An Archaeological Evaluation on land east of Longhoughton Quarry Northumberland

View looking north-west across Field 1 on land east of Longhoughton Quarry, Longhoughton, Northumberland

ARS Ltd Report 2018/205
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Executive Summary

Project Name: An Archaeological Evaluation at Longhoughton Quarry, Longhoughton, Northumberland
Site Code: LHQ18
Planning Authority: Northumberland County Council
Location: Longhoughton, Northumberland
Geology: The underlying solid geology variably comprises Mudstone, Sandstone and Limestone of the Stainmore Formation and Limestone of the Great Limestone Member overlain by superficial deposits of Devensian Till.
NGR: NU 23798 15226
Planning Reference: *18/01285/CCMEIA*.
Date of Fieldwork: 29th October – 7th November 2018
Date of Report: 9th November 2018

In 2018 Archaeological Research Services Ltd (ARS Ltd) was commissioned by Northumberland Estates to undertake an archaeological evaluation on land east of Longhoughton Quarry, Northumberland.

The aim of the evaluation was to determine the form, nature, character and date of any archaeologically sensitive features or deposits potentially present within the proposed development area. The evaluation comprised 16 trial trenches excavated as part of a phased plan of archaeological fieldwork conducted in advance of a planning application (18/01285/CCMEIA) for the lateral extension of the current quarry extraction site located west of the proposed development area. The evaluation trenches were targeted across a series of anomalies identified during a geophysical survey of the site conducted by Archaeological Research Services Ltd between the winter of 2017 and spring 2018.

The evaluation project confirmed the presence of multiple north-west to south-east aligned furrows in Trenches 12, 14 and 16 at the south-eastern extent of the proposed development area. The furrows were identified as a series of parallel linear anomalies during the geophysical survey phase of works and may be considered typical of medieval ridge and furrow ploughing. Consequently, although no dating evidence was recovered from the furrows identified in Trench 12, 14 and 16, their form and presence indicated that the landscape bordering Longhoughton was probably subject to intensive agricultural exploitation during the medieval period.

Conversely, the trenches excavated at the north-western extent of the proposed development area, were largely devoid of any features of archaeological significance and suggested that geophysical anomalies detected during the previous phase of works were probably caused by variations in the underlying geology.

1 Introduction

1.1 Scope of work

1.1.1 In October 2018 Archaeological Research Services Ltd (ARS Ltd) was commissioned by Northumberland Estates (the client) to undertake an archaeological evaluation on land east of Longhoughton Quarry, Longhoughton, Northumberland.

1.1.2 The evaluation comprised the archaeological excavation of 16 trial trenches, as part of a phased programme of archaeological works, in advance of a planning application (18/01285/CCMEIA) for the lateral extension of the current quarry extraction site located west of the proposed development area.

1.1.3 The fieldwork was conducted in accordance with the requirements of National Planning Policy Framework, specifically Section 16: Conserving and Enhancing the Historic Environment (DCLG 2018). The fieldwork was intended to provide a record of any buried archaeological remains likely to be impacted on by the development in order to address the requirements of the Local Planning Authority.

1.1.4 The evaluation trenches were targeted across a series of anomalies identified during a geophysical survey of the site conducted by Archaeological Research Services Ltd in 2018. The geophysical survey revealed an unspecified number of discrete features, a series of parallel linear anomalies and a possible rectilinear enclosure at the north-western extent of the proposed development area (hereafter referred to as PDA) (Durkin 2018).

1.2 Site Location

1.2.1 The site is situated in agricultural land *c*.5.6km east of Alnwick town centre and *c*.0.6km west of Longhoughton Village centre. The evaluation area is centred on National Grid Reference NU 23798 15226 and encloses an internal area of approximately 6ha divided over three fields. Field 1 comprises a rectangular parcel of land which is bounded by Station Road to the south and farmland to the north and east. Only the western extent of Field 2 is included in the PDA and this is bounded by a flooded quarry pit to the west, Field 3 to the south and further agricultural land to the north. Similarly, only the northern corner of Field 3, a rectangular field to the west of Field 1, is included in the PDA.

1.3 Landuse, Topography and Soils

1.3.1 The site lies in an agricultural landscape, west of Longhoughton village and approximately three miles east of Alnwick, Northumberland. Fields 1 and 3 have been subject to extensive agricultural activity related to modern farming techniques whilst Field 2, at the date of fieldwork, was being used exclusively for the grazing of livestock. The PDA extends across a sloping landscape which descends from a maximum height of 75m aOD in the north-west to a minimum height of 53m aOD in the south-east.

1.3.2 The underlying geology variably comprises Mudstone, Sandstone and Limestone of the Stainmore Formation and Limestone of the Great Limestone Member overlain by superficial deposits of Devensian Till (British Geological Survey 2018).

1.4 Archaeological and Historical background

1.4.1 It is beyond the scope of this report to replicate a comprehensive history of Alnwick or the surrounding hinterlands. Consequently, the following section exclusively lists the heritage assets considered most relevant to past activities close to the PDA. For a detailed archaeological overview of the wider region the reader is directed towards Shared Visions: The North-East Regional Research Framework for the Historic Environment (Gerrard, C. and Petts, D. 2006).

1.4.2 An Environmental Impact Assessment was undertaken which incorporated all known heritage assets within a 1km area bordering the PDA. The document indicated that although 30 heritage assets, including 21 Listed Buildings, were present within the vicinity of the PDA no assets were considered to be present within the boundary of the site (Brown 2017). However, a previous phase of archaeological fieldwork conducted by Archaeological Research Services Ltd in 2017 revealed a series of post-medieval wall foundations within fields immediately to the west of the PDA. The wall foundations were considered likely to be associated with the relict remnants of a post-medieval farmstead settlement highlighting early modern agricultural exploitation of the landscape bordering Longhoughton village (Cockcroft 2017).

1.4.3 In addition, a geophysical survey was undertaken within the boundaries of the PDA, between October 2017 and May 2018, in order to identify any preserved sub-surface archaeological remains which might be impacted by the proposed development. The results of the geophysical survey were heavily influenced by the underlying solid geology and associated pedology but did identify several anomalies of possible anthropogenic origin in Fields 1 and 2 (Durkin 2018) (Figure 3).

2 Aims and Objectives

2.1 A Written Scheme of Investigation prepared by Archaeological Research Services Ltd, and approved by Northumberland County Council, assisted in the establishment of the project aims prior to the commencement of the archaeological fieldwork (see Appendix III).

2.2 The evaluation aimed to:

- Identify, sample and fully record archaeological deposits and features within the evaluation trenches.
- Obtain, where possible, relative dating and dating frameworks for deposits and features encountered.
- Establish the nature, date, character, extents and level of preservation of deposits and structures.
- Produce information on past economies and contemporary local environment.

2.3 These aims were pursued in the context of relevant objectives extant in the regional research framework outlined in *Shared Visions: The North-East Regional*

Research Framework for the Historic Environment (Gerrard, C. and Petts, D. 2006), specifically:

- Iiii and Ri Landscape Survey – An improved understanding of late prehistoric and Roman occupation of the Northumberland coastal plain including settlements, roads and coastal installations (Gerrard and Petts 2006, 145-146).

- MDi – Settlement – an improved understanding of landscape exploitation and settlement patterns throughout the north-east of England during the medieval period (Gerrard and Petts 2006, 170).

3 Methodology

3.1 Introduction

3.1.1 The methodology for the evaluation is outlined in detail in the Written Scheme of Investigation (Appendix III this volume) but has been summarised here.

3.2 Coverage

3.2.1 The evaluation comprised 16 trial trenches located in three fields immediately east of Longhoughton village. The project included four trenches measuring 25m x 1.8m and 12 trenches measuring 15m x 1.8m. The cumulative footprint of the trenches covered a total of 504m^2 with the purpose of assessing the potential impact of the proposed development on any buried heritage assets preserved within the boundary of the PDA (Figure 2).

3.3 Professional Standards

3.3.1 All fieldwork was undertaken in accordance with the Chartered Institute for Archaeologists' *Standard and Guidance for an Archaeological Field Evaluation* (CIfA 2014a).

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

3.4 The Evaluation

3.4.1 The evaluation was undertaken between 29th October - 7th November 2018 and used the excavation of a series of trial trenches to target anomalies identified during the previous phase of geophysical survey (Figure 3).

4 Results

4.1 Introduction

4.1.1 The following section describes in detail the results as they relate to Trenches 2, 3, 4, 5, 8, 12, 14 and 16 which were targeted across anomalies identified during the geophysical survey phase of works (Durkin 2018). For information relating to Trenches 1, 6,

7, 9-11, 13 and 15 which produced no finds or features of archaeological significance, the reader is directed towards Appendix I: Figure 13, 14, 28 – 40, 45 and 46 and Appendix II: Context Summary Table.

4.1.2 The topsoil extending across the site was uniformly characterised by a mid-brown organic soil with rare small angular stones evenly distributed throughout its matrix.

4.1.3 A variable natural substrate comprising both orange-red sandy clay with pockets of limestone bedrock and a grey clayey sand was observed across the base of all trenches excavated within Field 1. The natural substrate identified within Fields 2 and 3 was a fractured limestone bedrock with superficial deposits of red clay.

