

Archaeological Evaluation at The Bridges, Crowtree Road, Sunderland



View looking east across the site at The Bridges, Sunderland

ARS Ltd Report 2019/177

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Compiled By:

Michael Nicholson PCIfA
Archaeological Research Services Ltd
The Eco Centre
Windmill Way
Hebburn
Tyne and Wear
NE31 1SR

admin@archaeologicalresearchservices.com

www.archaeologicalresearchservices.com

Checked By:

Lawrence Pontin

Tel: 01914775111

Fax: 01629 814657



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Archaeological Research Services Ltd

The Eco Centre Windmill Way Hebburn Tyne and Wear NE31 1SR

www.archaeologicalresearchservices.com

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Executive Summary

Project Name: Archaeological Evaluation at The Bridges, Crowtree Street, Sunderland

Site Code: BRI19

Planning Authority: Sunderland City Council

Geology: Roker Formation Dolostone – Sedimentary rock overlain by superficial deposits of Devensian Till.

NGR: NZ 3938 5697

Date of Fieldwork: 02 – 03 September 2019

Date of Report: 04 September 2019

In September 2019 Archaeological Research Services Ltd. was commissioned by Sunderland City Council to undertake an archaeological trial trench evaluation prior to development at The Bridges Shopping Centre, Crowtree Road, Sunderland.

The trial trench evaluation was undertaken in fulfilment of an archaeological condition attached to planning consent (16/00892/FU4) for the proposed erection of a retail unit and associated car parking, access, public open space and service yard adjacent to The Bridges Shopping Centre and on the site of the former Crowtree Leisure Centre. The site lies within the presumed southern extent of the medieval village of Bishopwearmouth later subsumed by the City of Sunderland. Consequently, the evaluation has the potential to uncover archaeological remains associated with the medieval expansion of Bishopwearmouth.

The aim of the evaluation was to determine the form, nature, character and date of any archaeologically sensitive features or deposits potentially present within the proposed development area. The evaluation comprised a single trial trench which encompassed an area of 20m² and extended to a maximum depth of 1.2m below the present ground level. The evaluation revealed evidence of 20th century activity principally associated with the backfilling and leveling of the site post demolition of the Crowtree Leisure Centre in 2014/15.

No significant archaeological deposits or structures were identified, and the results of the evaluation confirm the severe horizontal truncated nature of the development area and the limited survival potential of any in-situ archaeological deposits, features and structures that, if surviving, are likely to exist at significant depths below the current ground surface level.

The trial trench evaluation was undertaken by Michael Nicholson, Project Officer at Archaeological Research Services Ltd, and managed by Lawrence Pontin, Project Manager at Archaeological Research Services Ltd.

1 Introduction

1.1 Circumstances of the Project

1.1.1 In September 2019 Archaeological Research Services Ltd. was commissioned by Sunderland City Council to undertake an archaeological trial trench evaluation prior to development at The Bridges Shopping Centre, Crowtree Road, Sunderland.

1.1.2 The trial trench evaluation was undertaken in fulfilment of an archaeological condition attached to planning consent (16/00892/FU4) for the proposed erection of a retail unit and associated car parking, access, public open space and service yard adjacent to The Bridges Shopping Centre and on the site of the former Crowtree Leisure Centre. The site lies within the presumed extent of the medieval village of Bishopwearmouth later subsumed by the City of Sunderland. Consequently, the evaluation has the potential to uncover archaeological remains associated with the medieval expansion of Bishopwearmouth.

1.1.3 The evaluation was conducted in accordance with current legislations as outlined in paragraph 189 of the *National Planning Policy Framework (NPPF)* (Ministry of Housing, Communities and Local Government 2019, 55) to record any archaeological remains so that sufficient information to establish their extent, condition, character could be recorded.

