The Coliseum, York Road, Whitley Bay
Evaluation Report

AOC 20723
July 2008









AOC Archaeology Group

ARCHAEOLOGY | HERITAGE | CONSERVATION

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1 NON-TECHNICAL SUMMARY

1.1 The archaeological evaluation at the Coliseum Building, York Road, Whitley Bay has yielded significant results. Of five trenches excavated, Trench 1 recorded the presence of post-medieval walls and a culvert and Trench 5 contained a single linear feature dated by ^{14}C to between 1010 AD and 1210 AD.

2 INTRODUCTION

2.1 Background

2.1.1 The proposed development site at the Coliseum Building, York Road, Whitley Bay, Tyne and Wear (Figure 1) lies within the administrative area of North Tyneside Council, which is advised on archaeological matters by the Tyne and Wear Archaeology Officer. The Tyne and Wear Archaeology Officer advised North Tyneside Council that the archaeological potential of the site should be investigated prior to the determination of a planning application. To this end, AOC Archaeology Group was commissioned by Dalton Park Development Ltd to undertake an archaeological evaluation of the site to ascertain whether any archaeological constraints exist which may affect the proposed development. The work required was in accord with the principles set out in PPG16 and in accordance with a specification provided by the Tyne and Wear Archaeology Officer to determine the nature, extent, condition, date and significance of any archaeological remains within the proposed development area. The OASIS number for this evaluation is aocarcha1-45782.

2.2 Site Location

2.2.2 The proposed development area is located at the Coliseum Building, York Road, Whitley Bay, Tyne and Wear (NGR: NZ 355 721; Figure 1). The site is bounded to the north by York Road, to the east by buildings facing on to Oxford Street, to the west by buildings facing onto Park Avenue and to the south by buildings lining Whitley Road.

2.2.3 At the time of the evaluation the site had been cleared of all buildings and was level at an average height of 24.35m O.D.

2.2.4 The underlying geology of the site comprises Westphalian Coal Measures, which is overlain by glacial till.

2.3 Archaeological Potential

2.3.1 An outline of the archaeological potential of the site has been compiled in the form of a desk-based assessment (Carlton 2004) a summary of its findings now follows.

2.3.2 No archaeological evidence has been found for either the prehistoric or Roman periods within the settlement of Whitley Bay itself.

2.3.3 The name of Whitley Bay is thought to have derived from the Anglian for white lea or pasture. The township of Whitley Bay was first recorded in the early 12th century in a document dated 1110 AD. Documentary evidence (as outlined in Carlton 2004, *The Coliseum, Whitley Bay: Archaeological assessment and photographic record*) references the family which took its name from the manor and in 1345 Edward III granted a license to crenellate the manor house by its owner, Guy de Whitley.

2.3.4 In the 16th century the name of Dove became associated with the property. In 1539 Robert Dove was the collector of tithes and by 1663 John Dove was recorded as the principal tenant of the manor. The Doves were also associated with coalmining in the area at this time although the precise location of the mines is unknown.

2.3.5 The post-medieval period in the area saw an increase in the importance of coal mining due to the industrial revolution. In the latter part of the 17th century collieries of the district of Whitley were

expanding. Even after the decline of coalmining in the area in the 19th century the area still remained prosperous due to the exploitation of ironstone. Prosperity from these industrial activities enabled the construction of grand residences such as Whitley Hall and Whitley House. Premises occupying the former location of Whitley House now occupy an area to the south of the proposed development area. Here John Dove constructed a malt-kiln during the 1670s, part of which survived as ruins until the late 19th century.

2.3.6 The Coliseum theatre and variety hall was built in the garden of Whitley House in 1910. The building remained in use as a cinema then bingo hall until the later part of the 20th century (Carlton 2004).

3 OBJECTIVES

3.1 The objectives of the archaeological evaluation were to:

i) determine the character, extent and quality of any archaeologically significant remains in the proposed development area; and

ii) should significant archaeological deposits be discovered, the preparation of a mitigation strategy compliant with PPG 16 will be undertaken.

4 METHODOLOGY

4.1 Evaluation of Development Area

4.1.1 The evaluation comprised five trenches totalling 126 m² in area. The trench locations are illustrated on Figure 2. The trenches were mechanically excavated down to the first significant archaeological horizon or to the upper surface of the natural subsoil, whichever was the uppermost. The stripping of topsoil was undertaken by the means of a 1.5 ton 360° tracked mini-digger equipped with a toothless ditching bucket of 1 m width. Excavation was in shallow spits. All machine excavation was supervised by an experienced field archaeologist.

4.1.2 All trial trenching was undertaken according to AOC Archaeology Group's standard operating procedures (AOC 2007). All significant archaeological features were cleaned and fully defined.

4.1.3 An adequate proportion of each feature selected for investigation were excavated, sampled and recorded to determine the character, function, nature, date and significance of the features sampled. No specialized re-instatement was undertaken.

5 RESULTS

5.1 Introduction

5.1.1 The fieldwork was undertaken between the 8th and 19th October 2007. Initially five evaluation trenches were machine excavated to expose a total area of 80 m^2. After discussion with the Tyne and Wear County Archaeologist it was decided that Trench 1 should be expanded, this brought the total area for the evaluation up to 126 m^2 (Figure 2). No archaeological small finds were recovered by the evaluation.

5.2 Trench 1

5.2.1 Trench 1 was 11 m long by 1.5 m wide; due to the features encountered in the initial stages of the evaluation it was decided by the Tyne and Wear Archaeology Officer that this trench should be extended. The trench was therefore extended to 11 m long by 6 m wide.

5.2.2 Glacial till in the form of orange-yellow sand and gravel was identified 0.89 m below the present ground surface. At the western end of the trench were three portions of a slab floor [41: 2.58 m long by 1.33 m wide], [42: 3.27 m long by 1 m wide] and [43: 0.24 m long by 0.7 m wide]. All three

surfaces were constructed from sandstone slabs of varying shape and size and may, at some point, have been one complete floor but later truncations have made this impossible to establish. Overlying the floor surfaces was a deposit of black sandy silt with frequent inclusions of coal [30: 0.23 m deep].

5.2.2 Cutting through deposit [30] were the remains of two north to south aligned wall foundations. The most westerly of the walls, [1: 3.5 m long, 0.95 m wide and 0.49 m high] had four double-width random courses, of roughly dressed sandstone blocks bonded with lime mortar (Plate 1). This was set within construction cut [7: 0.45 m deep] and infilled with a dark brown sandy-silt [6] with very occassional sandstone fragments. The construction abutted the cut at its eastern edge. This wall appeared to be somewhat in isolation but modern truncations at both its northern and southern extents may have removed any further evidence. In close proximity to this, 0.2 m to the east, was a second wall [2: 4.2 m long, 0.7 m wide and 0.25 m high] (Plate 2) composed of a single course of roughly dressed, unbonded, sandstone blocks. This sat within a construction cut [27: 0.73 m wide] which had been backfilled follwong the construction of wall [2], with a dark brown sandy silt [28]. At its southern end was a possible western return to this wall [2], however only fragmentary rubble evidence of this survived. Further to the east the wall appeared to have been 'robbed out' by trench [35: 3 m long by 0.75m wide and 0.05 m deep] and back-filled with a dark brown sandy silt [36].

