from Jacqui Huntley, English Heritage Advisor for Archaeological Science (07713 400387) **before** the evaluation begins. The sampling strategy should include a reasoned justification for selection of deposits for sampling.

Scientific investigations should be undertaken in a manner consistent with “The Management of Archaeological Projects”, English Heritage 1991 and with “Archaeological Science at PPG16 Interventions: Best Practice for Curators and Commissioning Archaeologists”, English Heritage, 2004.

See also ‘Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post excavation’, English Heritage, second edition 2011.

<http://www.english-heritage.org.uk/publications/environmental-archaeology-2nd/>

English Heritage guidance documents on archaeological science can be downloaded as pdf files from www.helm.org.uk or www.English-Heritage.org.uk > Learning and Resources > Publications > Free Publications.

See also the Environmental Archaeology Bibliography (EAB):
http://ads.ahds.ac.uk/catalogue/specColl/eab_eh_2004/

and the NMR sciences thesaurus:

http://thesaurus.english-heritage.org.uk/thesaurus.asp?thes_no=560

There must be full specialist liaison throughout the project – this need not necessarily be face-to-face.

Sampling should be demonstrated to be both fit for purpose and in-line with the aims and objectives of the project.

The choice of material for assessment should be demonstrated as adequate to address the objectives.

Evaluations and assessment of scientific material should provide clear statements of their potential and significance in addition to descriptive records. These statements should relate to the original objectives but may also lead to new or modified objectives.

Post excavation analysis and interpretation requires sufficient information exchange and discussion to enable scientific specialists to interpret their material within the established intellectual framework.

Archaeological and scientific analyses should be integrated as fully as possible. It is not acceptable to leave the scientific analyses simply as appendices. Archive reports should include full data from all specialist materials. All reports, including any publications, must present sufficient primary data to support the conclusions drawn.

{From '10 principles of good practice in archaeological science' by English Heritage 2010}.

Types of sample

Flotation samples are used to recover charred and mineral-replaced plant remains, small bones, industrial residues etc. Such samples should be whole earth, 40-60 litres or 100% of small features. The flot mesh size should be 0.25-0.3mm. The residue sieve size should be 0.5-1mm. The flot and <2mm residue should be sorted under the microscope. >2mm residues can be sorted by eye.

Coarse-sieved samples are used to recover small bones (such as bird and fish), bone fragments, molluscs and small finds (beads, pottery, coins etc). Such samples should be 100 or more litres, wet or dry sieved, minimum mesh 2mm. Specialist advice is recommended.

Other types of sample are monoliths, specialist, cores and small spot. These are taken for specific reasons and need specialists.

Aims and objectives

Aims of environmental sampling – to determine the abundance/concentration of the material within the features and how well the material is preserved, to characterise the resource (the site) and each phase, to determine the significance of the material and its group value, what crop processing activities took place on the site? What does this tell us about the nature of the site? Is there any evidence for changes in the farming practice through time? How did people use this

landscape? Can we place certain activities at certain locations within the site? Function and date of individual features such as pits, hearths etc. Are the charred assemblages the result of ritual deposition or rubbish? Is the charcoal the result of domestic or industrial fuel?

Deposits should be sampled for retrieval and assessment of the preservation conditions and potential for analysis of biological remains (English Heritage 2002). Flotation samples and samples taken for coarse-mesh sieving from dry deposits should be processed at the time of fieldwork wherever possible. Sieving recovers fish, amphibian, small bird and mammal bone, small parts of adult mammals and young infused bones which may be under-represented otherwise. However it is noted that sticky clay soils in this region make sieving difficult. Discuss the potential for sieving with Regional Advisor for Archaeological Science.

Environmental samples (bulk soil samples of 30-40 litres volume) will be collected by the excavator from suitable (i.e. uncontaminated) deposits. It is suggested that a large number of samples be collected during evaluation from which a selection of the most suitable (uncontaminated) can be processed. All tenders will give a price for the assessment, full analysis, report production and publication per sample.

The full 30-40 litre sample must be assessed by the laboratory, not just a small sub-sample.

The following information should be provided with the environmental samples to be processed – brief account of nature and history of the site, aims and objectives of the project, summary of archaeological results, context types and stratigraphic relationships, phase and dating information, sampling and processing methods, sample locations, preservation conditions, residuality/contamination etc.

Laboratory processing of samples shall only be undertaken if deposits are found to be reasonably well dated, or linked to recognisable features and from contexts the derivation of which can be understood with a degree of confidence.

A range of features, and all phases of activity, need to be sampled for charred plant remains and charcoal. Aceramic features should not be avoided as the plant remains from these features may help to date them. Deep features should be sampled in spits to pick up changes over time. Part or all of each of the contexts should be processed. In general samples should be processed in their entirety. All flots should be scanned, and some of the residues.

Scientific Dating

Deposits will be assessed for their potential for radiocarbon, archaeomagnetic and Optically Stimulated Luminescence dating.

