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MAP Archaeological Practice

Land North of Salents Lane, Duggleby North Yorkshire

15/01208/FUL

Archaeological Strip, Map and Record

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Land North of Salents Lane
Duggleby
North Yorkshire

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MAP 10.03.19

Archaeological Strip, Map and Record

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Archaeological Strip, Map and Record

Non-technical Summary

An Archaeological Strip, Map and Record was carried out by MAP Archaeological Practice Ltd., on land to the north of Salents Lane, Duggleby on behalf of Mr Iain Simpson. The work was undertaken in advance of the erection of an equestrian building (planning reference 15/01208/FUL, Condition 9*).*

The site is located within an area of extensive prehistoric activity including Duggleby Howe, a large round barrow located some 400m to the south-east and a vast complex of square and rectilinear enclosures appended of a ditched trackway, which have been identified to the west of the site as cropmarks.

A small rectilinear enclosure was identified within the site boundary, which is comparable to those identified as cropmarks to the west. An assemblage of pottery dated activity on the site to the Iron Age period, along with animal bone and a single flint flake also recovered from the site. All are suggestive of a rural, largely agricultural site.

Comparable features in the eastern region of the stripped area were recorded in plan but were not excavated. Due to the nature of the development these features will be preserved in situ.

1. Introduction

1.1 This report sets out the results of an Archaeological Strip, Map and Record that was carried out by MAP Archaeological Practice Ltd. on land north of Salents Lane, Duggleby, North Yorkshire. The Strip Map and record was carried out in advance of the erection of an equestrian building (planning reference 15/01208/FUL).

1.2 Condition 9 attached to the planning permission states that;

The development shall not be occupied until the site investigation and post-investigation assessment has been completed in accordance with the programme set out in the Written Scheme of Investigation approved under condition (A) and the provision made for analysis, publication and dissemination of the results and archive has been secured.

1.3 The work was carried out in accordance with the recommendations of the National Planning Policy Framework (2021) on '*Archaeology and Planning*' and according to the Written Scheme of Investigation that was prepared by MAP Archaeological Practice Ltd and approved by the Principal Archaeologist at North Yorkshire County Council. (Appendix 10).

1.4 MAP adhered to the general principles of both the CIfA '*Code of Conduct*' (2021) and '*Standard and Guidance for Archaeological Excavation*' *(2020)* throughout the project.

1.5 The site code for the project was MAP 10.03.19.

1.6 All maps within this report have been produced with permission of the Controller of Her Majesty's Stationary Office (© Crown copyright. License AL50453A). With additional mapping data derived from OpenStreetMap. (https://www.openstreetmap.org/copyright).

1.7 All work was funded by Mr Iain Simpson.

2 Site Description.

2.1 The site, which currently consists of pasture is located to the north of Holme Farm, north of Salents Lane, in the Village of Duggleby, North Yorkshire (centred at approximately SE 87643 67056).

2.2 The geology at the site is recorded as chalky drift and chalk (Mackney et al. 1983), with overlying well-drained calcareous fine silty soils of the Coombe 1 Association (ibid.).

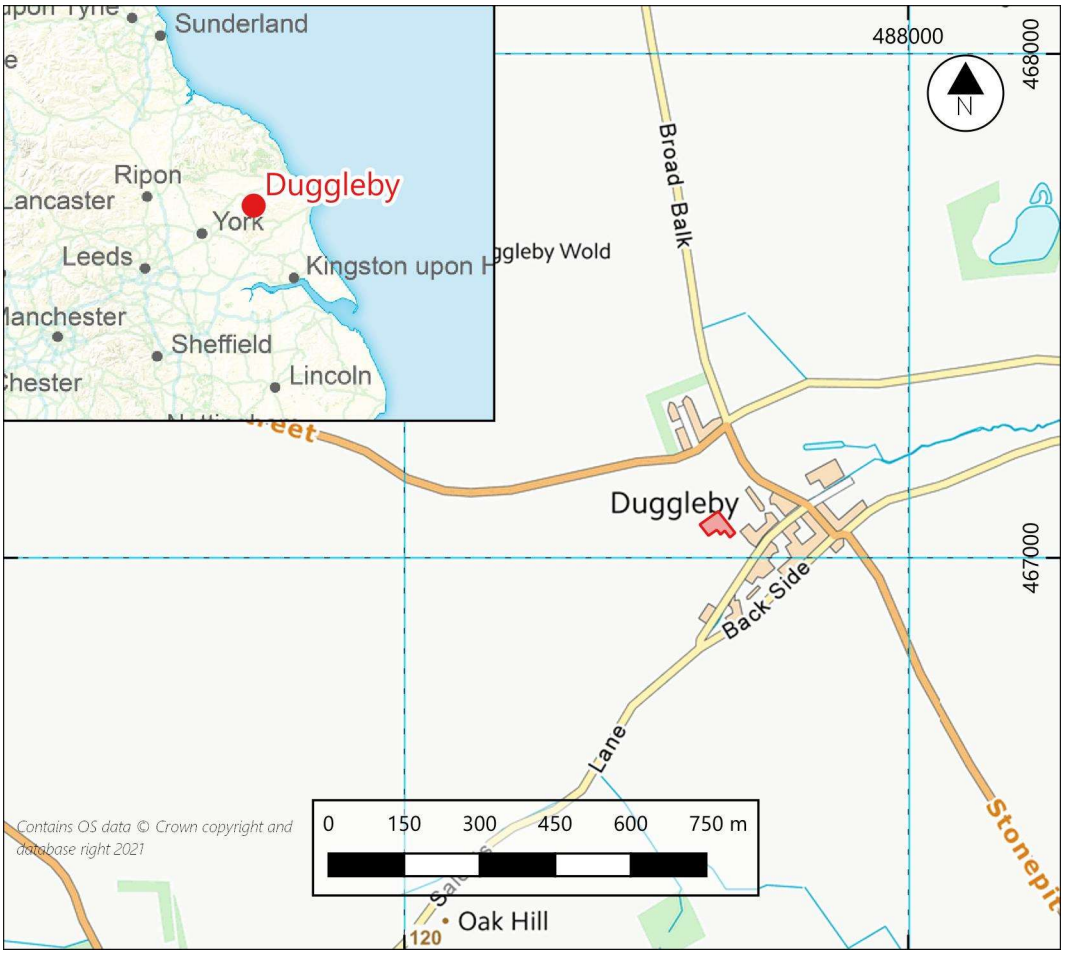

Figure 1. Site Location 1:15,000

3. Archaeological and Historical Background

3.1 The site lies within a rich archaeological landscape, dominated by late prehistoric and Romano-British activity.

3.2 A complex of conjoined rectilinear enclosures laid out in a linear pattern along a sinuous trackway defined by several lengths of ditch has been identified as cropmarks to the immediate west of the site, although cropmarks are not depicted within the site boundary (Fig 2). The complex, which runs east from the village of Wharram le Street, is dominated by small square or rectilinear enclosures, predominantly located on the south facing slope of the valley.