4.1.4 Within Field 1, Trenches 11, 12, 13, 14 and 16 contained a series of north-west to south-east orientated furrows which were interpreted as the relict remnants of medieval ridge and furrow which had been heavily truncated by later 20th century farming practices (Figure 12). Fields 2 and 3 displayed distinct variations in the superficial and solid geology which broadly matched the location of a series of anomalies identified during the geophysical survey. However, Trenches 2 – 5 have been described in greater detail below due to the anomalous readings produced by the geophysical survey and the associated potential for archaeologically sensitive material.

4.1.5 The trench summary table (Table 1) below provides a synthesis of the presence/absence of archaeology or potential archaeology in each of the trenches as well as the depth of the topsoil.

Trench No	Trench Dimensions	Archaeology? Y/N	Period	Topsoil thickness
1	50 x 1.8 x 0.27 m	N	N/A	0.27m
2	50 x 1.8 x 0.30 m	N	N/A	0.30m
3	25 x 1.8 x 0.25 m	N	N/A	0.25m
4	25 x 1.8 x 0.29 m	N	N/A	0.29m
5	50 x 1.8 x 0.30 m	N	N/A	0.28m
6	50 x 1.8 x 0.34 m	N	N/A	0.34m
7	25 x 1.8 x 0.35 m	N	N/A	0.35m
8	50 x 1.8 x 0.26 m	N	N/A	0.34m
9	50 x 1.8 x 0.34 m	N	Mid-20th Century	0.29m
10	50 x 1.8 x 0.36 m	N	Mid-20th Century	0.36m
11	50 x 1.8 x 0.22 m	Y	Medieval	0.22m
12	50 x 1.8 x 0.28 m	Y	Medieval	0.28m
13	50 x 1.8 x 0.26 m	Y	Medieval	0.26m
14	50 x 1.8 x 0.24 m	Y	Medieval	0.28m
15	25 x 1.8 x 0.34 m	N	Mid-20th Century	0.34m
16	50 x 1.8 x 0.35 m	Y	Medieval	0.35m

Table 1. Trench summary table demonstrating presence absence of archaeology/excavated deposits/structures and topsoil depths.

4.2 Trench 2

(Figures 4, 15 and 16)

4.2.1 Trench 2 was situated at the northern extent of Field 2, measured 50m x 1.8m x 0.30m at its maximum extents and was machine excavated to the depth of the natural substrate which was revealed at a height of 75.02m aOD. Trench 2, in combination with

Trenches 3 and 5, targeted three linear but discontinuous geophysical anomalies which were collectively interpreted as demarcating the location of a possible prehistoric or Roman Iron-Age rectilinear enclosure.

4.2.2 However, following excavation of the trench no finds or features of archaeological significance were identified. Although no features were revealed it was noted that the three anomalies identified during the geophysical survey broadly matched the location of a band of sandy-clay natural. It might be reasonably assumed therefore that the geophysical anomalies revealed during the previous phase of works are probably geological in origin and not of anthropogenic provenance.

4.3 Trench 3

(Figures 5, 17 18, 19, 20, 21 and 22)

4.3.1 Trench 3 was sited approximately 11.5m south of Trench 2 and was machine excavated to the depth of the natural substrate which was identified at a height of 75.07m aOD. The trench was sited in order to target a north-west to south-east aligned linear anomaly previously recorded during the geophysical survey. The anomaly broadly matched the location of feature [303] which bisected the central portion of the trench, displayed irregular sides, was filled by a dense sandy-clay (304), produced no material culture and was devoid of palaeo-environmental material. Consequently, feature [303] was interpreted as a variation in the natural geology, similar to the feature previously identified in Trench 2, and not considered to be of archaeological significance.

4.4 Trench 4

(Figures 6, 23, 24 and 25)

4.4.1 Trench 4 was located approximately 20.5m east of Trench 3 and was excavated to the depth of the natural substrate (402) which was identified at a maximum height of 72.82m aOD. The natural substrate (402) was characterised by a solid geology of limestone bedrock, interspersed with patches of red sandy-clay, and truncated by a single east-west aligned feature [403].

4.4.2 Feature [403], measured 1.67m x 1.8m x 0.28m at its maximum visible extents and bisected the central portion of Trench 4, broadly matching the location of a similarly aligned anomaly identified during the geophysical survey phase of works. Feature [403] was filled by a mixed, ploughsoil deposit (404) and was interpreted as a heavily truncated furrow of possible medieval date. This interpretation should be treated very tentatively however, as no dating evidence was recovered from the fill of feature [403] and the interpretation was based principally on form.

4.4.3 No other features or deposits of archaeological significance were identified within Trench 4.

4.5 Trench 5

(Figures 7, 26, and 28)

4.5.1 Trench 5 was sited c.32m west of Trench 3 and was machine excavated to the depth of the natural substrate (503) which was identified at a height of 77.96m aOD. The trench formed an 'L'-shape in plan and was intended to target two north-west – south-east aligned linear features in association with a number of smaller discrete anomalies. The natural substrate at the northern and western extents of Trench 5 comprised solid limestone geology (503) separated by a broad band of reddish-brown sandy-clay till (504). No finds or features of archaeological significance were revealed within the trench and the anomalies identified during the geophysical survey were considered likely to have been caused by variations in the natural geology.

4.6 Trench 12

(Figures 8, 41, 42, 43 and 44)

4.6.1 Trench 12 was located within the south-west corner of Field 1. Trench 12 was excavated to the depth of the natural substrate which was characterised as a yellow-pink, sandy clay identifiable at a height of 58.38m aOD. Natural substrate (1202) was cut by four north-west to south-east aligned furrows which bisected the northern, central and southern portions of the trench. The furrows matched the location and orientation of a series of parallel, linear anomalies previously identified during the geophysical survey phase of works and similarly revealed within Trenches 13 and 14. Furrows [1203], [1205] and [1207], within Trench 12, all displayed concave sides, uneven bases and were filled by well-sorted, grey-brown, silt deposits (1204/1206/1208). Although no finds were recovered from deposits (1204/1206/1208) the form and orientation of furrows [1203], [1205] and [1207] were indicative of the relict remnants of medieval ridge and furrow.

4.7 Trench 14

(Figures 9, 47, 48, 49 and 50)

4.7.1 Trench 14 was situated approximately 65m south east of Trench 12 and was machine excavated to the depth of the natural substrate (1402) which was revealed at a height of 54.76m aOD. The natural substrate (1402) was cut by two north-west to south-east aligned furrows [1403/1405] which were filled by a brown-grey, silty-clay (1404/1406). Both furrows corresponded with the location of two similarly aligned, parallel linear anomalies identified during the geophysical survey and were interpreted as the relict remnants of medieval ridge and furrow ploughing.

4.8 Trench 16

(Figures 10, 53, 54, 55 and 56)

4.6.1 Trench 16 was located approximately 74m north-east of Trench 12 and was excavated to the depth of a brown-red sandy-clay natural substrate (1602). The natural substrate (1602) extended across the base of Trench 16, at a minimum height of 58.28m, and was truncated by five north-west to south-east aligned furrows. Given the similarity in form between the furrows in Trench 16 and the furrows previously identified in Trenches 12 and 14 only furrows [1605] and [1607] were excavated. Both were filled by a grey-brown sandy-clay and were, despite the absence of material culture, interpreted as medieval ridge and furrow.

4.6.2 It is also worth noting that the truncated remains of a curving feature [1603] were also revealed at the south-western extent of Trench 16, approximately 1.2m south west of furrow [1605]. Feature [1603] displayed concave but irregular sides, a rounded, uneven base and was filled by a well sorted sandy-silt (1604). No material culture or palaeo-environmental evidence was recovered from deposit (1604). Consequently, gully [1603] was tentatively interpreted as a probable burrow or plough scar. No other finds or features of archaeological significance were identified in Trench 16.

5 Specialist Report

5.1 Palaeoenvironmental Analysis

Luke Parker

5.1.1 Palaeoenvironmental analysis was undertaken on samples taken from the fills of archaeological features uncovered during excavation. 40L of fill from each archaeological feature was sampled where possible, unless the feature contained less than 40L whereupon the entirety of the excavated fill was sampled.

5.2 Methods

5.2.1 Bulk fill samples were processed via water floatation through graduated sieves with the smallest being 300 µm. Flots were air dried and scanned using a low-power binocular microscope (x40). Heavy residues were dried and scanned by eye for non-floating palaeoenvironmental remains or archaeological finds.

5.2.2 The presence of uncharred organic was noted and the quantity estimated as a proportion of the processed flot. However, as the site was entirely free-draining, non-charred organic material was discounted as being modern contamination.

5.3 Results

5.3.1 Samples which yielded palaeoenvironmental remains are shown in Table 2:

Sample No.	Context No.	Description	Flot contents
1	1204	Possible drainage gully associated with a medieval furrow	90% uncharred rootlets; 0.18g charred material; abundant goosefoot (Chenopodium sp.) seeds
2	1206	Fill of furrow provisionally assigned medieval date	80% uncharred rootlets; 0.21g charred material; seven goosefoot (Chenopodoium sp. seeds)
3	1604	Gully fill	Entirely uncharred rootlets and one worm egg-case

4	1606	Possible drainage gully	75% uncharred rootlets; 25% coal
5	404	Geological fissure	Empty

Table 2: Recovered palaeoenvironmental remains and uncharred organic material from sampled archaeological contexts.