See 'Archaeomagnetic Dating: Guidelines on producing and interpreting archaeomagnetic dates', English Heritage, 2006 and

'Luminescence Dating: guidelines on using luminescence dating in archaeology', English Heritage, 2008.

Timbers will be assessed for their potential for dendrochronology dating. Sampling should follow procedures in "Dendrochronology: guidelines on producing and interpreting dendrochronological dates", Hillam, 1998.

All tenders will quote the price of these techniques per sample.

For large excavations, particularly of prehistoric sites, a specialist scientific dating consultant must be part of the post-excavation assessment team. They will ensure that money set aside for dating is well spent, that the most appropriate soil samples are submitted for dating, that the right number of samples are submitted for dating. The expert will explain what to date and why. Don't send off samples for dating just for sake of it. The English Heritage Scientific Dating team (contact Pete Marshall) can provide contact details for scientific dating experts.

Once radiocarbon date results come back from the lab, avoid eyeballing your C14 dates. Modelling gives better date estimates.

AMS can now be used to date cremated bone.

Pollen

Pollen samples can be taken from features such as lakes, ponds, palaeochannels, estuaries, saltmarshes, mires, alluvium and colluvium, and from waterlogged layers in wells, ditches and latrines etc. Substances such as honey, beer or food residues can be detected in vessels. Activities such as threshing, crop processing and the retting of flax can be identified. When taken on site, pollen samples should overlap. Your regional science advisor can advise on the type of corer or auger which would be most appropriate for your site. Samples need to be wrapped in clingfilm and kept dark and cool. Make a description of the sediments in which the pollen was found, and send this with the sample to be assessed.

Forams and diatoms

Coastal or estuary sites (even those which are now well drained) are suitable for sampling for foraminifera. Diatoms can also be found on marine sites, but also in urban settings (sewers, wells, drains, ditches etc). They only survive in waterlogged conditions. These aquatic microfossils are used as proxy indicators of the former aquatic ecological conditions on site, changes in sea levels and temperature, salinity, PH and pollution. Forams are taken from cores, monolith tins or bulk samples. Diatoms are cut from monolith tins or cores or taken as spot samples.

Insects

Insects, which are useful as palaeoenvironmental indicators, survive best in waterlogged deposits such as palaeochannels and wells. They can provide information on climate change and landscape reconstruction as some species are adapted to particular temperatures, habitats or even particular trees. Certain insects can indicate the function of a feature or building (eg. Weevils, which were introduced by the Romans, often indicate granary sites, parasites will indicate the presence of particular animals such as sheep or horse, latrine flies survive in the

mineral deposits in latrines, or in the daub of medieval buildings etc). Samples need to be sealed (eg. in a plastic box).

Industrial Activity

Where there is evidence for industrial activity, macroscopic technological residues should be collected by hand. Separate samples should be collected for micro-slugs (hammer-scale and spherical droplets). Guidance should be sought from the English Heritage Regional Science Adviser on the sampling strategy for metalworking features and advice on cleaning and packaging. Specialist on-site advice must be sought on identification of metalworking features. Slag and metal working debris must be assessed by a specialist. Scientific analysis (such as x-ray fluorescence, chemical analysis, metallography or scanning electron microscope) of slag can provide information on the melting temperature, chemical composition (is it iron, zinc, copper etc), microstructure (the type and shape of the crystals), physical properties (the hardness or viscosity), isotopic composition (strontium_87 or strontium_88 etc) and mineralogical composition.

See “Archaeomagnetic dating”, English Heritage, 2006

“Guidelines on the X-radiography of archaeological metalwork”, English Heritage, 2006.

Historical Metallurgy Society, 2008, “Metals and metalworking: a research framework for archaeometallurgy”.

Centre for Archaeology Guidelines on ‘Archaeometallurgy’ 2001.

‘Science for Historic Industries: Guidelines for the investigation of 17th to 19th century industries’, English Heritage, 2006.

Buried soils and sediments

Buried soils and sediment sequences should be inspected and recorded on site by a recognised geoarchaeologist. Procedures and techniques in the English Heritage document “Environmental Archaeology”, 2002 and “Geoarchaeology”, 2004 should be followed.

See also ‘Geoarchaeology. Using earth sciences to understand the archaeological record’, English Heritage, 2007.

Wood

Sampling strategies for wooden structures should follow the methodologies presented in “Waterlogged wood. Guidelines on the recording, sampling, conservation and curation of waterlogged wood” R. Brunning, 1996. If timbers are likely to be present on your site, contact a wood specialist beforehand. Pre-excavation planning – determine questions to ask, agree on a sampling strategy, allocate reasonable time and budget. Soil samples should be taken of the sediments surrounding the timber. Keep the timbers wet! Record them asap on-site – plan, photograph, record the size and orientation of the wood (radial, tangential, transverse), any toolmarks, joints, presence of bark, insect damage,

recent breaks, and if another piece of wood was on top of or below the piece sampled. Both vertical and horizontal positioning of wattling must be recorded. Wood samples can provide information on woodland management such as medieval coppicing, type of taxa (native or foreign), conversion technology (how the wood was turned into planks), building techniques and type of tools used.