Plate 1: Wall [1] from south

Plate 2: Wall [2] from south

5.2.4 In the eastern end of the trench was a culvert [24] within cut [26: 3.26 m long by 1.31 m wide and 0.15 m deep] (Plate 3). The eastern and northern portions of the culvert were truncated by modern interventions [47] and a modern concrete floor [48]. The structure [24] of the culvert consisted of two single courses of parralel sandstone blocks dressed on one side to form a channel. At its southern end a single stone remained of what would have been a cap to the culvert. Nearby to the east of this was a second flat sandstone block [40] which may represent a displaced capping stone. The construction cut was in-filled following the construction of the culvert, with a dark brown sandy silt [25] while the culvert itself was in-filled by a grey/brown sandy silt [34].

Plate 3: Culvert [24] section

5.2.5 A series of three modern square postholes ran east-west across the trench. Cut [19: 0.33 m by 0.29 m and 0.13m deep] had vertical sides and was filled by a dark brown/black sandy silt [20]. The other two cuts, [11] and [17] had very similar profiles and the fills, [12] and [18], were identical.

5.2.6 Overlying the eastern end of the trench was a dark brown soil deposit [31]. This was cut by a number of modern truncations [47] and [46], as well as a brick and concrete block [23].

5.2.7 The entire trench was overlain by a deposit of building rubble and crushed brick [33: 0.32 m deep].

5.3 Trench 2

5.3.1 Trench 2 was 10 m long by 1.5 m wide (Figure 5). Glacial till in the form of orange-yellow sand and gravel was identified 0.89 m below the present ground surface. In the northern end of the trench lay part of a structure [37] constructed of concrete, wood and brick. Portions of the wooden floor surface within this structure still remained carpeted. The structure had an associated construction cut [38] and fill [37], however, the remains in this trench were part of the original Coliseum building. Furthermore, after discussion with the Tyne and Wear Archaeology Officer, and in the light of truncation identified on other portions of the site, it was decided not to excavate this feature.

5.3.2 The southern half of the trench was overlain by a madeground deposit of dark brown-black sandy silt with inclusions of modern building materials [44: 0.48 m deep]. Overlying the entire site was a deposit of crushed brick rubble and building debris [45: 0.62 m deep]. No archaeological finds were recovered from this trench.

5.4 Trench 3

5.4.1 Trench 3 (Figure 6) was 5 m long by 1.5 m wide. Natural bedrock in the form of degraded sandstone was identified 1.12 m below the present ground surface. This was overlain by madeground comprising dark brown-black sandy silt with inclusions of modern building materials [16: 0.82 m deep]. Overlying the entire site was crushed brick rubble and building debris [15: 0.28 m deep]. No archaeological finds were recovered from this trench. The fact that bedrock was encountered at the base of this trench, as opposed to the natural sand found in others, possibly indicated that this area of the development area had been truncated by recent building activities.

5.5 Trench 4

5.5.1 Trench 4 (Figure 6) was 5 m long by 1.5 m wide. Natural bedrock in the form of degraded sandstone was identified 0.9 m below the present ground surface. This was overlain by madeground of a dark brown-black sandy silt with inclusions of modern building materials [14: 0.75 m deep]. Overlying the entire site was a deposit of crushed brick rubble and building debris [13: 0.24 m deep]. No archaeological finds were recovered from this trench. Again given that bedrock was encountered at the base of this trench, as opposed to the sand found in others, possibly indicates that this area of the site had been truncated by recent building activities.

5.6 Trench 5

5.6.1 Trench 5 (Figure 7 & Plate 4) was 10 m long by 1.5 m wide. Glacial till in the form of orange-yellow sand and gravel was identified 1.3 m below the present ground surface. A single east-west aligned linear feature was identified in this trench. Its cut [5: 1.5 m long, 0.68 m wide and 0.49 m deep] had a 'U'-shaped profile with a sharp break of slope on both sides and a rounded even base. Its fill [4] was a dark brown sandy silt with very occasional sandstone fragments and a small quantity of highly degraded shell.

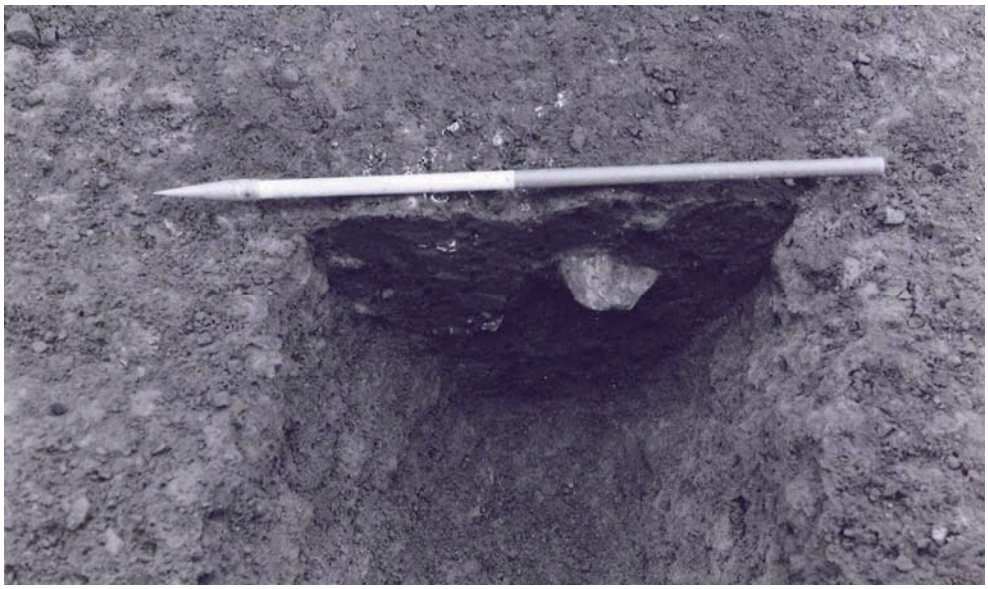

Plate 4: Section through Linear [5] from west

Two samples of *Hordeum* (barley) seeds were sent for ^{14}C dating at the Scottish Universities Environmental Research Centre, these returned date ranges of 1020 AD - 1210 AD and 1010 AD - 1170 AD at 2 σ (Table 1). This was overlain by a madeground of dark brown-black sandy silt with inclusions of modern building materials [10: 0.59 m deep].