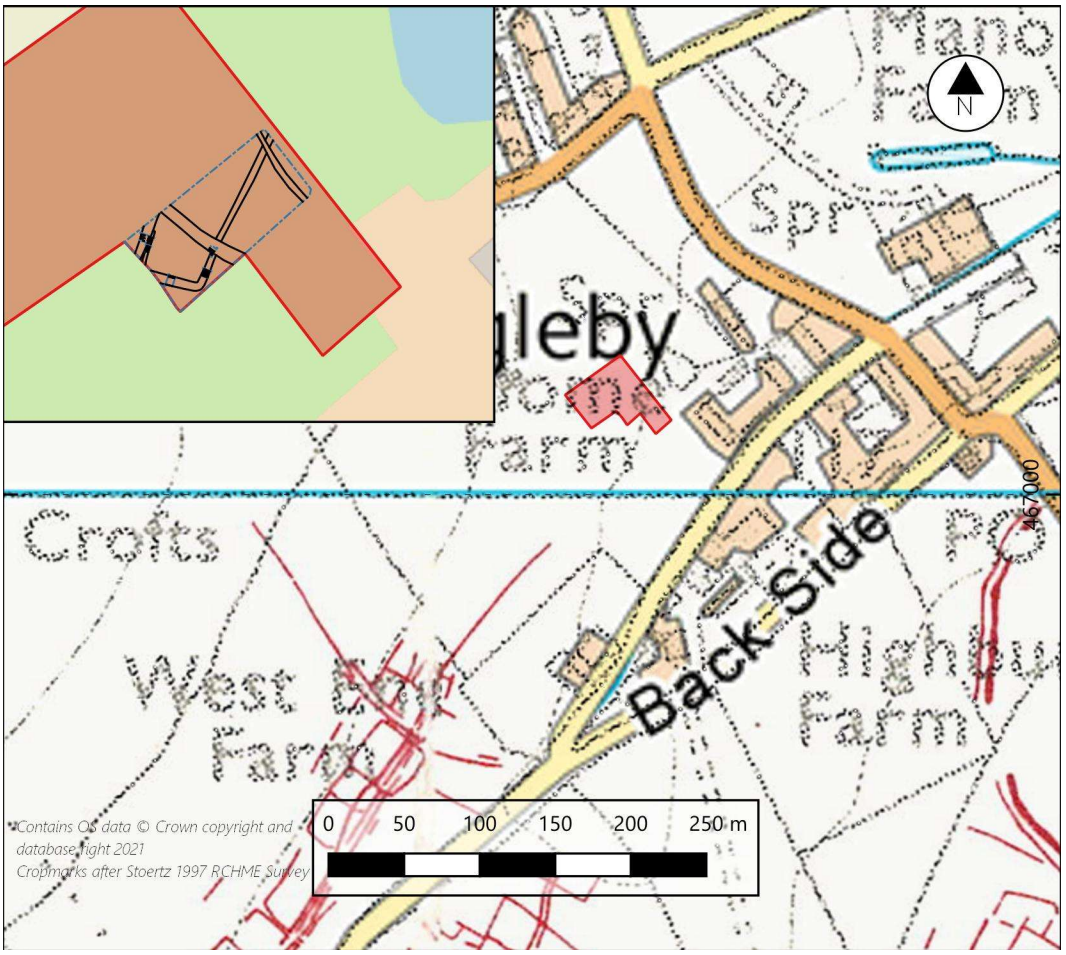

Figure 2. Cropmark data and recorded archaeology

3.3 The Scheduled area surrounding Duggleby Howe Round barrow, interrupted ditch enclosure and ring ditches (NHLE 1004179) is located approximately 170m to the south of the site, with the round barrow itself being approximately 400m to the south-east. Prior to partial excavation by J R Mortimer in 1890, the barrow was 6m high and 38m in diameter. Mortimer recovered a series of richly furnished burials from the barrow (Mortimer 1905). Duggleby Howe is surrounded by a circular cropmark, 370m in diameter, believed to show a Neolithic 'interrupted ditch system' (Riley 1980).

3.4 The Gypsey Race runs to the south of the site on a west to east orientation and bounds the northern boundary of the designated area. The race is the only permanently flowing water source on the High Wolds. Although not constantly apparent at ground level, upstream from Rudston the stream ran from Wharram le Street in the west to Bridlington and its course is recognised as a focus of archaeological activity on the Yorkshire Wolds.

4. Aims and Objectives

4.1 In accordance with the '*Standard and Guidance for Archaeological Excavation*' (CIfA 2020) the aims of the Archaeological Strip and Record were to:

- Examine the archaeological resource within a given area or site within a framework of defined research objectives.
- To seek a better understanding of the resource.
- To compile a lasting record of the resource; and
- To analyse and interpret the results of the excavation and disseminate them.

5. Methodology

5.1 Excavation

5.1.1 The area concerned with the erection of an equestrian building was stripped and all visible archaeology recorded in plan. The eastern side of the plot was to be built up, and as such archaeological features were not excavated and will be preserved *in situ*.

5.1.2 Overburden, topsoil and subsoil were removed by a 360° tracked mechanical excavator, fitted with a toothless bucket, operating under close archaeological supervision. Machining ceased at the top of either

archaeological or naturally formed deposits, depending upon which was located soonest. The exposed surfaces were cleaned by shovel, hoe, or trowel as appropriate.

5.1.3 For the purpose of finds retrieval, soil from both the machine stripping and hand excavation was visually scanned.

5.1.4 MAP adhered to the general principles of the CIfA Code of Conduct (CIfA 2021) throughout the project and to the CIfA '*Standards and Guidance for Archaeological Excavations*' (CIfA 2020).

5.1.5 All excavation and subsequent recording was carried out in line with the approved Written Scheme of Investigation (Appendix 10).

6. Results

6.1 Upon completion of the topsoil and subsoil strip, a linear feature was identified close to the western boundary of the site. The feature emerged from beyond the northern limit of excavation and was orientated north-east to south-west before presumably turning (outside of the western limit of excavation) and continuing on a north-west to south-east orientation for approximately 10m before turning north-east and continuing across the remainder of the site.

6.2 The ditch was excavated in four segments (006, 012, 016 and 020) and measured between 1.4m and 0.86m wide and between 0.55m and 0.3m deep, being at its most shallow in its northern most limits. At its deepest the ditch contained three fills, two consisting of mid-grey brown silty clay (which

was consistent throughout the length of the ditch), and the third a mid-orange brown silty clay. A total of twenty-seven sherds of handmade Iron Age pottery were recovered from the feature, including one rim sherd which had a chamfered cable decoration. A worked bone object, thought to be a small gouge was recorded from ditch cut [006]. The object had been trimmed at one end, possible to facilitate its insertion into a wooden or antler handle (Stephens. 2022, Appendix 8). One flint flake was recovered from the ditch. The flake, which is undatable, although likely Neolithic, (Makey. 2022. Appendix 9) was in a good state of preservation and no microscopic use wear was identified (Ibid). A small assemblage of animal bone, consisting mainly of cattle sheep/goat and pig remains. Environmental samples taken from the ditch contained the remains of spelt wheat, wheat and barley.

6.3 A shallow north-east to south-west orientated gully was identified emerging from beyond the western limit of excavation and running parallel to the north-east to south-west orientated ditch for approximately 5m before terminating. The gully, which was truncated on its western edge by the aforementioned ditch (012), was excavated in two segments (004 and 010), measuring 0.4m wide, between 0.05m and 0.10m deep, it was filled by a mid-grey brown silty clay. Four sherds of handmade Iron Age pottery was recovered from the gully.

6.4 A south-east to north-west orientated ditch (018) was identified within the site boundary, and continuing beyond the northern and southern limits of excavation. The ditch, which was stratigraphically later than the south-west to north-east orientated ditch which ran across the site, measured approximately 2m wide and 0.3m deep. The single fill of the ditch, a mid-orange brown silty clay contained no archaeological material.

7. Discussion

7.1 The Archaeological Strip, Map and Record on land north of Salents Lane, Duggleby, was successful in examining and determining the nature of the archaeological deposits within the development area. The excavated features suggest a site which was likely to be rural and agricultural in character, which has been utilised during the Iron Age. Although a small assemblage of pottery was recovered, no archaeological features which were suggestive of domestic activity were identified within the site boundary.

7.2 The pottery assemblage, which forms the basis of dating evidence for the site, consisted of forty sherds, is mainly represented by calcite, quartz and erratic tempering (Stephens. 2022). Commonly found in contexts dating from the late Bronze Age through to the early Roman period, although decoration recognised at Salents Lane is typically of early Iron Age date (Ibid). The assemblage is comparable to Iron Age material recovered from Devil's Hill at West Heslerton and also Scarborough Castle (Ibid).

7.3 Environmental data recovered from the site is somewhat limited but is suggestive of cereal processing and/or drying taking place within the vicinity of the site, likely during the Iron Age or Romano-British periods. The assemblage of animal bone, which consisted mainly of cattle, sheep/goat and pig is considered to be of limited significance (Richardson. 2022). The limited assemblage suggests that cattle and sheep/goat may have been slaughtered at an early age for their meat, although only one bone showed obvious signs of butchery (Ibid).

7.4 The single flint flake, although undatable, is most likely to be of late Neolithic date and is consistent with material recovered from the locale, around

Duggleby Howe (Makey. 2022). Although the flint is in a good state of preservation it is likely to be residual and may have been buried in undisturbed soil prior to the establishment of the ditch from which it was recovered (Ibid).

7.5 The proximity of the Salents Lane site to known prehistoric activity suggests that the features encountered typical of those widely recognised within the vicinity of the site and are part of a significantly larger archaeological landscape which has been widely identified through cropmarks to the west of the site.

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9. List of Contributors

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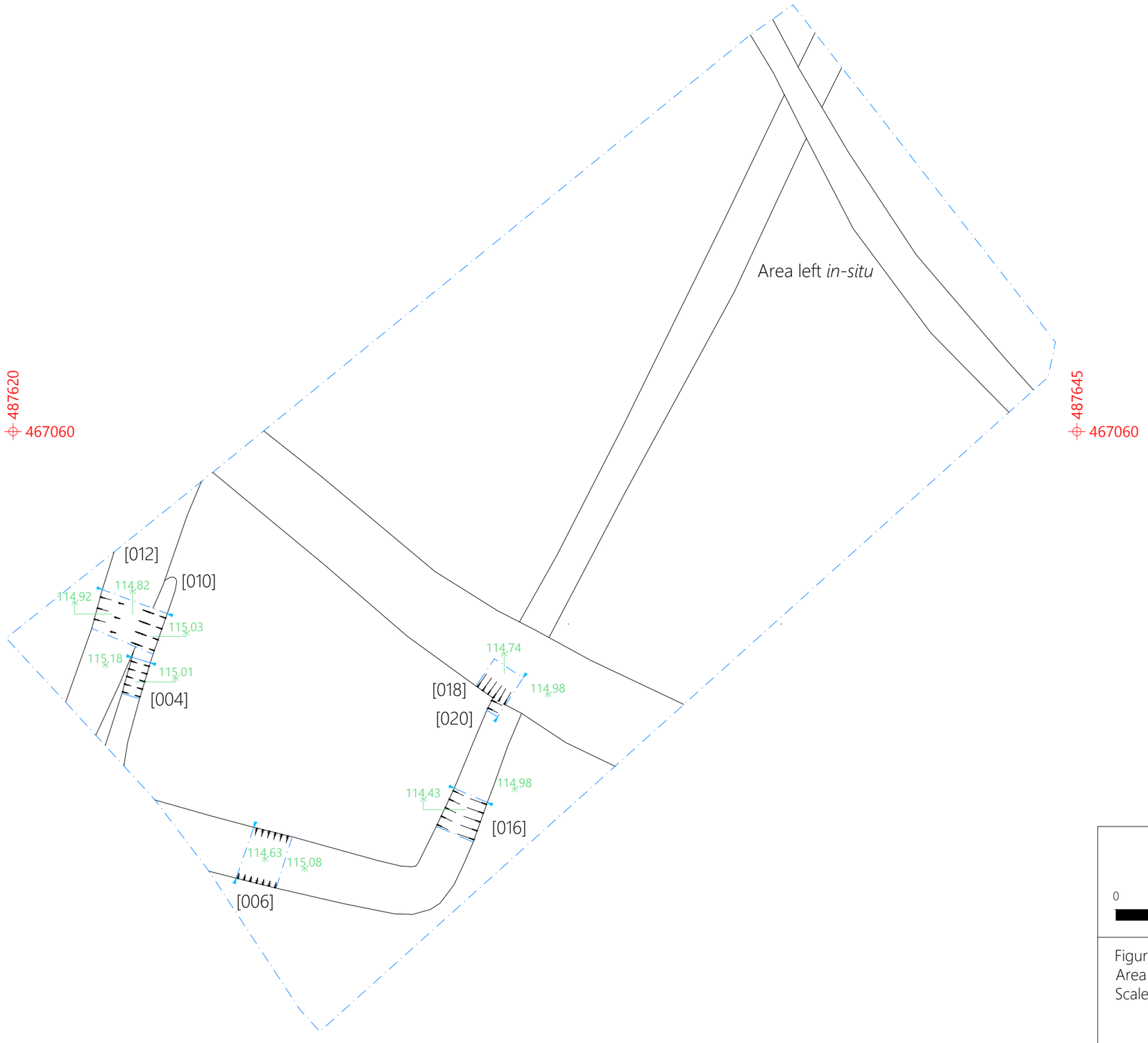