Suitable samples should be submitted for dendrochronological dating. See English Heritage guidelines, 2004, "Dendrochronology".

Leather and organic materials

Waterlogged organic materials should be dealt with following recommendations in "Waterlogged Organic Artefacts – Guidelines on their Recovery, Analysis and Conservation", English Heritage, 2012 and "Guidelines for the care of waterlogged archaeological leather", English Heritage and Archaeological Leather Group 1995.

Glass

As glass-making furnaces are above ground structures, they rarely survive. However sample residues can produce glass fragments which define glass working even though no traces of furnaces survive.

Excavations at Whitby Abbey recovered glassworking waste from preliminary sampling. Targeted bulk sampling in subsequent years recovered more evidence for glass working. Raw glass, twisted rods of glass and a possible glass inlay for an illustrated book were found. Similar glass rods were found at St. Gregory's Minster at Kirkdale, North Yorkshire.

Analysis can find out where glass was imported from (a lot of Roman glass came from Alexandria).

Analysis of the composition of glass can show varying additives and salt composition. At Whitby Abbey the varying salt composition in glass throughout the Early Medieval period reflected climate change.

Is the glass made from recycled glass waste or raw materials?

Is there evidence of glass blowing?

English Heritage has guidance forthcoming in 2010.

2 *Animal Bone*

Animal bone can explore themes such as hunting and fowling, fishing, plant use, trade network, seasonality, diet, butchery, animal husbandry, food procurement, age structures, farrowing areas, species ratios, local environment.

Domestic animal bone was used in prehistoric and Roman cremation rituals.

Post medieval cattle bones – small cow bones invariably represent animals which produced high quality buttermilk for cheese. Big 'improved' cattle with large bones were produced for large quantities of meat and poorer quality milk. Large and

small cattle bones are often found together on post medieval sites, usually with less of the small bones.

Animal bone assemblages should be assessed by a recognised specialist.

The specialist will need to know a brief account of the nature and history of the site, an account of the purpose, methods (details of sampling) for recovery of animal bones, and the main aims and results of the excavation, details of any specific questions that the excavator wants the animal bone specialist to consider, information about other relevant finds from the excavation (e.g. bone tools, fishing equipment, weaving equipment), specific information about each context that has produced significant quantities of animal bone (recovery method, phase, context type, position in relation to major structures, contamination by more recent material, some indication of the amount of bone (by weight or by container size). See "Ancient Monuments Laboratory Advisory Note, "Assessment of animal bone collections from excavations", Sebastian Payne, 1991 and "The Assessment of a collection of animal bones", S. Davis, n.d., Ancient Monuments Laboratory.

Fish bone

Because fish bones are so small, particularly freshwater and estuarine species, they are often only recovered in large bulk samples. Samples must always be sieved.

Rescue excavations carried out in the 1970s at the Iron Age hillfort of Broxmouth in East Lothian produced an assemblage of fish bone. Recent analysis of this material has proved the presence of large specimens of ling and other species which suggests that the Broxmouth population carried out deep-sea fishing. It has previously been suggested that Iron Age fishing would only have been undertaken by lines from the shore. It has also been suggested that fish was not consumed in Iron Age Britain due to religious or cosmological reasons {Hannah Russ, Ian Armit, Jo McKenzie, Andrew Jones, 2012, Deep-sea fishing in the Iron Age? New evidence from Broxmouth hillfort, South-east Scotland in *Environmental Archaeology*, Vol 17, Number 2, pp 177-184).

Roman agenda – did the Romans eat fish? Were they sourced locally or imported? Use of fish as a sauce (garum).

Excavations at Bridge Street, Chester showed that in the Roman period fish was eaten and was both locally sourced and imported (mullet and Spanish mackerel).

Medieval and post medieval agenda – evidence for the deep sea fishing 'revolution', size-biased collections, replacement or supplement of freshwater and estuarine fish in the diet by deep sea fish.

There was some herring exploitation in the early medieval period. Christian fasting from around 970 allowed fish to be eaten on Fridays which led to a huge demand for fish. There was an increase in marine fishing, fish trade and fish consumption (cod, haddock, ling, herring etc) around 1000 AD. Middens provide evidence of commercial fishing. There was a decline in freshwater fish (cyprinid or carp, salmon, smelt, eel, pike) from the eleventh century.

Smoking fish is a recent practice. They were previously air dried and salted.

Newcastle was a major port. Samples should be sieved to retrieve fish and bird bones along with small parts of other animal skeletons and young infused bones.

A crane bone was recovered from excavations at Tuthill Stairs, Newcastle – a rare find.

Herring bones are so small that they can only be retrieved by 2mm sieving.

Clay soils are difficult to sieve, hot water can help.

Acidic soils mean poor preservation of bone.

