



Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria Archaeological Watching Brief Report

December 2018

**Client: Atkins Ltd on behalf of VBA Joint
Venture Ltd**

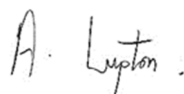
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Skirting and Whangs Beck Flood Risk Management Scheme

Archaeological Watching Brief Report

Written by Steve Clarke and James Hodgson

With illustrations by Mark Tidmarsh

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Summary

Oxford Archaeology (OA) North were commissioned by Atkins Ltd on behalf of VBA Joint Venture Ltd for the Environment Agency to undertake a Watching Brief during ground investigation works on the Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria (NGR NY 00217 11380).

A programme of Ground Investigation (GI) works had been prepared to inform the detailed design process of the flood defence. The need for an archaeological watching brief had been identified in consultation with the Cumbria County Council Historic Environment Officer and the Environment Agency (EA), and had been identified by the EA Archaeologist for inclusion in the emerging GI Scope. The nature and scope of archaeological intervention throughout the GI programme had also been discussed with the Cumbria County Council (CCC) Historic Environment Officer as archaeological advisor to the Local Authority.

The watching brief comprised two areas of work, eight test pits were excavated on the West Lakes Academy/Soldier's and Airmen's Scripture Readers Association (SASRA) Playing Fields off St Bridget's Lane, and four test pits were excavated at How Bank Farm situated on the north west edge of the town.

The test pits on the West Lakes Academy/SASRA area revealed the ground had been made up by c. one metre when compared to that of the ground at the eastern end of the site. Although no archaeological features were revealed, the original soil horizon was revealed. Evidence found in the redeposited material suggests that the ground was made up during or after the 19th century.

The test pits on the How Bank Farm area revealed similar results to those at the West Lakes Academy/SASRA area, whereby the area has been raised through the deposition of made ground and the build-up of modern debris.

Acknowledgements

Oxford Archaeology would like to thank Gareth Talbot and Fiona Deaton of Atkins Ltd for commissioning this project on behalf of VBA Joint Ventures Ltd.

The project was managed for Oxford Archaeology by Paul Dunn. The fieldwork was conducted by Steve Clarke and James Hodgson

1 INTRODUCTION

1.1 Scope of work

- 1.1.1 Oxford Archaeology (OA) North were commissioned by Atkins Ltd on behalf of VBA Joint Venture Ltd to undertake a watching brief during the excavation of test pits at the West Lakes Academy/Soldier's and Airmen's Scripture Readers Association (SASRA) playing fields at St. Bridget's Lane, Egremont (NGR NY 00780 10862) and at How Bank Farm, Egremont (NGR NY00217 11380).
- 1.1.2 A programme of Ground Investigation (GI) works had been prepared to inform the detailed design process of the flood defence. The need for an archaeological watching brief had been identified in consultation with the Cumbria County Council Historic Environment Officer and the Environment Agency (EA) and had been identified by the EA Archaeologist for inclusion in the emerging GI Scope. The nature and scope of archaeological intervention throughout the GI programme had also been discussed with the Cumbria County Council (CCC) Historic Environment Officer as archaeological advisor to the Local Authority. A brief was set by the Atkins Heritage Team on behalf of VBA Joint Ventures Ltd and written schemes of investigation (*Appendices C and D*) were produced by OA detailing Cumbria County Council's requirements for the work. This document outlines how OA North implemented the specified requirements.

1.2 Location, topography and geology

- 1.2.1 The test pits monitored as part of the GI works were located to the west of the town of Egremont, Cumbria (Fig 1). The West Lakes Academy/SASRA area is currently used as playing fields and the land is bounded by the West Lakes Academy to the east, St Bridget's Lane to the south and further playing fields to the north and west. The How Bank Farm area is currently used as pasture and the land is bounded by mixed use fields to the north and west, How Bank Farm to the south and housing to the east.
- 1.2.2 The solid bedrock geology of the site is mapped as Breccia of the Brockram formation formed in the Triassic and Permian Periods (BGS 2018). The superficial deposits in the vicinity of Skirting Beck are mapped as clay, silt, sand and gravel alluvium deposited in the Quarternary period, whilst further away from Skirting Beck they are mapped as Diamicton Devensian Till deposited in the Quarternary period (*ibid*). The soils of the area are identified as freely draining slightly acid loamy soils (Cranfield 2018).

1.3 Archaeological and historical background

- 1.3.1 The archaeological and historical background of the site has been described in detail in a Desk-Based Assessment (DBA) produced by OA North (2015) and will not be reproduced here.

2 EVALUATION AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The project aims and objectives were as follows:

- i. To determine or confirm the general nature of any remains present;
- ii. To inform a decision as to whether further archaeological investigation will be required in advance of or during the construction works on the Skirting and Whangs Beck scheme;
- iii. to compile a professional archival record of any archaeological remains within the test pits.

2.2 Methodology

2.2.1 The full methodology is outlined in the Written Schemes of Investigation (*Appendices D and E*) and was adhered to in full, and, as such, was fully compliant with prevailing guidelines and established industry best practice (CIfA 2014a: 2014b: 2014c: Historic England 2015). A programme of field observation accurately recorded the character of deposits within the excavations. The on-site contractor used a toothless bucket for excavating purposes.

2.2.2 The watching brief comprised monitoring of four test pits (TP) excavated 2m deep and 4 long reach test pits (TPLR) excavated 4.5m deep on the West Lakes Academy/SASRA area and 4 long reach test pits excavated 2.5m deep on the How Bank Farm area. TP05 was discounted from the scheme on the West Lakes Academy/SASRA area by the GI contractor. The test pits were excavated by a mechanical excavator (fitted with a toothless ditching bucket), whilst the long reach test pits were excavated by a mechanical excavator with a long reach arm (fitted with a toothless ditching bucket), monitored by an archaeologist at all times. The subsoil horizons and resultant spoil were systematically examined during the course of the excavations.

2.2.3 All information identified during the site works was recorded stratigraphically, using a system adapted from that used by the former Centre of Archaeology of English Heritage, with an accompanying pictorial record (plans, sections, and digital photographs). Primary records were available for inspection at all times.

2.2.4 Results of all field investigations were recorded on *pro forma* context sheets. The site archive includes both a photographic record and accurate large-scale plans and sections at an appropriate scale (1:50, 1:20 and 1:10).

2.2.5 A full professional archive has been compiled in accordance with the Written Scheme of Investigation (*Appendices D and E*), and in accordance with current CIfA (2014c) and Historic England guidelines (Historic England 2015). The archive will be deposited with the Whitehaven Archive and Local Studies Centre.

3 RESULTS

3.1 Introduction and presentation of results

3.1.1 The results of the watching brief are presented below, and include a stratigraphic description of the test pits. The full details of all test pits with dimensions and depths of all deposits can be found in *Appendix A*.

3.2 Results

3.2.1 The soil sequence identified in six of the test pits on the West Lakes Academy/SASRA area (Fig 2) was fairly uniform (Plate 1). The natural geology was identified as firm reddish grey clayish sand across much of the area. The natural geology was identified at approximately 1m below ground level throughout the test pits and was overlain by a relict soil horizon, approximately 0.2m thick. Overlying the relict soil horizon are layers of made ground identified as compact reddish brown clay, approximately 0.8m thick. The made ground is overlain by thin levelling layers of clinker, fine reddish brown gravel and light yellowish brown fine gravelly sand, each being approximately 0.03m thick.



Plate 1: South-west facing section of SA/TP01, scale 1m

3.2.2 Two test pits, TPLR03 and TPLR04, located towards the eastern side of the site contained no relict soil or made ground deposits (Plate 2). The thin levelling deposits identified throughout the other test pits directly overlay natural geology, identified in these two pits as loose reddish brown sandy gravel, with frequent small to large cobbles.



Plate 2: East-facing section of SA/TPLR03, scale 1m

3.2.3 The soil sequence identified in the test pits on the How Bank Farm area (Fig 3) was also fairly uniform (Plate 3). Natural geology was generally identified as light reddish orange sandy gravel, which was overlain by made ground identified as dark reddish brown clay approximately 1m thick. This was subsequently overlain by a dark blackish grey ashy layer, containing a large amount of concrete and iron or steel debris, approximately 0.5m thick. Although, this ashy layer was missing from HB/TP04. These deposits were sealed by topsoil, approximately 0.15m thick.



Plate 3: East-facing section of HB/TP03

3.2.4 Ground conditions throughout the excavation of the test pits were generally good, and the pits were promptly backfilled once recording was completed. No archaeological features were present.

4 DISCUSSION

4.1 Interpretation

- 4.1.1 The test pits on the West Lakes Academy/SASRA area revealed that the original soil horizon across the western and central part of the site was c. one metre below the present ground surface, with the natural geology rising towards the eastern half of the area. The ground was made up to the present level with redeposited clay, soil and layers of aggregate. This made up ground was levelled with clinker and a surface of fine sandy gravel layers to create the surface of the playing field.
- 4.1.2 The test pits on the How Bank Farm area revealed similar results to those at the playing fields site whereby the area has been raised through the deposition of made ground and the build-up of modern debris.

4.2 Significance

- 4.2.1 Although devoid of archaeological features, the test pits on the West Lakes Academy/SASRA area have revealed a soil horizon prior to the addition of made ground to build up the present level of the ground. The presence of 19th century ceramic fragments indicates that the ground was made up at some time from this period.