5.3.2 No charred palaeoenvironmental remains were recovered from the sampled archaeological fills. The exception to this was 10% of the flot (0.18g) from the fill (1204) of a possible medieval furrow and 20% of the flot (0.21g) from the fill (1206) of a provisionally dated medieval furrow which were composed of indeterminate eroded charred material of a size below 1mm. The remaining recovered organic material was composed of uncharred rootlets and the occasional worm egg-case or goosefoot (*Chenopodium sp.*) seed. The goosefoot seeds represent modern populations which were present in the area surrounding the archaeological excavation. Considering the small quantity of badly fragmented charred material and clear prevalence for bioturbation within the deposits it is entirely possible that what charred material is present could well be intrusive or reworked. No interpretation could be drawn from the palaeoenvironmental material recovered.

6 Conclusion

6.1 The archaeological evaluation confirmed the presence of multiple north-west to south-east aligned furrows across the full extent of Field 1. The furrows revealed in Trenches 12, 14 and 16 were identified as a series of parallel linear anomalies during the geophysical survey phase of works and may be considered typical of medieval ridge and furrow ploughing. Ridge and furrow ploughing are the result of ploughing using non-reversible ploughs in a long strip and causes the build-up of an earthen mound or ridge in association with a shallow trough or furrow. The technique was frequently used during the medieval period to allow arable land to be drained more effectively as water would collect in the furrows and, as at Longhoughton, often took advantage of natural slopes by orientating the direction of the ploughed strips at right angles to an incline (Homans, 1991). Consequently, although no dating evidence was recovered from the furrows in Trenches 12, 14 and 16, their form and presence indicate that the landscape bordering Longhoughton was probably subject to intensive agricultural exploitation during the medieval period.

6.2 Conversely, the trenches excavated in Fields 2 and 3 were largely devoid of any features of archaeological significance and suggested that geophysical anomalies detected during the previous phase of works were probably caused by variations in the underlying geology.

6.3 No other finds or features of archaeological significance were identified during the course of the archaeological evaluation.

7 Publicity, Confidentiality and Copyright

7.1 Any publicity will be handled by the client.

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

8 Statement of Indemnity

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

9 Archive

9.1 A digital and paper archive will be prepared by ARS Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data, and will be deposited with the Great North Museum in accordance with the Written Scheme of investigation approved Karen Derham, Assistant County Archaeologist at Northumberland County Council and in line with relevant CIfA guidance: *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives* (CIfA 2014a) and *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials* (CIfA 2014b). An OASIS record has also been completed for this work, including a digital version of this report, the reference for which is archaeol5--334295. Deposition of the physical archive will be undertaken within two months of final project report completion and acceptance by Northumberland County Council.

10 Acknowledgements

10.1 ARS Ltd would like to thank Barry Spall, Development Planner at Northumberland Estates, for commissioning the project, George Daniels for facilitating access and Karen Derham, Assistant County Archaeologist at Northumberland County Council for her advice and guidance.

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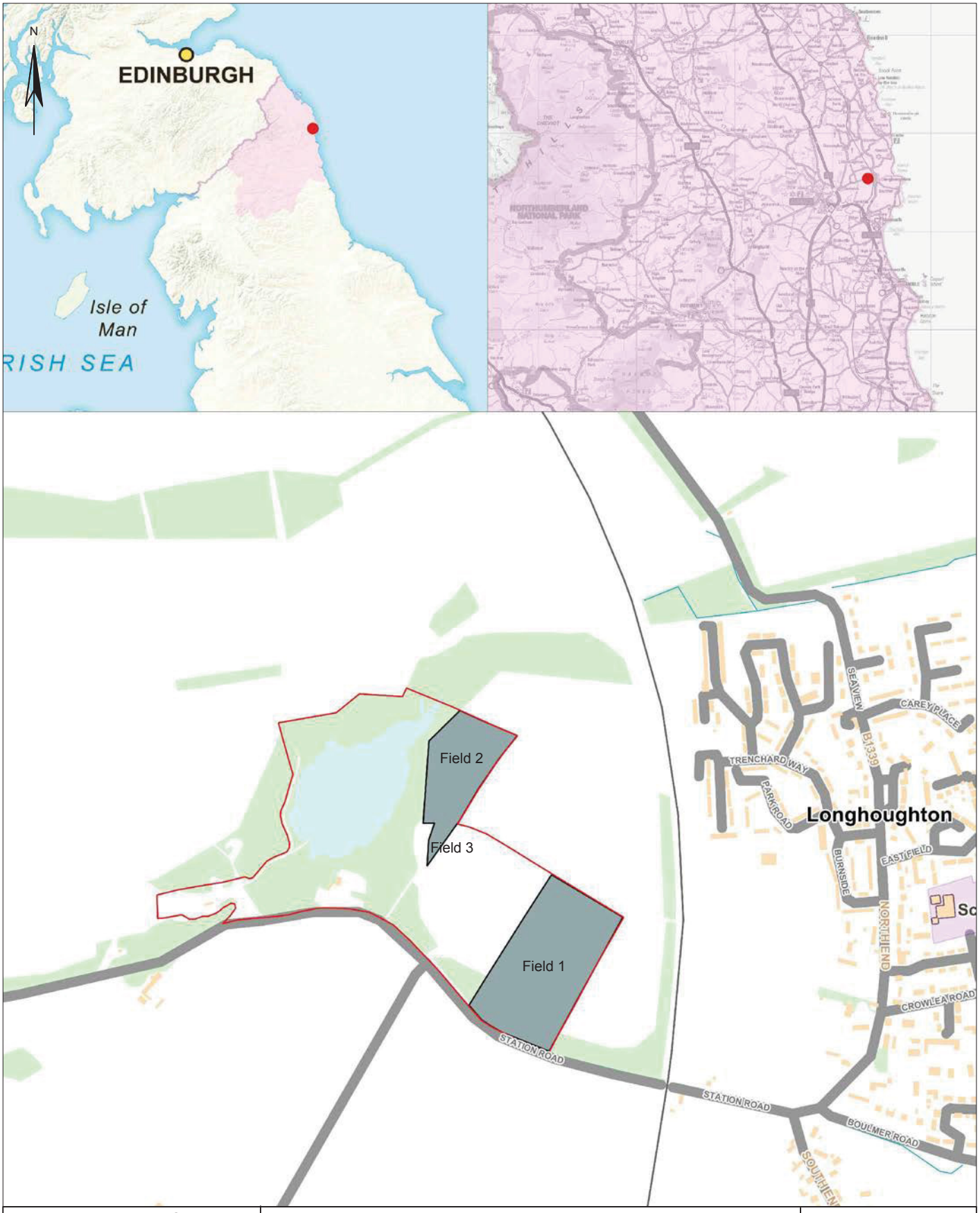
APPENDIX I: FIGURES



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Derbyshire
DE45 1HB

Site Code: Longhoughton East Ext
Date: May 2018
Drawn:RD
Scale: As shown

Figure 1
Site Location

Key:
Proposed development area (PDA)
Northumberland
Geophysics Areas
Site location