See English Heritage 2002, “Environmental Archaeology – a guide to the theory and practice of methods from sampling and recovery to post excavation”, Centre of Archaeology Guideline 1.

Isotope analysis can determine where the fish were coming from – North Sea, Scandinavia, Newfoundland, Iceland etc.

There is an excellent reference collection of fish bone at York.

Fish bones should be archived to museums for future dating and isotope analysis where this is not undertaken as part of the post-excavation process.

www.fishlab.org

3 Human Remains

Human remains must be treated with care, dignity and respect.

Excavators must comply with the relevant legislation (essentially the Burial Act 1857) and local environmental health concerns. If found, human remains must be left in-situ, covered and protected. The archaeological contractor will be responsible for informing the police, coroner, local Environmental Health department and the County Archaeologist. If it is agreed that removal of the remains is essential, the archaeological contractor will apply for a licence from the Home Office and their regulations must be complied with.

The excavation area must be shielded from public view with screens.

The excavation of human remains is a delicate and time consuming operation. The process can take one or two days per skeleton. If the skeleton cannot be excavated all in one day cover it with plastic sheeting overnight to prevent it from drying out. The remains should be excavated as completely as possible to give the bioarchaeologist the maximum amount of data.

A bioarchaeologist should be employed for any burial excavation from the start of the project.

A basic diagram of a skeleton should be available on site for staff to consult (such as that in Abrahams et al, 2008, McMinn’s the human skeleton).

Once the top of a skeleton is reached, excavation will be undertaken using delicate tools such as paintbrushes, teaspoons, dental equipment and plasterers' leaves.

Recover all teeth, hand and foot bones.

Excavate the pubic symphysis of the pelvis with care as it is needed for age estimation of adults.

The ends of the ribs that meet the sternum are useful for age estimation of adults.

There will be a possibility that gall, bladder and kidney stones may survive. Sesamoid bones may be present in the hands and feet, calcified cartilages in the neck, on the ribs and on the hyoid bone in the neck.

Foetal bones may be present in the abdominal area of female skeletons.

The bones should be shaded from strong sunlight so they do not dry out and crack.

Bones should be drawn at 1:10 using a planning frame. Manual and digital photographs should be taken with a scale and a magnetic north arrow clearly visible. 3D recording using an EDM may be undertaken.

Site inspection by a recognised osteologist is desirable for isolated burials and essential for cemeteries. The remains will be recorded in-situ and subsequently lifted, washed in water (without additives). They will be marked and packed to standards compatible with "Excavation and post-excavation treatment of cremated and inhumed human remains", McKinley and Roberts, 1993. After excavation, the remains will be subject to specialist assessment.

Analysis of the osteological material should take place according to published guidelines "Human Remains from Archaeological Sites, Guidelines for producing assessment documents and analytical reports, English Heritage, 2002.

There is a new (2013) English Heritage guideline for the destructive sampling of archaeological human remains for scientific analysis 'Science and the Dead'.

Some of the potential benefits from the study of human skeletons – demography, growth profiles, patterns of disease, genetic relationships, activity patterns, diet, burial practices, human evolution. New scientific techniques available include DNA and stable isotope analyses.

Diseases which yield ancient DNA – leprosy, syphilis, tuberculosis, mycobacterium bovis (animal form of TB passed to humans when they shared a living space from Neolithic period onwards).

Radiocarbon dating can be used to chronologically phase burial grounds and track developments in demographic change and variations in the health of the population.

Cremation destroys the crown of the tooth so it cannot be dated (the closure of the cranium vault can be used in adults for dating instead). Cremation also fragments

bone, distorts it due to lack of water, shrinks the bone, causes microstructural alteration and destroys organic components (so DNA analysis not possible).

AMS can now be used to date cremated bone.

Carbon and nitrogen stable isotope analysis can be used to study diet, usually to address broad questions about a wider population, rather than to study an individual. Most studies use 30 or more skeletons. Studies have included how social position influenced diet and how diet varied with geographic location.

Strontium and oxygen stable isotope analysis can be used to determine where individuals originated from.

The final placing of the remains after scientific study and analysis will be agreed beforehand.

Health & Safety associated with human remains:

Micro-organisms that might cause harm to humans are extremely unlikely to survive beyond about 100 Years.

More recent remains could be more hazardous to health as they may be in sealed lead coffins. Lead coffins should not be opened. They should be reburied intact without archaeological examination.

There is a danger of lead poisoning arising from high levels of lead in the atmosphere generated by lead coffins (see H. Needleman, 2004, Lead poisoning in Annual Review of Medicine, 55, pp. 209-22).

The possible risks of contracting disease from excavated human remains are highly negligible but could include the virus smallpox, tetanus and anthrax spores, the bacterial infection leptospirosis and the fungal disease mycoses (a problem in dry dusty soils and in crypts).

Excavators should be up-to-date with tetanus inoculations.

Anthrax can come from materials derived from animals – coffin pads, pillows or coffin packing.