Laboratory Code	Context	Sample	C14 Age BP	Delta ^{13}C (°/₀₀) PDB	Cal - 68.2%	Cal - 95.4%
SUERC-16897 (GU-16061)	4/5	Grain: Hordeum	915 ± 35	-22.2‰	1040 - 1170 AD	1020 - 1210 AD
SUERC-16898 (GU-16062)	4/5	Grain: Hordeum	950 ± 35	- 23.8‰	1020 - 1160 AD	1010 - 1170 AD

Table 1: Radiocarbon Dates

5.6.2 Overlying the entire trench was a deposit of crushed brick rubble and building debris [9: 0.38 m deep].

6 THE ENVIRONMENTAL EVIDENCE *Jackaline Robertson*

6.1 Environmental Methods

6.1.1 Bulk samples from seven contexts were assessed in their entirety. The samples were wet-sieved, using a siraf style flotation tank, through a 1mm and 300 µm mesh. Both the heavy residue (retent) and light floating material (flot) were collected and allowed to dry slowly before further processing. They were subsequently stack-sieved using a system of 8, 4, 2, and 1 mm sieves. The residues were examined by eye for any macro plant remains and archaeological artefacts. The flots were analysed using low power microscopy for charred and waterlogged botanical remains.

6.1.2 The identification of all recovered plant material was undertaken in the AOC laboratory using the modern seed reference collection; reference texts and keys. Total numbers of remains per species were recorded and were considered within their archaeological and palaeoecological contexts. Plant taxonomic nomenclature follows Clapham *et al* (1989).

6.2 Environmental Results

6.2.1 The flots were relatively small ranging from between one to seventy five ml. The majority of the charred plant remains recovered was mainly concentrated in context (4) from Trench 5. Trench 1 provided little evidence of plant macrofossils and what was identified was poorly preserved. A total of 521 charred plant remains were retrieved of which 439 were identified as cereal grains. The other botanical material included *Chenopodium album* sp and *Vicia Sativia* sp. which are common features of cultivation and wasteground environments. Modern contamination was minimal and included uncharred seeds, insect eggs and roots. The only other archaeological remains identified were a type of coal. The charred macroplant contents of the residues and flots are listed in Appendix 4.

6.3 Environmental Discussion

6.3.1 The cereal grains had suffered post-depositional damage mainly in the form of external surface distortion. However several grains remained relatively intact and it was possible to identify morphological features consistent with hulled barley. Chaff was also present and displayed features characteristic of six-rowed barley. Given the condition of the cereal grains it was possible to identify 132 barley grains, 76 oats and 10-bread/club wheat. Poor preservation prohibited the further identification of 210 grains to species. The presence of chaff and weed seeds associated with agriculture, suggests that these cereal grains were either processed on this site or in the near vicinity.

6.3.2 The small volume of modern roots, insects and absence of snail shells indicates that the deposits were relatively intact and undisturbed. The uncharred plant remains are better preserved than the charred macrofossils and are likely to be later intrusions. One barley grain displayed evidence of germination which may be indicative of the nature of this site. However due to poor preservation it proved impossible to ascertain whether any other barley grain had germinated prior to charring.

6.4 Environmental Conclusion

6.4.1 The relatively large presence of barley could support the argument that part of this site was once used for malting. However with only one grain showing any evidence of germination the presence of barley alone cannot validate this theory. The other cereal species recovered are probably representative of cereal cultivation. Their presence within the same deposit suggests that these different species were processed and stored in the same location. There is also evidence of weevil damage to at least three grains which is typically indicative of storage for a period of time. This sample is probably floor refuse that has been disposed of. The presence of chaff and weed seeds implies that these grains were processed on or very near to this site. The weed seeds are also indicative of wasteland and would have grown nearby.

7 DISCUSSION

7.1 The archaeological evaluation yielded varying results. Trench 1 recorded the presence of medieval or post-medieval walls and a culvert. Trench 2 revealed an upstanding section of the modern buildings recently demolished on the site. Trenches 3 and 4 both appeared to have been previously excavated to bedrock. Trench 5 contained a single linear feature ^{14}C dated to between 1010 AD and 1210 AD.

7.2 Prior to the ^{14}C dating of the charred barley samples from linear feature [4/5] in Trench 5 it was anticipated that the infilling of this feature was perhaps contemporary with the known malting activity undertaken in the wider area in the 1670s. However the ^{14}C dating of the feature places it very early in the history of Whitley at around the time of the transfer of the manors of Whitley, Monkseaton and Seghill from Henry I to Richard, Abbot of St Albans, and the monks of Tynemouth (Craster 1907, 55). The limited exposure of the feature makes its interpretation somewhat problematic however given its size and form it is most likely to represent a land boundary or drain.

7.3 York Road (southern side), to the north of the site, is thought to correspond to the limit of Whitley's medieval burgage plots and the similarity in orientation between this and the excavated ditch [4/5]

would suggest that the ditch is representative of just such a boundary either marking the northern limit of a burgage plot or a transverse sub-division within a plot.

7.4 Macroplant analysis has indicated that at the time of the infilling of the feature, cereal production (mixed cereal crop cultivation regime), storage and processing appear to have occurred in the immediate vicinity. The charred cereal being incorporated in the fill of the linear feature as waste material perhaps derived from nearby corn-drying activities.

7.5 Dating the structural features in Trench 1 is problematic given the absence of associated diagnostic material. However, Carlton records that buildings dating from the 17th century and earlier probably occupied the area between Whitley House/Victoria Public House and the Coliseum site (Carlton 2004, 5). In regard to function the two adjacent walls, of simple construction, may represent contemporary structures or separate discrete phases of building. This was impossible to establish due to modern truncation compromising any stratigraphic linkage. The structures appear to have possessed sandstone slabbed floors or yards, but whether these are the remains of domestic, industrial or agricultural buildings in unknown. If domestic, perhaps the recovery of pottery might have been expected. In considering a commercial or agricultural role, it is tempting to suggest that these features constitute the remnants of buildings connected with *John Dove's 'Head House', malt-kiln and byre built* known to exist in the immediate locality in 1663. These buildings are described in 1790 as two cottages and croft or garth formerly used as a granary and malthouse (Tomlinson 1893, 125). While an attractive and likely supposition, this must ultimately rest unproven.

8 BIBLIOGRAPHY

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Section 2: Appendices

AOC Archaeology Group

APPENDIX 1

Context Register

Context	Trench	Description
1	1	Stone-built wall
2	1	Stone-built wall
3	1	Modern truncation fill
4	5	Fill of linear [5]
5	5	Linear cut filled by [4]
6	1	Fill of construction cut [7] for Wall [1]
7	1	Construction cut for Wall [1]
8	1	Modern truncation cut filled by [3]
9	5	Madeground
10	5	Subsoil underlying madeground [9]
11	1	Posthole cut filled by [12]
12	1	Fill of posthole [11]
13	4	Crushed rubble
14	4	Madeground
15	3	Crushed rubble
16	3	Madeground
17	1	Posthole cut filled by [18]
18	1	Fill of posthole [17]
19	1	Posthole cut filled by [20]
20	1	Fill of posthole [21]
21	1	Construction cut filled by [22] and modern brick structure [23]
22	1	Fill of construction cut [21]
23	1	Modern brick-built culvert
24	1	Stone-built culvert
25	1	Fill of construction cut [26]
26	1	Construction cut filled by [25] and stone-built culvert [24]
27	1	Construction cut for Wall [2]
28	1	Fill of construction cut [27] for Wall [2]
29	1	Mid brown soil layer to west of Wall [1] cut by Wall [1] construction cut [7]
30	1	Dark brown soil layer with coal inclusions overlying soil [29]
31	1	Dark brown soil layer in north of trench
32	5	Unused
33	5	Madeground / demolition material
34	1	Fill of culvert [24]
35	1	Cut of east/west robber trench filled by [36]
36	1	Fill of robber trench cut [35]
37	2	Modern concrete and brick structure
38	2	Construction cut for [37]
39	2	Fill of construction cut [38]
40	1	Displaced stone from culvert [24]
41	1	Stone surface cut by Wall [2]
42	1	Stone surface cut by robber trench [35]
43	1	Possible remnants of stone floor in west of Trench 1
44	2	Madeground
45	2	Demolition rubble
46	1	Fill of modern truncation [49]
47	1	Fill of modern truncation [50]
48	1	Modern concrete structure
49	1	Modern truncation filled by [46]
50	1	Modern truncation filled by [47]