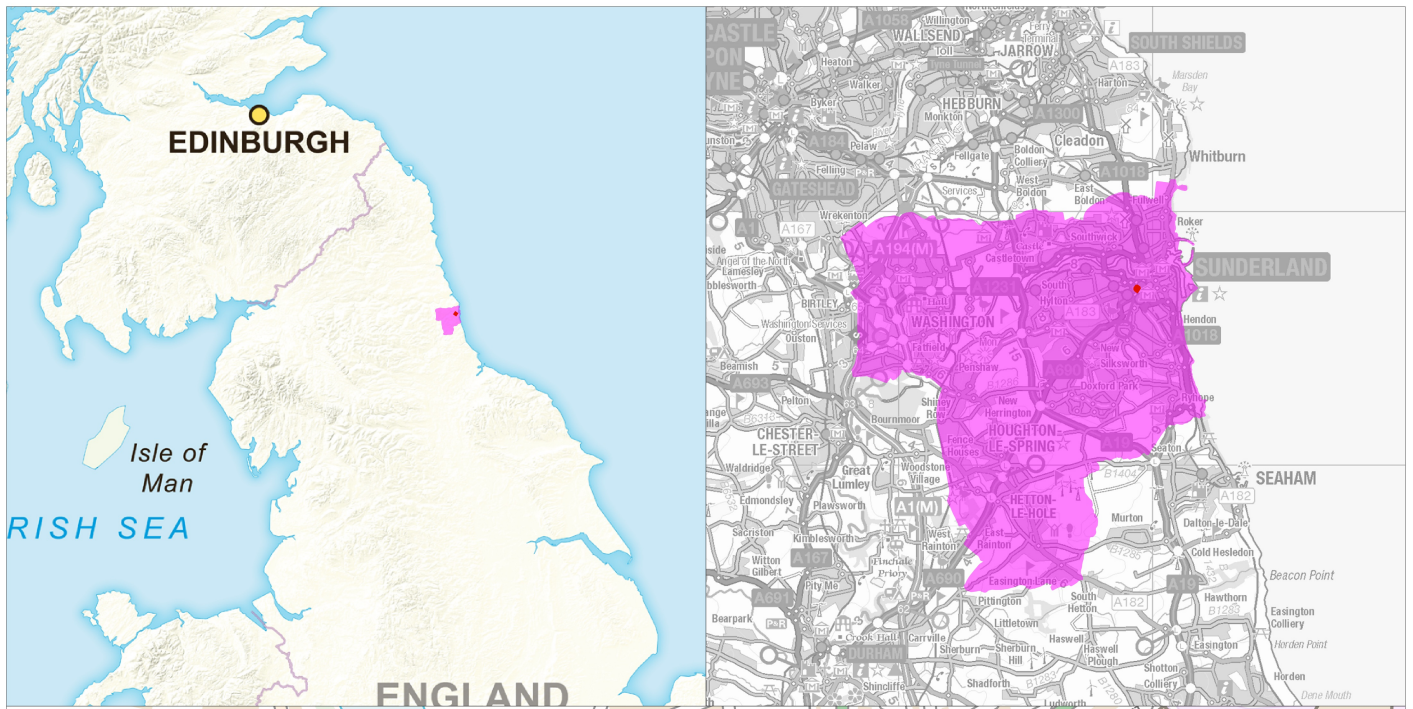
1.2 Site Location

1.2.1 The 'red line boundary' of the proposed development area (hereafter 'PDA') is depicted by a red polygon on Figure 2 and is located within the western part of the City Centre district, SR1 3ES, centred at NGR NZ 3938 6597. The site comprises a roughly rectangular area of 0.66ha and is bounded to the north by Hight Street West, to the west by various commercial buildings, to the south and south east by The Bridges Shopping Centre and to the North east by Crowtree Road. The site is presently a green space. A public access tarmac footpath runs diagonally across the centre of the site (north west to south east).

1.3 Landform Topography and Soils

1.3.1 The PDA extends across a broadly flat area with an average height of 35.3m above Ordnance Datum (aOD).

1.3.2 The underlying geology of the PDA comprises Roker Formation Dolostone – Sedimentary bedrock formed during the quaternary period. This is overlain by superficial deposits of Devensian Till – formed during the quaternary period in a local environment dominated by ice age conditions (British Geological Survey 2019).



Site name: The Bridges, Sunderland
 Date: October 2019
 Drawn by: AB
 Scale: Varies