Working with human remains may cause psychological stress (see J. Thompson, 1998, Bodies, minds and human remains, in M. Cox (ed) 1998, Grave concerns: Death and Burial in England 1700-1850, pp 197-201).

Normal hygiene measures should be undertaken – washing hands, wearing masks and gloves. Heavily soiled clothing should be burned at an HSE approved site.

Further guidance is available in:

“Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England”, The Church of England and English Heritage, 2005 (www.english-heritage.org.uk/upload/pdf/16602_HumanRemains1.pdf)

“Church Archaeology: its care and management”, Council for the Care of Churches, 1999

Charlotte A. Roberts, 2009, ‘Human Remains in archaeology: a handbook’, CBA Practical Handbooks in Archaeology No. 19

S Mays, 2010, The Archaeology of Human Bones, second edition

The Advisory Panel on the Archaeology of Christian burials in England can provide free well-informed advice with consideration of relevant religious, ethical, legal, archaeological and scientific issues. Panel’s website:

<http://www.britarch.ac.uk/churches/humanremains/index.html>

or email the secretary simon.mays@english-heritage.org.uk

4 Treasure

All finders of gold and silver objects, and groups of coins from the same finds, over 300 years old, have a legal obligation to report such items under the Treasure Act 1996. Prehistoric base-metal assemblages found after 1st January 2003 also qualify as Treasure.

Summary Definition of Treasure (Portable Antiquities Scheme www.finds.org.uk)

The following finds are Treasure under the Act, if found after 24 September 1997 (or, in the case of category 2, if found after 1 January 2003):

- Any metallic object, other than a coin, provided that at least 10 per cent by weight of metal is precious metal (that is, gold or silver) and that it is at least 300 years old when found. If the object is of prehistoric date it will be Treasure provided any part of it is precious metal.
- Any group of two or more metallic objects of any composition of prehistoric date that come from the same find (see below)
- Two or more coins from the same find provided they are at least 300 years old when found and contain 10 per cent gold or silver (if the coins contain less than 10 per cent of gold or silver there must be at least ten of them). Only the following groups of coins will normally be regarded as coming from the same find: Hoards that have been deliberately hidden; Smaller groups of coins, such as the contents of purses, that may be dropped or lost; Votive or ritual deposits.
- Any object, whatever it is made of, that is found in the same place as, or had previously been together with, another object that is Treasure.
- single precious metal coins that have been modified into objects – that is, altered in some way as to make it likely that they were taken out of circulation - can, if older than 300 years old, qualify as Treasure. This is usually seen in the form of a conversion of the coin into a brooch or pendant, or some other form of jewellery or dress accessory, evidence of which can include the addition of a suspension loop to the top, a pin (or the remains of one) at the back, or gilding. Additionally, piercings can be present.

Any object that would previously have been treasure trove, but does not fall within the specific categories given above. Only objects that are less than 300 years old, that are made substantially of gold or silver, that have been deliberately hidden with the intention of recovery and whose owners or heirs are unknown will come into this category.

Note: An object or coin is part of the 'same find' as another object or coin if it is found in the same place as, or had previously been together with, the other object. Finds may have become scattered since they were originally deposited in the ground.

If anything is found which could be Treasure, under the Treasure Act 1996, it is a legal requirement to report it to the local coroner within 14 days of discovery. The Archaeological Contractor must comply with the procedures set out in The Treasure Act 1996. Any treasure must be reported to the coroner and to The Portable Antiquities Scheme Finds Liaison Officer, Rob Collins and Lauren Proctor (0191 2225076 or Robert.Collins@newcastle.ac.uk or Lauren.Proctor@newcastle.ac.uk) who can provide guidance on the Treasure Act procedures.

If you need this information in another format or language, please contact Jennifer Morrison, Archaeology Officer.