5 FIGURES

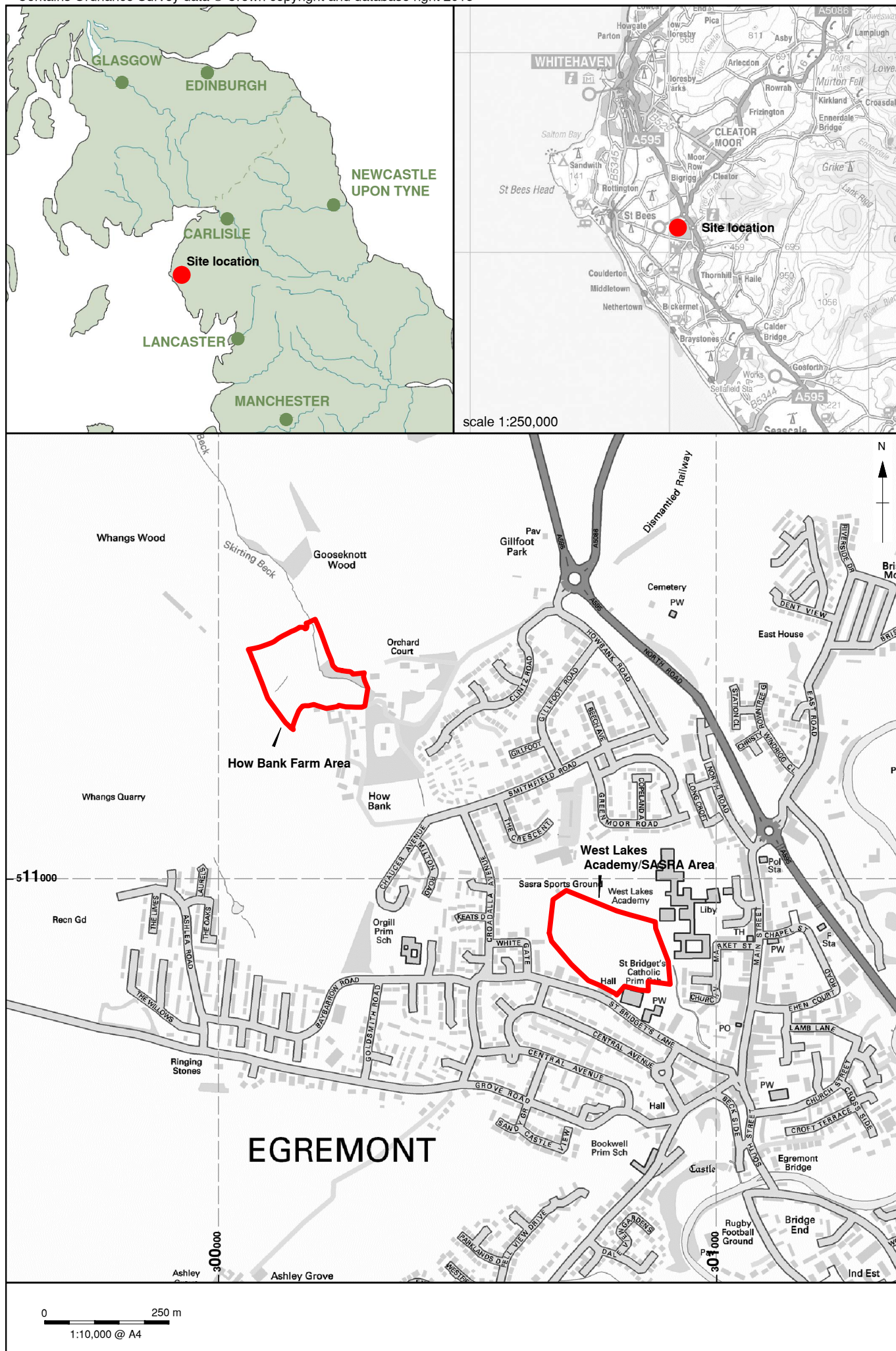


Figure 1: Site location

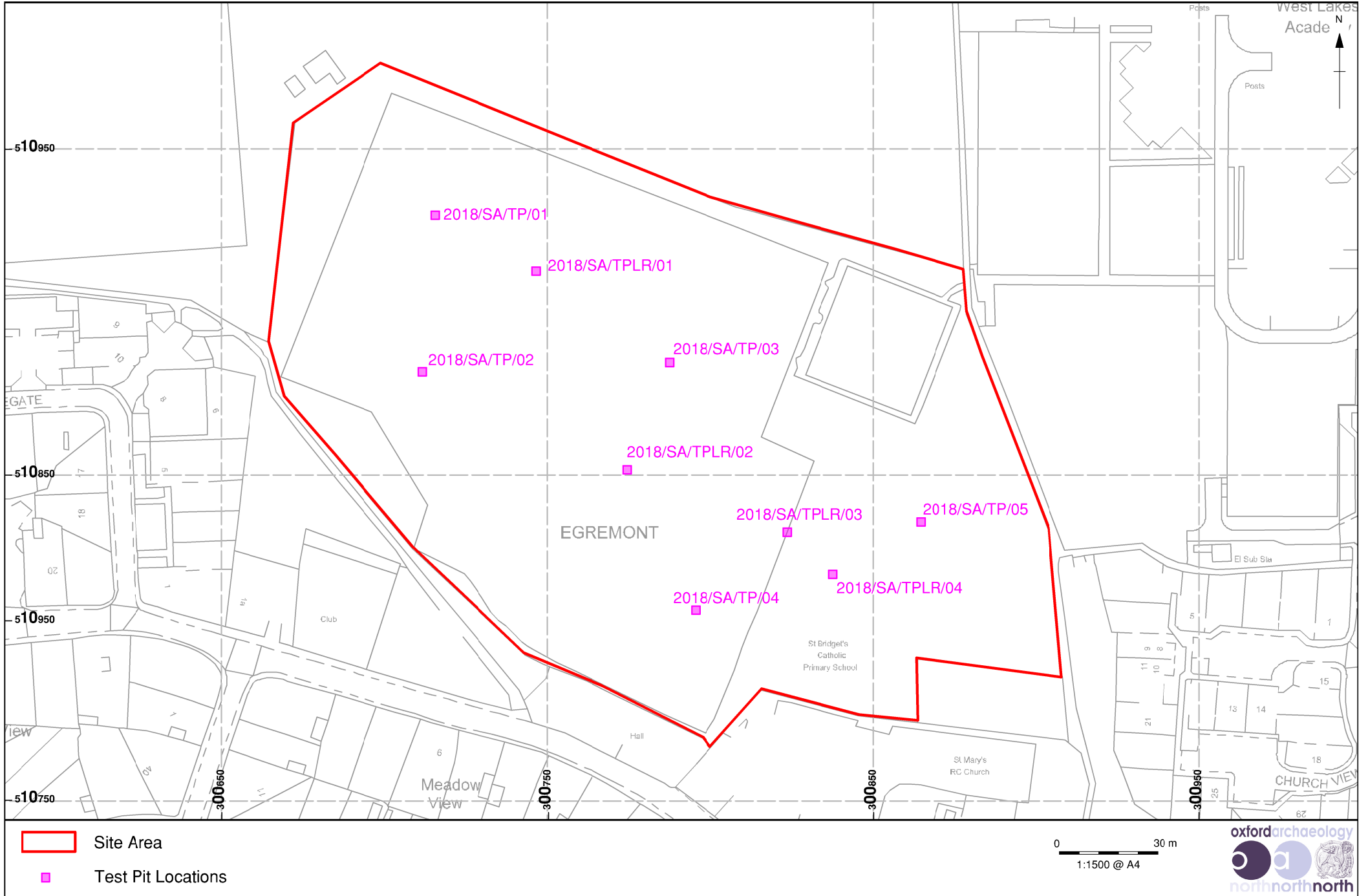


Figure 2: West Lakes Academy/SASRA Test Pit locations

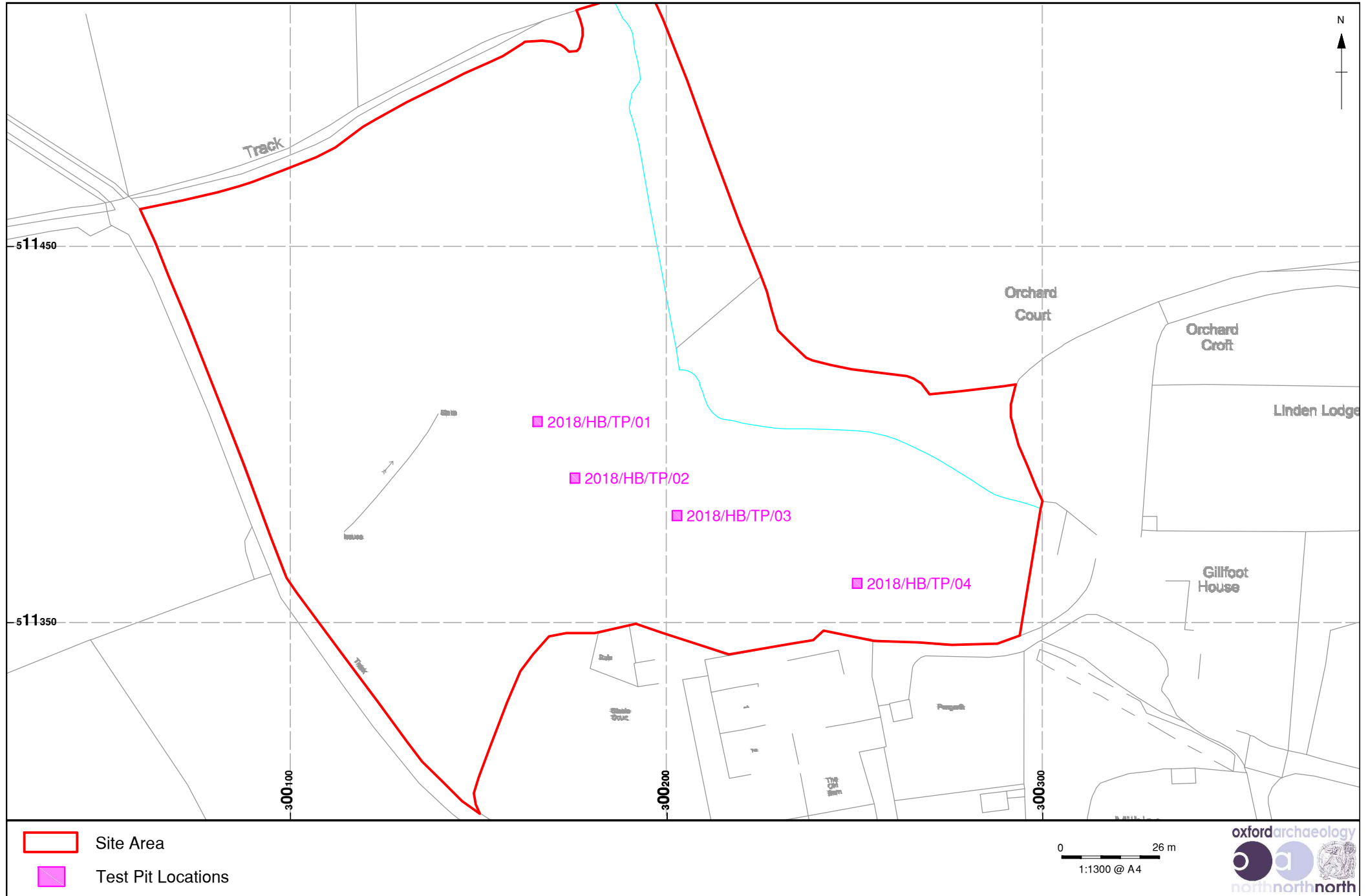


Figure 3: How Bank Farm Test Pit locations

APPENDIX A TRENCH DESCRIPTIONS AND CONTEXT INVENTORY

Test Pit SA/TP01					
General description				Orientation	E-W
Trench devoid of archaeology. Consists of gravel surface over clinker layer laid over made ground of redeposited clay overlying natural geology of sand.				Length (m)	1.5
				Width	0.6
				Max. depth (m)	2.2
Context No.	Type	Depth (m)	Description		
100	Layer	0.0 -0.02	Light yellowish brown fine gravelly sand		
101	Layer	0.02 – 0.05	Fine reddish brown gravel		
102	Layer	0.05 – 0.1	Klinker		
103	Layer	0.1 – 0.2	Redeposited pinkish gray aggregate		
104	Layer	0.2 – 0.8	Redeposited reddish brown clay, freq. med – large cobbles		
105	Layer	0.8 – 1.0	Relict soil horizon		
106	Natural	1.0	Fine grey sand		

Test Pit SA/TP02					
General description				Orientation	N-S
Trench devoid of archaeology. Consists of gravel surface over clinker layer laid over made ground of redeposited clay and cobbles overlying natural geology of sand.				Length (m)	1.3
				Width	0.6
				Max. depth (m)	2.3
Context No.	Type	Depth (m)	Description		
200	Layer	0.0 -0.02	Light yellowish brown fine gravelly sand		
201	Layer	0.02 – 0.05	Fine reddish brown gravel		
202	Layer	0.05 – 0.1	Klinker		
203	Layer	0.1 – 0.35	Redeposited compact redeposited red clay		
204	Layer	0.35 – 0.9	Redeposited compact greyish brown clay, frequent medium – large cobbles		
205	Layer	0.9 – 1.1	Relict soil horizon		
206	Natural	1.1	Firm reddish grey clayish sand		

Test Pit SA/TP03					
General description				Orientation	E-W
Trench devoid of archaeology. Consists of gravel surface over clinker layer laid over made ground of redeposited silty clay overlying natural geology of sand. Post med ceramic found in (302).				Length (m)	1.5
				Width	0.60
				Max. depth (m)	2.2
Context No.	Type	Depth (m)	Description		
300	Layer	0.0 -0.02	Light yellowish brown fine gravelly sand		
301	Layer	0.02 – 0.05	Fine reddish brown gravel		
302	Layer	0.05 – 0.1	Klinker		
303	Layer	0.1 – 0.9	Redeposited greyish brown silty clay		
304	Layer	0.9 – 1.1	Relict soil horizon		
305	Natural	1.1	Reddish brown firm clay		

Test Pit SA/TP04				
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General description				Orientation	E-W
Trench devoid of archaeology. N-S field drain at 0.2m depth Consists of gravel surface over clinker layer laid over made ground of redeposited sandy clay overlying natural geology of sand.				Length (m)	1.5
				Width	0.60
				Max. depth (m)	2.25
Context No.	Type	Depth (m)	Description		
400	Layer	0.0 – 0.02	Light yellowish brown fine gravelly sand		
401	Layer	0.02 – 0.05	Fine reddish brown gravel		
402	Layer	0.05 – 0.1	Klinker		
403	Layer	0.1 – 0.9	Redeposited greyish brown sandy clay, moderate small – medium cobbles		
404	Layer	0.9 – 1.1	Relict soil horizon		
405	Natural	1.1	Soft yellowish grey fine sand		

Test Pit SA/TPLR01					
General description				Orientation	-
Trench devoid of archaeology. N-S field drain at 0.2m depth Consists of gravel surface over clinker layer laid over made ground of redeposited clay overlying natural geology of sand.				Length (m)	2.5
				Width	2.5
				Max. depth (m)	4.5
Context No.	Type	Depth (m)	Description		
500	Layer	0.0 – 0.02	Light yellowish brown fine gravelly sand		
501	Layer	0.02 – 0.05	Fine reddish brown gravel		
502	Layer	0.05 – 0.1	Klinker		
503	Layer	0.1 – 0.2	Levelling layer of pinkish grey aggregate		
504	Layer	0.2 – 0.8	Redeposited compact reddish brown clay, frequent medium to large cobbles		
505	Layer	0.8 – 1.0	Relict soil horizon		
506	Natural	1.0	Fine firm pinkish grey sand		

Test Pit SA/TPLR02					
General description				Orientation	E-W
Trench devoid of archaeology. N-S field drain at 0.2m depth Consists of gravel surface over clinker layer laid over made ground of redeposited sandy clay overlying natural geology of clayish sand.				Length (m)	2.4
				Width	2.2
				Max. depth (m)	4.5
Context No.	Type	Depth (m)	Description		
600	Layer	0.0 – 0.02	Light yellowish brown fine gravelly sand		
601	Layer	0.02 – 0.05	Fine reddish brown gravel		
602	Layer	0.05 – 0.1	Klinker		
603	Layer	0.1 – 0.75	Redeposited compact greyish brown sandy clay, moderate small – medium cobbles		
604	Layer	0.75 – 0.9	Redeposited friable greyish brown clay, frequent small – medium cobbles		
605	Layer	0.9 – 1.1	Relict soil horizon		
606	Natural	1.1	Firm reddish grey clayish sand		

Test Pit SA/TPLR03					
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General description				Orientation	-
Trench devoid of archaeology. N-S field drain at 0.2m depth Consists of gravel surface over clinker layer overlying natural geology of stoney sandy gravel.				Length (m)	2.0
				Width	2.0
				Max. depth (m)	4.5
Context No.	Type	Depth (m)	Description		
700	Layer	0.0 – 0.02	Light yellowish brown fine gravelly sand		
701	Layer	0.02 – 0.05	Fine reddish brown gravel		
702	Layer	0.05 – 0.1	Klinker		
703	Natural	0.1	Loose reddish brown sandy gravel, frequent small to large cobbles.		

Test Pit SA/TPR04					
General description				Orientation	-
Trench devoid of archaeology. N-S field drain at 0.2m depth Consists of gravel surface over clinker layer overlying stoney sandy gravel.				Length (m)	2.0
				Width	2.0
				Max. depth (m)	4.5
Context No.	Type	Depth (m)	Description		
800	Layer	0.0 – 0.02	Light yellowish brown fine gravelly sand		
801	Layer	0.02 – 0.05	Fine reddish brown gravel		
802	Layer	0.05 – 0.1	Klinker		
803	Natural	0.1	Loose reddish brown sandy gravel, frequent small to large cobbles.		

Test Pit HB/TP01					
General description				Orientation	-
Trench devoid of archaeology. Consists of topsoil overlaying an ashy refuse layer over a level of made ground atop gravels overlaying sandy gravel				Length (m)	2.0
				Width	2.0
				Max. depth (m)	2.5
Context No.	Type	Depth (m)	Description		
900	Layer	0.0 – 0.15	Topsoil		
901	Layer	0.15 – 0.6	Dark blackish grey ashy w/ refuse		
902	Layer	0.6 – 1.5	Dark reddish brown clay. Made ground.		
903	Layer	1.5 – 1.7	Mid whiteish grey gravels.		
904	Natural	1.7	Light reddish orange sandy gravel		

Test Pit HB/TP02					
General description				Orientation	-
Trench devoid of archaeology. NW-SE field drain at 1.2m depth Consists of topsoil overlaying an ashy refuse layer over a level of made ground atop sandy gravel.				Length (m)	2.0
				Width	2.0
				Max. depth (m)	1.5
Context No.	Type	Depth (m)	Description		
1000	Layer	0.0 – 0.15	Topsoil		
1001	Layer	0.15 – 0.6	Dark blackish grey ashy w/ refuse		
1002	Layer	0.6 – 1.2	Dark reddish brown clay. Made ground.		

1003	Natural	1.2	Light reddish orange sandy gravel
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Test Pit HB/TP03					
General description			Orientation	-	
Trench devoid of archaeology. Consists of topsoil overlaying an ashy refuse deposit filling in a void within dark reddish brown clay which overlays mottled brownish grey clay natural			Length (m)	2.0	
			Width	2.0	
			Max. depth (m)	2.5	
Context No.	Type	Depth (m)	Description		
1100	Layer	0.0 – 0.2	Topsoil		
1101	Deposit	0.2 – 0.65	Dark blackish grey ashy w/ refuse		
1102	Layer	0.02 – 1.2	Dark reddish brown clay. Made ground.		
1103	Natural	1.2	Mottled brownish grey clay		

Test Pit HB/TP04					
General description			Orientation	-	
Trench devoid of archaeology. Consists of topsoil overlaying a layer of made ground atop sandy gravel natural.			Length (m)	2.0	
			Width	2.0	
			Max. depth (m)	2.4	
Context No.	Type	Depth (m)	Description		
1200	Layer	0.0 – 0.2	Topsoil		
1201	Layer	0.2 – 1.3	Dark reddish brown clay. Made ground.		
1202	Layer	1.3	Light reddish orange sandy gravel		

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APPENDIX C**SITE SUMMARY DETAILS**

Site name:	Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria
Site code:	SWB18
Grid Reference	NY 00780 10862
Type:	Watching Brief
Date and duration:	24/10/18 – 08/11/18, 8 days
Location of archive:	The archive is currently held at OA, Mill 3, Moor Lane Mills, Moor Lane, Lancaster, LA1 1QD, and will be deposited with Whitehaven Archive and Local Studies Centre in due course.
Summary of Results:	A Watching Brief was maintained during the excavation of 12 test pits across two areas of the Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria. Four test pits were excavated to a depth of 2m and four test pits were excavated to a depth of 4.5m on the West Lakes Academy/SASRA area, whilst four test pits were excavated to a depth of 2.5m on the How Bank Farm area. There was no archaeology identified within any of the test pits.

APPENDIX D

WEST LAKES ACADEMY/SASRA WRITTEN SCHEME OF INVESTIGATION



Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria

Written Scheme of Investigation Archaeological Watching Brief

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Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria

Written Scheme of Investigation for an Archaeological Watching Brief

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- Fig.1 Site location
Fig.2 Test Pit Location Plan (VBA Joint Venture Ltd 2018)

1 INTRODUCTION

1.1 Project details

- 1.1.1 Oxford Archaeology (OA) North have been commissioned by Atkins Ltd on behalf of VBA Joint Venture Ltd for the Environment Agency to undertake a Watching Brief during ground investigate works on Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria (NGR NY 00780 10862).
- 1.1.2 A programme of Ground Investigation (GI) works has been prepared to inform the selection of a preferred option and inform the detailed design process. The need for an archaeological watching brief has been identified in consultation with the Cumbria County Council Historic Environment Officer and the Environment Agency (EA) and has been identified by the EA Archaeologist for inclusion in the emerging GI Scope. The nature and scope of archaeological intervention throughout the GI programme has also been discussed with the Cumbria County Council (CCC) Historic Environment Officer as archaeological advisor to the Local Authority; this document outlines how OA will implement those requirements.
- 1.1.3 All work will be undertaken in accordance with local and national planning policies referenced within this document.

1.2 Location, topography and geology

- 1.2.1 The test pits to be monitored as part of the GI works are located to the west of the town of Egremont, Cumbria (Fig 1). They are to be excavated on land currently identified as dis-used playing fields of the West Lakes Academy and the SASRA Falcon Club. The land is bounded by the West Lakes Academy to the east, St Bridgett's Lane to the south and further playing fields to the north and west.
- 1.2.2 The solid bedrock geology of the site is mapped as Breccia of the Brockram formation formed in the Triassic and Permian Periods (BGS 2018). The superficial deposits to the north of the site are mapped as clay, silt, sand and gravel alluvium deposited in the Quaternary period, whilst to the south they are mapped as Diamicton Devensian Till deposited in the Quaternary period (*ibid*). The soils of the area are identified as freely draining slightly acid loamy soils (Cranfield 2018).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND AND POTENTIAL

2.1 Archaeological and historical background

2.1.1 The archaeological and historical background of the site has been described in detail in a Desk-Based Assessment (DBA) produced by OA North (2015), and will not be reproduced here.

2.2 Potential

2.2.1 The DBA (*ibid*) suggests that while the site has relatively low potential for archaeology, there is still potential for the presence of previously unidentified sites of archaeological and mining interest within the development area. This is based on other known sites and find spots in the vicinity of the site, as such, these may date to the Neolithic or, more likely, late medieval, as well as possible mine shafts and adits associated with Gillfoot Park Pit (HER reference 14875) known to be extant in the vicinity.

2.2.2 A geophysical survey was undertaken by TerraDat in 2016 which highlighted several anomalies which may relate to archaeological features or mining activity. There are also several anomalies in the field to the north of the one subject to the test pitting which may relate to archaeological features or mining activity. As such, there is the potential to ground-truth these geophysical anomalies as part of the test pitting works.

3 PROJECT AIMS

3.1 General

3.1.1 The general aims of the project can be summarised as follows;

- to adhere to and fulfil the agreed programme of works associated with the archaeological potential of the site;
- to inform a decision as to whether further archaeological investigation will be required in advance of further works on the Skirting and Whangs Beck scheme;
- to compile a professional archival record of any archaeological remains within the test pits.

3.2 Specific aims and objectives

3.2.1 The specific aims and objectives of the watching brief are:

- i. To determine or confirm the general nature of any remains present.
- ii. To determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence.

4 PROJECT SPECIFIC EXCAVATION AND RECORDING METHODOLOGY

4.1 Scope of works

4.1.1 The works will involve monitoring and recording 5 test pits 2m deep and 4 test pits 4.5m deep, all to be excavated with a mechanical excavator fitted with a toothless ditching bucket on the West Lakes Academy playing fields (Fig 2). The spoil will be checked for finds and if significant material is detected this will be retained. Where archaeological deposits are encountered the archaeologist will be afforded the opportunity to clean, investigate, record and sample all archaeological remains to an appropriate degree. If potentially significant archaeological remains are identified, the archaeologist will stop works and inform Atkins Ltd, who will consult with the EA Archaeologist and the Historic Environment Officer for CCC. It is considered by the Historic Environment Officer for CCC that if peat is encountered during the excavation of the test pits, that it likely formed in 'archaeological hollows' and has therefore advised that further investigation would not be necessary. The works will follow the Environment Agency's Cultural Heritage Minimum technical requirements.

4.2 Programme

- 4.2.1 It is anticipated that the fieldwork will take three days to complete during October 2018, by a team consisting of a Project Archaeologist, Steve Clarke, under the management of Paul Dunn, Project Manager.
- 4.2.2 All fieldwork undertaken by Oxford Archaeology (North) is overseen by the Operations Manager, Alan Lupton MCIfA.