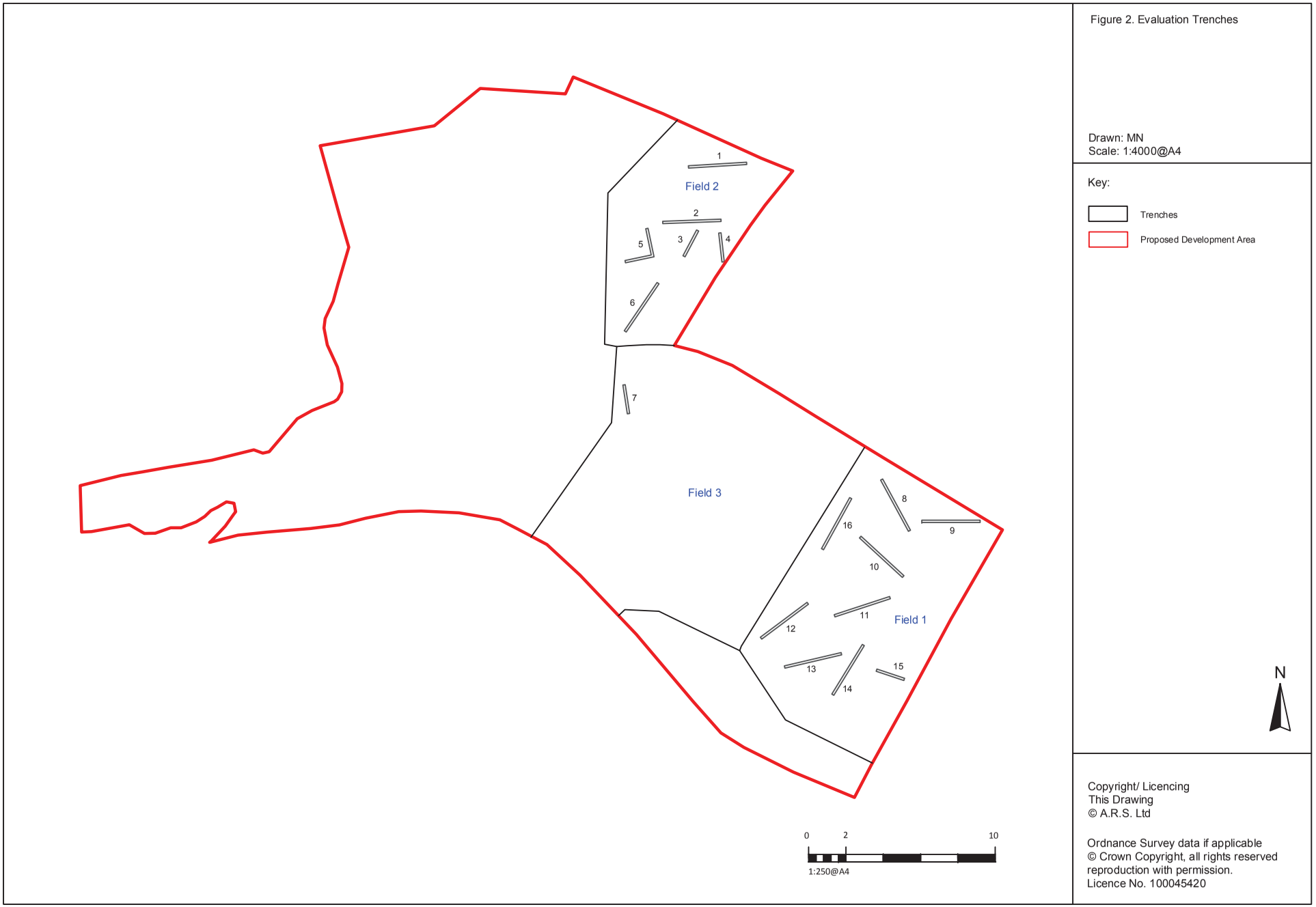
Figure 2. Evaluation Trenches
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Scale: 1:4000@A4
Key:
Trenches
Proposed Development Area
Field 1
Field 2
Field 3
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3
4
5
6
7
8
9
10
11
12
13
14
15
16
N
0
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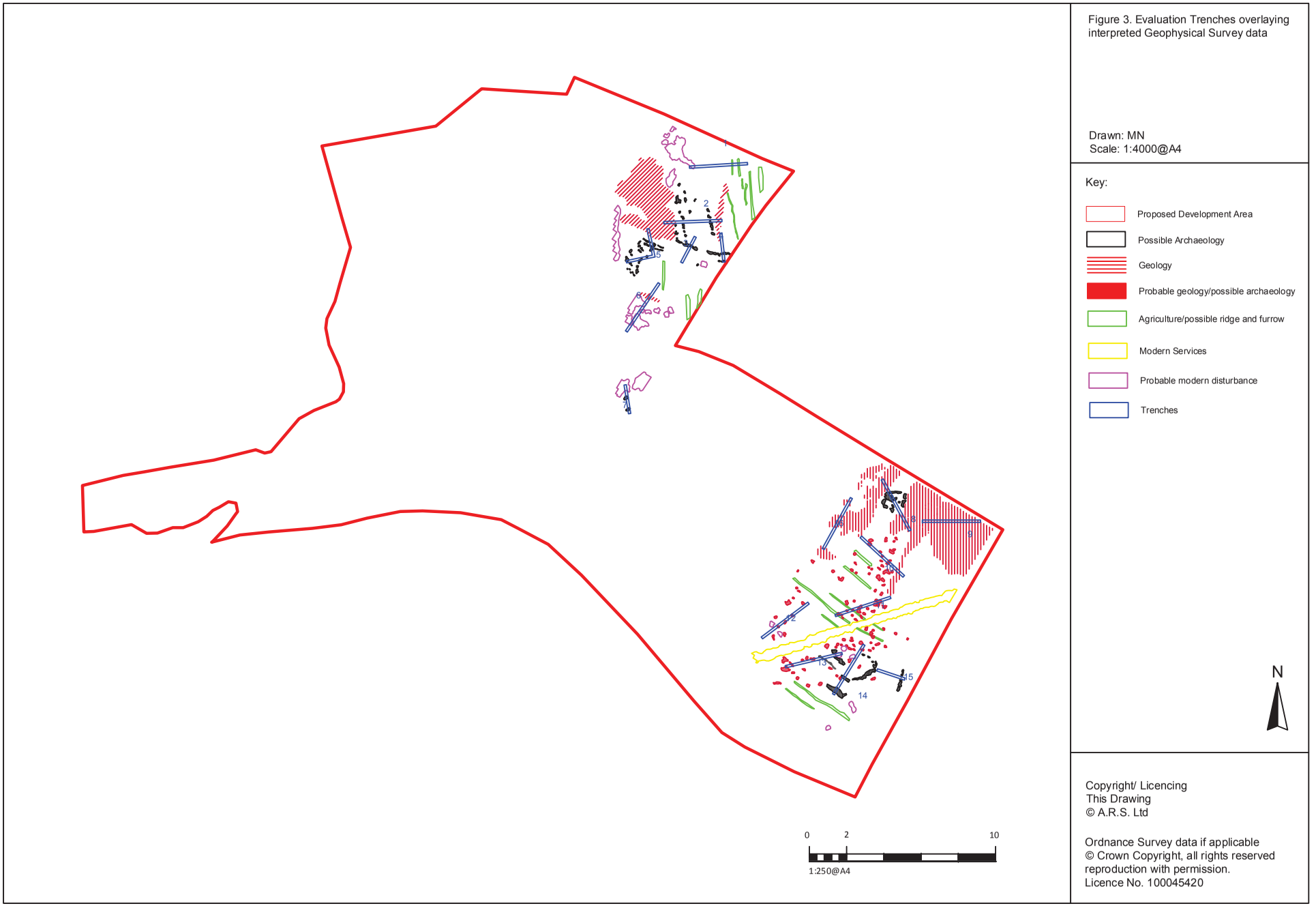
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Proposed Development Area
Possible Archaeology
Geology
Probable geology/possible archaeology
Agriculture/possible ridge and furrow
Modern Services
Probable modern disturbance
Trenches
N
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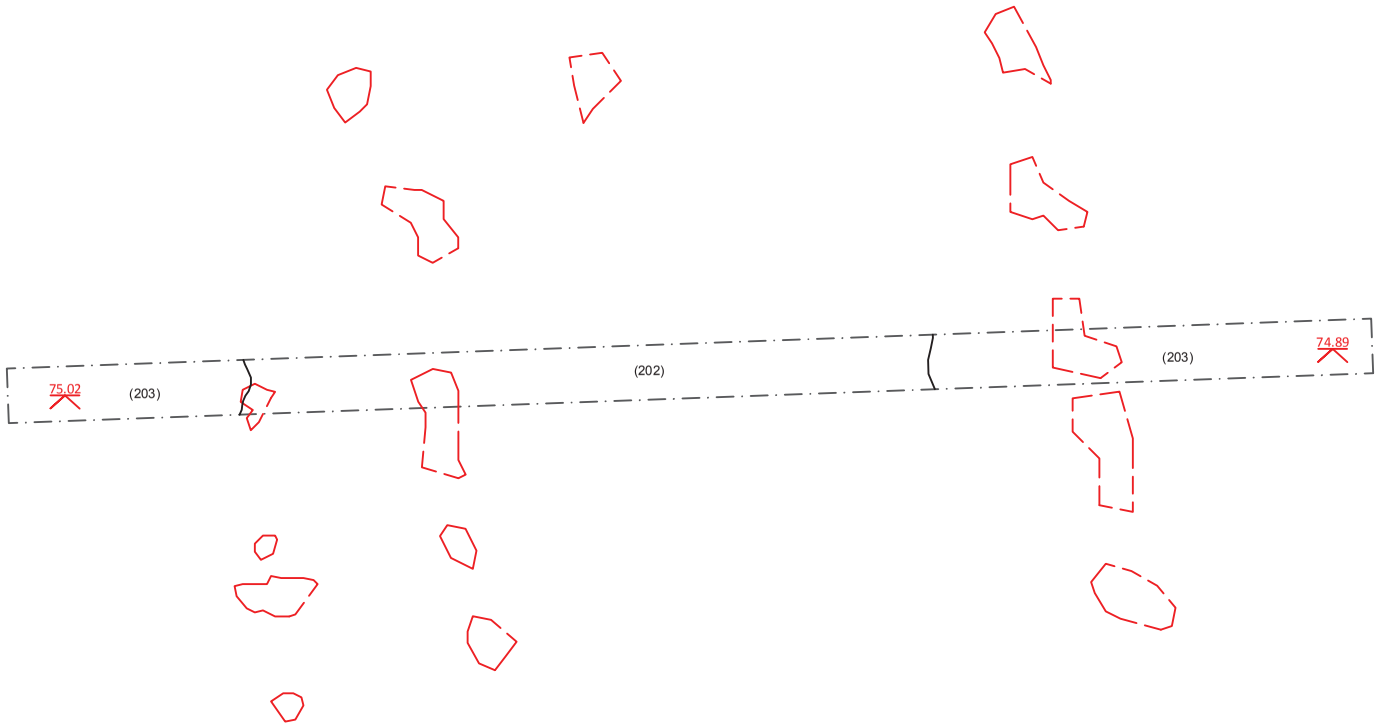