Sunderland District

Site boundary



Archaeological Research Services Ltd

The Eco Centre
 Windmill Way
 Heggurn
 Tyne and Wear
 NE31 1SR



Tel: 01914 775111

www.archaeologicalresearchservices.com

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Figure 1:
Site location

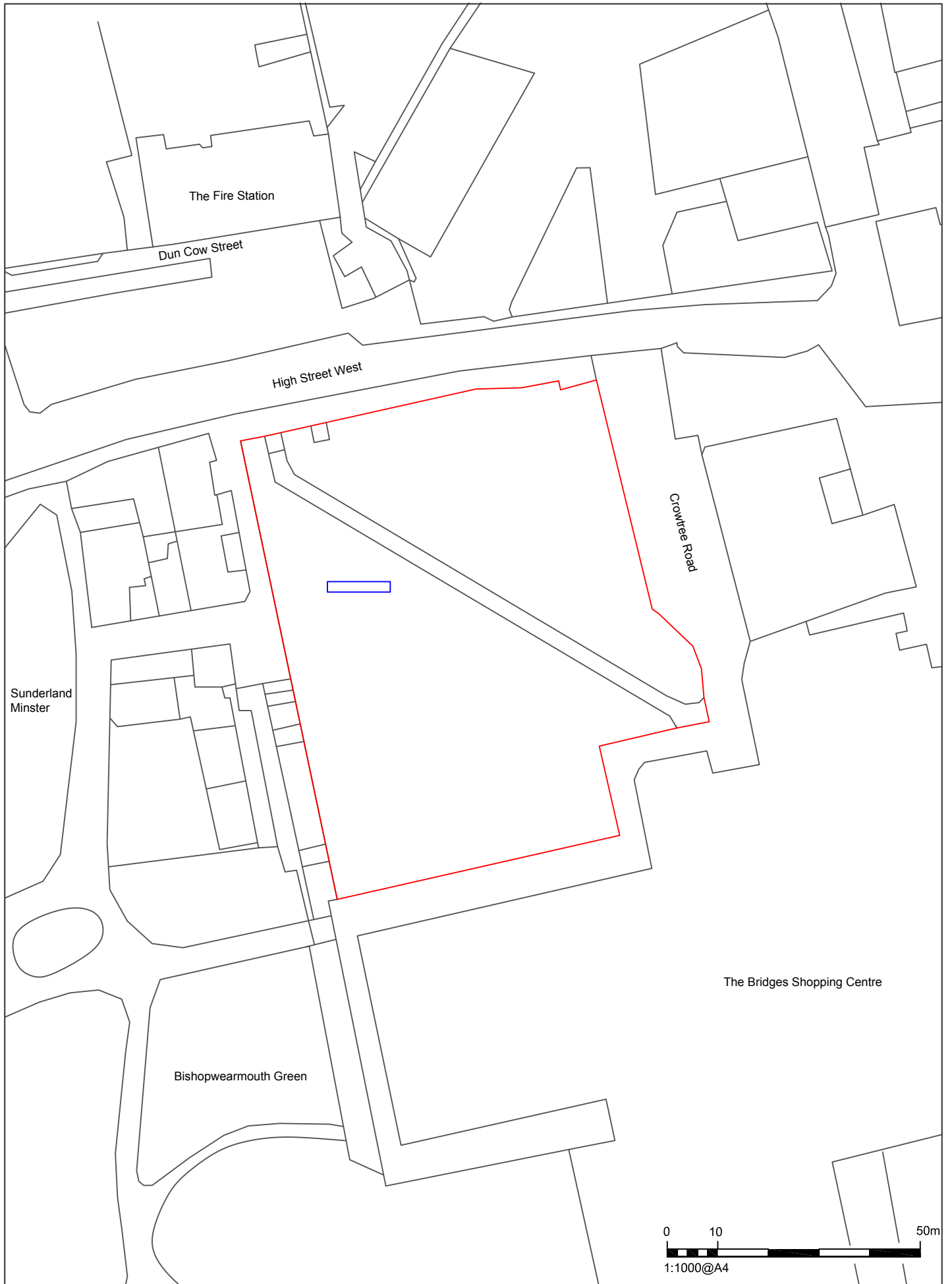
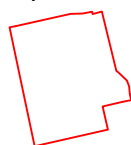


Figure 2. Trench location

Drawn: MN
Scale: 1:1000@A4

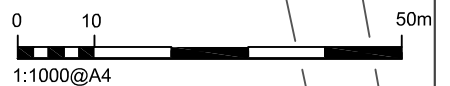
Key:



- Site Boundary



- The Trench



1:1000@A4



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Figure 3. View across the site looking south

1.4 Archaeological and Historical Background

1.4.1 Introduction

1.4.1.1 The site is located within an area of extensive archaeological activity principally associated with the medieval occupation of Bishopwearmouth village and the later expansion of Sunderland as it spread west along the riverbank during the 18th and 19th centuries. This report will only attempt to provide information pertaining to past activity in the vicinity of the development area as it is beyond the scope of the project to provide a comprehensive account of the archaeological and historical background of Bishopwearmouth and the expansion of Sunderland. For a comprehensive historical background, the reader is referred to *An Historic Environment Desk-Based Assessment of the Former Crowtree Leisure Centre site, Sunderland* (Scott, G. 2015).