Figure 3
Area Plan
Scale: 1:100 @ A3

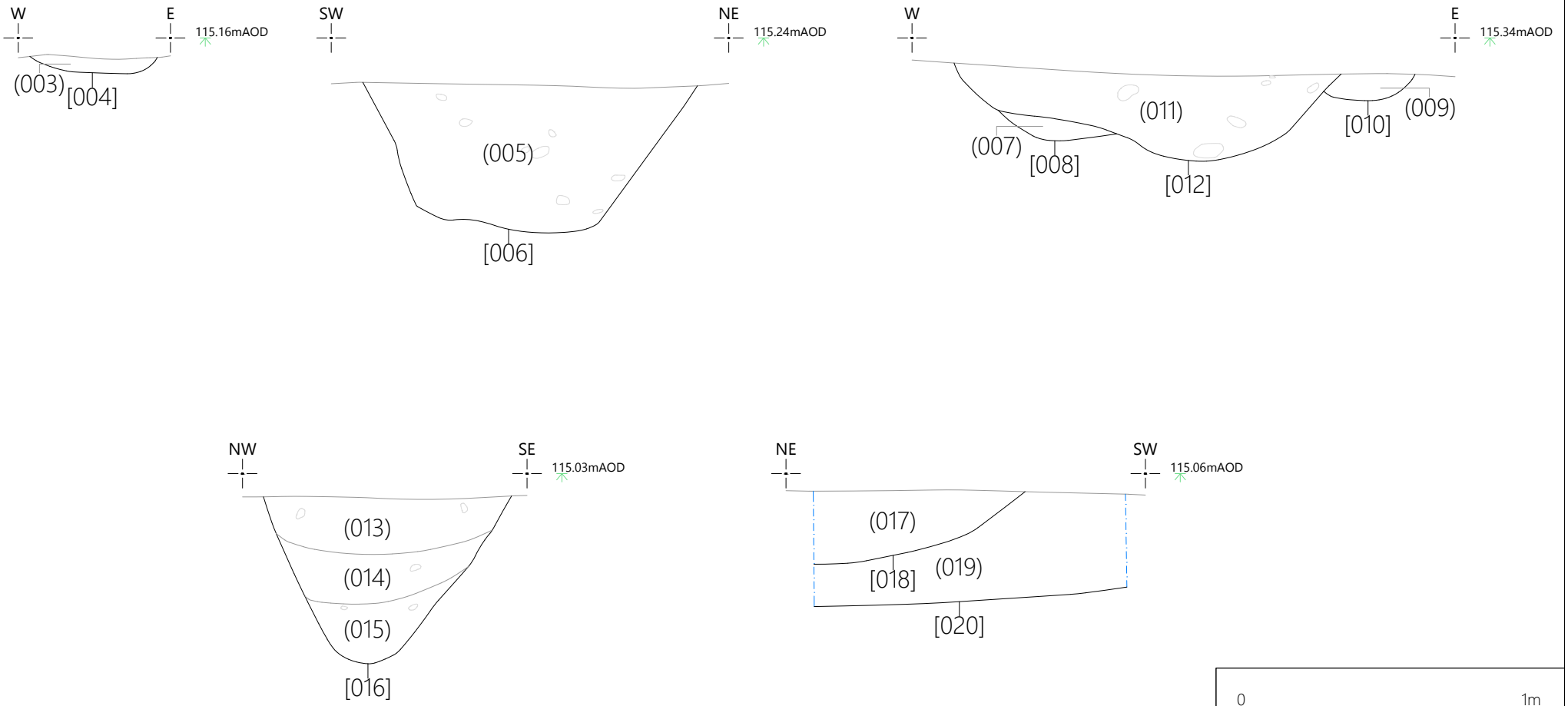


Figure 4
Sections
Scale: Section 1:20 @ A4

Plate 1. Strip, Map and Record area prior to excavation

Plate 2. South-west facing section of gully [004]. 0.5m scale

Plate 3. South-east facing section of ditch [006]. 1m scale

Plate 4. South-west facing section of gullies [008], [010] & [012]. 1m scale

Plate 5. South-west facing section of ditch [016]. 1m scale

Plate 6. North-west facing section of ditches [018] & [020]. 1m scale

Appendix 1
Context Index

Context no.	Description	Interpretation
1	Layer of gully. Colour: dark brownish grey. Composition: silty clay. Compaction: dry. Inclusions: occasional small angular platy chalk, evenly distributed. Reliability: good.	Topsoil of Area A
2	Layer of gully. Colour: mid orangey brown. Composition: silty clay. Compaction: dry, firm. Inclusions: moderate medium angular platy chalk, evenly distributed. Reliability: good.	Subsoil across Area A.
3	Fill of gully. Colour: mid greyish brown. Composition: silty clay. Compaction: dry, firm. Inclusions: occasional small sub-angular spheroidal chalk, evenly distributed. Reliability: good.	Gradually accumulated single fill of gully [004]. Sealed by subsoil.
4	Cut of NE-SW gully. Shape in plan: regular, linear. Break at top: gradual. Sides: shallow, concave. Break at base: gradual. Base: rounded.	Shallow gully running NE-SW across the Northern corner of site. Appears perpendicular to larger ditch [006], located to the south. Possibly an internal feature of enclosure, for drainage/water management of field system.
5	Fill of ditch. Colour: mid greyish brown. Composition: silty clay. Compaction: dry. Inclusions: occasional small sub-angular spheroidal chalk, evenly distributed. Reliability: good.	Natural accumulation post use of ditch [006]. Single fill of ditch.
6	Cut of NW-SE ditch. Shape in plan: regular, linear. Break at top: sharp. Sides: moderate, straight. Break at base: sharp. Base: uneven.	NW-SE aligned ditch, running across SW corner of site. Possible field boundary ditch, prehistoric in date.
7	Fill of gully. Colour: mid orangey brown. Composition: clay. Compaction: dry, firm. Inclusions: none. Reliability: good.	Natural accumulation of weathered natural clay which is present in patches across the site and immediately north of the gully. Cut by gully 012
8	Cut of NE-SW gully. Shape in plan: linear. Break at top: gradual. Sides: moderate, convex. Break at base: gradual. Base: rounded.	Cut of NE-SW aligned gully which is not visible in plan and is cut by 012. Likely an earlier phase of the enclosure system but not identified elsewhere

9	Fill of gully. Colour: mid brown. Composition: silty clay. Compaction: dry, firm. Inclusions: occasional flecks of sub-rounded spheroidal limestone, evenly distributed. Reliability: good.	Naturally accumulation of weathered material
10	Cut of NE-SW gully. Shape in plan: linear. Break at top: gradual. Sides: moderate, concave. Break at base: gradual. Base: rounded.	Cut of shallow gully within the interior of small ditched enclosure. Terminated approx 0.75m NE (seen in plan)
11	Fill of gully. Colour: mid orangey brown. Composition: silty clay. Compaction: dry, firm. Inclusions: moderate medium sub-angular limestone, evenly distributed. Reliability: good.	Natural accumulation of weathered material and degraded limestone. No evidence of intentional backfilling
12	Cut of NE-SW gully. Shape in plan: linear. Break at top: imperceptible. Sides: moderate, concave. Break at base: gradual. Base: rounded.	Cut of probable enclosure, probably the same featureas 004 and 016 albeit much shallower
13	Fill of ditch. Colour: mid greyish brown. Composition: silty clay. Compaction: dry, firm. Inclusions: occasional medium angular spheroidal chalk, evenly distributed. Reliability: good.	Upper fill of ditch [016], sealed by subsoil. Gradually accumulated material post life of ditch.
14	Fill of ditch. Colour: mid brownish grey. Composition: clayey silt. Compaction: dry, loose. Inclusions: 1) occasional medium angular spheroidal chalk, evenly distributed 2) occasional flecks of charcoal, evenly distributed. Reliability: good.	Middle fill of ditch. Charcoal flecks, along with relatively large finds assemblage, suggests intentionally dumped material, possibly indicating domestic activity nearby.
15	Fill of ditch. Colour: mid greyish brown. Composition: silty clay. Compaction: dry, firm. Inclusions: occasional medium angular spheroidal chalk, evenly distributed. Reliability: good.	Gradually accumulated material in bottom of ditch, accumulated whilst it was in use. Lowest fill of ditch [016].
16	Cut of NE-SW ditch. Shape in plan: regular, linear. Break at top: sharp. Sides: steep, straight. Break at base: sharp. Base: rounded.	Cut of boundary ditch running NE-SW across site. Probably a field boundary. Ditch turns to NW approximately 1.5m SW of segment, where it was excavated as [006]. Intersects with another ditch approximately 2.5m to the NE.
17	Fill of ditch. Colour: mid orangey brown. Composition: silty clay. Compaction: dry, firm. Inclusions: occasional medium angular spheroidal chalk, evenly distributed.	Single fill of ditch [018], probably a gradually accumulated material post life of ditch. Excavated by JAE