Figure 4: Plan of Trench 2, including projected location of anomalies identified in the geophysical survey

Drawn: MN
Scale: 1:250@A4

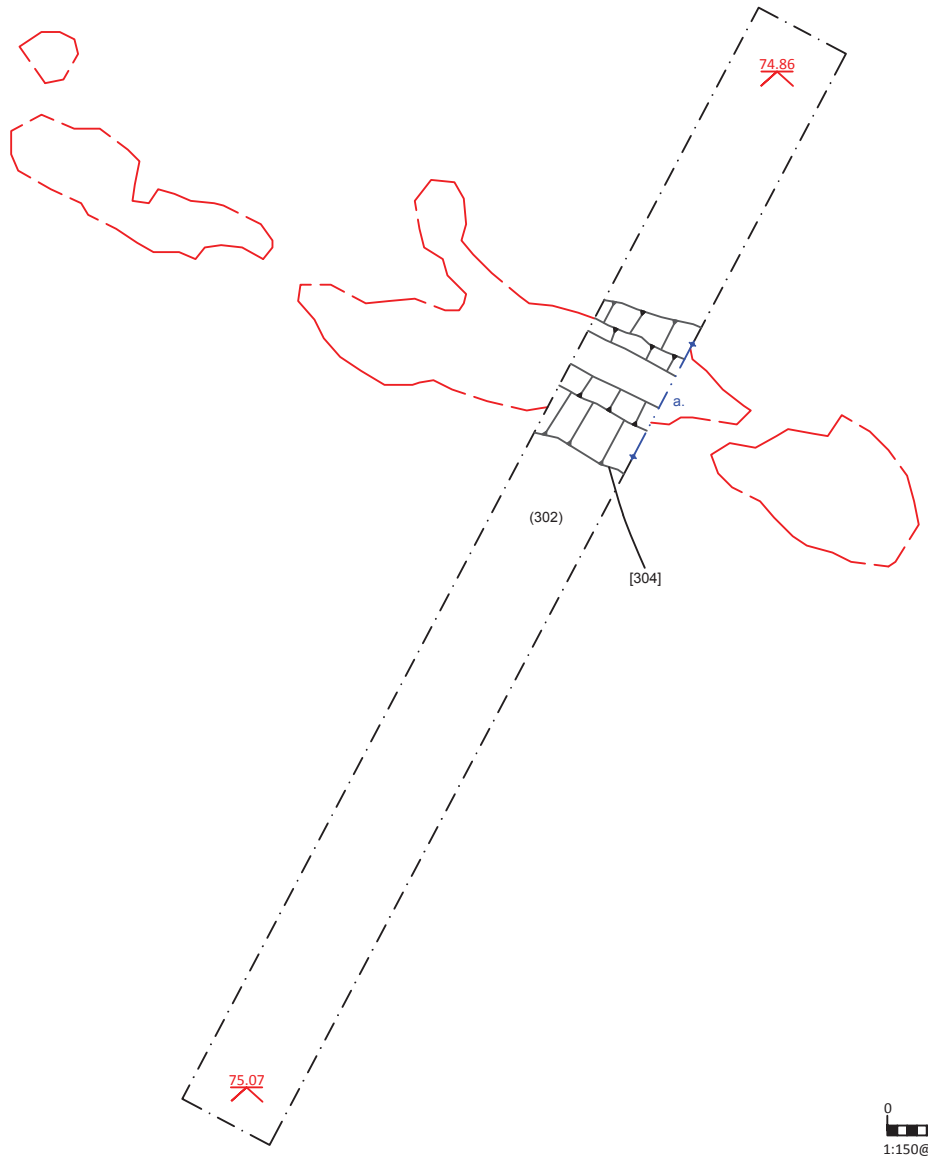
Key:

66.82 - m aOD

(202) - Deposit/Fill

Annomilies identified on Gephysical Survey

N



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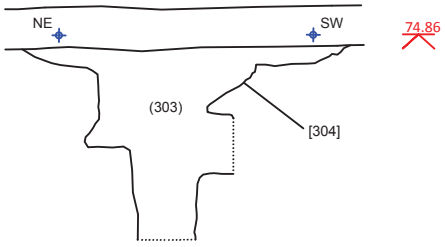
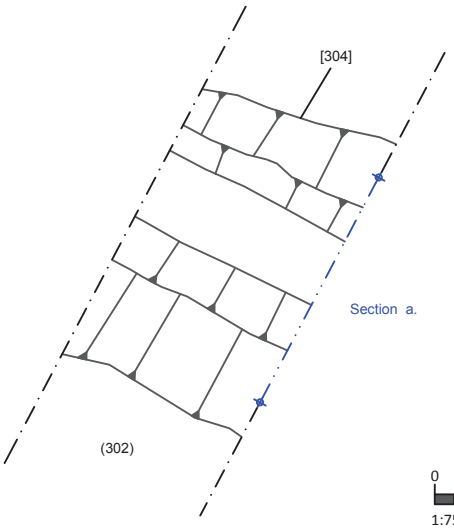
1:150@A4

North west facing section through geological feature [304]

Section a.





0 0.4 1 2m

1:75@A4

Figure 5: Plan of trench 3, including projected location of anomalies identified in the Geophysical survey

Drawn: MN
Plan Scale: 1:150@A4
Insert Scale: 1:75@A4

Key:

66.82 - m aOD

(303) - Deposit/Fill

[304] - Cut

Annomilies identified on Gephysical Survey

N

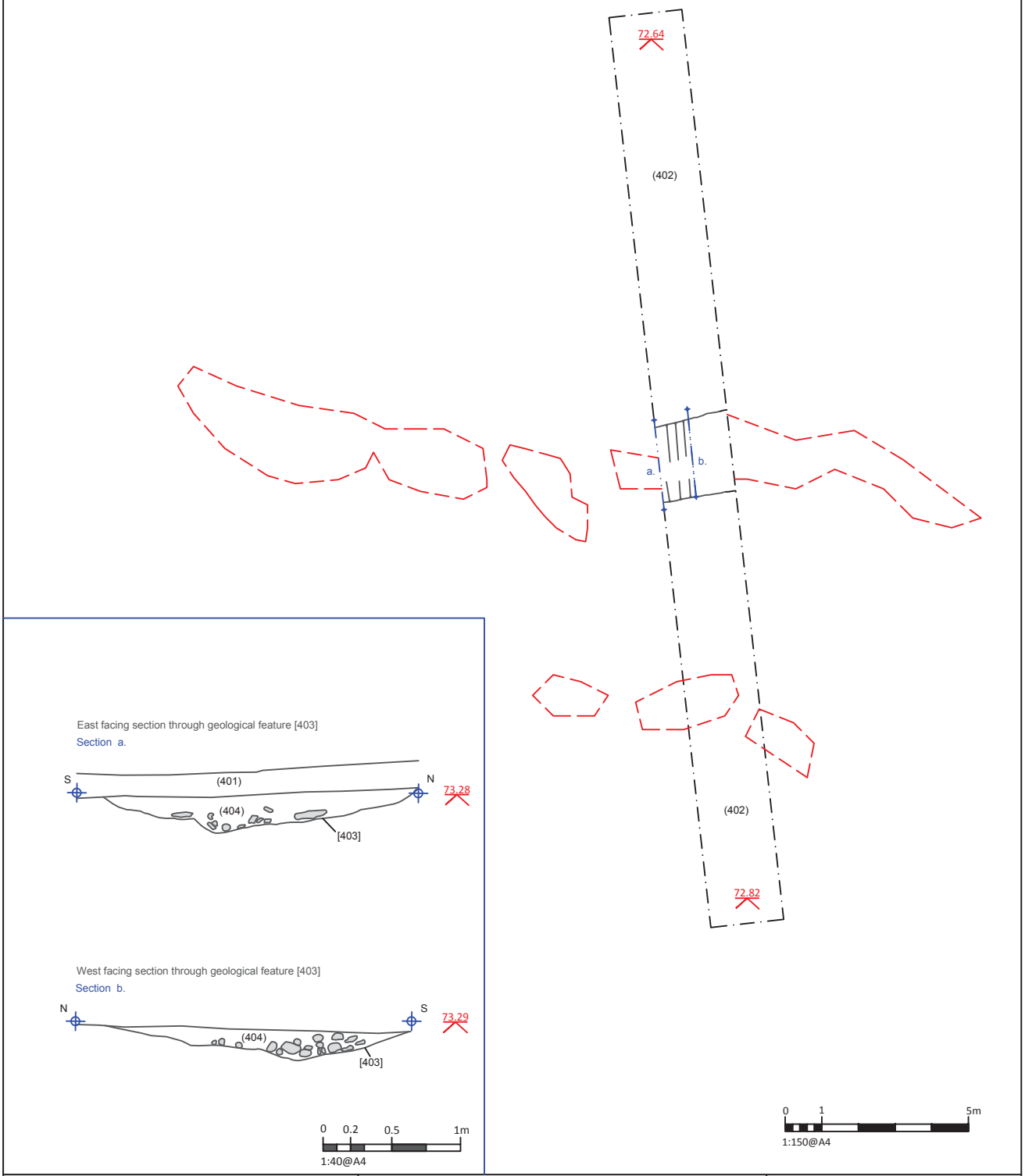


Figure 6: Plan of Trench 4, including projected location of anomalies identified in the geophysical survey