1.4.2 Prehistoric

1.4.2.1 Information relating to the Prehistoric Period is scarce and primarily relates to an archaeological excavation undertaken by Pre-Construct Archaeology Ltd (Northern Office) on the former site of Vaux Brewery in 2003, located c.290m to the north west of the PDA. The excavations revealed activity spanning the Mesolithic period to the early Iron Age (NRHE:143634; HER: E7111) and comprised artefactual and structural evidence indicative of long-term settlement of the site focused during the 2nd millennium BC through to the early Iron Age (Pre-Construct Archaeology Limited, 2004). HER records note the recovery

of a perforated axe of Neolithic/Early bronze Age date (HER: E393) and a hammer head of polished Scotch granite (HER: 59) of similar date which were recovered during dredging of the River Wear.

1.4.3 Roman

1.4.3.1 Roman activity within the vicinity of the PDA is restricted to 'minor factual and anecdotal evidence' with a speculative presence near the mouth of the River Wear. A possible 'Roman Station' (HER 39) c.130m north east of the PDA was noted and evidence cited of four-foot-thick founds of worked stone and concrete examined in 1873 also included the recovery of a Roman inscribed stone later debunked as eighteenth century in origin (Petch, 1925). A small number of findspots have also been recorded in the vicinity. These included a Roman coin (HER: M34), a road and wall (NRHE: 26236) and a Roman Bronze figurine (NRHE: 762473).

1.4.3 Early Medieval

1.4.3.1 In 930AD King Athelstan restored South Wearmouth (later Bishopwearmouth) and its scattered daughter settlements south of the River Wear (Weston, Offerton, Silksworh, Ryhope, Seaham, Seaton, Dalton, Dalden and Hesilden) to the 'Church of St. Cuthbert' (later to become the cathedral church at Durham) (Clay, Millburn, & Miller, 1984). This clearly indicates that a settlement existed at Bishopwearmouth at this date, however little is known about its form. The PDA is presumed to lie within the southern bounds of this early medieval settlement. The Grade II* listed Church of St Michael in Bishopwearmouth (NHLE: 1209773), sited c.330m to the east of the PDA, has its origins in the early 10th century, however, virtually none of this original Anglo-Saxon church survives. It is probable that the present church is in much the same location as its Anglo-Saxon predecessor.

1.4.4 Medieval

1.4.4.1 A number of street names within immediate vicinity of the PDA are likely to have medieval origins, these include Little Gate, South Gate, the Lonnin, Low Road and Back Lane. Alterations were also made to the Church of St. Michael during the 12th and 13th centuries (NHLE: 1209773) (Hutchinson, 1787). The presumed limits of the Anglo-Saxon settlement would have defined the village in the medieval period, prior to expansion, although there is a suggestion that the original village was destroyed and later re-laid by the Normans as part of putative policies (Clay, Millburn, & Miller, 1984)

1.4.5 Post-Medieval

1.4.5.1 Rapid growth within the region began in the 16th century when salt pans were laid out along the riverbanks to the north of Bishopwearmouth. Coal was mined in increasingly greater quantities and exported from the port which helped fuel the expansion of Sunderland and Bishopwearmouth to meet demand throughout the 17th century

((Williamson & Pevsner, 2002). An early map of Bishopwearmouth which includes the PDA is S. Buck's perspective & ichnography map of the town of Sunderland c.172- (available to view:

<http://iiif.durham.ac.uk/index.html?manifest=https://iiif.durham.ac.uk/manifests/other/pip/pip-2602.json>). Bishopwearmouth is depicted as a collection of buildings and gardens, separated from Sunderland by a series of fields to the east.

1.4.6 18th and 19th Century

1.4.6.1 By 1770 Sunderland had spread west to join up with Bishopwearmouth. In 1796 the first Wearmouth Bridge was constructed joining Sunderland and Bishopwearmouth to Monkwearmouth on the north side of the river, effectively creating one town, although it would not be recognised officially as such until 1835.

1.4.7 20th Century

1.4.7.1 Kings Theatre (HER: M13554), located in the same place as earlier Palace Theatre, was recorded on the site fronting High Street West which forms the northern boundary of the PDA. The Kings Theatre was recorded as three stories of brick and sandstone. Adjacent buildings, including J Walton and Sons recorded next door the theatre, a probable two storey brick-built construction, were also recorded. These buildings were likely to have appropriate substantial foundations and were replaced by the Crowtree Leisure Centre (HER: M9693) constructed between 1975 and 1978. Its footprint covered the entirety of the PDA and beyond its southern border. The northern two-thirds of the leisure centre were demolished in 2014/15 creating the present green space that forms the entirety of the proposed development area.