4.3 Site specific methodology

- 4.3.1 A summary of OA's general approach to excavation and recording can be found in Appendix A. Standard methodologies for Geomatics and Survey, Environmental evidence, Artefactual evidence and Burials can also be found below (Appendices B, C, D and E respectively).
- 4.3.2 Site specific methodologies will be as follows:
- i. The Project Archaeologist will maintain a watching brief during the excavation of the 9 test pits, 5 test pits to be excavated to a depth of 2m and 4 test pits to be excavated to a depth of 4.5m;
 - ii. The Project Archaeologist will be afforded the opportunity to clean, investigate, record and sample all archaeological remains to an appropriate degree. If potentially significant remains are identified, the Project Archaeologist will stop excavation works. They will inform Atkins Ltd, who will consult the EA Archaeologist and the Historic Environment Officer for CCC, work will only continue with their approval.
 - iii. It is considered by the Historic Environment Officer for CCC that if peat is encountered during the excavation of the test pits, that it likely formed in 'archaeological hollows' and has therefore advised that further investigation would not be necessary.

- iv. A photographic and textual record will be made of the stratigraphy within the test pit, with measurements etc;
- v. Spoil arising from the excavation will be scanned for finds and palaeoenvironmental evidence, which will be collected if deemed significant, the spoil will also be scanned with a metal detector by the Project Archaeologist;
- vi. At all times, the archaeologist will work under the Health and Safety directions of the site contractor.

5 PROJECT SPECIFIC REPORTING AND ARCHIVE METHODOLOGY

5.1 Programme

- 5.1.1 An interim report will be made available to Atkins Ltd within 7 days of the completion of the fieldwork. The final report will then be completed within 4 weeks of the completion of the fieldwork.
- 5.1.2 A copy of the report in Adobe Acrobat (.pdf) format will be provided to Atkins Ltd and, via them, to the relevant representatives at the Environment Agency. Once approved a copy will be provided by Atkins Ltd to the archaeological advisor to Cumbria County Council for comment prior to final issue. Paper copies can also be provided on request.

5.2 Content

- 5.2.1 The content of this report will be as defined in Appendix F. The content of the report will follow the Environment Agency's Cultural Heritage Minimum technical requirements.

5.3 Specialist input

- 5.3.1 OA has a large pool of internal specialists, as well as a network of external specialists with whom OA have well established working relationships. A general list of these specialists is presented in Appendix G; in the event that additional input should be required, an updated list of specialists can be supplied.

5.4 Archive

- 5.4.1 The site archive will be deposited with Whitehaven Archive and Local Studies Centre following completion of the project.
- 5.4.2 A summary of OA's general approach to documentary archiving can be found in Appendix H.

6 HEALTH AND SAFETY

6.1 Roles and responsibilities

- 6.1.1 The Project Manager, Paul Dunn, has responsibility for ensuring that safe systems of work are adhered to on site. He delegates elements of this responsibility to the Project Archaeologist, Steve Clarke, who implements these on a day to day basis.
- 6.1.2 The Director with responsibility for Health and Safety at OA is Dan Poore Tech IOSH (Chief Business Officer).

6.2 Method statement and risk assessment

- 6.2.1 A summary of OA's general approach to health and safety can be found in Appendix I. A risk assessment has also been undertaken and approved and will be kept on site, along with OA's standard Health and Safety file, which will contain all relevant health and safety documentation.
- 6.2.2 The Health and Safety file will be available to view at any time.

6.3 Monitoring of works

- 6.3.1 Archaeological investigations will be monitored where appropriate by the Atkins heritage team, EA Archaeologist and CCC Historic Environment Officer. All such site visits will be carried out under the auspices of the Main Contractors Health and Safety Plan and visitors will have a current CSCS Card, wear appropriate PPE and be accompanied at all times.

7 BIBLIOGRAPHY

British Geological Survey (BGS), 2018, Geology of Britain Viewer, [Online], available at: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> (accessed October 2018)

Cranfield Soil and Agrifood Institute, 2018, National Soil Resources Institute', Soilscales of Britain Map, [Online], available at: <http://www.landis.org.uk/soilscales/> , Cranfield University (accessed October 2018)

Environment Agency *801_14_SD01 Cultural heritage and archaeology standards*

OA North, 2015, *Skirting and Whangs Beck, Egremont, Cumbria: Archaeological Desk-Based Assessment*, unpubl rep

TerraDat, 2016, *Geophysical Survey Report: Geophysical Survey to Detect Mine Workings*, unpubl rep

OA STANDARD FIELDWORK METHODOLOGY APPENDICES

The following methods and terms will apply, where appropriate, to all OA fieldwork unless varied by the accompanying detailed Written Scheme of Investigation.

Copies of all OA internal standards and guidelines referred to below are available on request.

APPENDIX A GENERAL EXCAVATION AND RECORDING METHODOLOGY

A.1 Standard methodology – summary

Mechanical excavation

- A.1.1 An appropriate mechanical excavator will be used for machine excavation. This will normally be a JCB or 360° tracked excavator with a 1.5 m to 2 m wide toothless ditching bucket. For work with restricted access or working room a mini excavator may be used.
- A.1.2 All mechanical excavation will be undertaken under direct archaeological supervision.
- A.1.3 All undifferentiated topsoil or overburden of recent origin will be removed down to the first significant archaeological horizon, in successive, level spits.
- A.1.4 Following mechanical excavation, all areas that require examination or recording will be cleaned using appropriate hand tools.
- A.1.5 Spoil heaps will be monitored in order to recover artefacts to assist in the analysis of the spatial distribution of artefacts. Modern artefacts will be noted but not retained.
- A.1.6 After recording, evaluation trenches and test pits will usually be backfilled with excavated material in reverse order of excavation, and compacted as far as is practicable with the mechanical excavator. Area excavations will not normally be backfilled.

Hand excavation

- A.1.7 All investigation of archaeological levels will usually be by hand, with cleaning, examination and recording both in plan and section.
- A.1.8 Within significant archaeological levels the minimum number and proportion of features required to meet the aims of the excavation will be hand excavated. Pits and postholes will usually be subject to a 50% sample by volume. Linear features will be sectioned as appropriate. More complex features such as those associated with funerary activity will usually be subject to 100% hand excavation.
- A.1.9 In the case of evaluations, it is not necessarily the intention that all trial trenches will be fully excavated to natural stratigraphy, but the depth of archaeological deposits across the site will be assessed. The stratigraphy of a representative sample of the evaluation trenches will be recorded even where no archaeological deposits have been identified. Any excavation, both by machine and by hand, will be undertaken with a

view to avoiding damage to any archaeological features or deposits, which appear to be worthy of preservation in situ.

Recording

- A.1.10 Written descriptions will be recorded on proforma sheets comprising factual data and interpretative elements.
- A.1.11 Where stratified deposits are encountered a Harris matrix will be compiled during the course of the excavation.
- A.1.12 Plans will normally be drawn at 1:100, but on urban or deeply stratified sites a scale of 1:50 or 1:20 will be used. Detailed plans will be at an appropriate scale. Burials will be drawn at scale 1:10 or recorded using geo-referenced digital photography.
- A.1.13 The site grid will be accurately tied into the National Grid and located on the 1:2500 or 1:1250 map of the area.
- A.1.14 A register of plans will be kept.
- A.1.15 Long sections of showing layers will be drawn at 1:50. Sections of features or short lengths of trenches will be drawn at 1:20.
- A.1.16 A register of sections will be kept.
- A.1.17 Generally, all sections will be tied in to Ordnance Datum.
- A.1.18 A full photographic record, illustrating in both detail and general context the principal features and finds discovered will be maintained. The photographic record will also include working shots to illustrate more generally the nature of the archaeological work.
- A.1.19 Photographs will be recorded on OA Photographic Record Sheets.

A.2 Relevant industry standards and guidelines

- A.2.1 The Chartered Institute for Archaeologists Standard and Guidance notes relevant to fieldwork are:
 - Standard and Guidance for Archaeological Field Evaluation
 - Standard and Guidance for Archaeological Excavation
 - Standard and Guidance for an Archaeological Watching Brief.
- A.2.2 These will be adhered to at all times.

A.3 Relevant OA manual and other supporting documentation

- A.3.1 All fieldwork will be undertaken in accordance with the requirements of the OA Field Manual (ed. D Wilkinson 1992), and the revised OA fieldwork manual (publication forthcoming).
- A.3.2 Further guidance is provided to all excavators in the form of the OA 'Fieldwork Crib Sheets - a companion guide to the Fieldwork Manual'. These have been issued ahead of formal publication of the revised Fieldwork Manual.

APPENDIX B GEOMATICS AND SURVEY

B.1 Standard methodology - summary

- B.1.1 The aim of OA methodology is to provide comprehensive survey cover of all investigation areas. Additionally, it is designed to provide coverage for any areas, beyond the original scope of the project, which arise as a result of further work. It provides digital plans of all required elements of the project and locates them within an overall grid.
- B.1.2 It also maintains all necessary survey data and ensures that the relevant information is copied into the primary record, in order to ensure the integrity of the project archive. Furthermore, it ensures that all core data is securely stored and backed up. It establishes accurate project reference systems utilising a series of control stations and permanent base lines.
- B.1.3 The survey will be conducted using a combination of Total Station Theodolite (TST) survey utilising Reflectorless Electronic Distance Measurement (REDM) where appropriate, hand-measured elements and GPS (Global Positioning System), or photogrammetry.
- B.1.4 Before the main work commences, a network of control stations will be laid out encompassing the area. Control stations will be tied in to known points or existing features using rigorous metric observation. The control network will be set in using a TST to complete a traverse or using techniques as appropriate to ensure sufficient accuracy. A GPS, or other appropriate method, will be used to orientate the control network to National Grid or other recognised coordinate system.
- B.1.5 All control stations will be checked by closed traverse and/or GPS, as appropriate. The accuracy of these control stations will be accessed on a regular basis and re-established accordingly. All stations will be recorded on Survey Control Station sheets.
- B.1.6 Each control station will be marked with a PGM (Permanent Ground Marker). Witness diagrams will include the full 3-D co-ordinates generated, a sketch diagram and measurements to at least three fixed details, written description of the mark and a photograph of the control point in its environs.
- B.1.7 Prior to entry into the field all equipment will be checked, and all pre-survey information will be logged onto the field computer and uploaded onto survey equipment as appropriate. The software in the field computer will be verified and all cabling between the GPS and/or TST and computer will be checked. Prior to conducting the survey, the site will be reconnoitred for locations for a viable control network and check the line of sight and any possible hindrance to survey. Daily record sheets will be kept to record daily tasks and conditions.
- B.1.8 All spatial data will be periodically downloaded onto a field computer, and backed up onto CD, or DVD. It will be cleaned, validated and inspected.
- B.1.9 All survey data will be documented on daily survey record sheets. Information entered on these sheets includes key set up information (Instrument height etc.) as well as daily variables and errors/comments. All survey data will be digitally recorded in a raw

format and translated during the download process this shall allow for any errors to be cross referenced with the daily survey record and corrected accordingly.

- B.1.10** A weekly summary of survey work will be produced to access development and highlight problems. This information also will be recorded on the weekly survey journal. Technical support for the survey equipment and download software shall be available at all times. In those instances, where sites are remotely operated, all digital data will be backed up regularly and a copy returned to Oxford on a weekly basis.
- B.1.11** A site plan will initially be created by a rapid survey of relevant archaeological features by mapping their extent using a combination of TST and GPS. This will form the basis for deciding excavation strategy and will be updated as the excavation clarifies the extent of, and relationships between, archaeological features.
- B.1.12** Excavated archaeological interventions and areas of complex stratigraphy will be hand drawn. At least two Drawing Points (DPs) will be set in as a baseline and measurements taken off this by tape and offset. The hand drawn plans will be referenced to the digitally captured pre-site plan by measuring in the DPs with a TST or GPS. These hand drawn elements will then be scanned in, geo-referenced using the DPs as reference points and digitised following OA's digitising protocols. For further details on hand planning procedure please refer to the fieldwork guidelines.
- B.1.13** Where appropriate photogrammetry or rectified photography may be used to record standing structures or burials. This will be carried out in line with Standard OA procedures for photogrammetry or rectified photography.
- B.1.14** Survey data recorded in the field will be downloaded using appropriate downloading software, and saved as an AutoCAD Map DWG file, or an ESRI Shapefile. These files will be regularly updated and backed up with originals being stored on an OA server in Oxford.
- B.1.15** All drawings will be composed of closed polygons, polylines or points in accordance with the requirements of GIS construction and OA Geomatics protocols. Once created, additional GIS/CAD work will normally be carried out at the local OA central office or at on-site remote locations when appropriate. Support for all GIS/CAD work will be available from OA's Oxford Office during normal office hours. The aim of the GIS/CAD work is to produce workable draft plans, which can be produced as stand-alone products, or can be readily converted to GIS format. Any hand-drawn plans will be scanned and digitised on site in the first instance. Subsequent plans will be added to the main drawing as it develops.
- B.1.16** All plan scans will be numbered according to their plan site number. Digital plans will be given a standard new plan number taken out from the site plan index.
- B.1.17** All digital data will be backed up incrementally on CD or DVD. On each Friday the entire data directory will be backed up and returned to Oxford where it will be copied onto the OA projects server. Each CAD drawing will contain an information layout which will include all the relevant details appertaining to that drawing. Information (metadata) on all other digital files will be created and stored as appropriate. At the end of the

survey all raw measurements will be made available as hard copy for archiving purposes.

B.2 Relevant industry standards and guidelines

- B.2.1 Historic England (2007) Understanding the Archaeology of Landscapes A Guide to Good Recording Practice.
- B.2.2 Historic England (2015), Metric Survey Specifications for Cultural Heritage.
- B.2.3 Historic England (2016), Understanding Historic Buildings A Guide to Good Recording Practice.
- B.2.4 Historic England (2017), Photogrammetric Applications for Cultural Heritage. Guidance for Good Practice.

B.3 Relevant OA manual and other supporting documentation

- B.3.1 OA South Metric Survey, Data Capture and Download Procedures
- B.3.2 OA South Digitising Protocols
- B.3.3 OA South GIS Protocols
- B.3.4 These will be superseded by the OA South Geomatics Manual (in progress).

APPENDIX C ENVIRONMENTAL EVIDENCE

C.1 Standard methodology – summary

- C.1.1 Different environmental and geoarchaeological sampling strategies may be employed according to established research targets and the perceived importance of the strata under investigation. Where possible an environmental specialist(s) will visit the site to advise on sampling strategies. Sampling methods will follow guidelines produced by Historic England and Oxford Archaeology. A register of samples will be kept. Specialists will be consulted where non-standard sampling is required (e.g. TL, OSL or archaeomagnetic dating) and if appropriate will be invited to visit the site and take the samples.
- C.1.2 Geoarchaeological sampling methods are site specific, and methodologies will be designed in consultation with the geoarchaeological manager on a site by site basis.
- C.1.3 Bulk soil samples, where possible of 40 litres or 100% of a deposit if less is available, will be taken from potentially datable features and layers for flotation for charred plant remains and for the recovery of small bones and artefacts. Larger soil samples (up to 100L) may be taken for the complete recovery of animal bones, marine shell and small artefacts from appropriate contexts. Smaller bulk samples (general biological samples) of 10-20 litres will be taken from any waterlogged deposits present for the recovery of macroscopic plant remains and insects. Series of incremental 2L samples may be taken through buried soils and deep feature fills for the recovery of snails and/or waterlogged plant remains, depending on the nature of the stratigraphy and of the soils and sediments. Columns will be taken from buried soils, peats and waterlogged feature fills for pollen and/or phytoliths, diatoms, ostracods and foraminifera if appropriate. Soil samples will be taken for soil investigations (particle size, organic matter, bulk chemistry, soil micromorphology etc.) and possibly for metallurgical analysis in consultation with the appropriate specialists.
- C.1.4 Bulk samples from dry deposits will be processed by standard water flotation using a modified Siraf-style machine and meshes of 0.25mm (flot) and 0.5 or 1mm depending on sediment type and like modes of preservation (residue). Heavy residues will be wet sieved, air dried and sorted. Samples taken exclusively for the recovery of bones, marine shell or artefacts will be wet sieved to 2mm. Waterlogged samples (1L sub-sample) and snail samples (2L) will be processed by hand flotation with flots and residues collected to 0.25mm (waterlogged plants) and 0.5mm (snails) respectively; these flots and residues will be sorted by the specialist. Samples specifically taken for insects, pollen, other microflora and microfauna, metallurgy and soil analysis will be submitted as whole earth to the appropriate specialists or processed following their instructions.

C.2 Relevant industry standards and guidelines

- C.2.1 Historic England 2010. Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood.

- C.2.2 Historic England 2011. Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post excavation, (2nd ed)
 - C.2.3 Historic England 2004. Dendrochronology: Guidelines on Producing and Interpreting Dendrochronological Dates.
 - C.2.4 Historic England 2006. Archaeomagnetic Dating. Guidelines for Producing and Interpreting Archaeomagnetic Dates.
 - C.2.5 Historic England 2008. Luminescence Dating. Guidelines on Using Luminescence Dating in Archaeology.
 - C.2.6 Historic England 2008. Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains.
 - C.2.7 Historic England 2014. Animal Bones and Archaeology. Guidelines for Best Practice.
 - C.2.8 Historic England, 2015. Archaeometallurgy. Guidelines for Best Practice.
 - C.2.9 Historic England 2015 Geoarchaeology. Using Earth Sciences to Understand the Archaeological Record.
- C.3 Relevant OA manual and other supporting documentation**
- C.3.1 Oxford Archaeology 2005. Environmental Sampling Guidelines, 2nd ed.