Drawn: MN
Plan Scale: 1:150@A4
Insert Scale: 1:40@A4

Key:

66.82 - m aOD

(303) - Deposit/Fill

[304] - Cut

Annomilies identified on Gephysical Survey

N

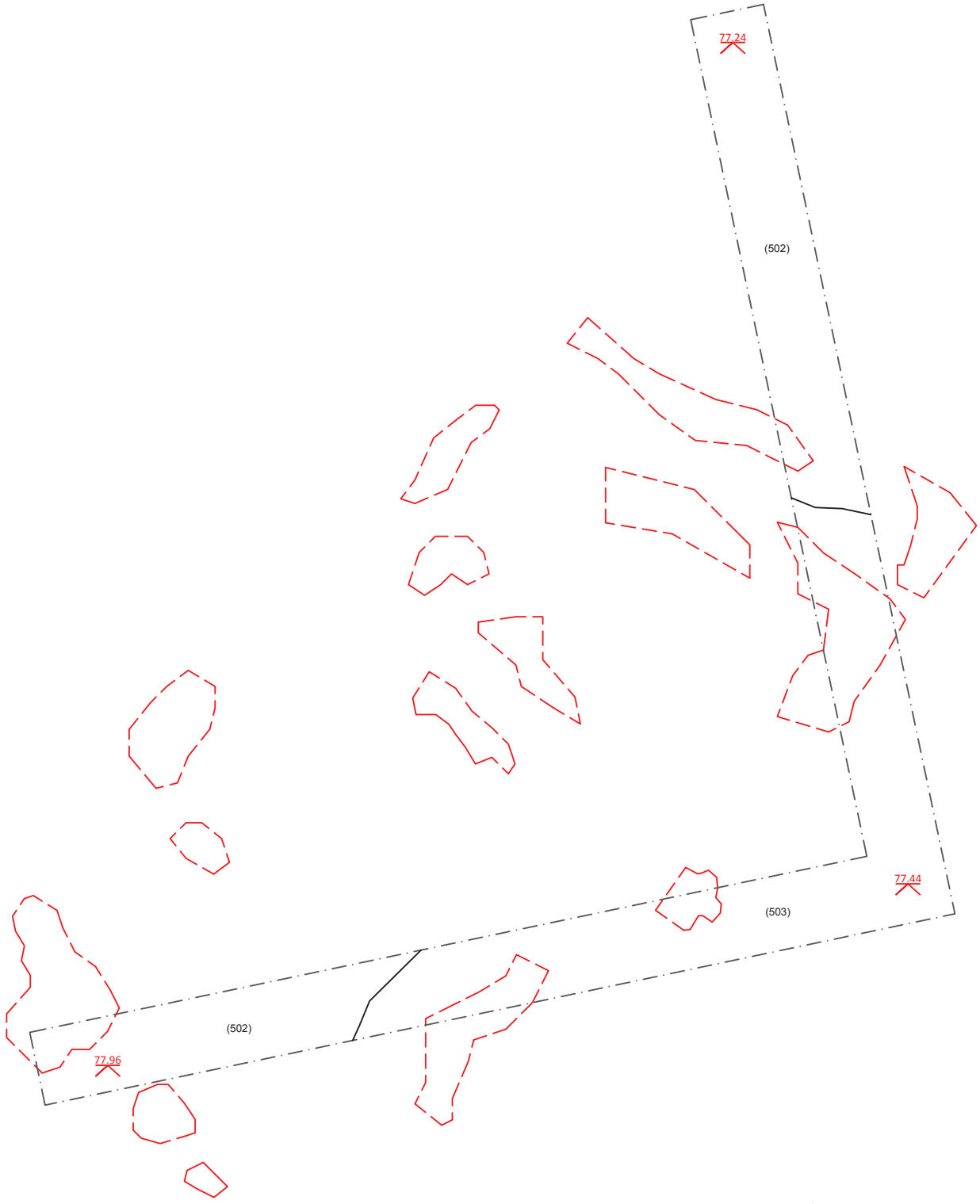


Figure 7: Plan of Trench 5, including projected location of anomalies identified in the geophysical survey

Drawn: MN
Plan Scale: 1:150@A4

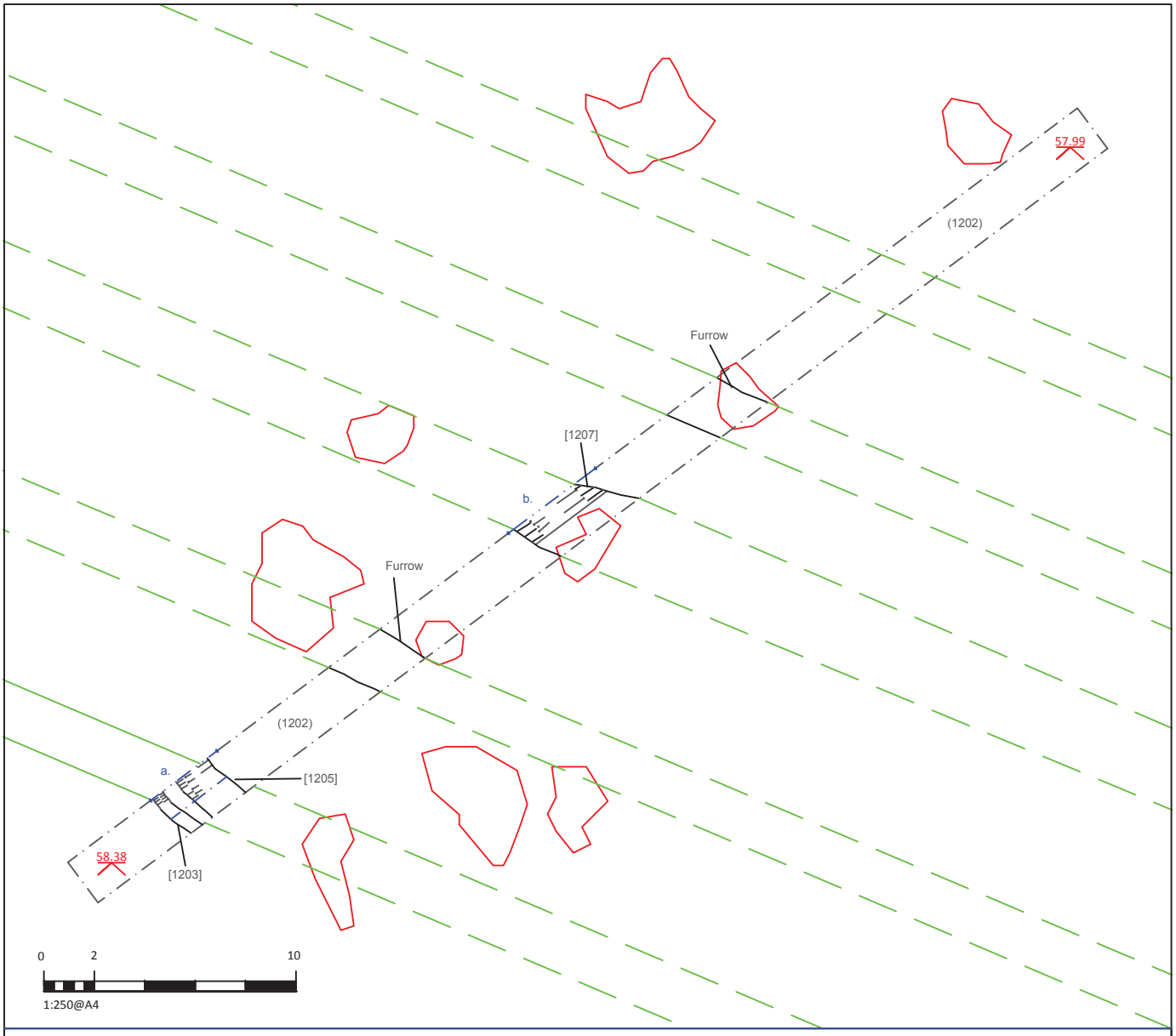
Key:

66.82 - m aOD

(502) - Deposit/Fill

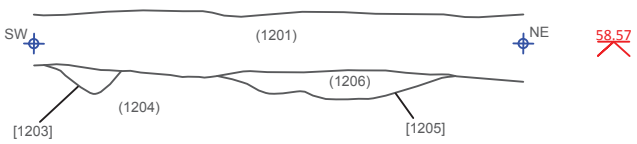
Annomilies identified on Gephysical Survey

N



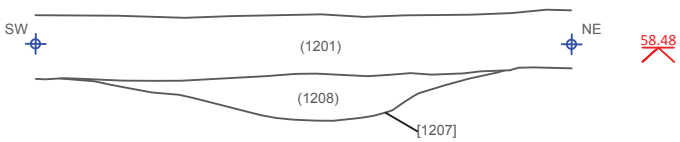
South east facing section through gully [1203] and furrow [1205]

Section a.