2 Aims and Objectives

2.1 Regional Research Aims and Objectives

2.1.1 There is the potential for medieval archaeological material to survive within the boundary of the development area. Relevant research topics, applicable to this project are identified in Shared Visions: The North-East Regional Research Framework for the Historic Environment (Petts and Gerard, 2006) and may be addressed by the fieldwork as follows:

- *MDi Settlement; - Improved understanding of landscape and settlement hierarchy during the medieval period (Petts and Gerard, 2006, 169 – 170).*
- *MDi Settlement; - Improved understanding of delineating the morphology of settlements at the sub-regional level. (Petts and Gerard, 2006, 169 – 170).*

- *MDi Settlement; - Improved understanding on local building traditions through archaeology where little vernacular architecture survives. (Petts and Gerard, 2006, 169 – 170).*

2.1.2 Additional and supplementary research topics are identified within *Sunderland, An Archaeological Assessment and Strategy* (City of Sunderland, 2014) and may be addressed by the fieldwork as follows:

- 7.3.2 Early Medieval Research Agenda – Improved understanding of the location and character of earlier and contemporary settlement around the monastery at Monkwearmouth (City of Sunderland, 2014, 76)
- 7.4.2 Medieval Research Agenda – Improved understanding of the planning or standardization in burgage plot size and layout (City of Sunderland, 2014, 76)
- 7.4.2 Medieval Research Agenda – Improved understanding of how tenements were used, how the buildings were constructed and how building traditions change through time (City of Sunderland, 2014, 76)
- 7.4.2 Medieval Research Agenda – What was the date, character and extent of the precincts of the religious foundations and how were the boundaries defined (City of Sunderland, 2014, 76)
- 7.4.2 Medieval Research Agenda – What economic and industrial activities were taking place in and around the river and its hinterland, how did these change through time and what was the town’s relationship with that rural but increasingly industrialized hinterland (City of Sunderland, 2014, 76)

2.2 The Evaluation

2.2.1 The aims and objectives of the evaluation are as follows:

- Identify the presences/absence of archaeological features and deposits within the site.
- Record all archaeological features and deposits encountered.
- To evaluate and excavate any remains encountered and create a full written, drawn, and photographic record of them, as well as establishing relative sequence and likely dating for any remains encountered.
- Gather sufficient information to establish the character, extent, form, function and likely status of any surviving archaeological deposits with a view to evaluating their

significance and potential to inform the aims and objectives as outlined in section 2.1.

- To make any recommendations for the management of the resource, including further archaeological work if necessary.
- To provide sufficient, publicly accessible results, so that the archaeological impact of the proposed development can be assessed and mitigated if necessary.

3 Methodology

3.1 Introduction

3.1.1 The methodology for the evaluation is outlined in detail in the Tyne and Wear Archaeology Service Specifications (Appendix II to this volume) but has been summarised here.

3.2 Professional Standards

3.2.1 The archaeological trial trench evaluation was carried out in accordance with the ClfA's *Code of Conduct* (2014a) and *Standards and Guidance for Archaeological Field Evaluations* (2014b). Recording of the excavations followed the standards and conventions outlined by the *Archaeological Site Manual* (Museum of London Archaeological Service (MoLAS) (2002).

3.2.2 A risk assessment was undertaken before commencement of the work. Health and Safety regulations were adhered to at all times.

3.3 Coverage

3.3.1 The evaluation works comprised the excavation of a single trench, the location of which is illustrated on Figure 2. Originally two trenches were requested within the specifications for the project (Appendix II). However, subsequent discussions with Rachel Graham from Tyne and Wear Archaeological Service regarding access resulted in the agreed reduction of the number of required trenches from two to one. The continuous redevelopment of the site during the 20th century and the approximate location of extant remains of sub-surface basements known to have been scrubbed out to the current ground surface level coupled with geotechnical data of the thickness of made ground deposits across the site, restricted the placement of the evaluation trenches to specific locations (BWB Consultancy, 2016). As a result, the second trench could not be alternatively placed and was therefore removed from this investigation. Furthermore, the excavated trench was restricted to a maximum depth of 1.2m and 'stepping out' of the trench to increase its potential depth, as noted within the specification, was also deemed unnecessary. The area impacted by the evaluation trench covered a total of 20m².