APPENDIX D ARTEFACTUAL EVIDENCE

D.1 Standard methodology - summary

- D.1.1 Before a site begins arrangements concerning the finds will be discussed with the Head of Finds. Information will be provided by the project manager about the nature of the site, the expected size and make-up of the finds assemblage and any site specific finds retrieval strategies. On-site requirements will be discussed and a conservator appointed who can be called on to make site visits if required. Special requirements regarding particular categories of material will be raised at this early stage for instance the likelihood of recovering assemblages of waterlogged material, large timbers, quantities of structural stone or ceramic building material. Specialists may be required to visit sites to discuss retrieval strategies.
- D.1.2 The project manager will supply the Head of Finds with contact details of the landowner of the site so that consent to deposit any finds resulting from the investigation can be sought.
- D.1.3 The on-site retrieval, lifting and short term packaging of bulk and small finds will follow the detailed guidelines set out in the OA Finds Manual (sections 2 and 3), First Aid for Finds and the UKIC conservation guidelines No.2.
- D.1.4 All finds recovered from site will be transported to an OA regional office for processing; local sites will return finds at the end of each day, away based sites at the end of each week. Special arrangements can be discussed for certain sites with the department manager before the start of a project. Larger long running sites may in some instances set up on-site processing units to deal with the material from a particular site.
- D.1.5 All finds qualifying as Treasure will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act (1996), and the Treasure (Designation) Order 2002. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.
- D.1.6 Each box of finds will be accompanied by a finds context checklist itemising the finds within each box. The number of bags of finds from each context and individual small find from each context will be recorded. A member of the processing team will check the list when it arrives in the department. There are separate forms for finds recovered from fieldwalking.
- D.1.7 The processing programme is reviewed on a weekly basis and priorities are worked out after discussions with the Head of Fieldwork and the Head of Post-excavation. Project managers will keep the Head of Finds informed of any pressing deadlines that they are aware of. All finds from evaluations are dealt with as a matter of priority.
- D.1.8 All bulk finds are washed (where appropriate), marked, bagged and boxed by the processing team according to the guidelines set out in section 4 and 5 of the OA Finds Manual, First-aid for finds and the UKIC guidelines No.2. They must also take into account the requirements of the receiving museum. Primary data recording count and weight of fragments by material from each context is recorded on the site database.

- D.1.9 Unstable and sensitive objects are recorded onto the database and then packaged and stored in controlled environments according to their individual requirements. The advice of a conservator will be sought for sensitive objects in need of urgent conservation. All metalwork will be x-rayed prior to assessment (and to meet the requirements of most receiving museums).
- D.1.10 Finds recovered from the environmental sample processing will be incorporated into the main assemblage and added to the database.
- D.1.11 On completion of the processing and data entry a finds file for each archaeological investigation will be produced, a summary of which is available for the project manager. The assemblage is allocated an OA number for storage purposes. Bulk finds are stored on a roller racking system, metals in a secure controlled storage and organic finds are refrigerated where possible.
- D.1.12 The movement of finds in and out of the department storage areas is strictly monitored and recorded. Carbon copy transit forms exist to record this information. Finds will not be removed from storage without the prior knowledge of the Head of Finds.
- D.1.13 Finds information summarised in the finds compendium is used to assess the finds requirements for the post excavation stages of the project. The Finds department holds a list of all specialists used by OA (see below) both internal and external.
- D.1.14 On completion of the post excavation stage of the project the department prepares the finds assemblage for deposition with the receiving museum. Discussions will be held with the museum, the excavator and the head of finds to finalise any selection, retention or discard policy. Most museums issue strict guidelines for the preparation of archives for deposition with their individual labelling, packaging and recording requirements.

D.2 Relevant industry standards and guidelines

- D.2.1 UKIC, 1983, Packaging and Storage of Freshly-Excavated Artefacts from Archaeological Sites. Conservation Guidelines No.2. Archaeology Section, United Kingdom Institute for Conservation.
- D.2.2 UKIC, 1988, Excavated Artefacts and Conservation: UK sites Revised Edition. Conservation Guidelines No.1. Archaeology Section, United Kingdom Institute for Conservation.
- D.2.3 Society of Museum Archaeologists, 1993, Selection, retention and dispersal of Archaeological Collections. Download available via <http://www.socmusarch.org.uk/publica.htm>
- D.2.4 Watkinson, D E & Neal, V, 1998, First Aid for Finds (3rd edition). RESCUE & UKIC

D.3 Relevant OA manual and other supporting documentation

- D.3.1 Allen, L, and Cropper, C (internal publication only) Oxford Archaeology Finds Manual.

APPENDIX E HUMAN REMAINS

E.1 Standard methodology - summary

- E.1.1 Human remains will not be excavated without a relevant licence/faculty and, where applicable (for example, a post medieval cemetery), a risk assessment from the local environmental officer.
- E.1.2 All human remains will be treated with due care and regard to the sensitivities involved, and will be screened from the public throughout the course of the works.
- E.1.3 Excavation will be undertaken in accordance with ClfA (Roberts and McKinley 1993) and the Advisory Panel on the Archaeology of Burials in England (APABE, 2015, 2017). For crypts and post-medieval burials, the recommendations set out by the ClfA (Cox 2001) and by the Association of Diocesan and Cathedral Archaeologists and APABE (2010) are also relevant.
- E.1.4 In accordance with recommendations set out in the Historic England and Church of England (2005) and updated by the Advisory Panel on the Archaeology of Burials in England (2017), skeletons will not be excavated beyond the limits of the trench, unless they are deemed osteologically or archaeologically important.
- E.1.5 Where any soft tissue survives and/or materials (for example, inner coffins, mattresses and other paddings) soaked in body liquor, no excavation or handling of the remains will take place until an appropriate risk assessment has been undertaken. Relevant protocols (i.e. Cox 2001) for their excavation, recording and removal will be adhered to.
- E.1.6 OA does not excavate or remove modern burials (those less than 100 years old) and does not remove or open sealed lead coffins. Appropriate PPE (e.g. chemical suit, latex gloves) will be worn by all staff when working with lead coffins.
- E.1.7 Graves and their contents will be hand excavated in plan. Each component (for example, skeleton, grave cut, coffin (or remains of), grave fill) will be assigned a unique context number from a running sequence. A group number will also be assigned to all of these, and small finds numbers to features such as coffin nails, hobnails and other grave goods (as appropriate).
- E.1.8 Soil samples will be normally taken during the excavation of inhumations, usually from the region of the skull, chest, right hand, left hand, abdomen and pelvis, right foot and left foot. Infants (circa. less than 5 years) will normally be recovered as bulk samples. Soil samples will also be taken from graves that appear to contain no human bone.
- E.1.9 Burials (including the skeleton, cremation, coffin fittings, coffin, urn, grave goods / other) will be recorded by photographic and written record using specialised pro forma context sheets, although these records may only include schematic representations of the location and position of the skeletons, depending on the nature and circumstances of the burial.

- E.1.10 Where necessary, hand drawn plans (usually at 1:10, sometimes 1:5) will be made, especially of contexts where required details cannot be adequately seen using photography (for example, urned cremations; undisturbed hob nails).
- E.1.11 Levels will be taken. For inhumations this will be on the skull, pelvis and feet as a minimum.
- E.1.12 Human remains that are exhumed will be bagged and labelled according to skeletal region and carefully packed into suitable containers (for example, acid free cardboard boxes) and transported to a suitable storage location. Any associated coffins and coffin fittings will be contained with the human remains wherever possible.
- E.1.13 Urned cremations will not usually be half sectioned, but excavated in spits and/or quadrants (i.e. large deposits or spreads), or recovered as a bulk sample.
- E.1.14 Wherever possible, urned cremations will be carefully bandaged, recovered whole and will be excavated in spits in the laboratory, as per the recommendations of McKinley (2004, 2017).
- E.1.15 Unless deemed osteologically or archaeologically important disarticulated bone / chanel will be collected and reserved for re-burial if immediate re-internment as close to its original position is not practicable. In some instances, a rapid scan of this material may be undertaken by a qualified osteologist, if deemed relevant.
- E.1.16 If undisturbed, pyre sites will normally be excavated in quadrants, at the very least in 0.5 m blocks of 0.5 m spits.
- E.1.17 Pyre debris dumps will be half sectioned or quadrant and will be subject to 100% sampling.
- E.1.18 Wooden and lead coffins and any associated fittings, including fixing nails will be recorded on a pro forma coffin recording sheet. All surviving coffin fittings will be recorded by reference to Reeve and Adams (1993) and the unpublished master catalogue that is being compiled by OA. Where individual types cannot be paralleled, they will be drawn and/ or photographed and assigned a style number. Biographical details obtained from legible departum plate inscriptions will be recorded and further documentary research will be made.
- E.1.19 Funerary structures, such as brick shaft graves and/or vaults will be recorded by photogrammetry or hand-drawn at a scale of 1:10 or 1:20, as appropriate. Location, dimensions and method of construction will be noted, and the structure added to the overall trench plan.
- E.1.20 Memorials, including headstones, revealed within the areas of development will be recorded irrespective of whether they are believed to be in situ.
- E.1.21 Where required, memorials will be accorded an individual context number and will also be included as part of the grave group, if the association with a burial is clear.
- E.1.22 Memorials will be recorded on pro-forma context sheets, based on and following the guidelines set out by Mytum (2002), and will include details of:
- Shape

- Dimensions
- Type of stone used
- Condition, completeness and fragmentation of stones, no longer in original positions
- Iconography (an illustration may best describe these features)
- Inscription (verbatim record of inscription; font of the lettering)
- Stylistic type

E.2 Relevant industry standards and guidelines

- E.2.1 Advisory Panel on the Archaeology of Burials in England, 2017 Guidance for Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England.
- E.2.2 Advisory Panel on the Archaeology of Burials in England, 2015 Large Burial Grounds. Guidance on sampling in archaeological fieldwork projects.
- E.2.3 Association of Diocesan and Cathedral Archaeologists and APABE. 2010 Archaeology and Burial Vaults. A guidance note for churches. Guidance Note 2.
- E.2.4 British Association of Biological Anthropology and Osteoarchaeology. 2011 Code of Practice.
- E.2.5 British Association of Biological Anthropology and Osteoarchaeology. 2011 Code of Ethics.
- E.2.6 Cox, M, 2001 Crypt archaeology. An approach. ClfA Paper No. 3
- E.2.7 McKinley, J, and Roberts, C, 1993 Excavation and post-excavation treatment of cremated and inhumed human remains, ClfA Technical Paper No. 13
- E.2.8 McKinley, J, 2004 Compiling a skeletal inventory: cremated human bone. In Brickley, M, and McKinley, J (eds) Guidelines to the Standards for Recording Human Remains, ClfA Technical Paper No. 7. 9-13.
- E.2.9 McKinley, J, 2017 Compiling a skeletal inventory: cremated human bone. In Mitchell P, and Brickley, M (eds) Updated Guidelines to the Standards for Recording Human Remains, ClfA 14-19
- E.2.10 Mitchell P, and Brickley, M (eds) Updated Guidelines to the Standards for Recording Human Remains, CIFA 2017
- E.2.11 Mytum, H, 2000 Recording and Analysing Graveyards. CBA Handbook No. 15.
- E.2.12 Reeve, J, and Adams, M, 1993 The Spitalfields Project. Volume I – The Archaeology Across the Styx. CBA Research Report No. 85
- E.2.13 The Human Tissue Act 2004

E.3 Relevant OA manual and other supporting documentation

- E.3.1 Loe, L, 2008 The Treatment of Human Remains in the Care of Oxford Archaeology. Oxford Archaeology internal policy document.
- E.3.2 Excavating and recording of buried human remains. Oxford Archaeology internal guidelines document.

APPENDIX F REPORTING

F.1 Standard methodology - summary

F.1.1 For Watching Briefs and Evaluations, the style and format of the report will be determined by OA, but will include as a minimum the following:

- A location plan of trenches and/or other fieldwork in relation to the proposed development.
- Plans and sections of features located at an appropriate scale.
- A section drawing showing depth of deposits including present ground level with Ordnance Datum, vertical and horizontal scale.
- A summary statement of the results.
- A table summarising the features, classes and numbers of artefacts contained within, spot dating of significant finds and an interpretation.
- A reconsideration of the methodology used, and a confidence rating for the results.
- An interpretation of the archaeological findings both within the site and within their wider landscape/townscape setting.

F.1.2 For Excavations, a Post-Excavation Assessment and Project Design will generally be prepared, as prescribed by Historic England Management of Research Projects in the Historic Environment (MoRPHE) 2006, Section 2.3. This will include a Project Description containing:

- A summary description and background of the project.
- A summary of the quantities and assessment of potential for analysis of the information recovered for each category of site, finds, dating and environmental data. Detailed assessment reports will be contained within appendices.
- An explicit statement of the scope of the project design and how the project relates to any other projects or work preceding, concurrent with or following on from it.
- A statement of the research aims of the fieldwork and an illustrated summary of results to date indicating to what extent the aims were fulfilled.
- A list of the project aims as revised in the light of the results of fieldwork and the current post-excavation assessment process.

F.1.3 A section on Resources and Programming will also be produced, containing:

- A list of the personnel involved indicating their qualifications for the tasks undertaken, along with an explanation of how the project team will communicate, both internally and externally.

- A list of the methods which will be used to achieve the revised research aims.
- A list of all the tasks involved in using the stated methods to achieve the aims and produce a report and research archive in the stated format, indicating the personnel and time in days involved in each task. Allowance should be made for general project-related tasks such as monitoring, management and project meetings, editorial and revision time.
- A cascade or Gantt chart indicating tasks in the sequence and relationships required to complete the project. Due allowance will be made for leave and public holidays. Time will also be allowed for the report to be read by a named academic referee as agreed with the County Archaeological Officer, and by the County Archaeological Officer.
- A report synopsis indicating publisher and report format, broken down into chapters, section headings and subheadings, with approximate word lengths and numbers and titles of illustrations per chapter. The structure of the report synopsis should explicitly reflect the research aims of the project.

F.1.4 The Project Design will be submitted to the County Archaeological Officer or equivalent for agreement.

F.1.5 Under certain circumstances (e.g. with very small mitigations), and as agreed with the County Archaeological Officer or equivalent, a formal Assessment and Project Design may not be required and either the project will continue straight to full analysis, or a simple Project Proposal (MoRPHE 2006 Section 2.1) will be produced prior to full analysis. This proposal may include:

- A summary of the background to the project
- Research aims and objectives
- Methods statement outlining how the aims and objectives will be achieved
- An outline of the stages, products and tasks
- Proposed project team
- Estimated overall timetable and budget if appropriate.

F.1.6 Once the post-excavation Project Design or Project Proposal has been accepted, the County Archaeological Officer or his appointed deputy will monitor the progress of the post-excavation project at agreed points. Any significant variation in the project design will be agreed with the County Archaeological Officer.

F.1.7 The results of the project will be published in an appropriate archaeological journal or monograph. The appropriate level of publication will be dependent on the significance of the fieldwork results and will be agreed with the County Archaeological Officer. An OASIS (Online Access to the Index of Archaeological Investigations) form will be completed for each project as per Historic England guidelines.

F.2 Relevant industry standards and guidelines

- F.2.1** Oxford Archaeology (OA) adheres to the national standards in post-excavation procedure as outlined in Historic England’s Management of Research Projects in the Historic Environment (MoRPHE; EH 2006). Furthermore, all post-excavation projects take into account the appropriate regional research frameworks as well as national research agendas such as the Framework for Historic Environment Activities & Programmes in Historic England (SHAPE; EH 2008).

APPENDIX G LIST OF SPECIALISTS REGULARLY USED BY OA

G.1.1 Below are two tables, one containing 'in-house' OA specialists, and the other containing a list of external specialists who are regularly used by OA.