APPENDIX 2

Drawing Record

Drawing No.	Scale	Description
P1	1:20	Trench 1 pre-excavation
P2	1:20	Trench 2 pre-excavation
P5	1:20	Trench 5 pre-excavation
S4	1:10	Trench 5- Feature [5]
S5	1:10	Trench 5 section
S6	1:20	Trench 4 section
S7	1:20	Trench 3 section
P8	1:20	Trench 1 overlay of post-excavation of truncation [08]
S9	1:10	Trench 1- Wall [1] elevation
S10	1:10	Trench 1 - Posthole [11] section
S11	1:10	Trench 1 - Posthole [17] section
S12	1:10	Trench 1 - Posthole [19] section
P13	1:20	Trench 1 - Walls [1] and [2]
S14	1:10	Trench 1 - Robber trench [35]
P15	1:20	Plan of Trench 1 extension
S16	1:10	Section of Trench 1 pre-extension
P17	1:20	Trench 1 – overlay to plan 15
S18	1:10	Culvert [24] section
S19	1:20	Trench 2 section

APPENDIX 3

Photographic Register

Black & white print and colour slide Film 1

Frame	*Detail*	*From*
1-	ID	
2-3	Trench 1 overview	W
4-5	Trench 1 overview	E
6-7	Trench 2 overview	S
8-9	Trench 2 overview	N
10-11	Trench 4 overview	W
12-13	Trench 1 overview	E
14-15	Pre-excavation of Trench 3	N
16-17	Pre-excavation of Trench 3	S
18-19	Trench 5; Feature [5]	W
20-21	Trench 1; Posthole [11] half-sectioned	E
22-23	Trench 1; Posthole [17] half-sectioned	E
24-25	Trench 1; Posthole [19] half-sectioned	N
26-27	Trench 1; Wall [1] elevation & cut [21]	W
28-29	Trench 1; Wall [2]	S
30-31	Trench 1; Culvert [26]	N
32-33	Trench 5; Post-excavation shots of Walls [1] and [2]	W
34-35	Working shot of Culvert [26] after excavation of construction cut	N

Black & white print and colour slide Film 2

Frame	*Detail*	*From*
1	ID	
2-3	Trench 1; Walls [1] and [2] section	S
4-5	Trench 1; Overview of Walls [1] and [2] and floor in extension	W
6-7	Trench 1; Stone floor (northern part)	E
8-9	Trench 1; Stone floor (southern part)	W
10-11	Trench 1: Walls [1] and [2] in extension	S
12-13	Trench 1; Wall [1] and truncations	S
14-15	Trench 1; Walls [1] and [2] showing extent of truncations	W
16-17	Trench 1; Robbed out return (?) to Wall [2]	W
18-19	Trench 1; wall foundation courses	W
20-21	Trench 1; culvert [24]	N
22-23	Trench 1; culvert [24] post-excavation	N
24-25	Trench 1; section through culvert [24]	S

Appendix 4

Macroplant Results and Radiocarbon Dating Certificates

Macroplant Results

Context no.	**4**	**6**	**12**	**18**	**20**	**26**	**34**
Area	**Tr. 5**	**Tr. 1**	**Tr. 1**	**Tr. 1**	**Tr. 1**	**Tr. 1**	**Tr. 1**
% Sample Represents	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Species							
Cereal Grain							
Horduem hulled asymmetricl	2						
Horduem hulled symmetric	2						
Horduem	128						
Avena sp.	76		1				
Triticum cf. aestivum L.	10						
Cereal indet.	210				3		
H. vulgare L. (rachis internodes)	8						
Other species							
Vicia	28		1	1			1
Agrostemma githago L.	*10*						
Chenopodium Album type.	*4*						
Daucus carotaL.	1						
Polygonaceae sp.	4						
Polygonum aviculare L.	2						
*Polygonum hydropiper*L.	12						
Polygonum mite L.	1						
*Raphanus raphanistrum*L.	1						
Silene sp.	2	1					1
Indet seeds, fruits, nuts	11						
Vol of soil (L)		**8**	**5**	**2.5**	**5**	**8**	**7**
Total quantifiable components	**512**	**1**	**2**	**1**	**3**		**2**

Radiocarbon Dating Certificates

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Direct Dial: **01355 270136**
Fax: **01355 229898**

RADIOCARBON DATING CERTIFICATE

18 February 2008

Laboratory Code	SUERC-16897 (GU-16061)
Submitter	Ciara Clarke AOC Archaeology Group Edgefield Road, Edgefield Industrial Estate Loanhead Midlothian EH20 9SY
Site Reference	The Coliseum, Whitley Bay
Sample Reference	20723
Material	Grain : Hordeum
$\delta^{13}C$ relative to VPDB	-22.2 ‰
Radiocarbon Age BP	915 ± 35

N.B. 1. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

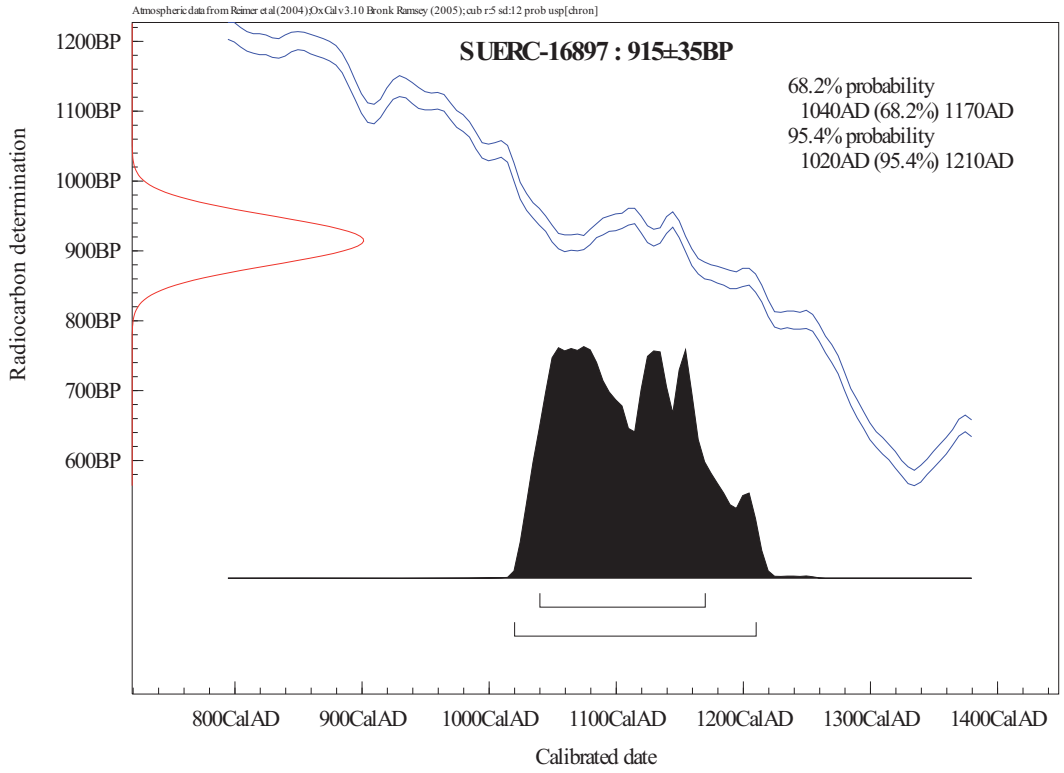
2. The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).

3. Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code.

Conventional age and calibration age ranges calculated by :- Date :-

Checked and signed off by :- Date :-

Calibration Plot



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RADIOCARBON DATING CERTIFICATE

18 February 2008

Laboratory Code	SUERC-16898 (GU-16062)
Submitter	Ciara Clarke AOC Archaeology Group Edgefield Road, Edgefield Industrial Estate Loanhead Midlothian EH20 9SY
Site Reference	The Coliseum, Whitley Bay
Sample Reference	20723
Material	Grain : Hordeum
$\delta^{13}C$ relative to VPDB	-23.8 ‰
Radiocarbon Age BP	950 ± 35

N.B. 1. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

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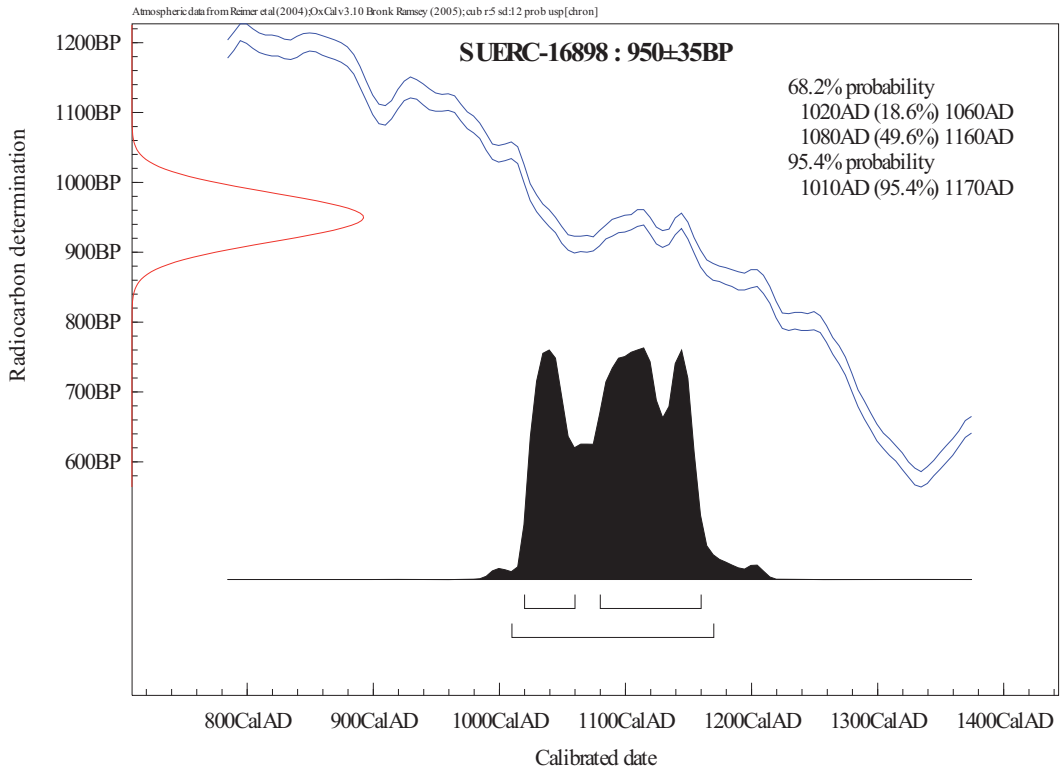
Conventional age and calibration age ranges calculated by :- Date :-