APPENDIX 4: FIGURES






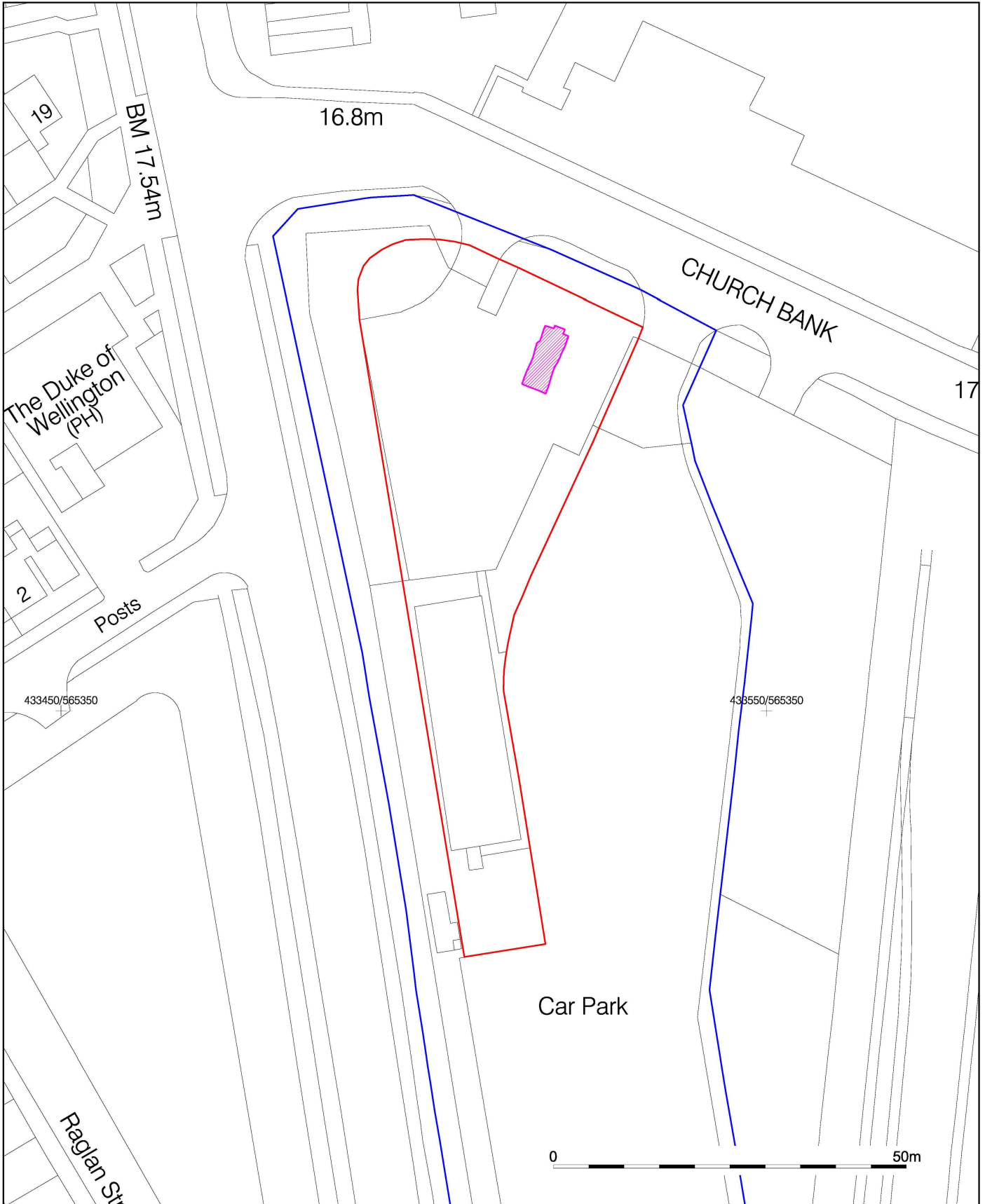
 <p>Wardell Armstrong Archaeology 2014</p>	<p>PROJECT: Land at Church Bank/Priory Road, Jarrow, South Tyneside</p> <p>SCALE: 1:25,000 at A4</p> <p>REPORT No: CP11097</p> <p>CLIENT: Expedient Training Services Ltd.</p> <p>DRAWN BY: AB</p> <p>DATE: October 2014</p> <p>FIGURE: 1</p>	<p>KEY:</p> <p> Site location</p>	 <p>Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright. All rights reserved. Licence number 100019512</p>
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Figure 1: Site location.








 <p>Wardell Armstrong Archaeology 2014</p>	<p>PROJECT: Land at Church Bank/Priory Road, Jarrow, South Tyneside</p> <p>SCALE: 1:750 at A4</p> <p>REPORT No: CP11097</p> <p>CLIENT: Expedient Training Services Ltd.</p> <p>DRAWN BY: AB</p> <p>DATE: October 2014</p> <p>FIGURE: 2</p>	<p>KEY:</p> <p> Evaluation trench</p> <p> Site boundary</p> <p> Development boundary</p>	 <p>Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright. All rights reserved. Licence number 100019512</p>
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Figure 2: Location of evaluation.

PROJECT:
Land at Church Bank/Priory Road,
Jarrow, South Tyneside

CLIENT:
Expedient Training Services Ltd.