Internal archaeological specialists used by OA

Specialist	Specialism	Qualifications
Lisa Brown	Early Prehistoric pottery	BA, PGDip, MLitt, MCIfA
Paul Booth	Iron Age and Roman pottery	BA, FSA, MCIfA
John Cotter	Medieval and Post Medieval pottery, Clay Pipe and CBM	BA (Hons), MCIfA
Cynthia Poole	CBM and Fired Clay	BA (Hons), MSc
Edward Biddulph	Roman Pottery	BA (Hons), MA, MCIfA
Ian Scott	Metalwork and Glass	BA (Hons)
Leigh Allen	Metalwork and worked bone	BA (Hons), PGDip
Dr Ruth Shaffrey	Worked stone artefacts	BA, PhD, MCIfA
Julian Munby	Architectural Stone	BA, FSA
Dr Rebecca Nicholson	Fish and Bird Bone	BA (Hons), MA, D.Phil, MCIfA, FSA Scot
Dr Mairead Rutherford	Pollen	BSc, MSc
Lee Broderick	Animal bone	BA (hons), MA, MSc, FZG, SAC Dip (ecology)
Julia Meen	Charred and waterlogged plant remains and charcoal	BSc (Hons), MA
Dr Denise Druce	Charred plant remains, charcoal and pollen	BA (Hons), PhD, MCIfA
Elizabeth Stafford	Geoarchaeology and land snails	BA (Hons), MSc
Carl Champness	Geoarchaeology	BA (Hons), MSc, ACIfA
Dr Ian Smith	Animal Bone	BSc, PhD
Nicola Scott	Archaeological archive deposition	BA (Hons Dunelm)
Mike Donnelly	Flint	BSc, MCIfA
Dr Louise Loe	Human Bone	D.Phil, BA, MCIfA
Helen Webb	Human Bone	MSc, BSc
Mark Gibson	Human Bone	MSc, BA
Dr Lauren McIntyre	Human Bone	D.Phil, MSc, BSc

External archaeological specialists regularly used by OA

Specialist	Specialism	Qualifications
Lynne Keys	Slag	BA (Hons)

Specialist	Specialism	Qualifications
Quita Mould	Leather	BA, MA
Penelope Walton Rogers, The Anglo Saxon Laboratory	Identification of Medieval Textiles	FSA, Dip.Acc
Dana Goodburn-Brown	Conservation	BSc (Hons), BA, MSc
Steve Allen, York Archaeological Trust	Conservation	BA, MA, MAAIS
Dr Richard Macphail	Soils, especially Micromorphology	BA (Hons), MSc, PhD
Dana Challinor	Charcoal	MA, MSc
Dr Nigel Cameron	Diatoms	BSc, MSc, PhD
Dr David Smith	Insects	BA (Hons), MA, PhD
Professor Adrian Parker	Phytoliths and pollen	BSc (Hons), D.Phil
Dr David Starley	Metalworking Slag	BSc (Hons), PhD
Wendy Carruthers	Charred and waterlogged plant remains	BA (Hons)
Dr Sylvia Peglar	Pollen	PhD
Dr John Whittaker	Ostracods and Foraminifera	BA (Hons), PhD
Dr John Crowther	Soil Chemistry	MA, PhD
Dr Martin Bates	Geoarchaeology	BSc, PhD
Dr Dan Miles	Dendrochronology	D.Phil, FSA
Dr Jean-Luc Schwenninger	Optically Stimulated Luminescence Dating	PhD
Dr David Higgins	Clay Pipe	BA, PhD, MCIfA
Dr Hugo Anderson- Wymark	Flint	BSc, PhD, FSA Scot, MCIfA
Dr Damian Goodburn- Brown	Ancient Woodwork	BA, PhD

APPENDIX H DOCUMENTARY ARCHIVING

H.1 Standard methodology – summary

- H.1.1 The documentary archive constitutes all the written, drawn, photographic and digital records relating to the set-up, fieldwork and post-excavation phases of the project. This documentary archive, together with the artefactual and environmental ecofact archive collectively forms the record of the site. The report is part of the documentary archive, and the archive must provide the evidence that supports the conclusions of the report, but the archive may also include data which exceeds the limitations of research parameters set down for the report and which could be of significant value to future researchers.
- H.1.2 At the outset of the project OA Archive department will contact the relevant local receiving museum or archive repository to notify them of the imminent start of a new fieldwork project in their collecting area. Relevant local archiving guidelines will be observed and site codes, which integrate with the receiving repository, will be agreed for labelling of archives and finds.
- H.1.3 Where there is currently no receiving museum for the project archive, although responsibility for the archive ultimately lies with the client, OA will hold the archive on their behalf for a period of up to 3 years after completion of the report, after which time (in the event that a suitable depository has not been secured) provision for further storage of the archive will be made in agreement with Oxford Archaeology, the client and the relevant planning archaeologist.
- H.1.4 During the course of the project the Archive department will assist the Project Manager in the management of the archive including the cataloguing and development technique suitable for photographic archive requirements.
- H.1.5 The hard copy site archive will be security copied by scanning to PdFA and a copy of this will be housed on the OA Archive Server. A full digital copy of the archive, including scanned hard copy and born digital data, will be maintained on the OA server and if requested a copy on disk will also be sent to the receiving museum with the hard copy. This will act as a safeguard against the accidental loss and the long-term degeneration of paper records and photographs.
- H.1.6 Born digital data will only be printed to hard copy for the receiving museum where practical. Archive elements that need maintaining in digital form will be sent to ADS in accordance with Arches Standard and ADS guidelines. A copy will be sent to the receiving museum by CD and back-up copies will be stored on the OA digital network. In most cases a digital copy of the report will be included in the OASIS project library hosted by ADS.
- H.1.7 Prior to deposition the Archive department will contact the museum regarding the size and content of the archive and discuss any retention and dispersal policies which may be applicable in line with local and SMA Guidelines ' Selection, Retention & Dispersal of Archaeological Collections' 1993.

- H.1.8 The site archive will then be deposited with the relevant receiving museum or repository at the earliest opportunity unless further archaeological work on the site is expected. The documentary archive will include correspondence detailing landowner consent to deposit the artefacts and any copyright licences in accordance with the receiving museum guidelines. Deposition charges will be required from the client as part of the project costs but the level of the fee is set by the receiving body, and may be subject to change during the lifespan of the project. Changes to archiving charges beyond OA's control will be passed across to the client.
- H.1.9 Oxford Archaeology will retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide the receiving repository or museum for the archive with a full licence for use to the client in all matters directly relating to the project as described in the Written Scheme of Investigation, and in line with the relevant receiving body guidelines.
- H.1.10 OA will advise the receiving repository or museum for the archive of 3rd party materials supplied in the course of projects which are not OA's copyright.
- H.1.11 OA undertakes to respect all requirements for confidentiality about the client's proposals provided that these are clearly stated. It is expected that such conditions shall not unreasonably impede the satisfactory performance of the services required. Archaeological findings and conclusions can be kept confidential for a limited period but will be made publicly available in line with the above procedure either after a specified time period agreed with the client at the outset of the project, or where no such period is agreed, after a reasonable period of time. It is expected that clients respect OA's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

H.2 Relevant industry standards and guidelines

- H.2.1 At the end of the project the site archive will be ordered, catalogued, labelled and conserved and stored according to the following national guidelines:
- H.2.2 The 2014 EAC Guidelines A Standard and Guide to the Best Practice for Archaeological Archiving in Europe (GB) Perrin K, Brown E et al.
- H.2.3 The 2014 CIFA Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives.
- H.2.4 The 2011 AAF guide Archaeological Archives A Guide to Best Practice in Creation, Compilation, Transfer and Curation. Brown D.
- H.2.5 The UKIC's Guidelines for the preparation of excavation archives for long-term storage.
- H.2.6 The MGC's Standards in the museum care of archaeological collections.
- H.2.7 Local museum guidelines such as Museum of London Guidelines: (<http://www.museumoflondonarchaeology.org.uk/English/ArchiveResearch/DeposRe> source) will be adopted where appropriate to the archive collecting area.

H.2.8 The site archive will be prepared to at least the minimum acceptable standard defined in Management of Archaeological Projects 2, Historic England 1991.

H.3 Relevant OA manual and other supporting documentation

H.3.1 The OA Archives Policy.

APPENDIX I HEALTH AND SAFETY

I.1 Standard Methodology - summary

- I.1.1 All work will be undertaken in accordance with the current OA Health and Safety Policy, the OA Site Safety Procedures Manual, a site-specific Risk Assessment and, if required, Safety Plan or Method Statement. Copies of the site-specific documents will be submitted to the client or their representative for approvals prior to mobilisation, and all relevant H and S documentation will be available on site at all times. The Health and Safety documentation will be read in conjunction with the project WSI.
- I.1.2 Where a project falls under the Construction (Design and Management) Regulations (2015), all work will be carried out in accordance with the Principal Contractor's Construction Phase Plan (CPP).

I.2 Relevant industry standards and guidelines

- I.2.1 All work will be carried out according to the requirements of all relevant legislation and guidance, including, but not exclusively:
 - I.2.2 The Health and Safety at Work Act (1974).
 - I.2.3 Management of Health and Safety at Work Regulations (1999).
 - I.2.4 Manual Handling Operations Regulations 1992 (as amended).
 - I.2.5 The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (2013).
 - I.2.6 The Construction (Design and Management) Regulations (2015).
 - I.2.7 Relevant OA manual and other supporting documentation
 - I.2.8 The OA Health and Safety Policy.
 - I.2.9 The OA Site Safety Procedures Manual.
 - I.2.10 The OA Risk Assessment templates.
 - I.2.11 The OA Method Statement template.
 - I.2.12 The OA Construction Phase Plan template.

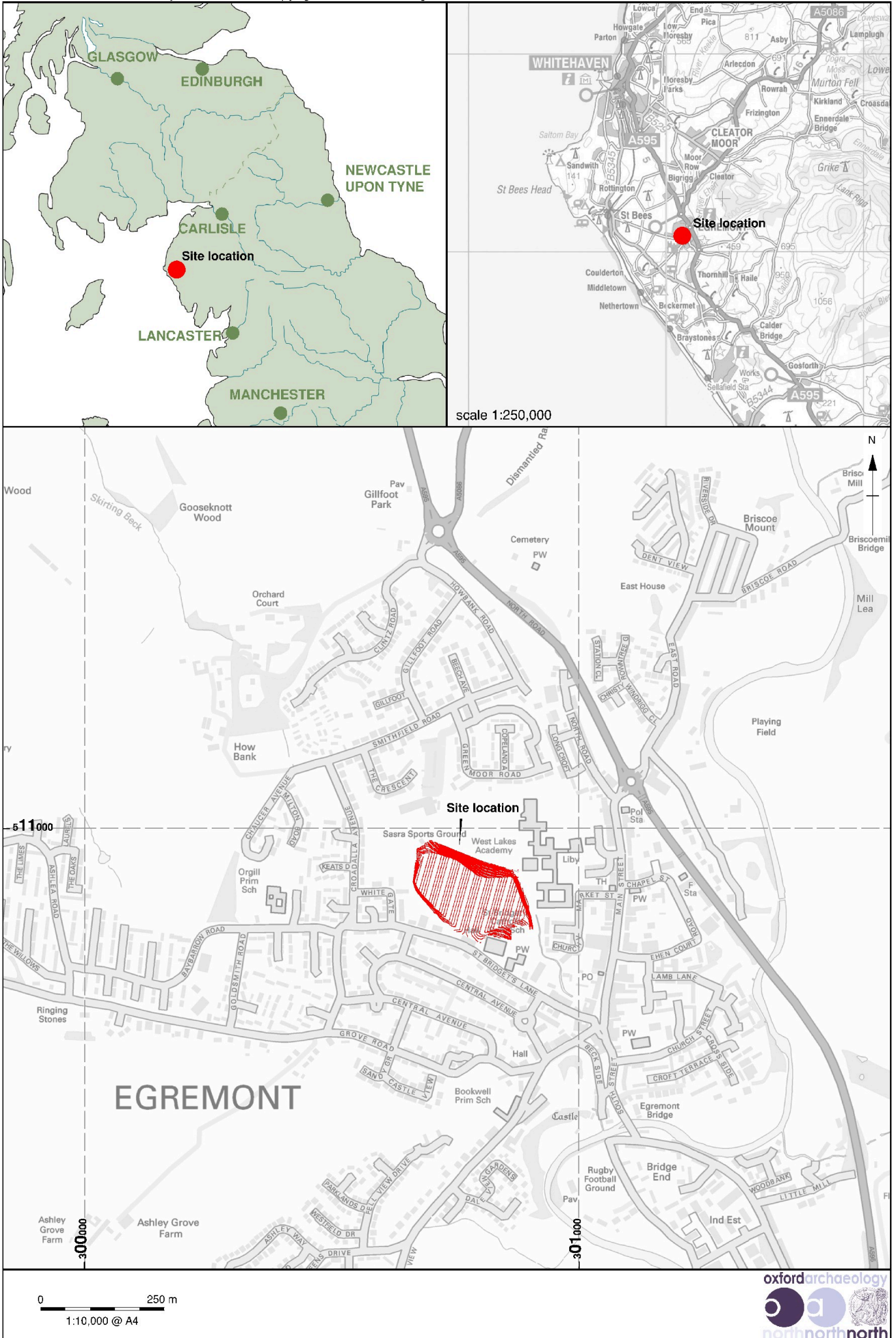


Figure 1: Site location

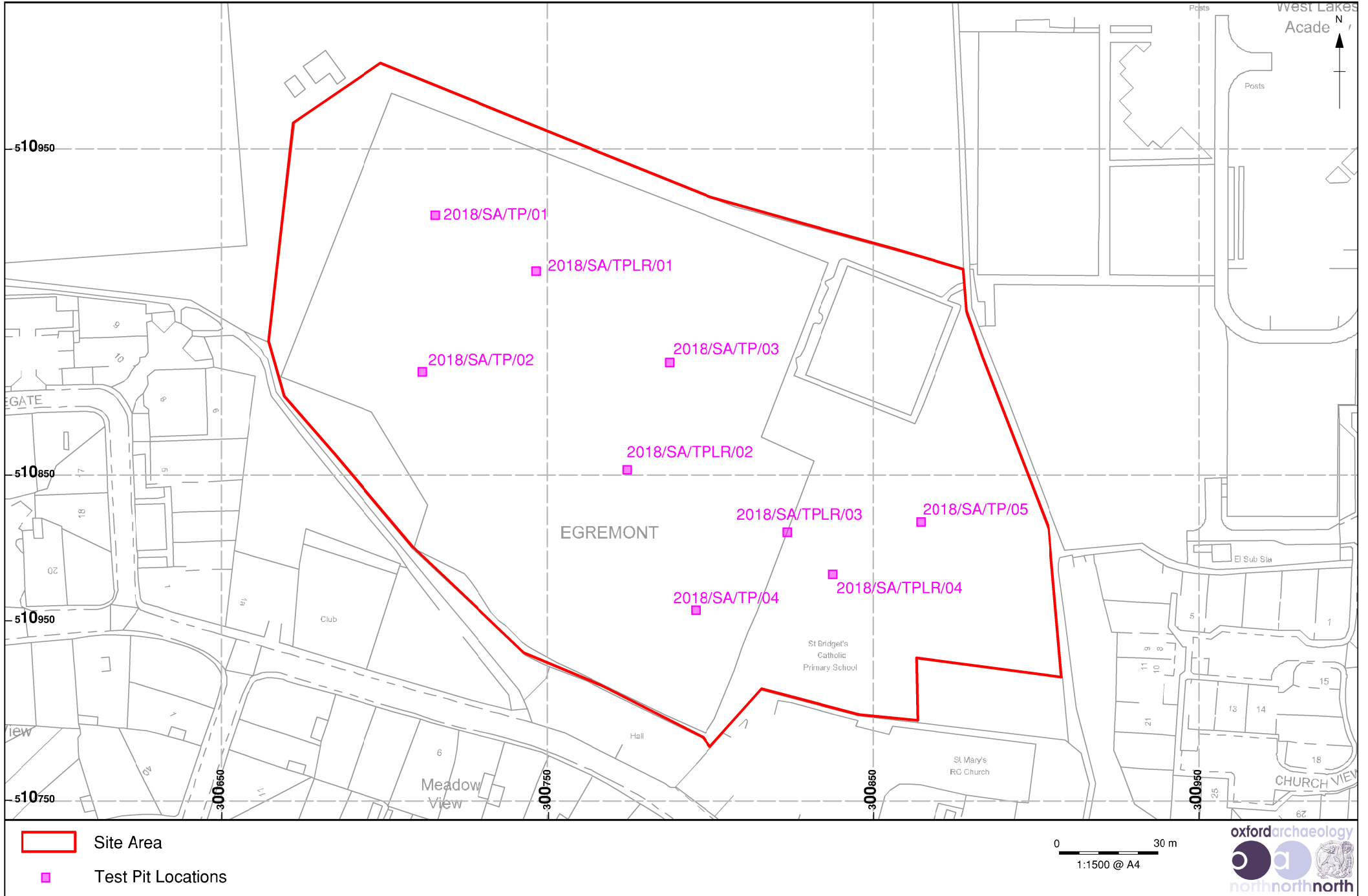


Figure 2: West Lakes Academy/SASRA Test Pit locations

APPENDIX E HOW BANK FARM WRITTEN SCHEME OF INVESTIGATION



Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria

Written Scheme of Investigation Archaeological Watching Brief

November 2018

Client: Atkins Ltd on behalf of VBA Joint
Venture Ltd

Issue No: V. 1
NGR: NY 00217 11380



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Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria

Written Scheme of Investigation for an Archaeological Watching Brief

Centred on NY 00217 11380

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1 INTRODUCTION

1.1 Project details

- 1.1.1 Oxford Archaeology (OA) North have been commissioned by Atkins Ltd on behalf of VBA Joint Venture Ltd for the Environment Agency to undertake a Watching Brief during ground investigate works on Skirting and Whangs Beck Flood Risk Management Scheme, Egremont, Cumbria (NGR NY00217 11380).
- 1.1.2 A programme of Ground Investigation (GI) works has been prepared to inform the selection of a preferred option and inform the detailed design process. The need for an archaeological watching brief has been identified in consultation with the Cumbria County Council Historic Environment Officer and the Environment Agency (EA) and has been identified by the EA Archaeologist for inclusion in the emerging GI Scope. The nature and scope of archaeological intervention throughout the GI programme has also been discussed with the Cumbria County Council (CCC) Historic Environment Officer as archaeological advisor to the Local Authority; this document outlines how OA will implement those requirements.
- 1.1.3 All work will be undertaken in accordance with local and national planning policies referenced within this document. The works will follow the Environment Agency's Cultural Heritage Minimum Technical Requirements.

1.2 Location, topography and geology

- 1.2.1 The test pits to be monitored as part of the GI works are located to the west of the town of Egremont, Cumbria (Fig 1). They are to be excavated on land to the north of How Bank Farm. The land is bounded by mixed use fields to the north and west, How Bank Farm to the south and housing to the east.
- 1.2.2 The solid bedrock geology of the site is mapped as Breccia of the Brockram formation formed in the Triassic and Permian Periods (BGS 2018). The superficial deposits in the vicinity of Skirting Beck are mapped as clay, silt, sand and gravel alluvium deposited in the Quarternary period, whilst in the southern element of the site they are mapped as Diamicton Devensian Till deposited in the Quarternary period (*ibid*). The soils of the area are identified as freely draining slightly acid loamy soils (Cranfield 2018).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND AND POTENTIAL

2.1 Archaeological and historical background

2.1.1 The archaeological and historical background of the site has been described in detail in a Desk-Based Assessment (DBA) produced by OA North (2015), and will not be reproduced here.