Checked and signed off by :- Date :-

Calibration Plot



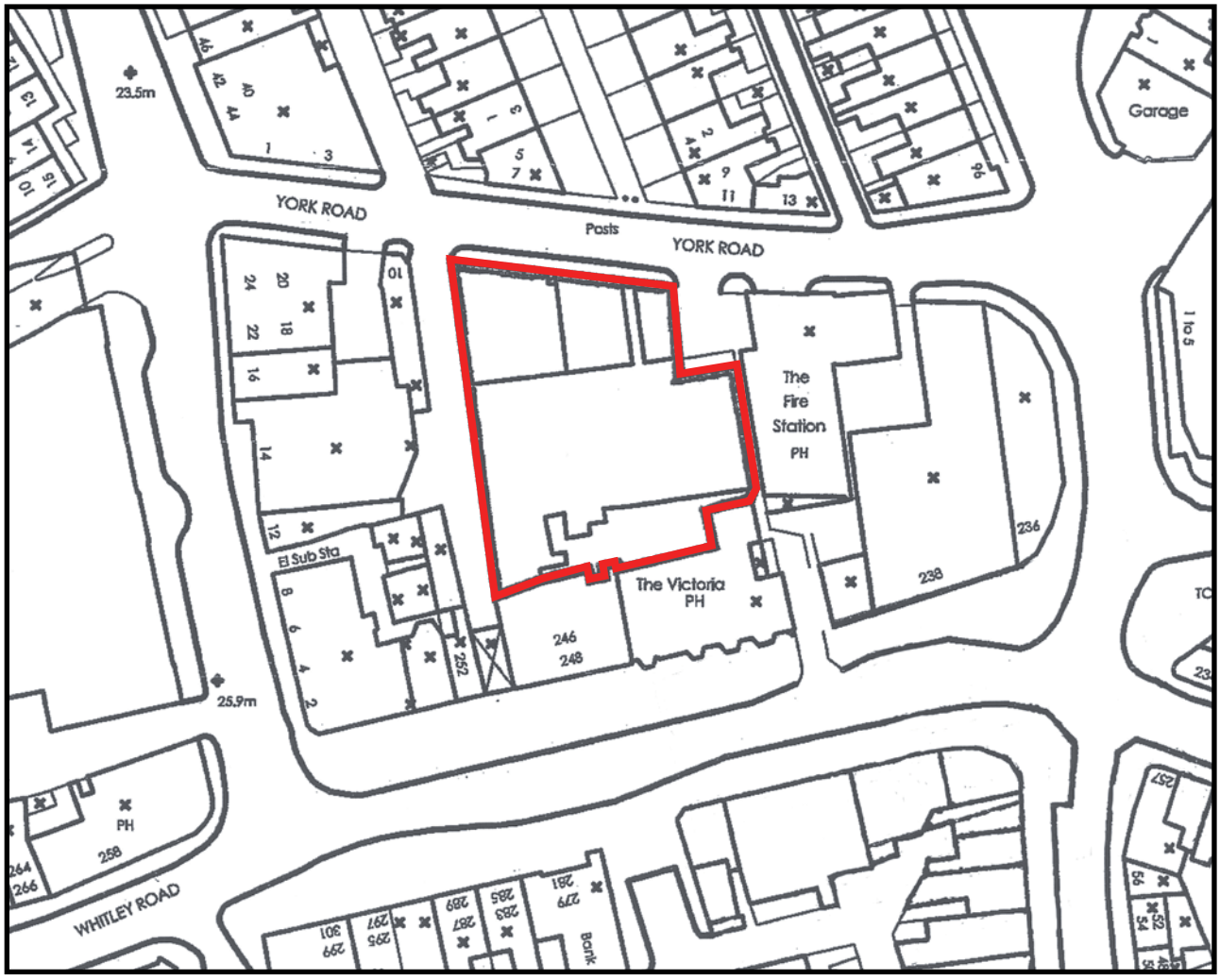


Figure 1: Site location

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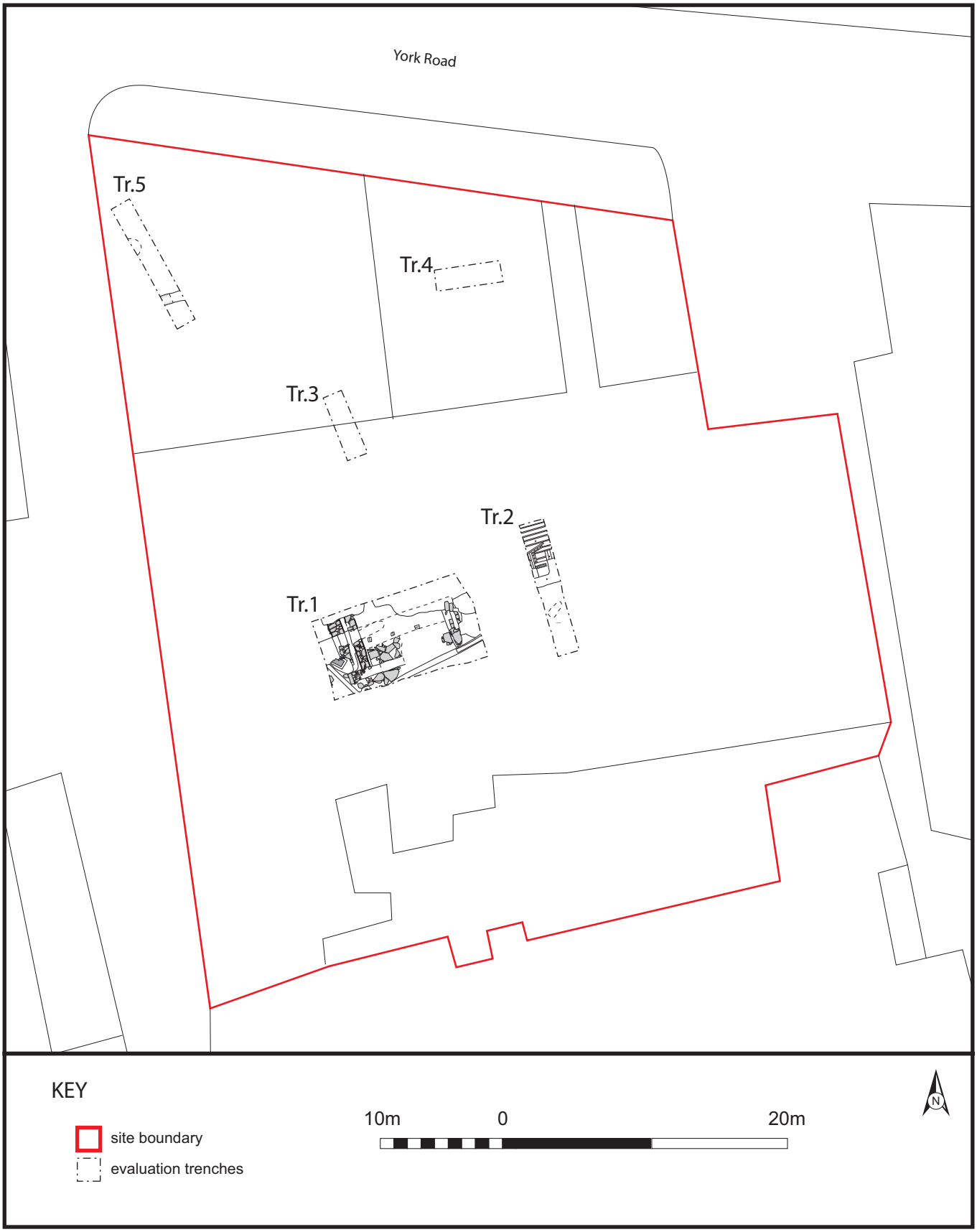