3.4 The Evaluation

3.4.1 The archaeological evaluation was undertaken by Archaeological Research Services Ltd from the 2nd of September 2019 until the 3rd of September 2019 and used the excavation of a trial trench to identify, characterise and date any sub-surface heritage assets which had the potential to be impacted during groundworks associated with the proposed development.

4 Results

4.1 Introduction

4.1.1 The following section describes in detail the results as they relate to the trench which targeted an area of least disturbance identified during the geotechnical phase of works and reported within *Phase 2 Geo-Environmental Report* (BWB Consultancy, 2016).

4.1.2 A context summary table of the depositional sequence of the trench is presented in Appendix I: Context Summary Table. This should be viewed in association with the figures and the photographs presented in this section.

4.2 The Trench

(Figures 2, 4, 5 and 6)

4.2.1 The trench measured 10m long, 2m wide and was excavated to a maximum depth of 1.2m below present ground level (BGL) and 34.52m above Ordinance Datum (aOD). The Trench was sited 10.5m west of the pavement which transects the PDA and 11m from the western site boundary. The trench was located in an open space which now occupies the former site of the Crowtree leisure Centre, closed in the year 2011.

4.2.2 The uppermost deposit comprised a dark-brown topsoil and turf (101) which overlaid a mid-yellow-orange compacted stone crush levelling deposit (102). Levelling deposit (102) sealed a brown clay (103), deliberately backfilled, compacted and comprising brick, concrete and drain fragments throughout. Backfill deposit (103), part of a deliberate backfill sequence, was observed to be thicker in depth towards the west, with a maximum depth of 0.64m, and thinnest at the trench's western extent, recorded at a depth of 0.09m. However, the horizontal upper boundary between (103) and (102) remained at a relatively consistent depth of between 0.39m and 0.52m below the ground surface and is a clear indicator that deposit (103) was deliberately placed to facilitate backfilling and levelling post leisure centre demolition. Backfill deposit (103) was observed overlying a mid-yellow-brown sand deposit (104) which was seen above clay deposit (105). Sand

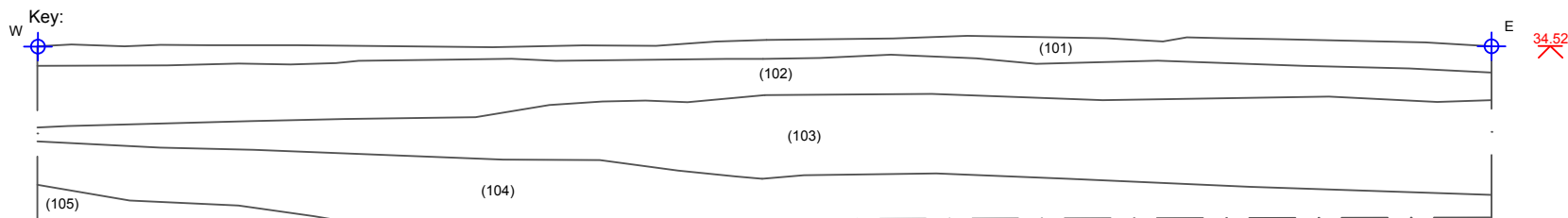
Figure 3. South facing section through the Trench

Scale: 1:50@A4

Key:

34.52 - Height above Ordnance Datum

South facing section through the Evaluation Trench.



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deposit (104) was deposited on an incline, west (high) to east (low), and was seen to separated clay deposits (103) and (105). Sand deposit (103) may have also been an aid to drainage across the site. Backfill deposit (105) was observed at the base of the trench and had an identical composition and form to deposit (103) and is likely to have been deliberately deposited and compacted during the same phase of backfilling and levelling works. The natural substrate was not observed within the trench.

4.2.3 No finds, features or deposits of archaeological significance were identified in within the trench.



Figure 5. Oblique view of the south facing section through the Trench (Scale = 1 x 2m in 0.1m graduations).



Figure 6. South facing section through the Trench (Scale = 1 x 1m in 0.1m graduations).

5 Conclusion

5.1 The site lies within the assumed southern limits of Bishopwearmouth village and within the former boundary of Crowtree leisure centre, constructed between 1975 and 1978. The excavation of the trench exposed a deposition sequence of deliberate backfilling and levelling associated with the demolition of the leisure centre in 2014/15.

5.2 The placement of the trench was believed to be within the area of least disturbance. However, the results of the evaluation confirm the severe horizontal truncated nature of the development area and the limited survival potential of any in-situ archaeological deposits, features and structures that, if surviving, are likely to exist at significant depths below the current ground surface level.