18	Cut of NW-SE ditch. Shape in plan: regular, linear. Break at top: gradual. Sides: shallow, straight. Break at base: imperceptible.	Shallow linear ditch, attached to larger field boundary ditch [020] possibly used for drainage.
19	Fill of ditch. Colour: mid greyish brown. Composition: silty clay. Compaction: dry, firm. Inclusions: occasional medium angular spheroidal chalk, evenly distributed. Reliability: good.	Upper fill of NE-SW ditch [020]. Same as deposit (013) in ditch [016]. Gradually accumulated material post use of ditch.
20	Cut of NE-SW ditch. Shape in plan: regular, linear. Break at top: sharp. Sides: steep, straight.	Half section through NE-SW ditch, to investigate relationship with ditch [018]. Continuation of field boundary ditch [016].

Appendix 2
Drawing Index

Number	Type	Description	Scale
1	Section	Gully [004]	1:10
2	Plan	Gully [004]	1:20
3	Section	Ditch [006]	1:10
4	Plan	Ditch [006]	1:20
5	Section	Relationship of gully [012], gully [008], gully [010]	1:20
6	Plan	Relationship of gully [012], gully [008], gully [010]	1:20
7	Section	Ditch [016]	1:10
8	Plan	Ditch [016]	1:20
9	Section	Relationship of ditch [018], ditch [020]	1:20
10	Plan	Relationship of ditch [018], ditch [020]	1:20

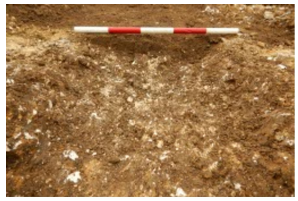
Appendix 3
Photograph Index

Shot no.	Description	Direction
4705	Gully [004]	NE
4706	Ditch [006]	NW
4707	Ditch [006]	-
4708	Relationship of gully [012], gully [008], gully [010]	NE
4709	Relationship of gully [012], gully [008], gully [010]	NE
4710	Ditch [016]	NE
4711	Ditch [016]	NE
4712	Relationship of ditch [018], ditch [020]	SE
4713	Relationship of ditch [018], ditch [020]	NW


DSCN4701


DSCN4703


DSCN4704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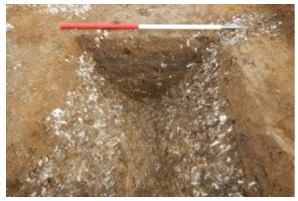
DSCN4706


DSCN4707


DSCN4708


DSCN4709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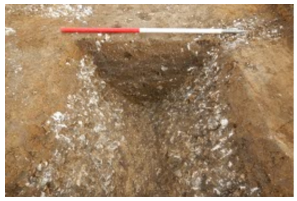
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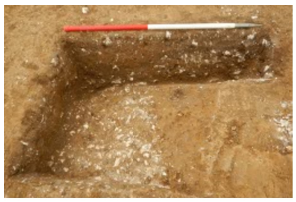
DSCN4712


DSCN4713

Appendix 4
Sample Index

Number	Context no.	Fill of	Finds
1	3	4	Bone (3)
2	5	6	Pot (2), Bone (10)
3	11		Pot, Bone
4	14	16	Pot, Bone

Salents Lane, Duggleby MAP 10-03-19

Carbonised Plant Macrofossils and Charcoal

Diane Alldritt

1: Introduction

Four environmental sample flots taken during archaeological strip, map and record excavations on land at Salents Lane, Duggleby (MAP 10-03-19), were examined for carbonised plant macrofossils and charcoal. The samples were taken from ditch and gully features in Area A.

2: Methodology

The bulk environmental samples were processed by MAP using a Siraf style water flotation system (French 1971). The flots were dried before examination under a low power binocular microscope typically at x10 magnification. All identified plant remains including charcoal were removed and bagged separately by type.

Wood charcoal was examined using a high powered Vickers M10 metallurgical microscope at magnifications up to x200. The reference photographs of Schweingruber (1990) were consulted for charcoal identification. Plant nomenclature utilised in the text follows Stace (1997) for all vascular plants apart from cereals, which follow Zohary and Hopf (2000).

3: Results

The environmental samples produced small quantities of carbonised plant remains <2.5ml in volume consisting of trace caches of degraded cereal grain and scarce finds of weed seeds. Modern material was also recorded in amounts <2.5ml, mostly root detritus indicating a low degree of bioturbation was taking place through the deposits.

Results are given in table 1 and discussed below.

4: Discussion

Area A

The ditch and gully features produced small caches of degraded and vesicular cereal grain indicating low levels of settlement related burning activity taking place in the vicinity. The remains were probably waste deposits and sweepings from cereal processing and drying activity.

Ditch [006] fill 005 contained mostly indeterminate grain although it was possible to identify two grains of *Triticum spelta* (spelt wheat) and one grain of *Hordeum vulgare* sl. (barley). Ditch [016] fill 014 was similar with barley and *Triticum* sp. (wheat) present. Gully [012] fill 011 contained barley and *Avena* sp. (oat) but the majority of grain from this deposit was too poorly preserved to identify, suggesting sweepings or trample. Gully [004] fill 003 also contained trace amounts of barley and wheat. A single *Fallopia convolvulus* (black bindweed) in ditch [016] was probably an arable field weed, whilst two possible *Pisum / Lathyrus* spp. (peas) legumes may have been crop weeds or cultivars.

5: Conclusion

The samples produced small quantities of degraded cereal grain which included spelt wheat, barley and oat types, suggesting cereal processing and drying waste from probable Late Iron Age / Romano-British rural settlement.

Further excavation work has a good potential to continue to produce small quantities of carbonised plant remains.

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Salents Lane, Duggleby	Context	3	5	11	14
MAP 10-03-19	Sample	1	2	3	4
	Feature	gully [004]	ditch [006]	gully [012]	ditch [016]
	Area	A	A	A	A
	Radiocarbon Y/N	N	N	N	N
	Sample Volume (litres)				
	Total CV	<2.5ml	<2.5ml	<2.5ml	<2.5ml
	Modern	<2.5ml	<2.5ml	<2.5ml	<2.5ml
Carbonised Cereal Grain	Common Name				
Avena sp.	oat			1	
Triticum spelta	spelt wheat		2		
Triticum sp.	wheat	1			1
Hordeum vulgare sl.	barley	1	1	1	3
Indeterminate cereal grain (+embryo)		3	9	11	7
Carbonised Weeds					
Fallopia convolvulus	black bindweed				1
Pisum / Lathyrus spp.	peas			2	

Salents Lane, Duggleby, North Yorkshire

MAP 10.03.19

Pottery Assessment

Introduction

This assessment concerns the forty sherds of pottery that resulted from the archaeological excavation at Salents Lane, Duggleby North Yorkshire.
The sherds had a combined weight of 456g, giving an average sherd weight (ASW) of 11.4g. The size of the sherds varied from <1cm (weight <1g) to 6cm (weight c.40g).

Methods

The sherds were washed, visually examined, and assigned to fabric type.

Catalogue

Context 003 4 handmade body sherds.
Spot date: IA

Context 005 4 handmade body sherds (crumb-sized).
Spot date: IA

Context 007 9 handmade body sherds, including 1 base and a sherd decorated with a thumbed cordon on the neck.
Spot date: IA

Context 011 9 handmade sherds, including 2 rim sherds (one with a chamfered, cable decorated rim) and a base sherd.
Spot date: IA

Context 013 2 handmade body sherds in finely gritted fabric.
Spot date: IA

Context 014 12 handmade body sherds.
Spot date: IA

Discussion

This is a small assemblage, but it provides dating evidence for activity at the site in the early Iron Age.
The mixture of calcite, quartz and erratic tempering is typical of pottery ranging in date from the late Bronze Age to the early Roman periods in Eastern Yorkshire. However, the cabled rim sherd from context 011 and thumbed cordon on a body sherd from context 007 are from flared rim jars of definitively early Iron Age type (c. 950-800BC), having

parallels with other early Iron Age vessels from Devils Hill (West Heslerton) and Scarborough Castle, as well as other sites in the region.

Recommendations

This pottery should be retained along with the rest of the archive. The two rim sherds from context 011 should be illustrated in any future report, as should the sherd decorated with a cordon from context 007.

Animal bone assessment: Duggleby (10.03.19)

Jane Richardson

In total, 225 bone fragments were retrieved from hand-excavated deposits and subsequent soil sampling, of which 21 were identified as diagnostic and non-repeatable bone zones. The assemblage has been quantified and summarised in Table 1 below. Given the small assemblage size, and its fragmented condition, the material assessed here is of limited significance.