SCALE: 1:40 at A3

DRAWN BY: AB

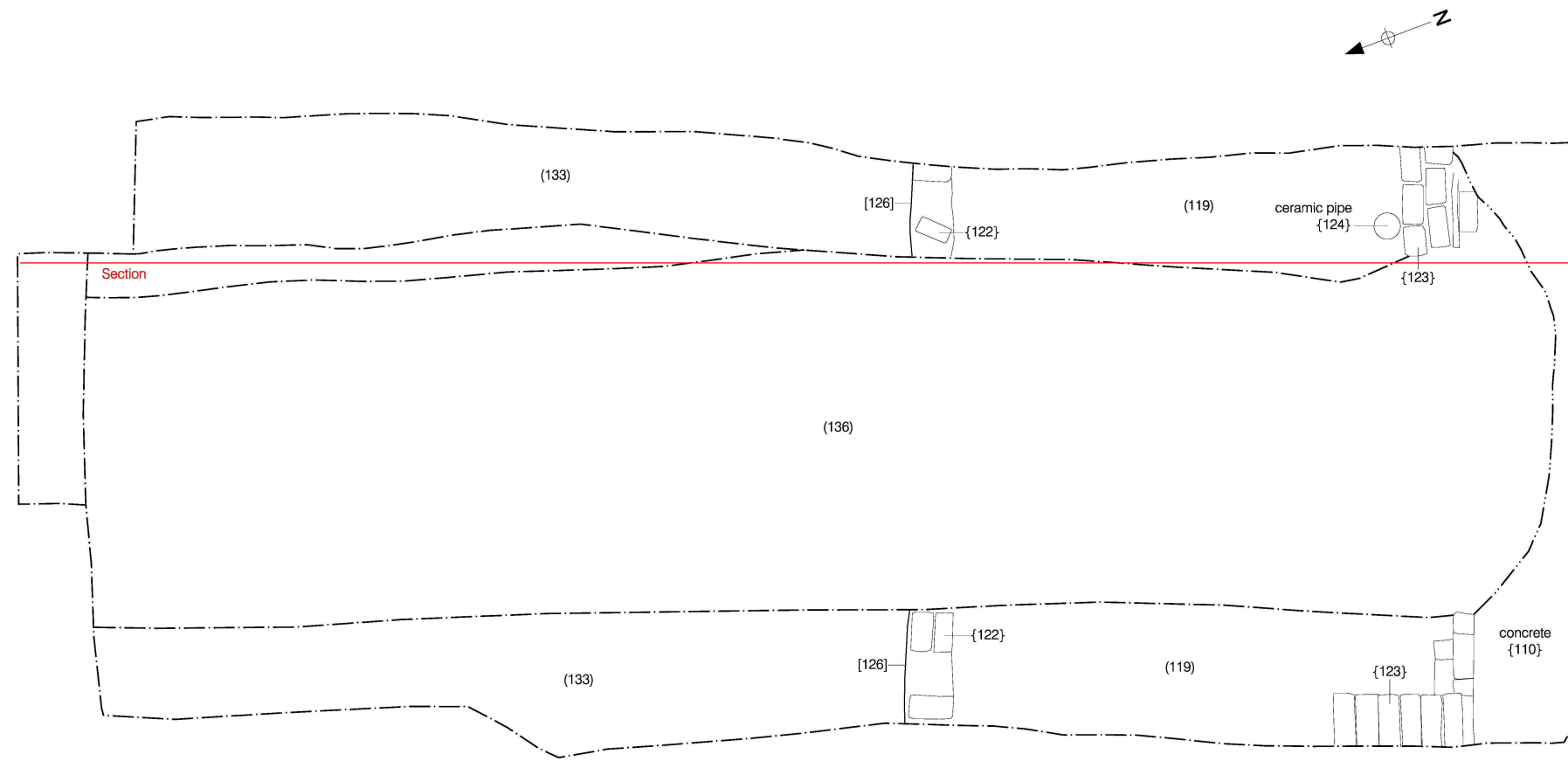
DATE: October 2014

KEY:

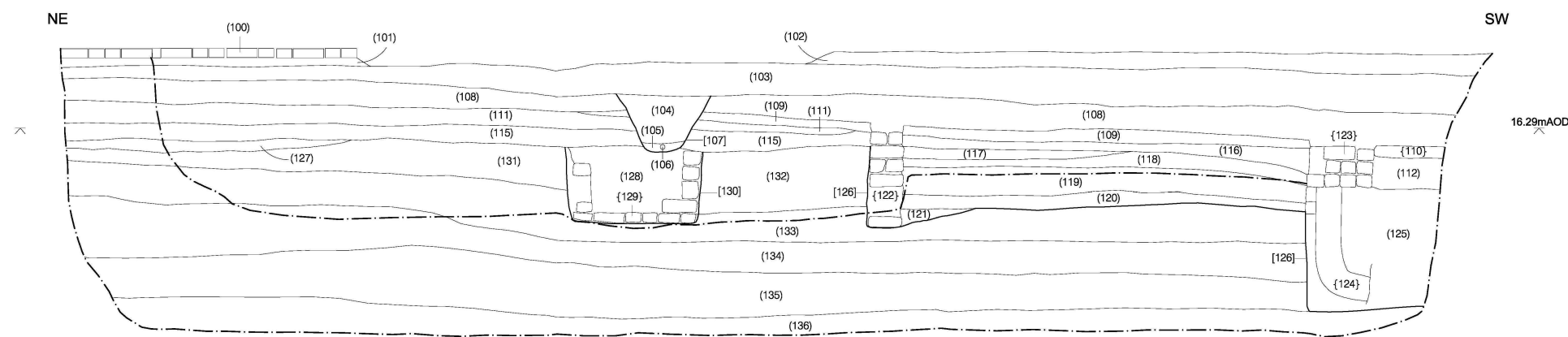
- (101) Context number
- Height mAOD
- Section location
- Limit of excavation