5.3 The likely survivability of medieval remains within the development area is remote and no further archaeological work is recommended within the proposed development area due to the lack of significant archaeological remains identified during the evaluation phase.

6 Publicity, Confidentiality and Copyright

6.1 Any publicity will be handled by the client.

6.2 ARS Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

7 Statement of Indemnity

7.1 All statements and opinions contained within this report arising from the works undertaken are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the authors of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

8 Archive

8.1 A digital and paper archive will be prepared by ARS Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data, and will be deposited with the appropriate Museum (Tyne and Wear Museums) after further consultation with Tyne and Wear Archaeological Service, in accordance with the Written Scheme of investigation approved by Dr Jennifer Morrison, Tyne and Wear Archaeological Officer and in line with relevant ClfA guidance: *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives* (ClfA 2014d) and *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials* (ClfA 2014c). An OASIS record has also been completed for this work, including a digital version of this report, the reference for which is archaeo15-366369.

9 Acknowledgements

9.1 Archaeological Research Services Ltd would like to thank all those involved with this work, in particular Ben Winter, part of the Regeneration Team, for commissioning the work on behalf of Sunderland City Council, Rachel Graham, Tyne and Wear Archaeological Officer, for her advice and guidance. Archaeological Research Services Ltd would also like to thank Paul Curry from C.G Robinson Ltd. for providing the plant and Paul Burke from Wearside Fencing for providing the harris fencing.

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Appendix I: Context Summary Table

Archaeological Evaluation at The Bridges, Crowtree Road, Sunderland

Context	Type	Description: <i>Processual Interpretation</i>	Thickness/extent (depth)	BGL (m)
101	Deposit	Dark brown silt loam. Topsoil and turf. <i>20th Century.</i>	0.18m depth	-
102	Deposit	Modern yellow-orange stone crush. Base layer for topsoil (101). <i>20th Century.</i>	0.19m - 0.42m depth	0.18
103	Deposit	Brown clay. Backfill levelling deposit. Below (102). <i>20th Century.</i>	0.09m – 0.65m depth	0.37
104	Deposit	Yellow sand levelling deposit. Below (103). <i>20th Century</i>	0.45m depth	0.69
105	Deposit	Brown clay. Backfill levelling deposit. Below (102). <i>20th Century.</i>	0.25m+ depth	1.14

Appendix II: Specification

Tyne and Wear Archaeology Service

Specification for Preliminary Archaeological Evaluation at site of former Crowtree Leisure Centre, Crowtree Road, Sunderland SR1 3EL

Planning Application: 16/00892/FU4

Author:

Jennifer Morrison
Tyne and Wear Archaeology Officer
Newcastle City Council
Development Management
9th Floor
Civic Centre
Barras Bridge
Newcastle upon Tyne
NE1 8QH
Tel (0191) 2116218
jennifer.morrison@newcastle.gov.uk

Date: 5 August 2016

County Archaeologist's Reference Number: MON14317

The Tyne and Wear Archaeology Service is the curatorial service for archaeology and industrial archaeology 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 Service can be found at the Development Management division of the Investment & Development Directorate of

Introduction

Site grid reference: NZ 3938 5697

A planning application has been submitted for a retail unit and associated car parking, access, public open space, service yard and stopping up of a public highway on the former site of Crowtree Leisure Centre.

An archaeological desk based assessment has been produced (Archaeological Research Services Ltd, March 2015). The appointed archaeologist must familiarise themselves with the results of the assessment before starting work.

The assessment concludes that there is potential here for Anglo-Saxon and medieval remains.

However it is likely that archaeological remains will have been heavily truncated if not destroyed by later development. At least two 19th century buildings had cellars. The Three Tuns Public House had a cellar. The Palace Theatre had an orchestra pit and dressing rooms beneath the level of Back Street. The leisure centre, built in 1975, had a small basement and two large pools cut into the former ground level. The known basements are shown on figure 11 in the assessment report.

The foundations of the leisure centre were not grubbed out during demolition and remain in-situ. The foundations appear to be either strip foundations or pads.

In accordance with paragraph 141 of the National Planning Policy Framework and UDP Policies B11, B13 and B14 a programme of archaeological evaluation is now required.

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.

‘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.

'Mesolithic Research and Conservation Framework 2013' by Edward Blinkhorn and Nicky Milner aims to improve the understanding of the Mesolithic of England and set out key issues and priorities for future work.