South east facing section through furrow [1207]

Section b.



0 0.2 0.5 1m

1:50@A4

Figure 8: Plan of Trench 12, including projected location of anomalies identified in the geophysical survey

Drawn: MN
Plan Scale: 1:150@A4
Insert Scale: 1:50@A4

Key:

66.82 - m aOD

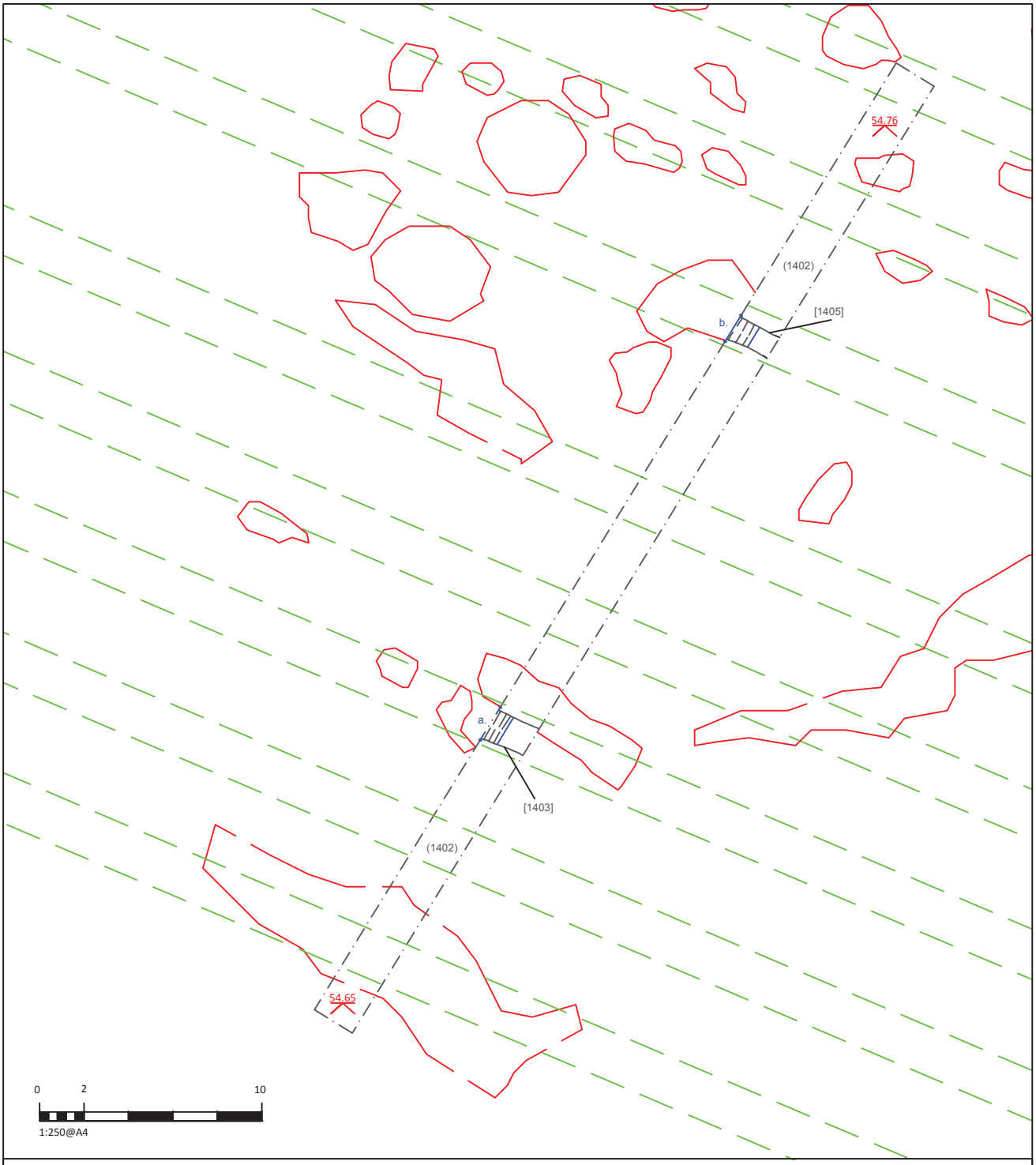
(1204) - Deposit/Fill

[1203] - Cut

Annomilies identified on Gephysical Survey

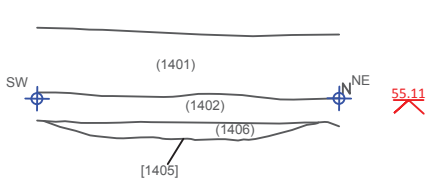
Ploject location of medieval furrow system

N



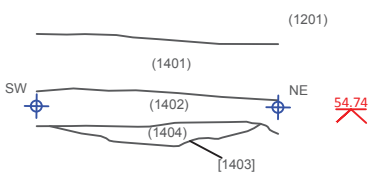
South east facing section through furrow [1405]

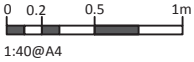
Section a.



South east facing section through furrow [1403]

Section b.





1:40@A4

Figure 9: Plan of Trench 14, including projected location of anomalies identified in the geophysical survey

Drawn: MN
Plan Scale: 1:150@A4
Insert Scale: 1:40@A4

Key:

66.82 - m aOD

(1404) - Deposit/Fill

[1403] - Cut

Annomilies identified on Gephysical Survey

Ploject location of medieval furrow system

N

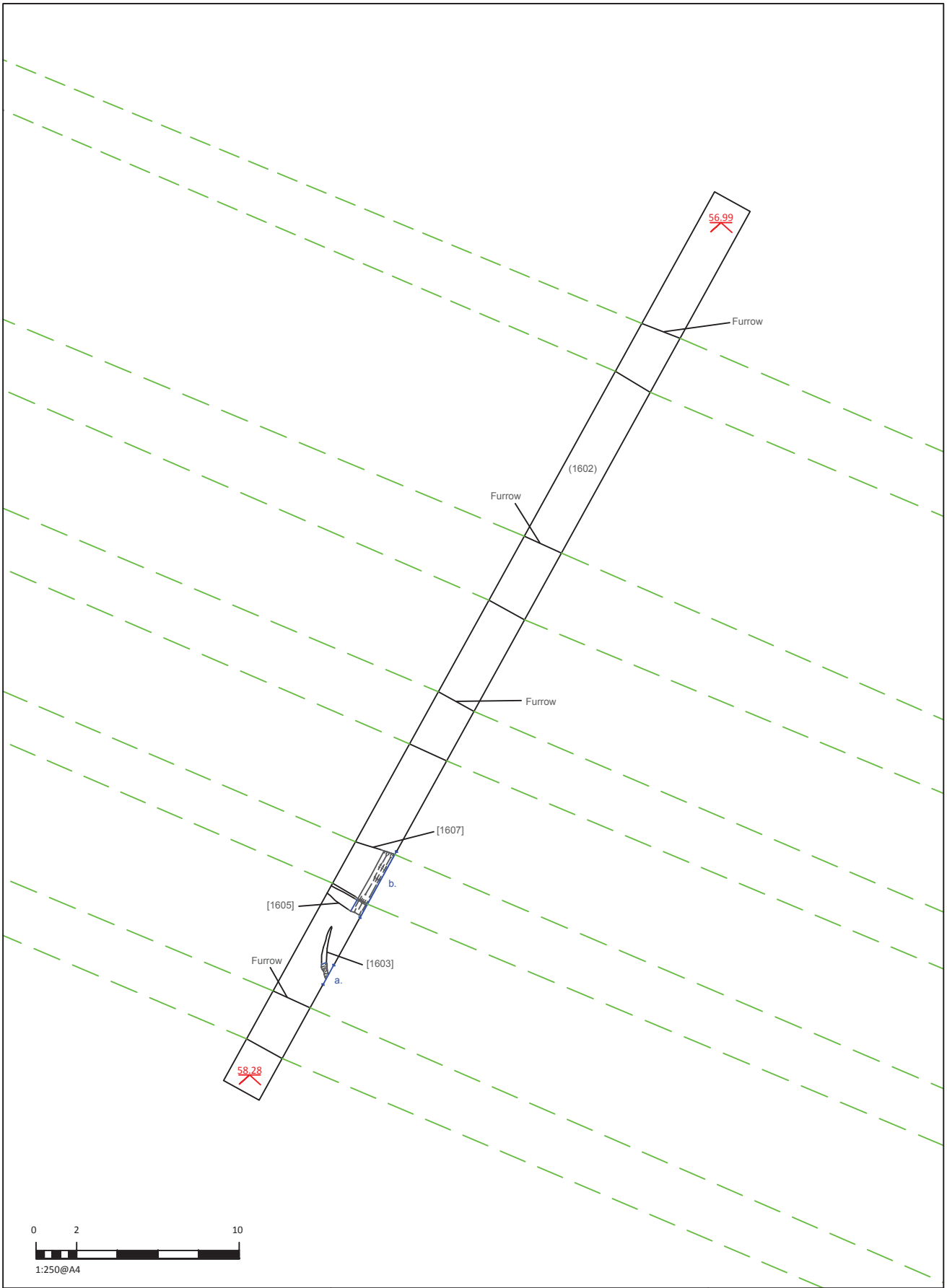


Figure 10: Plan of Trench 16, including gullys [1603], [1605] and furrow [1607]