The bone fragments are typically well-preserved, with some evidence of gnawing and some burnt bones (typically burnt black rather than cremated white). Only one butchered bone, a cattle humerus, was noted.

Cattle, horse, sheep/goat and pig are represented, along with a few frog/toad and mouse bones from soil processing. All the long bones from domestic mammals were fused part from a single sub-adult sheep/goat calcaneus. In contrast, loose teeth of cattle and pig and a single sheep/goat mandible indicate juvenile animals were present, perhaps slaughtered early for their meat.

No further analysis of this assemblage is recommended, but a worked bone from context 005 may require assessment by a small finds' specialist.

The assemblage should be retained as part of the site archive.

Table 1. Animal bones by context

Context	Sample	Description	Quantity	Zones
003	-	Large mammal rib and vertebra fragments	4	-
003	1	Undiagnostic small fragments (some burnt)	15	-
005	-	Sheep/goat metacarpal (DF), pig humerus barrel, cattle mandible fragment and tooth fragments (juvenile), large mammal rib and vertebra fragments	21	2
005	2	Undiagnostic small fragments (some burnt), but includes worked small mammal long bone barrel fragment (smoothed and shaped)	30	-
007	-	Cattle humerus (DF) – dismembering marks	1	1
011	-	Cattle humerus (PF), tibia barrel (gnawed), metacarpal fragment (gnawed), horse pelvis (DF, gnawed), tibia barrel (gnawed), sheep/goat tibia (PF), large mammal long bone fragments	15	5
011	3	Undiagnostic small fragments (some burnt), mouse-size distal humerus, frog/toad limb bone fragment	49	1
013	-	Sheep/goat scapula (DF), metatarsal, large mammal vertebra fragments	8	2
014	-	Sheep/goat tibia (DF, burnt), metatarsal, mandible (dP4 wear stage j), premaxilla, first phalanx (PF, burnt), cattle ulna, horse	55	6

Context	Sample	Description	Quantity	Zones
		tooth, large mammal long and skull fragments, small mammal long bone and rib fragments. A few burnt fragments		
014	4	Large mammal long bone fragments, small mammal rib and skull fragments, pig teeth (maxillary, juvenile), sheep/goat calcaneus (PNF), frog/toad limb bone. Some brunt fragments	20	1
015	-	Cattle humerus (PF, DF), radius (PF), radius barrel, humerus fragment (DF, gnawed), horse metatarsal (gnawed), radius barrel	7	3

PF=proximal fused, PNF=proximal not fused, DF=distal fused, DNF= distal not fused

Salents Lane, Duggleby, North Yorkshire
10.03.19
Object of Worked Bone

Introduction

A single worked bone object (Sample 2 – context 005) was recovered and was formed from the barrel of a small mammal's long bone.

Description

The thickness of the 'upper end' has been blade-trimmed to form a collar, with the other end cut lengthways, and smoothed to form a rounded point. Length: 31mm, diameter: 14mm.

Discussion

This object appears to be a small gouge. The trimming of the upper end may have been to facilitate the tool's insertion into a wooden (or antler) handle, which might explain the why the object is relatively small for a gouge.

Recommendations

The object should be kept along with the rest of the archive and illustrated in any future report on the excavation of the site.

Mark Stephens 25.11.21

FLINT

by P. Makey.

A report prepared for MAP Archaeological Practice Ltd (Last Revision 25/11/22).

The flint has been fully catalogued in a Microsoft Excel spread sheet appended.

The upper fill (013) of NW-SE aligned ditch segment 016, contained a single prehistoric flint tertiary (un-corticated) flake.

The piece was possesses very light traces of use wear around its lateral margins, however microscopic examination failed to reveal any presence of microscopic use wear.

The flint comes from final (tertiary / un-corticated) stages of flint knapping, probably prior to the production of a retouched flint implement. There are traces of three small bladelet and three small flake scars on its dorsal (upper surface). Of sub-trancheform form and in a particularly fresh state there is no observable evidence of recent damage. The flake measures 33mm in length, 18.9mm in breadth and 3.3mm in thickness and has been manufactured on an olive grey (Munsell 5Y 4/1) fine grained, till derived flint. The flake has been finely knapped by the application of a hard hammer stone, such as a small pebble. The flint raw material is found locally in the clay / till deposits along the East coast and slightly further inland.

Discussion.

The flint is not datable, although, on the basis of flake morphology/size the piece is most probably of an early to later Neolithic date and is consistent with lithic material in the local area. Duggleby Howe is in close proximity and the flint would not look out of place in the assemblage from this monument. The flake is in a surprisingly fresh state and does not look residual despite the fact that sherds of Iron Age pottery comes from the same context (ditch fill). It is probable that the flint was buried undisturbed in the soil prior to the cutting of the ditch.

Recommendations.

1: The assemblage is two small for any further analysis. The flint has been catalogued in detail and
no further cataloguing is required for this assemblage

2: The flint does not require illustration.

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maparch
MAP Archaeological Practice

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL STRIP AND RECORD

Home Farm, Salents Lane
Duggleby
Malton
North Yorkshire

Application Number: 15/01208/FUL

Prepared for Mr Iain Simpson

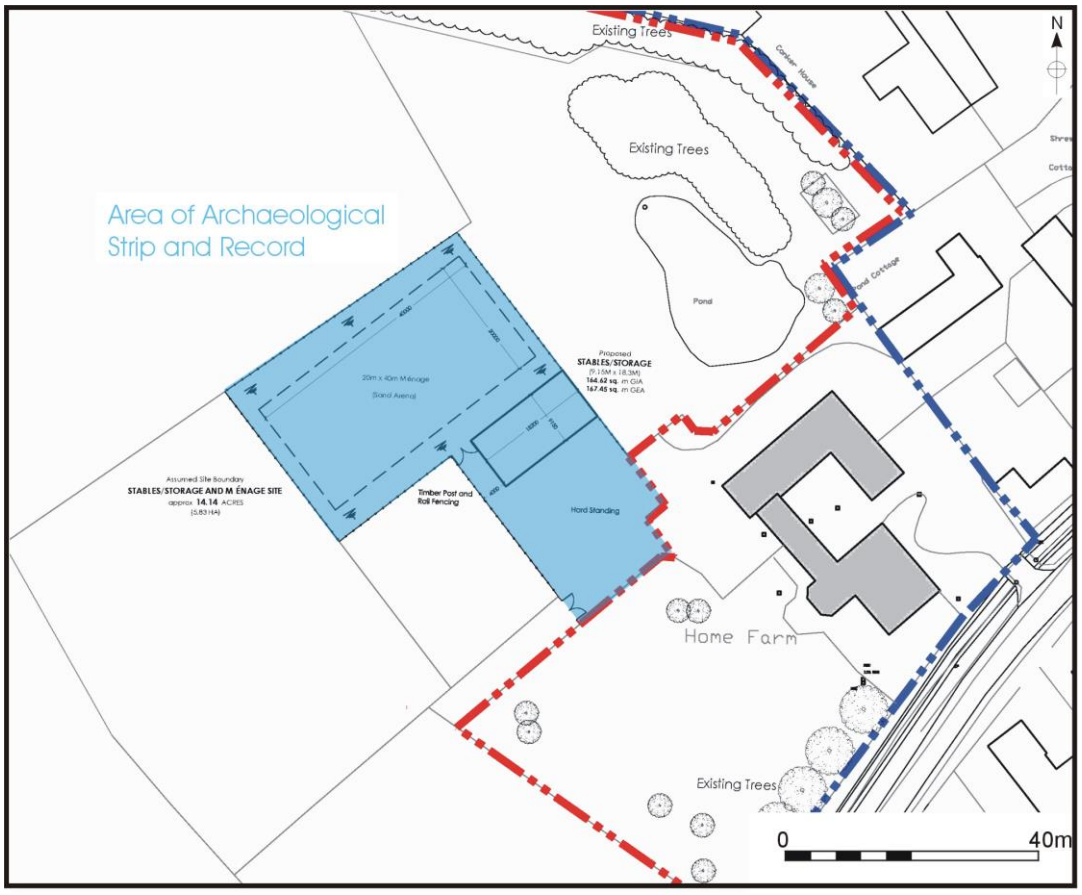
22nd January 2019

Home Farm, Salents Lane
Duggleby
Malton
North Yorkshire

WRITTEN SCHEME OF INVESTIGATION FOR
ARCHAEOLOGICAL STRIP AND RECORD

1. Summary

1.1 Archaeological recording is to take place prior to the erection of an equestrian building comprising of 2no. stables and general storage area together with formation of area of hardstanding and a 20m x 40m horse riding manege for private use at Home Farm, Salents Lane, Duggleby, Malton, North Yorkshire.