2.2 Potential

2.2.1 The DBA (*ibid*) suggests that while the site has relatively low potential for archaeology, there is still potential for the presence of previously unidentified sites of archaeological and mining interest within the development area. This is based on other known sites and find spots in the vicinity of the site, as such, these may date to the Neolithic or, more likely, medieval and late medieval, as well as possible mine shafts and adits associated with Gillfoot Park Pit (HER reference 14875) known to be extant in the vicinity.

2.2.2 A geophysical survey was undertaken by TerraDat in 2016 which highlighted several anomalies which may relate to archaeological features or mining activity. There are also several similar anomalies in the field to the north west of the one subject to the test pitting which may relate to archaeological features or mining activity. As such, there is the potential to ground-truth these geophysical anomalies as part of the test pitting works.

3 PROJECT AIMS

3.1 General

3.1.1 The general aims of the project can be summarised as follows;

- to adhere to and fulfil the agreed programme of works associated with the archaeological potential of the site;
- to inform a decision as to whether further archaeological investigation will be required in advance or during the construction works on the Skirting and Whangs Beck scheme;
- to compile a professional archival record of any archaeological remains within the test pits.

3.2 Specific aims and objectives

3.2.1 The specific aims and objectives of the watching brief are:

- i. To determine or confirm the general nature of any remains present.
- ii. To determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence.

4 PROJECT SPECIFIC EXCAVATION AND RECORDING METHODOLOGY

4.1 Scope of works

4.1.1 The works will involve monitoring and recording 4 test pits 4.5m deep, all to be excavated with a mechanical excavator fitted with a toothless ditching bucket on the How Bank Farm site (Fig 2). The spoil will be checked for finds and if significant material is detected this will be retained. Where archaeological deposits are encountered the archaeologist will be afforded the opportunity to clean, investigate, record and sample all archaeological remains to an appropriate degree. If potentially significant archaeological remains are identified, the archaeologist will stop works and inform the Atkins heritage team (VBA) who will consult with the EA Archaeologist and the Historic Environment Officer for CCC. It is considered by the Historic Environment Officer for CCC that if peat is encountered during the excavation of the test pits, that it likely formed in 'archaeological hollows' and has therefore advised that further investigation would not be necessary. The works will follow the Environment Agency's Cultural Heritage Minimum technical requirements.

4.2 Programme

4.2.1 It is anticipated that the fieldwork will take two days to complete during November 2018, by a team consisting of a Project Archaeologist, James Hodgson, under the management of Paul Dunn, Project Manager.

4.2.2 All fieldwork undertaken by Oxford Archaeology (North) is overseen by the Operations Manager, Alan Lupton MCIFA.

4.3 Site specific methodology

4.3.1 A summary of OA's general approach to excavation and recording can be found in Appendix A. Standard methodologies for Geomatics and Survey, Environmental evidence, Artefactual evidence and Burials can also be found below (Appendices B, C, D and E respectively).

4.3.2 Site specific methodologies will be as follows:

- i. The Project Archaeologist will maintain a watching brief during the excavation of the 4 test pits to be excavated to a depth of 4.5m;
- ii. The Project Archaeologist will be afforded the opportunity to clean, investigate, record and sample all archaeological remains to an appropriate degree. If potentially significant remains are identified, the Project Archaeologist will stop excavation works. They will inform the Atkins heritage team (VBA), who will consult the EA Archaeologist and the Historic Environment Officer for CCC, work will only continue with their approval.
- iii. It is considered by the Historic Environment Officer for CCC that if peat is encountered during the excavation of the test pits, that it likely formed in 'archaeological hollows' and has therefore advised that further investigation would not be necessary.

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- iv. A photographic and textual record will be made of the stratigraphy within the test pit, with measurements etc;
 - v. Spoil arising from the excavation will be scanned for finds and palaeoenvironmental evidence, which will be collected if deemed significant, the spoil will also be scanned with a metal detector by the Project Archaeologist;
 - vi. At all times, the archaeologist will work under the Health and Safety directions of the site contractor.

5 PROJECT SPECIFIC REPORTING AND ARCHIVE METHODOLOGY

5.1 Programme

- 5.1.1 An interim report will be made available to the Atkins heritage team (VBA) within 7 days of the completion of the fieldwork. The final report will then be completed within 4 weeks of the completion of the fieldwork.
- 5.1.2 A copy of the report in Adobe Acrobat (.pdf) format will be provided to the Atkins heritage team (VBA) and, via them, to the project team for distribution to the relevant representatives at the Environment Agency. Once approved a copy will be provided to the archaeological advisor to Cumbria County Council for comment prior to final issue. Paper copies can also be provided on request.

5.2 Content

- 5.2.1 The content of this report will be as defined in Appendix F. The content of the report will follow the Environment Agency's Cultural Heritage Minimum Technical Requirements.

5.3 Specialist input

- 5.3.1 OA has a large pool of internal specialists, as well as a network of external specialists with whom OA have well established working relationships. A general list of these specialists is presented in Appendix G; in the event that additional input should be required, an updated list of specialists can be supplied.

5.4 Archive

- 5.4.1 The site archive will be deposited with Whitehaven Archive and Local Studies Centre following completion of the project.
- 5.4.2 A summary of OA's general approach to documentary archiving can be found in Appendix H.

6 HEALTH AND SAFETY

6.1 Roles and responsibilities

- 6.1.1 The Project Manager, Paul Dunn, has responsibility for ensuring that safe systems of work are adhered to on site. He delegates elements of this responsibility to the Project Archaeologist, James Hodgson, who implements these on a day to day basis.
- 6.1.2 The Director with responsibility for Health and Safety at OA is Dan Poore Tech IOSH (Chief Business Officer).

6.2 Method statement and risk assessment

- 6.2.1 A summary of OA's general approach to health and safety can be found in Appendix I. A risk assessment has also been undertaken and approved and will be kept on site, along with OA's standard Health and Safety file, which will contain all relevant health and safety documentation.
- 6.2.2 The Health and Safety file will be available to view at any time.

6.3 Monitoring of works

- 6.3.1 Archaeological investigations will be monitored where appropriate by the Atkins heritage team (VBA), EA Archaeologist and CCC Historic Environment Officer. All such site visits will be carried out under the auspices of the Main Contractors Health and Safety Plan and visitors will have a current CSCS Card, wear appropriate PPE and be accompanied at all times.

7 BIBLIOGRAPHY

British Geological Survey (BGS), 2018, Geology of Britain Viewer, [Online], available at: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> (accessed November 2018)

Cranfield Soil and Agrifood Institute, 2018, National Soil Resources Institute', Soilscales of Britain Map, [Online], available at: <http://www.landis.org.uk/soilscales/> , Cranfield University (accessed November 2018)

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OA North, 2015, *Skirting and Whangs Beck, Egremont, Cumbria: Archaeological Desk-Based Assessment*, unpubl rep

TerraDat, 2016, *Geophysical Survey Report: Geophysical Survey to Detect Mine Workings*, unpubl rep

OA STANDARD FIELDWORK METHODOLOGY APPENDICES

The following methods and terms will apply, where appropriate, to all OA fieldwork unless varied by the accompanying detailed Written Scheme of Investigation.

Copies of all OA internal standards and guidelines referred to below are available on request.

APPENDIX A GENERAL EXCAVATION AND RECORDING METHODOLOGY

A.1 Standard methodology – summary

Mechanical excavation

- A.1.1 An appropriate mechanical excavator will be used for machine excavation. This will normally be a JCB or 360° tracked excavator with a 1.5 m to 2 m wide toothless ditching bucket. For work with restricted access or working room a mini excavator may be used.
- A.1.2 All mechanical excavation will be undertaken under direct archaeological supervision.
- A.1.3 All undifferentiated topsoil or overburden of recent origin will be removed down to the first significant archaeological horizon, in successive, level spits.
- A.1.4 Following mechanical excavation, all areas that require examination or recording will be cleaned using appropriate hand tools.
- A.1.5 Spoil heaps will be monitored in order to recover artefacts to assist in the analysis of the spatial distribution of artefacts. Modern artefacts will be noted but not retained.
- A.1.6 After recording, evaluation trenches and test pits will usually be backfilled with excavated material in reverse order of excavation, and compacted as far as is practicable with the mechanical excavator. Area excavations will not normally be backfilled.

Hand excavation

- A.1.7 All investigation of archaeological levels will usually be by hand, with cleaning, examination and recording both in plan and section.
- A.1.8 Within significant archaeological levels the minimum number and proportion of features required to meet the aims of the excavation will be hand excavated. Pits and postholes will usually be subject to a 50% sample by volume. Linear features will be sectioned as appropriate. More complex features such as those associated with funerary activity will usually be subject to 100% hand excavation.
- A.1.9 In the case of evaluations, it is not necessarily the intention that all trial trenches will be fully excavated to natural stratigraphy, but the depth of archaeological deposits across the site will be assessed. The stratigraphy of a representative sample of the evaluation trenches will be recorded even where no archaeological deposits have been identified. Any excavation, both by machine and by hand, will be undertaken with a

view to avoiding damage to any archaeological features or deposits, which appear to be worthy of preservation in situ.

Recording

- A.1.10 Written descriptions will be recorded on proforma sheets comprising factual data and interpretative elements.
- A.1.11 Where stratified deposits are encountered a Harris matrix will be compiled during the course of the excavation.
- A.1.12 Plans will normally be drawn at 1:100, but on urban or deeply stratified sites a scale of 1:50 or 1:20 will be used. Detailed plans will be at an appropriate scale. Burials will be drawn at scale 1:10 or recorded using geo-referenced digital photography.
- A.1.13 The site grid will be accurately tied into the National Grid and located on the 1:2500 or 1:1250 map of the area.
- A.1.14 A register of plans will be kept.
- A.1.15 Long sections of showing layers will be drawn at 1:50. Sections of features or short lengths of trenches will be drawn at 1:20.
- A.1.16 A register of sections will be kept.
- A.1.17 Generally, all sections will be tied in to Ordnance Datum.
- A.1.18 A full photographic record, illustrating in both detail and general context the principal features and finds discovered will be maintained. The photographic record will also include working shots to illustrate more generally the nature of the archaeological work.
- A.1.19 Photographs will be recorded on OA Photographic Record Sheets.

A.2 Relevant industry standards and guidelines

- A.2.1 The Chartered Institute for Archaeologists Standard and Guidance notes relevant to fieldwork are:
- Standard and Guidance for Archaeological Field Evaluation
 - Standard and Guidance for Archaeological Excavation
 - Standard and Guidance for an Archaeological Watching Brief.
- A.2.2 These will be adhered to at all times.

A.3 Relevant OA manual and other supporting documentation

- A.3.1 All fieldwork will be undertaken in accordance with the requirements of the OA Field Manual (ed. D Wilkinson 1992), and the revised OA fieldwork manual (publication forthcoming).
- A.3.2 Further guidance is provided to all excavators in the form of the OA 'Fieldwork Crib Sheets - a companion guide to the Fieldwork Manual'. These have been issued ahead of formal publication of the revised Fieldwork Manual.

APPENDIX B GEOMATICS AND SURVEY

B.1 Standard methodology - summary

- B.1.1** The aim of OA methodology is to provide comprehensive survey cover of all investigation areas. Additionally, it is designed to provide coverage for any areas, beyond the original scope of the project, which arise as a result of further work. It provides digital plans of all required elements of the project and locates them within an overall grid.
- B.1.2** It also maintains all necessary survey data and ensures that the relevant information is copied into the primary record, in order to ensure the integrity of the project archive. Furthermore, it ensures that all core data is securely stored and backed up. It establishes accurate project reference systems utilising a series of control stations and permanent base lines.
- B.1.3** The survey will be conducted using a combination of Total Station Theodolite (TST) survey utilising Reflectorless Electronic Distance Measurement (REDM) where appropriate, hand-measured elements and GPS (Global Positioning System), or photogrammetry.
- B.1.4** Before the main work commences, a network of control stations will be laid out encompassing the area. Control stations will be tied in to known points or existing features using rigorous metric observation. The control network will be set in using a TST to complete a traverse or using techniques as appropriate to ensure sufficient accuracy. A GPS, or other appropriate method, will be used to orientate the control network to National Grid or other recognised coordinate system.
- B.1.5** All control stations will be checked by closed traverse and/or GPS, as appropriate. The accuracy of these control stations will be accessed on a regular basis and re-established accordingly. All stations will be recorded on Survey Control Station sheets.
- B.1.6** Each control station will be marked with a PGM (Permanent Ground Marker). Witness diagrams will include the full 3-D co-ordinates generated, a sketch diagram and measurements to at least three fixed details, written description of the mark and a photograph of the control point in its environs.
- B.1.7** Prior to entry into the field all equipment will be checked, and all pre-survey information will be logged onto the field computer and uploaded onto survey equipment as appropriate. The software in the field computer will be verified and all cabling between the GPS and/or TST and computer will be checked. Prior to conducting the survey, the site will be reconnoitred for locations for a viable control network and check the line of sight and any possible hindrance to survey. Daily record sheets will be kept to record daily tasks and conditions.
- B.1.8** All spatial data will be periodically downloaded onto a field computer, and backed up onto CD, or DVD. It will be cleaned, validated and inspected.
- B.1.9** All survey data will be documented on daily survey record sheets. Information entered on these sheets includes key set up information (Instrument height etc.) as well as daily variables and errors/comments. All survey data will be digitally recorded in a raw

format and translated during the download process this shall allow for any errors to be cross referenced with the daily survey record and corrected accordingly.

- B.1.10** A weekly summary of survey work will be produced to access development and highlight problems. This information also will be recorded on the weekly survey journal. Technical support for the survey equipment and download software shall be available at all times. In those instances, where sites are remotely operated, all digital data will be backed up regularly and a copy returned to Oxford on a weekly basis.
- B.1.11** A site plan will initially be created by a rapid survey of relevant archaeological features by mapping their extent using a combination of TST and GPS. This will form the basis for deciding excavation strategy and will be updated as the excavation clarifies the extent of, and relationships between, archaeological features.
- B.1.12** Excavated archaeological interventions and areas of complex stratigraphy will be hand drawn. At least two Drawing Points (DPs) will be set in as a baseline and measurements taken off this by tape and offset. The hand drawn plans will be referenced to the digitally captured pre-site plan by measuring in the DPs with a TST or GPS. These hand drawn elements will then be scanned in, geo-referenced using the DPs as reference points and digitised following OA's digitising protocols. For further details on hand planning procedure please refer to the fieldwork guidelines.
- B.1.13** Where appropriate photogrammetry or rectified photography may be used to record standing structures or burials. This will be carried out in line with Standard OA procedures for photogrammetry or rectified photography.
- B.1.14** Survey data recorded in the field will be downloaded using appropriate downloading software, and saved as an AutoCAD Map DWG file, or an ESRI Shapefile. These files will be regularly updated and backed up with originals being stored on an OA server in Oxford.
- B.1.15** All drawings will be composed of closed polygons, polylines or points in accordance with the requirements of GIS construction and OA Geomatics protocols. Once created, additional GIS/CAD work will normally be carried out at the local OA central office or at on-site remote locations when appropriate. Support for all GIS/CAD work will be available from OA's Oxford Office during normal office hours. The aim of the GIS/CAD work is to produce workable draft plans, which can be produced as stand-alone products, or can be readily converted to GIS format. Any hand-drawn plans will be scanned and digitised on site in the first instance. Subsequent plans will be added to the main drawing as it develops.
- B.1.16** All plan scans will be numbered according to their plan site number. Digital plans will be given a standard new plan number taken out from the site plan index.
- B.1.17** All digital data will be backed up incrementally on CD or DVD. On each Friday the entire data directory will be backed up and returned to Oxford where it will be copied onto the OA projects server. Each CAD drawing will contain an information layout which will include all the relevant details appertaining to that drawing. Information (metadata) on all other digital files will be created and stored as appropriate. At the end of the

survey all raw measurements will be made available as hard copy for archiving purposes.

B.2 Relevant industry standards and guidelines

- B.2.1 Historic England (2007) Understanding the Archaeology of Landscapes A Guide to Good Recording Practice.
- B.2.2 Historic England (2015), Metric Survey Specifications for Cultural Heritage.
- B.2.3 Historic England (2016), Understanding Historic Buildings A Guide to Good Recording Practice.
- B.2.4 Historic England (2017), Photogrammetric Applications for Cultural Heritage. Guidance for Good Practice.

B.3 Relevant OA manual and other supporting documentation

- B.3.1 OA South Metric Survey, Data Capture and Download Procedures
- B.3.2 OA South Digitising Protocols
- B.3.3 OA South GIS Protocols
- B.3.4 These will be superseded by the OA South Geomatics Manual (in progress).