Figure 2: Trench locations

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Figure 3: Plan of Trench 1

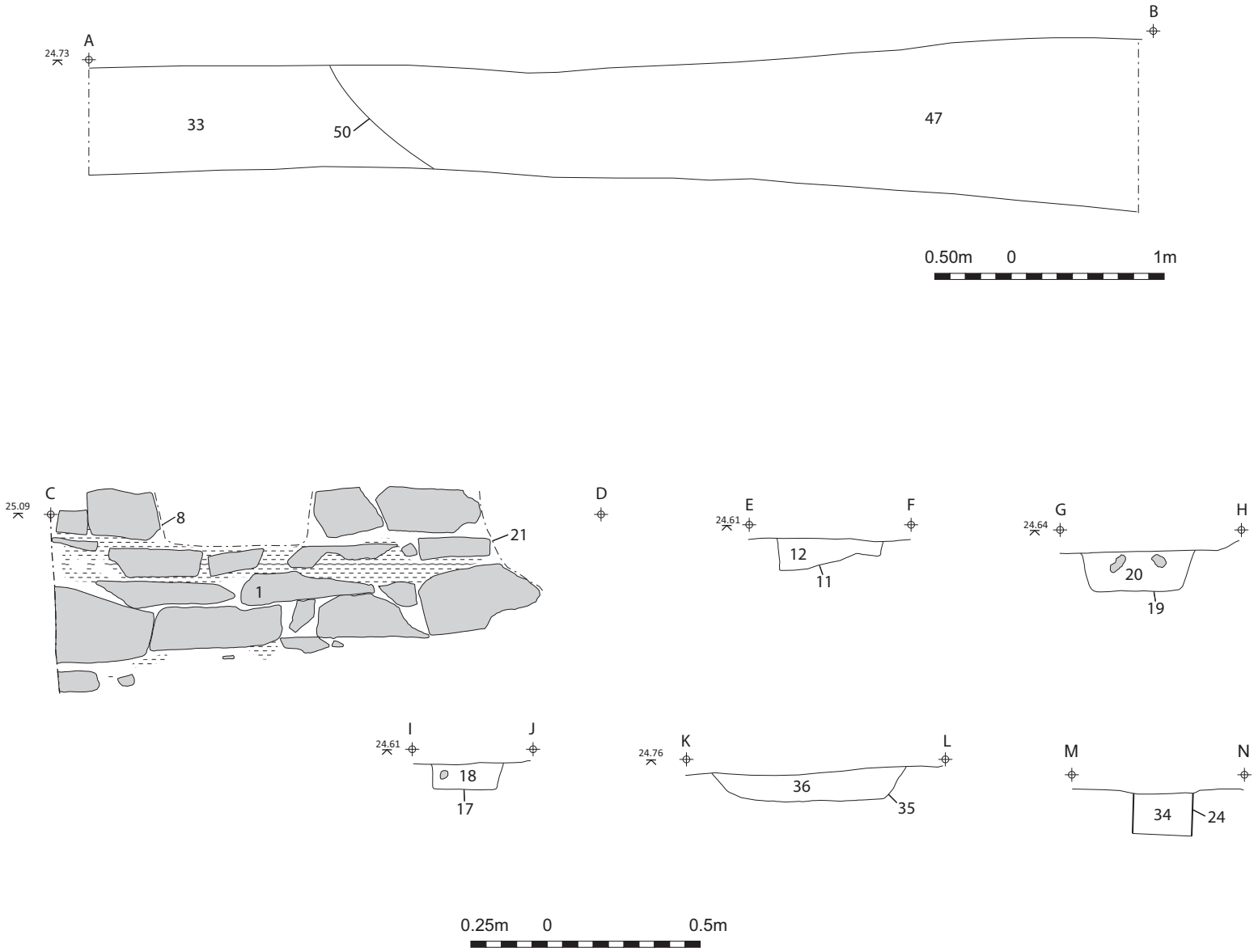
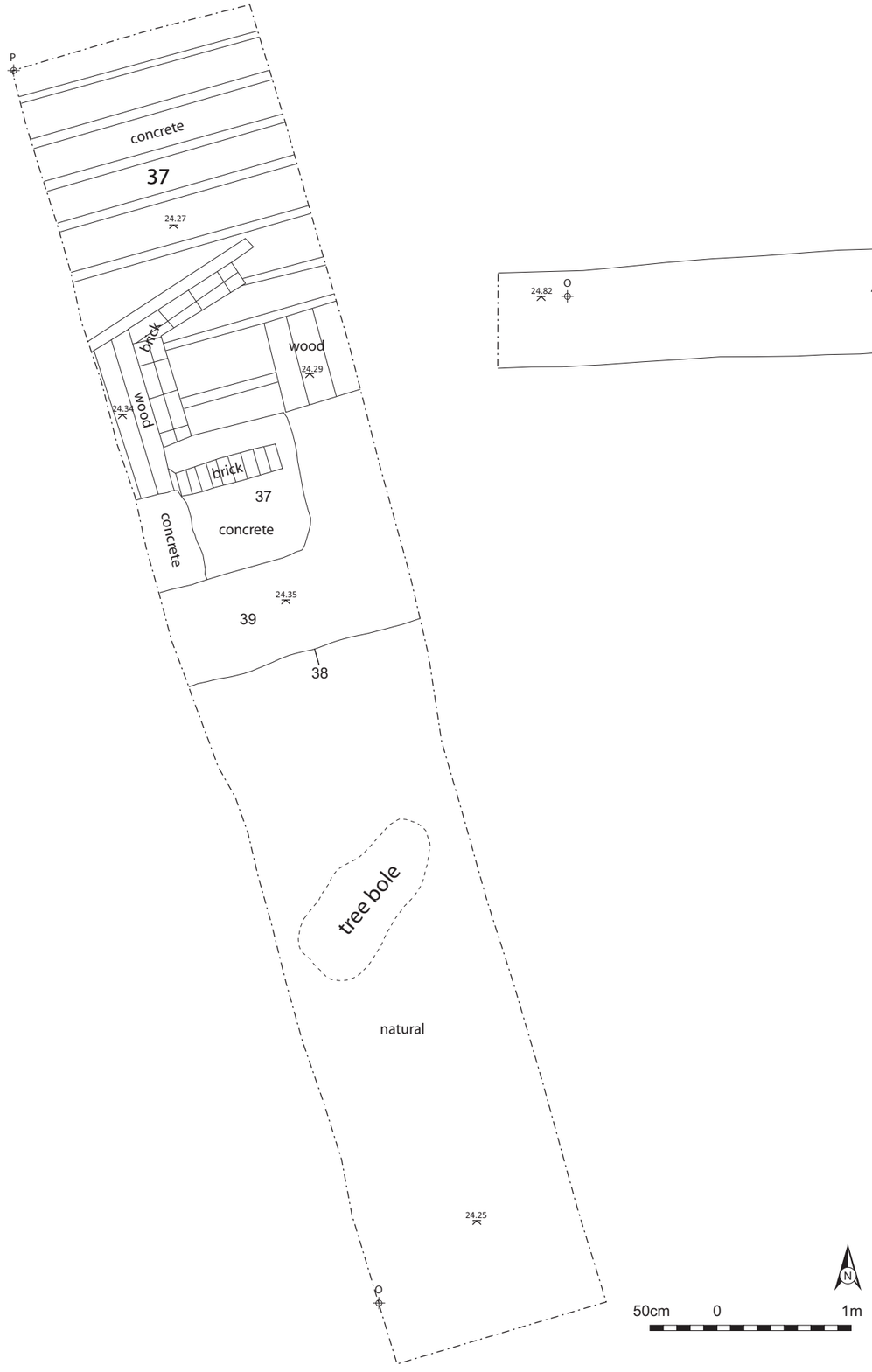