REPORT No:
CP11097

FIGURE:
3

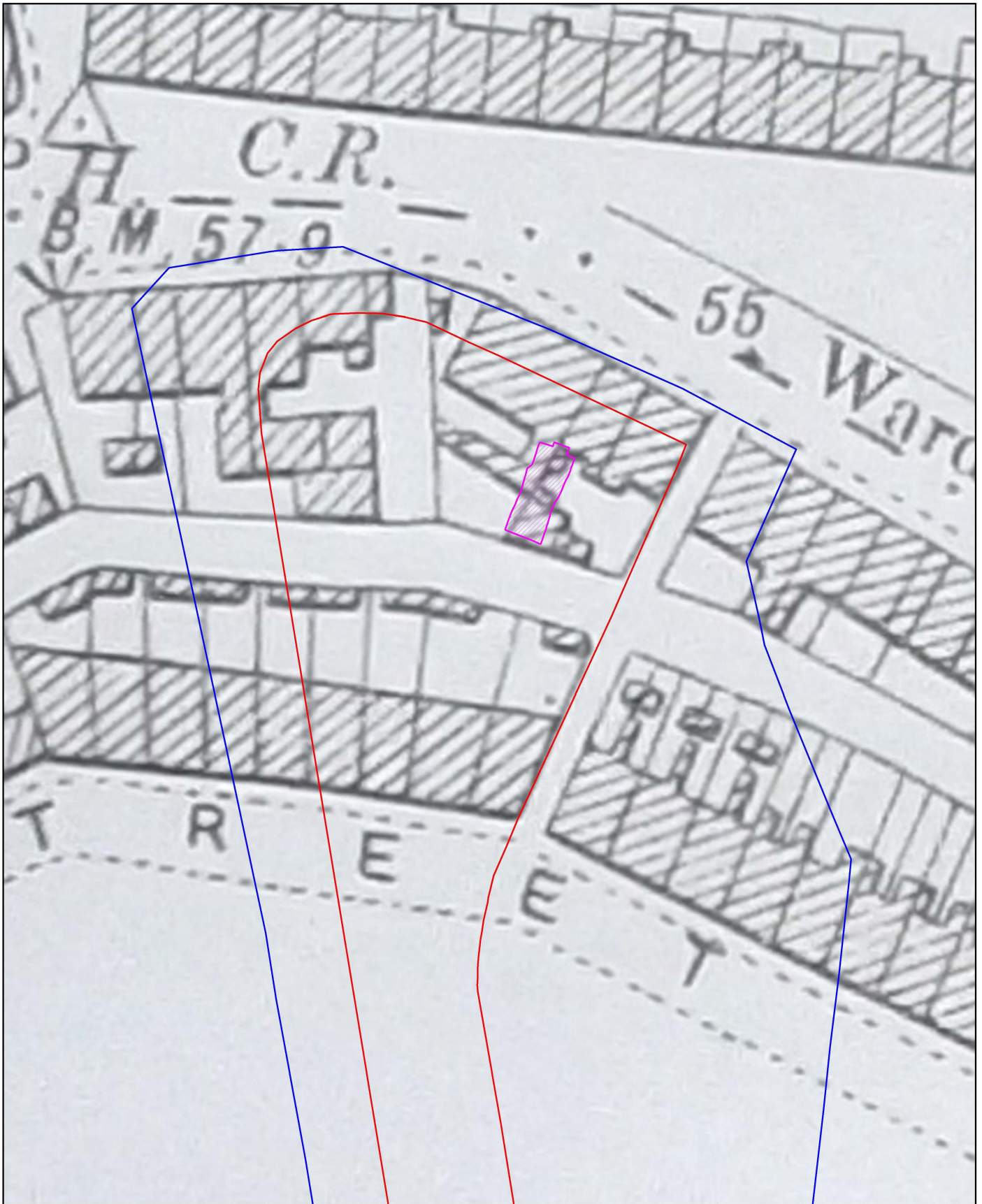


Plan of evaluation trench.



North-west facing section.

Figure 3: Evaluation trench; plan and section.




	<p>PROJECT: Land at Church Bank/Priory Road, Jarrow, South Tyneside</p> <p>SCALE: 1:500 at A4</p> <p>REPORT No: CP11097</p> <p>CLIENT: Expedient Training Services Ltd.</p> <p>DRAWN BY: AB</p> <p>DATE: October 2014</p> <p>FIGURE: 4</p>	<p>KEY:</p> <p> Evaluation trench</p> <p> Site boundary</p> <p> Development boundary</p>	 <p>Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright. All rights reserved. Licence number 100019512</p>
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Figure 4: Second Edition Ordnance Survey Map, 1897 showing position of evaluation trench.