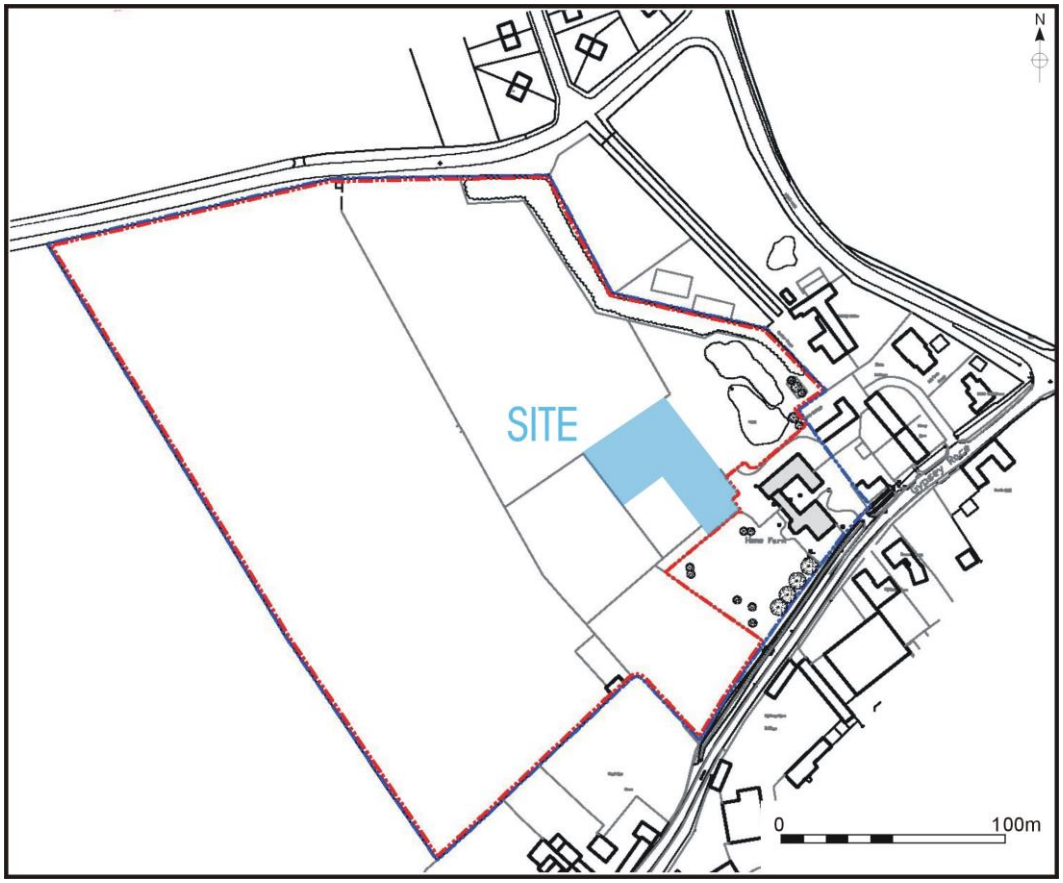
2. Purpose

2.1 This written scheme of investigation (WSI) represents a summary of the broad archaeological requirements to mitigate the impact of development proposals upon the archaeological resource and to comply with the archaeological planning condition. This is in accordance with the National Planning Policy Framework (July 2018).

3. Location and Description

3.1 The application site is located on the western side of Duggleby village to the North of Salents Lane, and North of the eastward-flowing Gypsey Race (Figs. 1 & 2). Duggleby is located on the Wolds, c. 12km south-east of Malton and 19km north-west of Driffield. The farm stands at c. 117m A.O.D.

3.2 The geology at the site is recorded as chalky drift and chalk (Mackney *et al.* 1983), with overlying well-drained calcareous fine silty soils of the Coombe 1 Association (*ibid.*).



4. Archaeological and Historical Background

4.1 The proposed development lies within an area of archaeological interest. A complex of conjoined rectilinear enclosures laid out in a linear pattern along a sinuous trackway defined by several lines of ditch appear to run towards the application area. All identified as cropmarks on air photographs and are of possible Iron Age or Roman date.

4.2 The Great Wold Valley, through which the Gypsey Race flows, forms a huge landscape of Prehistoric features, known largely from cropmarks on aerial photographs, but also represented by earthworks (Stoertz 1997).

4.3 The most notable Prehistoric feature in the vicinity of the site is the Neolithic round barrow of Duggleby Howe, which, prior to partial excavation by J R Mortimer in 1890, was 6m high and 38m in diameter.

Mortimer recovered a series of richly furnished burials from the barrow (Mortimer 1905). Duggleby Howe is surrounded by a circular cropmark, 370m in diameter, believed to show a Neolithic 'interrupted ditch system' (Riley 1980). At its closest, this ditch system lies 200m south-east of the development area.

4.4 The cropmark features plotted by the RCHME show a series of linked rectangular enclosures forming a 'ladder settlement' running eastwards into Duggleby from the direction of Wharram le Street (Stoertz 1997, Map 1). These cropmarks are lost when they run into pasture to the west of Home Farm, and the buildings of the farm itself, but it is reasonable to assume that the ladder settlement continues on the south-facing slope of the valley, c. 200m north of the development area.

4.5 The Anglo-Saxon and Anglo-Scandinavian periods are poorly documented at Duggleby, but the fact that the village was mentioned in the Domesday Survey (1086), along with the origins of the place-name, point to the fact that there was an Anglo-Scandinavian settlement there. Duggleby was referred to as *Difgelibi* and *Digheli* in 1086, the name meaning '*Dufgall's* farm. Dufgall is a personal name, borrowed from the Old Irish *Dubhgall*, meaning 'the black foreigner' (Smith 1937).

4.6 The Domesday Survey revealed a complicated series of land holdings at Duggleby. The main holding was held by Berenger in 1086, having been held by Thorbrandr and Gamall prior to 1066, when there was land for eight ploughs. "In 1086 Berenger had one plough, with five villagers and two smallholders, with a total value of 10*s*. Berenger also held another eight carucates (of the manor of Warter), and the king a further two" (Faull and

Stinson 1986). Finally, there was another land-block of eight carucates, held by the king at the time of Domesday, having been held by Morcar prior to 1066.

4.7 The main focus of the village lay to the east of the development site, around New Road; an 18th century map of Duggleby showed an irregular cluster of farms at that location. Judging by the "old foundations" marked on 19th century O.S. maps the village was formerly much larger.

4.8 The Watching Brief at Home Farm, immediately south of the development site, recorded undated linear features, perhaps of Roman or medieval date.

4.9 Reference has already been made to the 18th century map of Duggleby (held at the Borthwick Institute). Analysis of the map suggested that the crossing point of the Gypsey Race dictated the focus of the village at this time (Cale, rapid desktop assessment 1999). The framework of the pre-enclosure field system was intact at this time. The early 19th century Tithe Map showed that Duggleby had expanded from ten buildings to approximately sixty-eight, with expansion along the banks of the Gypsey Race.

5. Objectives

5.1 The objectives of the archaeological work are to :

1. to determine by means of targeted archaeological excavation the character, extent and nature of the archaeological remains within the development area,

2. to locate, recover, identify, assess and conserve (as appropriate) any archaeological artefacts exposed during the course of the excavation,

3. where appropriate, to undertake a post-excavation assessment after completion of fieldwork and site archive to assess the potential for further analysis and publication, and to undertake such analysis and publication as appropriate,

4. to prepare and submit a suitable archive to the appropriate museum.

6. Access, Safety and Monitoring

6.1 Access to the site should be arranged through the commissioning body.

6.2 It is the archaeological contractor's responsibility to ensure that Health and Safety requirements are fulfilled. Necessary precautions should be taken near underground services and overhead lines. A risk assessment should be provided to the commissioning body before the commencement of works.

6.3 The project will be monitored by the Historic Environment Team, NYCC, to whom written documentation should be sent ten days before the start of the excavation including:

1. the date of commencement,
2. an opportunity to monitor the works.

6.4 Where appropriate, the advice of the Historic England Science Advisor for Yorkshire may be called upon to monitor the archaeological science

components of the project. Archaeological contractors may wish to contact him to discuss the science components of the project before submission of tenders.

6.5 It is the archaeological contractor's responsibility to ensure that monitoring takes place by arranging monitoring points as follows:

1. a preliminary meeting or discussion at the commencement of the contract.
2. progress meeting(s) during the fieldwork phase at appropriate points in the work schedule, to be agreed.
3. a meeting during the post-fieldwork phase to discuss the draft report and archive before completion.

6.6 It is the responsibility of the archaeological contractor to ensure that any significant results are brought to the attention of the Historic Environment Team, NYCC, Ryedale District Council; and the commissioning body as soon as is practically possible. This is particularly important where there is any likelihood of contingency arrangements being required.

7. Brief

7.1 The archaeological contractor should be informed in advance of the correct timing and schedule of site preparation and preliminary excavation works associated with the construction of the proposed development. A specified timetable should be agreed within which the archaeological excavation may be carried out prior to further construction commencing.

7.2 All excavations within the proposed development area should be observed by an archaeologist to record any archaeological deposits, features or finds.

7.3 Archaeological work within the area of proposed development should include the initial supervision of the preliminary site/topsoil strip areas down to the top of archaeological deposits. Overburden such as turf, topsoil, made ground, rubble or other superficial fill materials may be removed by machine using a back-acting excavator which should be fitted with a toothless or ditching bucket. Mechanical excavation equipment shall be used judiciously, under archaeological supervision down to the top of archaeological deposits, or the natural subsoil (C Horizon or soil parent material), whichever appears first. Bulldozers or wheeled scraper buckets should not be used to remove overburden above archaeological deposits. Topsoil should be kept separate from subsoil or fill materials.

7.4 Using the information and artefacts collected to this stage, all features and deposits should be assessed as to their origin or function, probable date, and importance for further recording. Features and layers identified as having potential for further recording should be excavated by hand, sampled, and recorded as set out below. This is in order to fulfil Objectives 5.1.1 and 5.1.2 above and in order to understand the full stratigraphic sequence.