Figure 4: Trench 1 sections



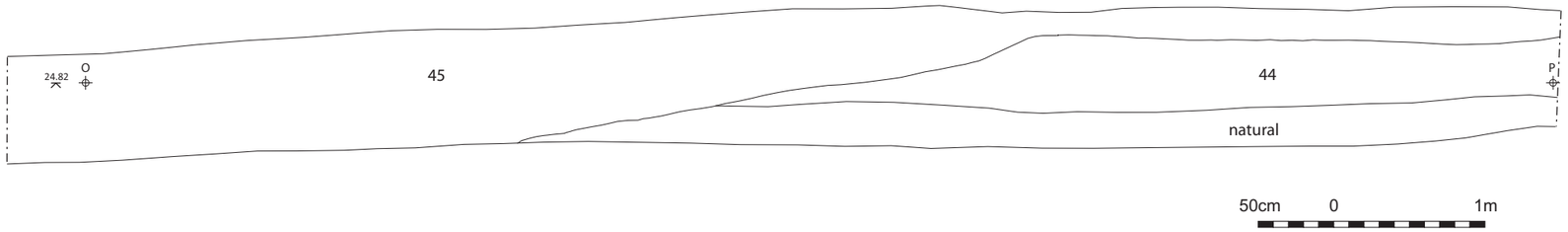
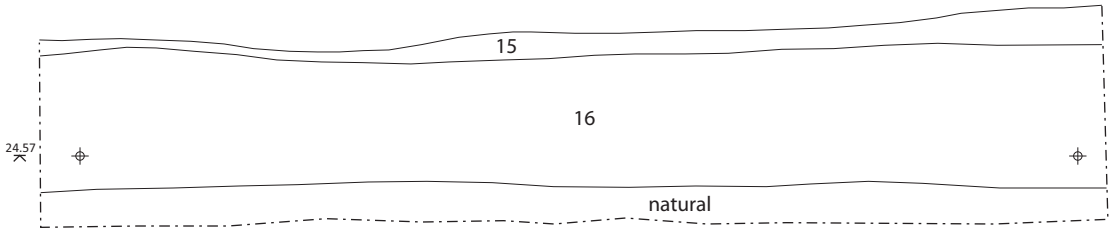
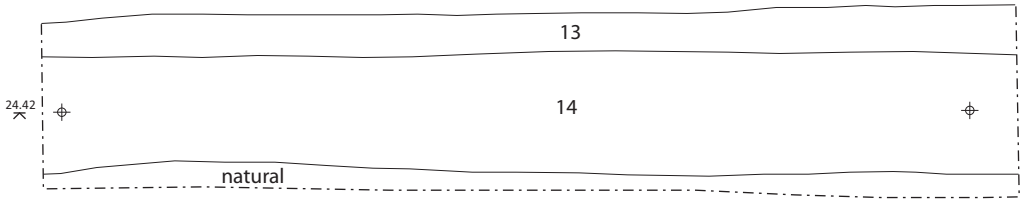


Figure 5: Plan and west facing section of Trench 2



west facing section of Trench 3

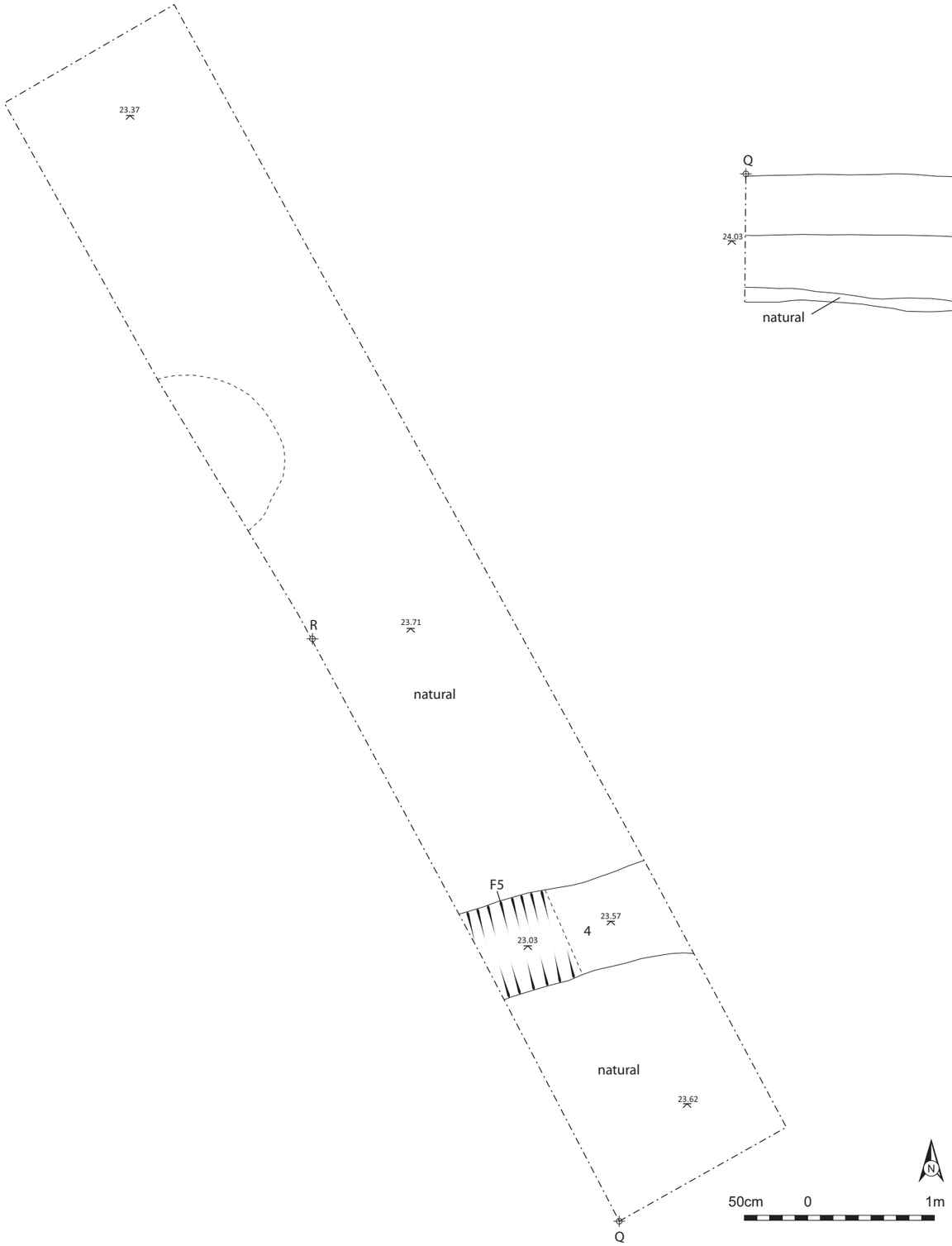
50cm 0 1m



south facing section of Trench 4

50cm 0 1m

Figure 6: Sections through Trenches 3 and 4



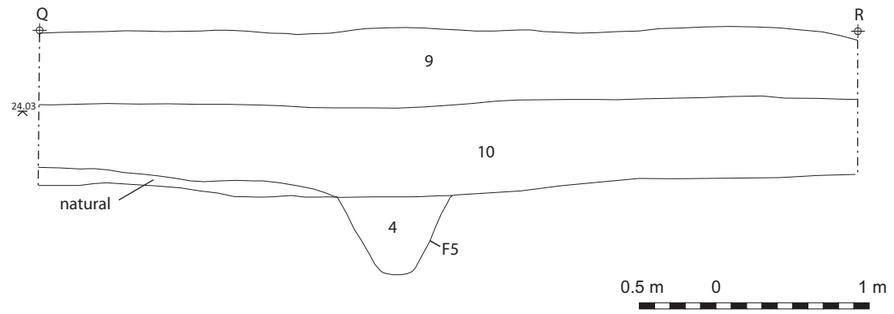


Figure 7: Plan and east facing section of Trench 5









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