APPENDIX C ENVIRONMENTAL EVIDENCE

C.1 Standard methodology – summary

- C.1.1 Different environmental and geoarchaeological sampling strategies may be employed according to established research targets and the perceived importance of the strata under investigation. Where possible an environmental specialist(s) will visit the site to advise on sampling strategies. Sampling methods will follow guidelines produced by Historic England and Oxford Archaeology. A register of samples will be kept. Specialists will be consulted where non-standard sampling is required (e.g. TL, OSL or archaeomagnetic dating) and if appropriate will be invited to visit the site and take the samples.
- C.1.2 Geoarchaeological sampling methods are site specific, and methodologies will be designed in consultation with the geoarchaeological manager on a site by site basis.
- C.1.3 Bulk soil samples, where possible of 40 litres or 100% of a deposit if less is available, will be taken from potentially datable features and layers for flotation for charred plant remains and for the recovery of small bones and artefacts. Larger soil samples (up to 100L) may be taken for the complete recovery of animal bones, marine shell and small artefacts from appropriate contexts. Smaller bulk samples (general biological samples) of 10-20 litres will be taken from any waterlogged deposits present for the recovery of macroscopic plant remains and insects. Series of incremental 2L samples may be taken through buried soils and deep feature fills for the recovery of snails and/or waterlogged plant remains, depending on the nature of the stratigraphy and of the soils and sediments. Columns will be taken from buried soils, peats and waterlogged feature fills for pollen and/or phytoliths, diatoms, ostracods and foraminifera if appropriate. Soil samples will be taken for soil investigations (particle size, organic matter, bulk chemistry, soil micromorphology etc.) and possibly for metallurgical analysis in consultation with the appropriate specialists.
- C.1.4 Bulk samples from dry deposits will be processed by standard water flotation using a modified Siraf-style machine and meshes of 0.25mm (flot) and 0.5 or 1mm depending on sediment type and like modes of preservation (residue). Heavy residues will be wet sieved, air dried and sorted. Samples taken exclusively for the recovery of bones, marine shell or artefacts will be wet sieved to 2mm. Waterlogged samples (1L sub-sample) and snail samples (2L) will be processed by hand flotation with flots and residues collected to 0.25mm (waterlogged plants) and 0.5mm (snails) respectively; these flots and residues will be sorted by the specialist. Samples specifically taken for insects, pollen, other microflora and microfauna, metallurgy and soil analysis will be submitted as whole earth to the appropriate specialists or processed following their instructions.

C.2 Relevant industry standards and guidelines

- C.2.1 Historic England 2010. Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood.

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- C.2.2 Historic England 2011. Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post excavation, (2nd ed)
 - C.2.3 Historic England 2004. Dendrochronology: Guidelines on Producing and Interpreting Dendrochronological Dates.
 - C.2.4 Historic England 2006. Archaeomagnetic Dating. Guidelines for Producing and Interpreting Archaeomagnetic Dates.
 - C.2.5 Historic England 2008. Luminescence Dating. Guidelines on Using Luminescence Dating in Archaeology.
 - C.2.6 Historic England 2008. Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains.
 - C.2.7 Historic England 2014. Animal Bones and Archaeology. Guidelines for Best Practice.
 - C.2.8 Historic England, 2015. Archaeometallurgy. Guidelines for Best Practice.
 - C.2.9 Historic England 2015 Geoarchaeology. Using Earth Sciences to Understand the Archaeological Record.
- C.3 Relevant OA manual and other supporting documentation**
- C.3.1 Oxford Archaeology 2005. Environmental Sampling Guidelines, 2nd ed.

APPENDIX D ARTEFACTUAL EVIDENCE

D.1 Standard methodology - summary

- D.1.1 Before a site begins arrangements concerning the finds will be discussed with the Head of Finds. Information will be provided by the project manager about the nature of the site, the expected size and make-up of the finds assemblage and any site specific finds retrieval strategies. On-site requirements will be discussed and a conservator appointed who can be called on to make site visits if required. Special requirements regarding particular categories of material will be raised at this early stage for instance the likelihood of recovering assemblages of waterlogged material, large timbers, quantities of structural stone or ceramic building material. Specialists may be required to visit sites to discuss retrieval strategies.
- D.1.2 The project manager will supply the Head of Finds with contact details of the landowner of the site so that consent to deposit any finds resulting from the investigation can be sought.
- D.1.3 The on-site retrieval, lifting and short term packaging of bulk and small finds will follow the detailed guidelines set out in the OA Finds Manual (sections 2 and 3), First Aid for Finds and the UKIC conservation guidelines No.2.
- D.1.4 All finds recovered from site will be transported to an OA regional office for processing; local sites will return finds at the end of each day, away based sites at the end of each week. Special arrangements can be discussed for certain sites with the department manager before the start of a project. Larger long running sites may in some instances set up on-site processing units to deal with the material from a particular site.
- D.1.5 All finds qualifying as Treasure will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act (1996), and the Treasure (Designation) Order 2002. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.
- D.1.6 Each box of finds will be accompanied by a finds context checklist itemising the finds within each box. The number of bags of finds from each context and individual small find from each context will be recorded. A member of the processing team will check the list when it arrives in the department. There are separate forms for finds recovered from fieldwalking.
- D.1.7 The processing programme is reviewed on a weekly basis and priorities are worked out after discussions with the Head of Fieldwork and the Head of Post-excavation. Project managers will keep the Head of Finds informed of any pressing deadlines that they are aware of. All finds from evaluations are dealt with as a matter of priority.
- D.1.8 All bulk finds are washed (where appropriate), marked, bagged and boxed by the processing team according to the guidelines set out in section 4 and 5 of the OA Finds Manual, First-aid for finds and the UKIC guidelines No.2. They must also take into account the requirements of the receiving museum. Primary data recording count and weight of fragments by material from each context is recorded on the site database.

- D.1.9 Unstable and sensitive objects are recorded onto the database and then packaged and stored in controlled environments according to their individual requirements. The advice of a conservator will be sought for sensitive objects in need of urgent conservation. All metalwork will be x-rayed prior to assessment (and to meet the requirements of most receiving museums).
- D.1.10 Finds recovered from the environmental sample processing will be incorporated into the main assemblage and added to the database.
- D.1.11 On completion of the processing and data entry a finds file for each archaeological investigation will be produced, a summary of which is available for the project manager. The assemblage is allocated an OA number for storage purposes. Bulk finds are stored on a roller racking system, metals in a secure controlled storage and organic finds are refrigerated where possible.
- D.1.12 The movement of finds in and out of the department storage areas is strictly monitored and recorded. Carbon copy transit forms exist to record this information. Finds will not be removed from storage without the prior knowledge of the Head of Finds.
- D.1.13 Finds information summarised in the finds compendium is used to assess the finds requirements for the post excavation stages of the project. The Finds department holds a list of all specialists used by OA (see below) both internal and external.
- D.1.14 On completion of the post excavation stage of the project the department prepares the finds assemblage for deposition with the receiving museum. Discussions will be held with the museum, the excavator and the head of finds to finalise any selection, retention or discard policy. Most museums issue strict guidelines for the preparation of archives for deposition with their individual labelling, packaging and recording requirements.

D.2 Relevant industry standards and guidelines

- D.2.1 UKIC, 1983, Packaging and Storage of Freshly-Excavated Artefacts from Archaeological Sites. Conservation Guidelines No.2. Archaeology Section, United Kingdom Institute for Conservation.
- D.2.2 UKIC, 1988, Excavated Artefacts and Conservation: UK sites Revised Edition. Conservation Guidelines No.1. Archaeology Section, United Kingdom Institute for Conservation.
- D.2.3 Society of Museum Archaeologists, 1993, Selection, retention and dispersal of Archaeological Collections. Download available via <http://www.socmusarch.org.uk/publica.htm>
- D.2.4 Watkinson, D E & Neal, V, 1998, First Aid for Finds (3rd edition). RESCUE & UKIC

D.3 Relevant OA manual and other supporting documentation

- D.3.1 Allen, L, and Cropper, C (internal publication only) Oxford Archaeology Finds Manual.

APPENDIX E HUMAN REMAINS

E.1 Standard methodology - summary

- E.1.1 Human remains will not be excavated without a relevant licence/faculty and, where applicable (for example, a post medieval cemetery), a risk assessment from the local environmental officer.
- E.1.2 All human remains will be treated with due care and regard to the sensitivities involved, and will be screened from the public throughout the course of the works.
- E.1.3 Excavation will be undertaken in accordance with ClfA (Roberts and McKinley 1993) and the Advisory Panel on the Archaeology of Burials in England (APABE, 2015, 2017). For crypts and post-medieval burials, the recommendations set out by the ClfA (Cox 2001) and by the Association of Diocesan and Cathedral Archaeologists and APABE (2010) are also relevant.
- E.1.4 In accordance with recommendations set out in the Historic England and Church of England (2005) and updated by the Advisory Panel on the Archaeology of Burials in England (2017), skeletons will not be excavated beyond the limits of the trench, unless they are deemed osteologically or archaeologically important.
- E.1.5 Where any soft tissue survives and/or materials (for example, inner coffins, mattresses and other paddings) soaked in body liquor, no excavation or handling of the remains will take place until an appropriate risk assessment has been undertaken. Relevant protocols (i.e. Cox 2001) for their excavation, recording and removal will be adhered to.
- E.1.6 OA does not excavate or remove modern burials (those less than 100 years old) and does not remove or open sealed lead coffins. Appropriate PPE (e.g. chemical suit, latex gloves) will be worn by all staff when working with lead coffins.
- E.1.7 Graves and their contents will be hand excavated in plan. Each component (for example, skeleton, grave cut, coffin (or remains of), grave fill) will be assigned a unique context number from a running sequence. A group number will also be assigned to all of these, and small finds numbers to features such as coffin nails, hobnails and other grave goods (as appropriate).
- E.1.8 Soil samples will be normally taken during the excavation of inhumations, usually from the region of the skull, chest, right hand, left hand, abdomen and pelvis, right foot and left foot. Infants (circa. less than 5 years) will normally be recovered as bulk samples. Soil samples will also be taken from graves that appear to contain no human bone.
- E.1.9 Burials (including the skeleton, cremation, coffin fittings, coffin, urn, grave goods / other) will be recorded by photographic and written record using specialised pro forma context sheets, although these records may only include schematic representations of the location and position of the skeletons, depending on the nature and circumstances of the burial.

- E.1.10 Where necessary, hand drawn plans (usually at 1:10, sometimes 1:5) will be made, especially of contexts where required details cannot be adequately seen using photography (for example, urned cremations; undisturbed hob nails).
- E.1.11 Levels will be taken. For inhumations this will be on the skull, pelvis and feet as a minimum.
- E.1.12 Human remains that are exhumed will be bagged and labelled according to skeletal region and carefully packed into suitable containers (for example, acid free cardboard boxes) and transported to a suitable storage location. Any associated coffins and coffin fittings will be contained with the human remains wherever possible.
- E.1.13 Urned cremations will not usually be half sectioned, but excavated in spits and/or quadrants (i.e. large deposits or spreads), or recovered as a bulk sample.
- E.1.14 Wherever possible, urned cremations will be carefully bandaged, recovered whole and will be excavated in spits in the laboratory, as per the recommendations of McKinley (2004, 2017).
- E.1.15 Unless deemed osteologically or archaeologically important disarticulated bone / chanel will be collected and reserved for re-burial if immediate re-internment as close to its original position is not practicable. In some instances, a rapid scan of this material may be undertaken by a qualified osteologist, if deemed relevant.
- E.1.16 If undisturbed, pyre sites will normally be excavated in quadrants, at the very least in 0.5 m blocks of 0.5 m spits.
- E.1.17 Pyre debris dumps will be half sectioned or quadrant and will be subject to 100% sampling.
- E.1.18 Wooden and lead coffins and any associated fittings, including fixing nails will be recorded on a pro forma coffin recording sheet. All surviving coffin fittings will be recorded by reference to Reeve and Adams (1993) and the unpublished master catalogue that is being compiled by OA. Where individual types cannot be paralleled, they will be drawn and/ or photographed and assigned a style number. Biographical details obtained from legible departum plate inscriptions will be recorded and further documentary research will be made.
- E.1.19 Funerary structures, such as brick shaft graves and/or vaults will be recorded by photogrammetry or hand-drawn at a scale of 1:10 or 1:20, as appropriate. Location, dimensions and method of construction will be noted, and the structure added to the overall trench plan.
- E.1.20 Memorials, including headstones, revealed within the areas of development will be recorded irrespective of whether they are believed to be in situ.
- E.1.21 Where required, memorials will be accorded an individual context number and will also be included as part of the grave group, if the association with a burial is clear.
- E.1.22 Memorials will be recorded on pro-forma context sheets, based on and following the guidelines set out by Mytum (2002), and will include details of:
- Shape

- Dimensions
- Type of stone used
- Condition, completeness and fragmentation of stones, no longer in original positions
- Iconography (an illustration may best describe these features)
- Inscription (verbatim record of inscription; font of the lettering)
- Stylistic type

E.2 Relevant industry standards and guidelines

- E.2.1 Advisory Panel on the Archaeology of Burials in England, 2017 Guidance for Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England.
- E.2.2 Advisory Panel on the Archaeology of Burials in England, 2015 Large Burial Grounds. Guidance on sampling in archaeological fieldwork projects.
- E.2.3 Association of Diocesan and Cathedral Archaeologists and APABE. 2010 Archaeology and Burial Vaults. A guidance note for churches. Guidance Note 2.
- E.2.4 British Association of Biological Anthropology and Osteoarchaeology. 2011 Code of Practice.
- E.2.5 British Association of Biological Anthropology and Osteoarchaeology. 2011 Code of Ethics.
- E.2.6 Cox, M, 2001 Crypt archaeology. An approach. ClfA Paper No. 3
- E.2.7 McKinley, J, and Roberts, C, 1993 Excavation and post-excavation treatment of cremated and inhumed human remains, ClfA Technical Paper No. 13
- E.2.8 McKinley, J, 2004 Compiling a skeletal inventory: cremated human bone. In Brickley, M, and McKinley, J (eds) Guidelines to the Standards for Recording Human Remains, ClfA Technical Paper No. 7. 9-13.
- E.2.9 McKinley, J, 2017 Compiling a skeletal inventory: cremated human bone. In Mitchell P, and Brickley, M (eds) Updated Guidelines to the Standards for Recording Human Remains, ClfA 14-19
- E.2.10 Mitchell P, and Brickley, M (eds) Updated Guidelines to the Standards for Recording Human Remains, CIFA 2017
- E.2.11 Mytum, H, 2000 Recording and Analysing Graveyards. CBA Handbook No. 15.
- E.2.12 Reeve, J, and Adams, M, 1993 The Spitalfields Project. Volume I – The Archaeology Across the Styx. CBA Research Report No. 85
- E.2.13 The Human Tissue Act 2004

E.3 Relevant OA manual and other supporting documentation

- E.3.1 Loe, L, 2008 The Treatment of Human Remains in the Care of Oxford Archaeology. Oxford Archaeology internal policy document.
- E.3.2 Excavating and recording of buried human remains. Oxford Archaeology internal guidelines document.

APPENDIX F REPORTING

F.1 Standard methodology - summary

F.1.1 For Watching Briefs and Evaluations, the style and format of the report will be determined by OA, but will include as a minimum the following:

- A location plan of trenches and/or other fieldwork in relation to the proposed development.
- Plans and sections of features located at an appropriate scale.
- A section drawing showing depth of deposits including present ground level with Ordnance Datum, vertical and horizontal scale.
- A summary statement of the results.
- A table summarising the features, classes and numbers of artefacts contained within, spot dating of significant finds and an interpretation.
- A reconsideration of the methodology used, and a confidence rating for the results.
- An interpretation of the archaeological findings both within the site and within their wider landscape/townscape setting.

F.1.2 For Excavations, a Post-Excavation Assessment and Project Design will generally be prepared, as prescribed by Historic England Management of Research Projects in the Historic Environment (MoRPHE) 2006, Section 2.3. This will include a Project Description containing:

- A summary description and background of the project.
- A summary of the quantities and assessment of potential for analysis of the information recovered for each category of site, finds, dating and environmental data. Detailed assessment reports will be contained within appendices.
- An explicit statement of the scope of the project design and how the project relates to any other projects or work preceding, concurrent with or following on from it.
- A statement of the research aims of the fieldwork and an illustrated summary of results to date indicating to what extent the aims were fulfilled.
- A list of the project aims as revised in the light of the results of fieldwork and the current post-excavation assessment process.

F.1.3 A section on Resources and Programming will also be produced, containing:

- A list of the personnel involved indicating their qualifications for the tasks undertaken, along with an explanation of how the project team will communicate, both internally and externally.

- A list of the methods which will be used to achieve the revised research aims.
- A list of all the tasks involved in using the stated methods to achieve the aims and produce a report and research archive in the stated format, indicating the personnel and time in days involved in each task. Allowance should be made for general project-related tasks such as monitoring, management and project meetings, editorial and revision time.
- A cascade or Gantt chart indicating tasks in the sequence and relationships required to complete the project. Due allowance will be made for leave and public holidays. Time will also be allowed for the report to be read by a named academic referee as agreed with the County Archaeological Officer, and by the County Archaeological Officer.
- A report synopsis indicating publisher and report format, broken down into chapters, section headings and subheadings, with approximate word lengths and numbers and titles of illustrations per chapter. The structure of the report synopsis should explicitly reflect the research aims of the project.

F.1.4 The Project Design will be submitted to the County Archaeological Officer or equivalent for agreement.

F.1.5 Under certain circumstances (e.g. with very small mitigations), and as agreed with the County Archaeological Officer or equivalent, a formal Assessment and Project Design may not be required and either the project will continue straight to full analysis, or a simple Project Proposal (MoRPHE 2006 Section 2.1) will be produced prior to full analysis. This proposal may include:

- A summary of the background to the project
- Research aims and objectives
- Methods statement outlining how the aims and objectives will be achieved
- An outline of the stages, products and tasks
- Proposed project team
- Estimated overall timetable and budget if appropriate.

F.1.6 Once the post-excitation Project Design or Project Proposal has been accepted, the County Archaeological Officer or his appointed deputy will monitor the progress of the post-excitation project at agreed points. Any significant variation in the project design will be agreed with the County Archaeological Officer.

F.1.7 The results of the project will be published in an appropriate archaeological journal or monograph. The appropriate level of publication will be dependent on the significance of the fieldwork results and will be agreed with the County Archaeological Officer. An OASIS (Online Access to the Index of Archaeological Investigations) form will be completed for each project as per Historic England guidelines.