7.5 The character, information content and stratigraphic relationships of features and deposits should be determined. All linear features, such as ditches, should have their shape, character, and depth determined by hand excavation of sections. A minimum sample of 20% of each linear feature of less than 5m in length and a minimum sample of 10% of each linear feature greater than 5m in length (each section will be not less than 1m wide) should be excavated. All junctions of linear features should have their

stratigraphic relationships determined, if necessary using box sections. A 100% sample of all stake-holes should be excavated, and all pits, post-holes and other discrete features should be half-sectioned by hand to record a minimum of 50% of their fills, and their shape. Any other unknown or enigmatic features should be investigated similarly. Large pits, post-holes or deposits of over 1.5m diameter should be excavated sufficiently to define their extent and to achieve the objectives of the investigation, but should not be less than 25%. All intersections should be investigated to determine the relationship(s) between features.

7.6 The project should be undertaken in a manner consistent with the guidance of MoRPHE and professional standards and guidance (English Heritage 2006). Scientific investigations should be undertaken in a manner consistent with the Institute for Archaeologists best-practice guidelines (2008). An outline strategy of sampling for scientific dating, geoarchaeology and soil science (English Heritage 2007), biological analysis (English Heritage 2011), artefact conservation and analysis (Watkinson and Neal 1998), and analysis of technological residues (English Heritage 2008), ceramics, and stone should be agreed with the Local Authority, in consultation with the Historic England Science Advisor for Yorkshire before commencement of site work. This strategy should be based on the results of previous archaeological work in the area. The strategy will be subject to variation as appears necessary during the excavation, following consultation with the Local Authority and the RA.

7.7 All specialists in Archaeological Science (both those employed in-house by the archaeological contractor or those sub-contracted) should be named in project documents. Agreement of specialists must always be obtained

before their names are listed. Their competence to undertake proposed investigations, and the availability of adequate laboratory facilities and reference collections should be demonstrated. There should be agreement in writing on timetables and deadlines for all stages of work.

7.8 All deposits should be fully recorded on standard context sheets, photographs and conventionally-scaled plans and sections. Each excavation area should be recorded to show the horizontal and vertical distribution of contexts. The elevation of the underlying natural subsoil where encountered should be recorded. The limits of excavation should be shown in all plans and sections, including where these limits are coterminous with context boundaries.

7.9 Any significant unstratified artefacts or small finds should be collected. Metal detecting, including the scanning of topsoil and spoil heaps, should only be permitted subject to archaeological supervision and recording so that metal finds are properly located, identified, and conserved.

7.10 Using the information and artefacts collected to this stage, all features and deposits should be assessed as to their origin or function, probable date, and importance for further excavation. Features and layers identified as having potential for further recording should be fully excavated, sampled, and recorded. Full excavation should be carried out on features and deposits of limited potential where the stratigraphic relationships, phasing or origin of these are still unclear. Further excavation may also be needed to expose the full stratigraphic sequence across the site.

7.11 All artefacts and ecofacts visible during excavation should be collected and processed. In some cases, sampling may be most appropriate. Finds should be appropriately packaged and stored under optimum conditions, as detailed in *First Aid for Finds* (Watkinson & Neal, 1998). A regular transfer of finds from the site to the conservation laboratory is desirable, particularly in the case of long term excavations (English Heritage 2008).

7.12 Where there is evidence for industrial activity, macroscopic technological residues (or a sample of them) should be collected by hand. Separate samples (*c.* 10ml) should be collected for micro-slags hammer-scale and spherical droplets). In these instances, the guidance of English Heritage (2001) should be followed.

7.13 Samples should be collected for scientific dating (radiocarbon, dendrochronology, luminescence dating, archaeomagnetism and/or other techniques as appropriate) (English Heritage 1998, English Heritage 2006 and English Heritage 2008). For this excavation, tenders should allow provision for a minimum of four dates using scientific techniques.

7.14 Buried soils and sediment sequences should be inspected and recorded on site by a recognised geoarchaeologist. Samples may be collected for analysis of chemistry, magnetic susceptibility, particle size, micromorphology and/or other techniques as appropriate, following the outline strategy presented in the Project Design, and in consultation with the geoarchaeologist. The guidance of English Heritage (2007) should be followed.

7.15 All securely stratified deposits should be sampled, from a range of representative features, including pit and ditch fills, postholes, floor deposits, ring gullies and other negative features. Positive features should also be sampled. Sampling should also be considered for those features where dating by other methods (for example pottery and artefacts) is uncertain. Bulk samples should be collected from contexts containing a high density of bones. Spot finds of other material should be recovered where applicable.

7.16 Coarse sieved samples for the recovery of animal bones and other artefact/ecofact categories should be 100 litres plus. Flotation samples, for the recovery of charred plant remains, charcoal, small animal bones and mineralised plant remains, should be between 40 and 60 litres in size, although this will be dependent upon the volume of the context. Entire contexts should be sampled if the volume is low. Whenever possible, coarse sieved samples (wet or dry) and flotation samples should be processed during fieldwork to allow the continuous reassessment and refinement of sampling strategies. Samples from waterlogged and anoxic deposits, which might contain plant macros and entomological evidence, taken for General Biological Analysis (GBA), should normally be 20 litres in size. The English Heritage guidance (2011) should be consulted for details of sample size for other specialist samples that may be required. Allowance should be made for a site visit from the contractor's environmental specialists/consultants where appropriate.

7.17 In the event that any human remains are encountered, they must be treated at all stages with care and respect. Excavators must be aware of, and comply with, the relevant legislation and the Ministry of Justice

Exhumation Licence and local environmental health concerns. Burials should be recorded *in situ* and subsequently lifted, washed in water (without additives), marked and packed to standards compatible with McKinley and Roberts (1993)., Brickley & McKinley 2004 and English Heritage 2013. Site inspection by a recognised specialist is desirable in the case of isolated burials, and necessary for cemeteries. Proposals for the final placing of human remains following study and analysis will be required in the Updated Project Design. For this excavation, tenders should allow provision for any human remains to be subject to carbon and nitrogen isotope study.

Post-Excavation Assessment

7.18 Upon completion of archaeological fieldwork, where appropriate, a post-excavation assessment should be undertaken and an assessment report produced in accordance with the guidance of MoRPHE (English Heritage 2006). The assessment report should summarise the evidence recovered and should consider its potential for further analysis, review the programme of archaeological science, update the project design as necessary and provide costings for the post-excavation analysis stage of work, with proposals for the production of a final report and/or publication. The site assessment report should include reports on all aspects of Archaeological Science investigated, and include assessment of their suitability for analysis, so as to inform the updated project design.

7.19 Assessment of artefacts should include x-radiography of all iron objects (Fell, Mould & White 2006), after initial screening to separate obviously modern debris, and a selection of non-ferrous artefacts (including all coins and a sample of any industrial debris relating to metallurgy). An assessment

of all excavated material should be undertaken by conservators and finds researchers in collaboration English Heritage, 2008). Where necessary, active stabilisation/consolidation will be carried out, to ensure long term survival of the material, but with due consideration to possible future investigations. Once assessed, all material should be packed and stored in optimum conditions, as described in Watkinson and Neal (2001).

7.20 Assessment of any technological residues should be undertaken. Processing of all samples collected for biological assessment, or sub-samples of them, should be completed. Assessment will include recording the preservation state, density and significance of material retrieved, to inform up-dated project designs. Methods presented in English Heritage (2011) should be followed. Unprocessed sub-samples should be stored in conditions specified by the appropriate specialists.

7.21 Samples collected for geoarchaeological assessment should be processed as deemed necessary by the specialist, particularly where storage of unprocessed samples is thought likely to result in deterioration. Appropriate assessment should be undertaken (see English Heritage 2007, English Heritage 2011). Animal bone assemblages, or sub-samples of them, should be assessed by a recognised specialist (English Heritage 2011). Assessment of human remains should be undertaken by a recognised specialist (English Heritage 2004).

Analysis

7.22 A timetable for post-excavation work should be produced, following consultation (including team meetings for larger-scale sites), with all

specialists involved in the project. Agreement of timetables should be made in writing with external specialists.

7.23 A detailed and cost-effective strategy for scientific dating should be prepared, in consultation with appropriate specialists. Samples for dating should be submitted to promptly, and prior agreement should be made with the laboratory on turn-around time and report production.

7.24 All artefacts should be conserved and stored in accordance with Watkinson and Neal (1998). Investigative conservation should be undertaken on those objects selected during the assessment phase, with the aim of maximising information whilst minimising intervention (English Heritage 2008). Where necessary, active stabilisation/consolidation will be carried out, to ensure long-term survival of the material, but with due consideration to possible future investigations. Proposals for ultimate storage should follow Walker (1990).

7.25 Appropriate analysis of technological residues should be undertaken, as outlined in English Heritage (2001). Samples or sub-samples collected for all types of biological and geoarchaeological analysis should be processed, and material retrieved analysed by recognised specialists. Any unprocessed sub-samples should be stored in conditions specified by the specialists, or a reasoned discard policy should be developed (English Heritage 2011).

7.26 Analysis of animal bones should be undertaken by a recognised specialist, as specified in the updated project design. Analysis of human remains should be undertaken by a recognised specialist, as specified in the up-dated project design.

8. Archive

8.1 A field archive should be compiled consisting of all primary written documents, plans, sections and photographs should be produced and cross-referenced (Brown 2007, CIfA 2014, CIfA 2014).