For the English Heritage Research Agenda see <https://historicengland.org.uk/images-books/publications/eh-research-agenda/>

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

Three evaluation trenches are 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 Management of Research Projects in the Historic Environment (MoRPHE) – The MoRPHE Project Managers' Guide, Project Planning Notes and Technical Guides 2006.

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 Chartered Institute for Archaeologists and must follow the ClfA 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

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 are scheduled to last more than 30 days and have more than 20 workers working simultaneously at any point in the project, or exceed 500 person days) may be deemed notifiable projects under Construction Design and Management Regulations 2015.

Where C.D.M Regs apply, the HSE must be notified before work begins.

<http://www.legislation.gov.uk/ukxi/2015/51/contents/made>

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

Suggested locations for the trenches are shown on the accompanying plan.

The dimensions of the trenches are

TR1	2m x 30m
TR2	2m x 25m
TR3	2m x 10m

in plan **at base**.

Trench locations can be adjusted to avoid services or for practical or safety purposes. They can be adjusted if the archaeologist thinks an alternative location is more likely to find in-situ archaeological remains, however the basements shown on figure 11 of the assessment must be avoided.

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 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, Historic England Regional Advisor for Archaeological Science (jacqui.huntley@historicengland.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

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 Thermoluminescence dating. See ‘Luminence 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.

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

- one for the commissioning client
- one for the planning authority (Sunderland City 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: Louisa Matthews 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, Historic England 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.

<https://www.historicengland.org.uk/images-books/publications/environmental-archaeology-2nd/>

English Heritage guidance documents on archaeological science can be downloaded as pdf files from www.helm.org.uk or www.historicengland.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 (strontium₈₇ or strontium₈₈ 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.

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, Ellie Cox ellie.cox@durham.gov.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 III: OASIS Form

OASIS DATA COLLECTION FORM: England

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Printable version

OASIS ID: archaeo15-366369

Project details

Project name	Archaeological Evaluation at The Bridges, Crowtree Road, Sunderland
Short description of the project	In September 2019 Archaeological Research Services Ltd. was commissioned by Sunderland City Council to undertake an archaeological evaluation prior to development at The Bridges Shopping Centre, Crowtree Road, Sunderland. The evaluation was undertaken in fulfilment of an archaeological condition attached to planning consent (16/00892/FU4) for the proposed erection of a retail unit and associated car parking, access, public open space and service yard adjacent to The Bridges Shopping Centre and on the site of the former Crowtree Leisure Centre. The site lies within the presumed extent of the medieval village of Bishopwearmouth later subsumed by the City of Sunderland. Consequently, the evaluation has the potential to uncover archaeological remains associated with the medieval expansion of the village of Bishopwearmouth.
Project dates	Start: 02-09-2019 End: 03-09-2019
Previous/future work	Not known / Not known
Any associated project reference codes	16/00892/FU4 - Planning Application No.
Type of project	Field evaluation
Site status	None
Current Land use	Industry and Commerce 3 - Retailing
Monument type	LANDSCAPE RE-MODELLING Modern
Significant Finds	N/A None
Methods & techniques	"Targeted Trenches"
Development type	Urban commercial (e.g. offices, shops, banks, etc.)
Prompt	Planning condition

Project location

Country	England
Site location	TYNE AND WEAR SUNDERLAND SUNDERLAND Archaeological Evaluation at The Bridges, Crowtree Street, Sunderland
Study area	20 Square metres
Site coordinates	NZ 3938 5697 54.905810123818 -1.385759339605 54 54 20 N 001 23 08 W Point

Project creators

Name of Organisation	Tyne and Wear Archaeology Service
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Project brief originator	Tyne and Wear County Council
Project design originator	Tyne and Wear County Council
Project director/manager	Lawrence Pontin
Project supervisor	Michael Nicholson
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Sunderland City Council

Project archives

Physical Archive Exists?	No
Digital Archive recipient	to be determined
Digital Contents	"none"
Digital Media available	"Images raster / digital photography", "Images vector", "Text"
Paper Archive recipient	to be determined
Paper Contents	"none"
Paper Media available	"Drawing", "Plan", "Report", "Unpublished Text"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Archaeological Evaluation at The Bridges, Crowtree Street, Sunderland
Author(s)/Editor(s)	Michael Nicholson
Other bibliographic details	ARS Ltd Report No. 2018/177
Date	2019
Issuer or publisher	Archaeological Research Services Ltd
Place of issue or publication	Hebburn
Description	PDF
Entered by	Michael Nicholson (michael@archaeologicalresearchservices.com)
Entered on	6 September 2019

Please e-mail [Historic England](#) for OASIS help and advice

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