F.2 Relevant industry standards and guidelines

- F.2.1** Oxford Archaeology (OA) adheres to the national standards in post-excavation procedure as outlined in Historic England's Management of Research Projects in the Historic Environment (MoRPHE; EH 2006). Furthermore, all post-excavation projects take into account the appropriate regional research frameworks as well as national research agendas such as the Framework for Historic Environment Activities & Programmes in Historic England (SHAPE; EH 2008).

APPENDIX G LIST OF SPECIALISTS REGULARLY USED BY OA

G.1.1 Below are two tables, one containing 'in-house' OA specialists, and the other containing a list of external specialists who are regularly used by OA.

Internal archaeological specialists used by OA

Specialist	Specialism	Qualifications
Lisa Brown	Early Prehistoric pottery	BA, PGDip, MLitt, MCIfA
Paul Booth	Iron Age and Roman pottery	BA, FSA, MCIfA
John Cotter	Medieval and Post Medieval pottery, Clay Pipe and CBM	BA (Hons), MCIfA
Cynthia Poole	CBM and Fired Clay	BA (Hons), MSc
Edward Biddulph	Roman Pottery	BA (Hons), MA, MCIfA
Ian Scott	Metalwork and Glass	BA (Hons)
Leigh Allen	Metalwork and worked bone	BA (Hons), PGDip
Dr Ruth Shaffrey	Worked stone artefacts	BA, PhD, MCIfA
Julian Munby	Architectural Stone	BA, FSA
Dr Rebecca Nicholson	Fish and Bird Bone	BA (Hons), MA, D.Phil, MCIfA, FSA Scot
Dr Mairead Rutherford	Pollen	BSc, MSc
Lee Broderick	Animal bone	BA (hons), MA, MSc, FZG, SAC Dip (ecology)
Julia Meen	Charred and waterlogged plant remains and charcoal	BSc (Hons), MA
Dr Denise Druce	Charred plant remains, charcoal and pollen	BA (Hons), PhD, MCIfA
Elizabeth Stafford	Geoarchaeology and land snails	BA (Hons), MSc
Carl Champness	Geoarchaeology	BA (Hons), MSc, ACIfA
Dr Ian Smith	Animal Bone	BSc, PhD
Nicola Scott	Archaeological archive deposition	BA (Hons Dunelm)
Mike Donnelly	Flint	BSc, MCIfA
Dr Louise Loe	Human Bone	D.Phil, BA, MCIfA
Helen Webb	Human Bone	MSc, BSc
Mark Gibson	Human Bone	MSc, BA
Dr Lauren McIntyre	Human Bone	D.Phil, MSc, BSc

External archaeological specialists regularly used by OA

Specialist	Specialism	Qualifications
Lynne Keys	Slag	BA (Hons)

Specialist	Specialism	Qualifications
Quita Mould	Leather	BA, MA
Penelope Walton Rogers, The Anglo Saxon Laboratory	Identification of Medieval Textiles	FSA, Dip.Acc
Dana Goodburn-Brown	Conservation	BSc (Hons), BA, MSc
Steve Allen, York Archaeological Trust	Conservation	BA, MA, MAAIS
Dr Richard Macphail	Soils, especially Micromorphology	BA (Hons), MSc, PhD
Dana Challinor	Charcoal	MA, MSc
Dr Nigel Cameron	Diatoms	BSc, MSc, PhD
Dr David Smith	Insects	BA (Hons), MA, PhD
Professor Adrian Parker	Phytoliths and pollen	BSc (Hons), D.Phil
Dr David Starley	Metalworking Slag	BSc (Hons), PhD
Wendy Carruthers	Charred and waterlogged plant remains	BA (Hons)
Dr Sylvia Peglar	Pollen	PhD
Dr John Whittaker	Ostracods and Foraminifera	BA (Hons), PhD
Dr John Crowther	Soil Chemistry	MA, PhD
Dr Martin Bates	Geoarchaeology	BSc, PhD
Dr Dan Miles	Dendrochronology	D.Phil, FSA
Dr Jean-Luc Schwenninger	Optically Stimulated Luminescence Dating	PhD
Dr David Higgins	Clay Pipe	BA, PhD, MCIfA
Dr Hugo Anderson- Wymark	Flint	BSc, PhD, FSA Scot, MCIfA
Dr Damian Goodburn- Brown	Ancient Woodwork	BA, PhD

APPENDIX H DOCUMENTARY ARCHIVING

H.1 Standard methodology – summary

- H.1.1 The documentary archive constitutes all the written, drawn, photographic and digital records relating to the set-up, fieldwork and post-excavation phases of the project. This documentary archive, together with the artefactual and environmental ecofact archive collectively forms the record of the site. The report is part of the documentary archive, and the archive must provide the evidence that supports the conclusions of the report, but the archive may also include data which exceeds the limitations of research parameters set down for the report and which could be of significant value to future researchers.
- H.1.2 At the outset of the project OA Archive department will contact the relevant local receiving museum or archive repository to notify them of the imminent start of a new fieldwork project in their collecting area. Relevant local archiving guidelines will be observed and site codes, which integrate with the receiving repository, will be agreed for labelling of archives and finds.
- H.1.3 Where there is currently no receiving museum for the project archive, although responsibility for the archive ultimately lies with the client, OA will hold the archive on their behalf for a period of up to 3 years after completion of the report, after which time (in the event that a suitable depository has not been secured) provision for further storage of the archive will be made in agreement with Oxford Archaeology, the client and the relevant planning archaeologist.
- H.1.4 During the course of the project the Archive department will assist the Project Manager in the management of the archive including the cataloguing and development technique suitable for photographic archive requirements.
- H.1.5 The hard copy site archive will be security copied by scanning to PdFA and a copy of this will be housed on the OA Archive Server. A full digital copy of the archive, including scanned hard copy and born digital data, will be maintained on the OA server and if requested a copy on disk will also be sent to the receiving museum with the hard copy. This will act as a safeguard against the accidental loss and the long-term degeneration of paper records and photographs.
- H.1.6 Born digital data will only be printed to hard copy for the receiving museum where practical. Archive elements that need maintaining in digital form will be sent to ADS in accordance with Arches Standard and ADS guidelines. A copy will be sent to the receiving museum by CD and back-up copies will be stored on the OA digital network. In most cases a digital copy of the report will be included in the OASIS project library hosted by ADS.
- H.1.7 Prior to deposition the Archive department will contact the museum regarding the size and content of the archive and discuss any retention and dispersal policies which may be applicable in line with local and SMA Guidelines ' Selection, Retention & Dispersal of Archaeological Collections' 1993.

- H.1.8 The site archive will then be deposited with the relevant receiving museum or repository at the earliest opportunity unless further archaeological work on the site is expected. The documentary archive will include correspondence detailing landowner consent to deposit the artefacts and any copyright licences in accordance with the receiving museum guidelines. Deposition charges will be required from the client as part of the project costs but the level of the fee is set by the receiving body, and may be subject to change during the lifespan of the project. Changes to archiving charges beyond OA's control will be passed across to the client.
- H.1.9 Oxford Archaeology will retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide the receiving repository or museum for the archive with a full licence for use to the client in all matters directly relating to the project as described in the Written Scheme of Investigation, and in line with the relevant receiving body guidelines.
- H.1.10 OA will advise the receiving repository or museum for the archive of 3rd party materials supplied in the course of projects which are not OA's copyright.
- H.1.11 OA undertakes to respect all requirements for confidentiality about the client's proposals provided that these are clearly stated. It is expected that such conditions shall not unreasonably impede the satisfactory performance of the services required. Archaeological findings and conclusions can be kept confidential for a limited period but will be made publicly available in line with the above procedure either after a specified time period agreed with the client at the outset of the project, or where no such period is agreed, after a reasonable period of time. It is expected that clients respect OA's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

H.2 Relevant industry standards and guidelines

- H.2.1 At the end of the project the site archive will be ordered, catalogued, labelled and conserved and stored according to the following national guidelines:
- H.2.2 The 2014 EAC Guidelines A Standard and Guide to the Best Practice for Archaeological Archiving in Europe (GB) Perrin K, Brown E et al.
- H.2.3 The 2014 CIFA Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives.
- H.2.4 The 2011 AAF guide Archaeological Archives A Guide to Best Practice in Creation, Compilation, Transfer and Curation. Brown D.
- H.2.5 The UKIC's Guidelines for the preparation of excavation archives for long-term storage.
- H.2.6 The MGC's Standards in the museum care of archaeological collections.
- H.2.7 Local museum guidelines such as Museum of London Guidelines: (<http://www.museumoflondonarchaeology.org.uk/English/ArchiveResearch/DeposRe> source) will be adopted where appropriate to the archive collecting area.

H.2.8 The site archive will be prepared to at least the minimum acceptable standard defined in Management of Archaeological Projects 2, Historic England 1991.

H.3 Relevant OA manual and other supporting documentation

H.3.1 The OA Archives Policy.

APPENDIX I HEALTH AND SAFETY

I.1 Standard Methodology - summary

- I.1.1 All work will be undertaken in accordance with the current OA Health and Safety Policy, the OA Site Safety Procedures Manual, a site-specific Risk Assessment and, if required, Safety Plan or Method Statement. Copies of the site-specific documents will be submitted to the client or their representative for approvals prior to mobilisation, and all relevant H and S documentation will be available on site at all times. The Health and Safety documentation will be read in conjunction with the project WSI.
- I.1.2 Where a project falls under the Construction (Design and Management) Regulations (2015), all work will be carried out in accordance with the Principal Contractor's Construction Phase Plan (CPP).

I.2 Relevant industry standards and guidelines

- I.2.1 All work will be carried out according to the requirements of all relevant legislation and guidance, including, but not exclusively:
 - I.2.2 The Health and Safety at Work Act (1974).
 - I.2.3 Management of Health and Safety at Work Regulations (1999).
 - I.2.4 Manual Handling Operations Regulations 1992 (as amended).
 - I.2.5 The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (2013).
 - I.2.6 The Construction (Design and Management) Regulations (2015).
 - I.2.7 Relevant OA manual and other supporting documentation
 - I.2.8 The OA Health and Safety Policy.
 - I.2.9 The OA Site Safety Procedures Manual.
 - I.2.10 The OA Risk Assessment templates.
 - I.2.11 The OA Method Statement template.
 - I.2.12 The OA Construction Phase Plan template.

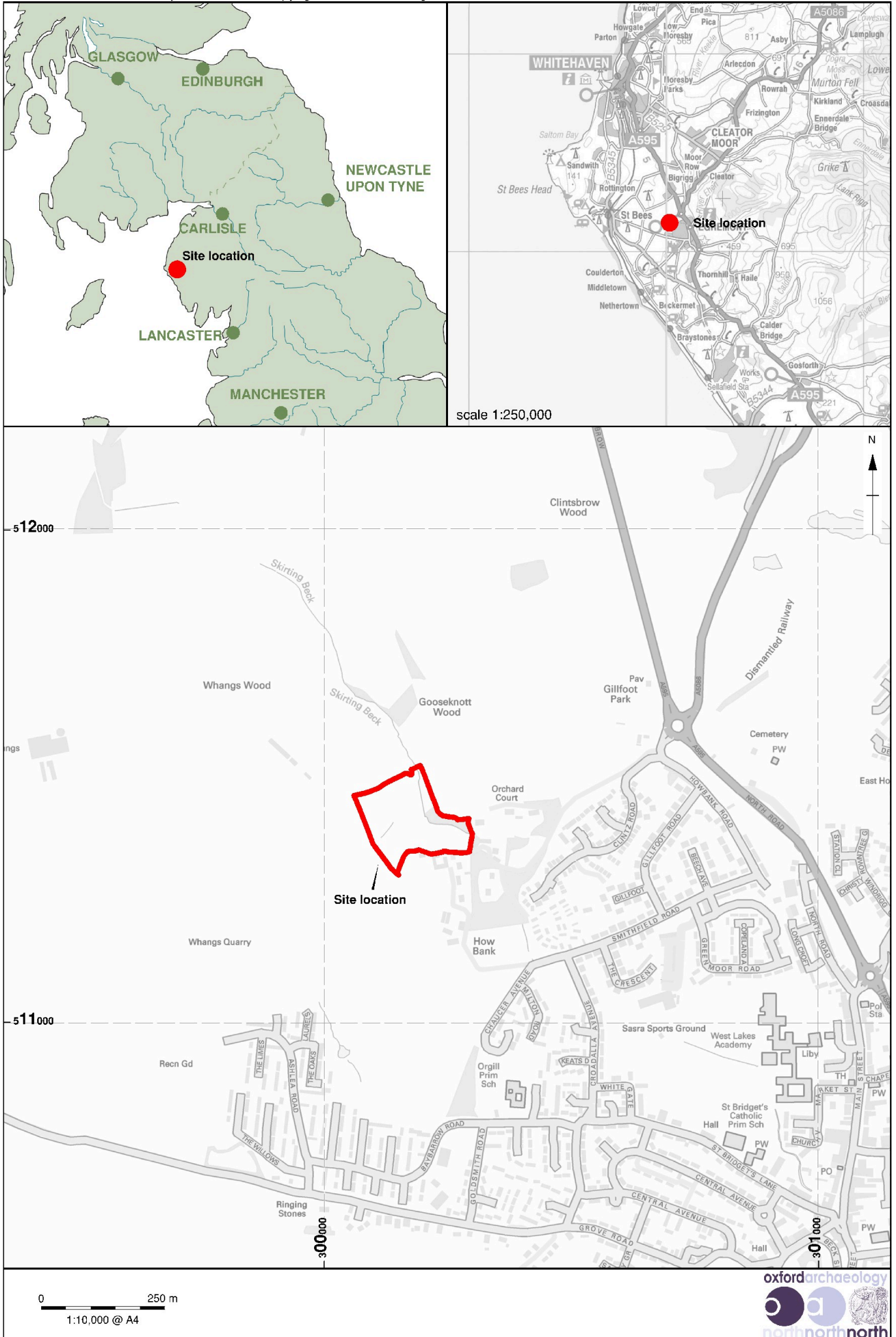


Figure 1: Site location

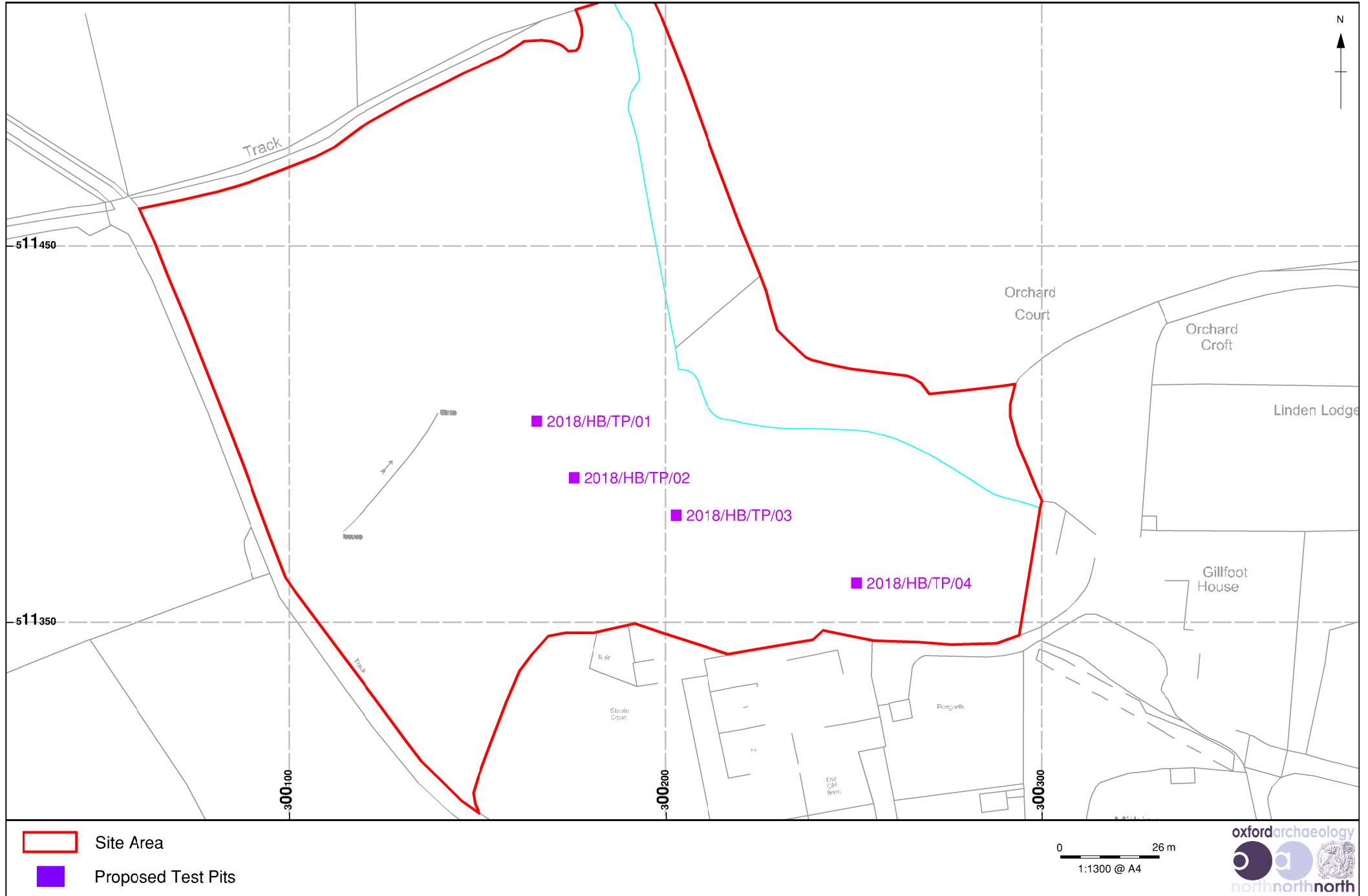


Figure 2: Proposed Test Pits



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