8.2 The archaeological contractor should liase with an appropriate museum to establish the detailed requirements of the museum and discuss archive transfer in advance of fieldwork commencing. The relevant museum curator should be afforded to visit the site and discuss the project results. In this instance, the Malton Museum is suggested.

8.3 The archiving of any digital data arising from the project should be undertaken in a manner consistent with professional standards and guidance (Richards & Robinson, 2000; ADS 2011). The archaeological contractor should liaise with an appropriate digital archive repository to establish their requirements and discuss the transfer of the digital archive.

8.4 The archaeological contractor should also liaise with the HER Officer, North Yorkshire County Council, to make arrangements for digital information arising from the project to be submitted to the North Yorkshire Historic Environment Record for HER enhancement purposes. The North Yorkshire HER is not an appropriate repository for digital archives arising from projects.

9. Copyright

9.1 Copyright in the documentation prepared by the archaeological contractor and specialist sub-contractors should be the subject of an additional licence

in favour of the museum accepting the archive to use such documentation for their statutory educational and museum service functions, and to provide copies to third parties as an incidental to such functions.

9.2 Under the Environmental Information Regulations 2005 (EIR), information submitted to the HER becomes publicly accessible, except where disclosure might lead to environmental damage, and reports cannot be embargoed as 'confidential' or 'commercially sensitive'. Requests for sensitive information are subject to a public interest test, and if this is met, then the information has to be disclosed. The archaeological contractor should inform the client of EIR requirements, and ensure that any information disclosure issues are resolved before completion of the work. Intellectual property rights are not affected by the EIR.

10. Report

10.1 Following post-excavation assessment and analysis as appropriate, a report should be prepared following the Chartered Institute for Archaeologists Standard and Guidance for Archaeological Excavation (2008, updated 2014). The report should set out the aims of the work and the results as achieved, including photographs of operations, description of the remains including all relevant plans and sections, interpretation and assessment of the significance of the remains. The report should also include a listing of contexts, finds, plans and sections, and photographs.

10.2 The results from investigations in Archaeological Science, *including negative results*, should be included in the Site Archive and reported to the HER.

10.3 A timetable for completion of reports should be agreed with all specialists, and agreements in writing with sub-contracted external specialists are desirable. The time-table should allow for adequate provision by the excavator of contextual information, provisional dating and stratigraphic relationships of contexts. Reports should include clear statements of methodology. The results from scientific analysis should be clearly distinguished from their interpretation. Non-technical summaries of results should be included. Reports on Archaeological Science should be published fully, in the text of printed reports or in the main body of reports disseminated by electronic means, wherever the results merit it.

10.4 At least six copies of the report should be produced and submitted to the commissioning body, the Local Planning Authority, the museum accepting the archive, the Historic England Science Advisor for Yorkshire and, under separate cover, Historic Environment Team at North Yorkshire County Council.

10.5 If the archaeological fieldwork produces results of sufficient significance to merit publication in their own right, allowance should be made for the preparation and publication of a summary in a local journal, such as the *Yorkshire Archaeological Journal*. This should comprise, as a minimum, a brief note on the results and a summary of the material held within the site archive, and its location.

10.6 Upon completion of the work, the archaeological contractor should make their work accessible to the wider research community by submitting digital data and copies of reports online to OASIS (http://ads.ahds.ac.uk/project/oasis/). Submission of data to OASIS does

not discharge the planning requirements for the archaeological contractor to notify the Historic Environment Team Leader, NYCC of the details of the work and to provide the Historic Environment Record (HER) with a report on the work.

11. Further Information

11.1 Further information or clarification of any aspects of this brief may be obtained from:

MAP Archaeological Practice Ltd

Tel. 01653 697752

11.2 This written scheme of investigation is valid for a period of six months from the date of issue. After that time it may need to be revised to take into account new discoveries, changes in policy or the introduction of new working practices or techniques. In addition, depending upon the final design of development, the methodology of the archaeological excavation may need to be modified accordingly.

12 References and Guidelines

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APPENDIX 1- SPECIALISTS

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Roman Pottery	Paula Ware	MAP	01653 697752
Pre-conquest Pottery	Mark Stephens	MAP	01653 697752
Medieval Pottery	Mark Stephens	MAP	01653 697752
Post Medieval Pottery	Mark Stephens	MAP	01653 697752
Clay Tobacco Pipe	Mark Stephens	MAP	01653 697752
CBM	Dr P Mills		01904 621339
Animal Bone		WYAS	0113 3837517
Small Finds	Hilary Cool		0116 9819065
Textile	Penelope Walton Rogers		01904 634585
Slag/Hearths	Rod Mackenzie		0114 235 2028
Flint	Pete Makey		01377 253695
Environmental Sampling		Diane Alldritt	0141 649 877
Human Remains	Malin Holst	York Osteology	01904 737509
Radiocarbon/C14 Dating		SUERAC	0141 270136
Dendrochronology		Sheffield University	0114 2220123
Archaeomagnetic	Mark Noel	Geoquest Associates	01624819364

APPENDIX 2
Conservation Strategy By Ian Panter of York Archaeological Trust

Artefacts from all categories and all periods will be recovered as a matter of routine during the excavation. When retrieved from the ground finds will be kept in a finds tray or appropriate bags in accordance with First Aid for Finds. Where necessary, a conservator may be required to recover fragile finds from the ground depending upon circumstances.

If waterlogged conditions are encountered a wide range of organic materials may be recovered, including wood, leather and textiles. Advice will be sought from a conservator to discuss optimum storage requirements before any attempt is made to retrieve organic finds and structural timbers from the ground.

After the completion of the fieldwork stage, a conservation assessment will be undertaken which will include the X-radiography of all the ironwork (after initial screening to separate obviously modern debris), and a selection of the non-ferrous finds (including all coins). A sample of slag may also be X-rayed to assist with identification and interpretation. Wet-packed material, including glass, bone and leather will be stabilised and consolidated to ensure their long-term preservation. All finds will be stored in optimum conditions in accordance with First Aid for Finds and Guidelines for the Preparation of Excavation Archives for Long-Term Storage (Walker, 1990).

Waterlogged wood, including structural elements will be assessed following the English Heritage guidelines, Waterlogged wood: sampling, conservation and curation of structural wood (Brunning 1996). The assessment will include species identification, technological examination and potential for dating.

The conservation assessment report will include statements on condition, stability and potential for further investigation (with conservation costs) for all material groups. The conservation report will be included in the updated project design prepared for the analysis stage of the project.

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Environmental Strategy By Diane Alldrit

The on-site environmental sampling strategy will systematically seek to recover a representative sample of botanical, molluscan (both terrestrial and aquatic), avian and mammalian evidence from the full range of contexts encountered during the excavation. This will enable, at the assessment stage, the possibility for radiocarbon dating material to be obtained, and for an initial analysis of the economic and environmental potential of the site. In order to achieve this, a bulk sample (BS, Dobney *et al* 1992) comprising an optimum size of 28litre of sediment (where possible) should be taken from **every stratigraphically secure and archaeologically significant context**. In practice it may not always be possible to obtain 28l of sediment from certain features during the assessment stage, for instance from partially excavated pits or post-holes, in which case a single bucket sample, c.10 to 14litre should be taken at the site supervisors discretion. Deposits of mixed origin, for instance topsoil, wall fills and obvious areas of modern contamination, should be avoided where possible, as these will contain intrusive material and not provide secure radiocarbon dates.

All buckets and other sampling equipment must be clean and free of adherent soil in order to prevent cross-contamination between samples. If dry soil is to be

stored for any length of time it should be kept in cool, dry conditions, and away from strong light sources. However, it is preferable to process samples as soon as possible after excavation.

Bulk soil samples shall be processed using an Ankara-type water flotation machine (French 1971) for the recovery of carbonised plant remains and charcoal. The flotation tank should contain a >1mm mesh for collection of the retent or 'residue' portion of the sample (which may contain pottery, lithics and animal / bird bone, in addition to the heavier fragments of charcoal which do not float). The 'flot' portion of the sample, which may include carbonised seeds, cereal grain, charcoal and sometimes mollusc shell, should be captured using a nest of >1mm and >300micron Endicot sieves. Flotation equipment, including sieves, meshes, brushes and so forth must be meticulously cleaned between samples in order to prevent contamination of potential radiocarbon dating material. All material resulting from flotation will be dried prior to microscopic examination. Flotation is not suitable for the recovery of pollen or for processing waterlogged samples, which shall be discussed below.

Where there is potential for waterlogged preservation, shown for instance by the presence of wood and other organic or wet material, then a 5 to 10litre size sample should be taken (GBA sample, Dobney *et al* 1992). This material is to be retained for later processing using laboratory methods to enable the recovery of waterlogged plant material and insects. For assessment purposes a 1litre sub-sample of the organic sediment from each potential waterlogged sample shall be processed using laboratory wash-over methods, and once processed kept wet. All waterlogged samples awaiting processing should be kept damp, preferably stored in plastic sealable tubs, and in cool conditions. Where large waterlogged timbers are recovered these should be stored under refrigerated conditions and an appropriate conservator consulted.

If sediment suitable for pollen analysis is encountered, for instance rich organic peaty deposits, or deep ditch sections with organic preservation, the archaeobotanical specialist is to be consulted prior to any sampling taking place. These deposits would require sampling with large kubiena tins and require the specialist to be on-site. Pollen analysis, even at assessment level, would subsequently impose a considerable cost implication should it be carried out.

The specialist is available to provide consultation and advice on the environmental sampling strategy throughout the course of the excavation and during post-excavation processing if required.

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