Drawn: MN
Scale: 1:250@A4

Key:

66.82 - m aOD

(1604) - Deposit/Fill

[1603] - Cut

Annomilies identified on Gephysical Survey

Ploject location of medieval furrow system

N

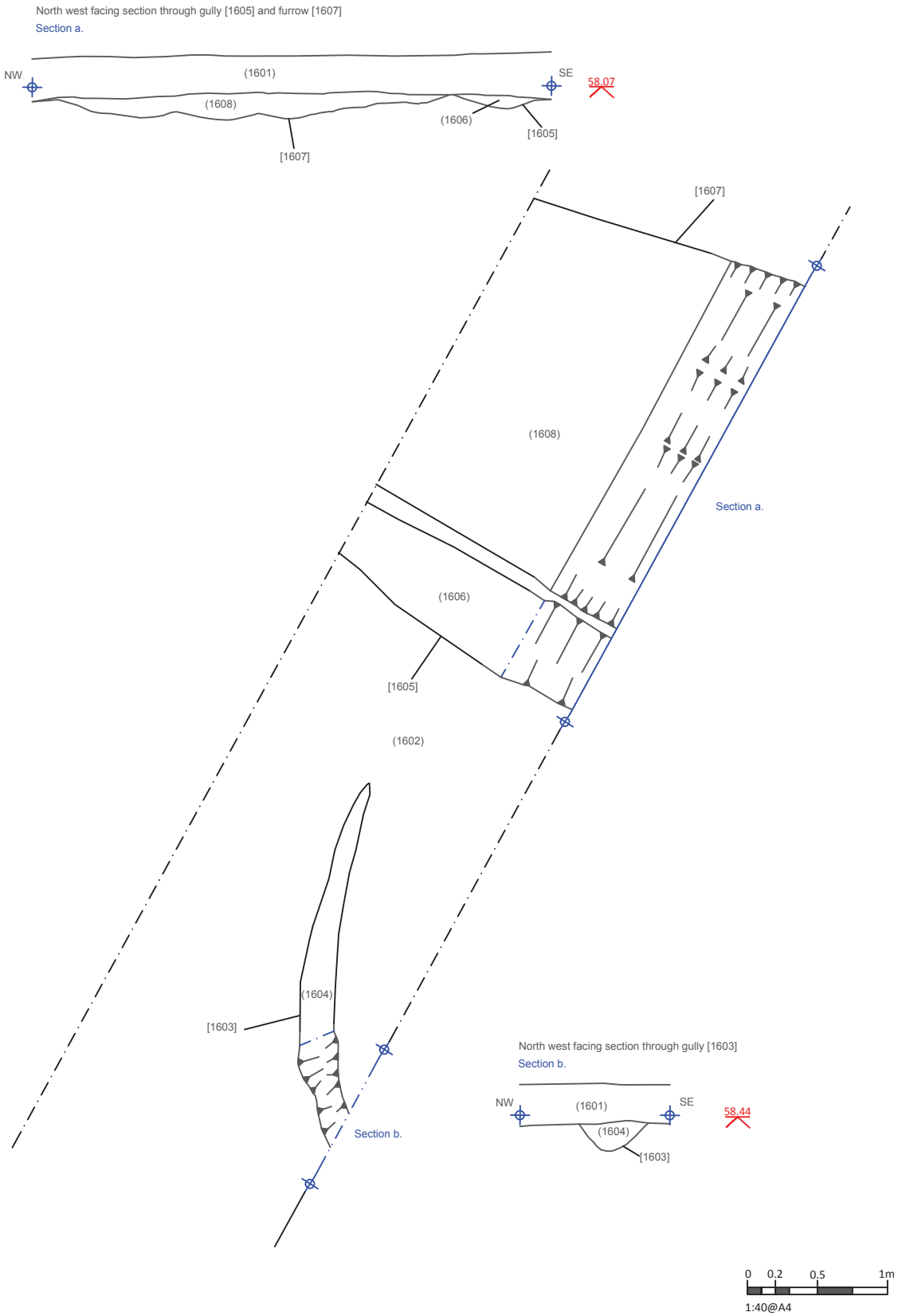


Figure 11: Plan and sections through gullys [1603], [1605] and furrow [1607]

Drawn: MN
Scale: 1:40@A4

Key:

66.82 - m aOD

(1604) - Deposit/Fill

[1603] - Cut

N

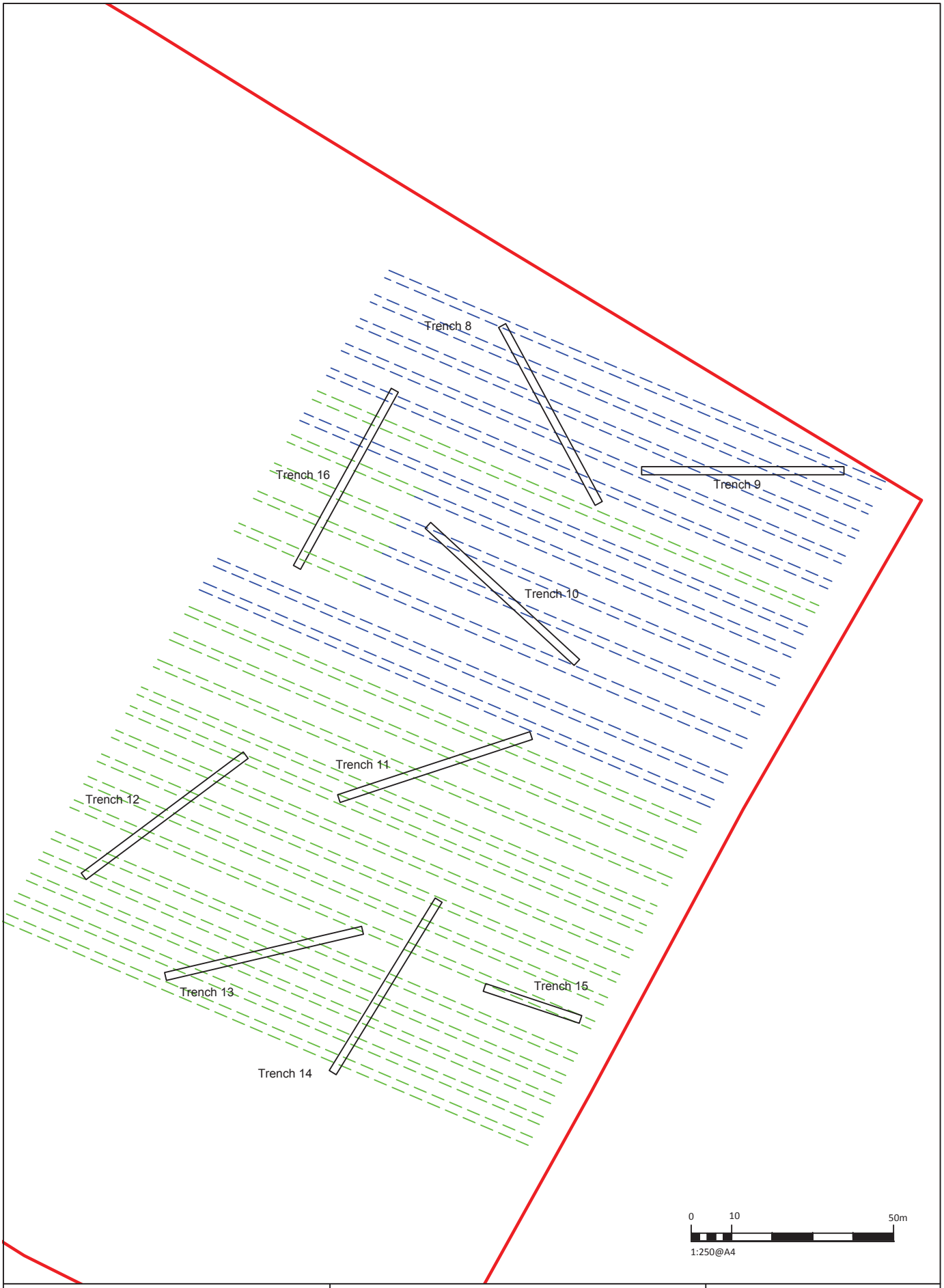


Figure 12: Projected location of medieval ridge and furrow in Field 1

Drawn: MN
Scale: 1:1250@A4

Key:

- Trench
- Projected line of identified furrow
- Projected line of unidentified furrow
- Red-line boundary

N

Figure 13: View of Trench 1, looking west (scale = 1m x 0.5m graduations).

Figure 14: South facing section through Trench 1, looking north (scale = 1m x 0.5m graduations).

Figure 15: North facing section through Trench 2, looking south (scale = 1m x 0.5m graduations).

Figure 16: View of Trench 2, looking west (scale = 1m x 0.5m graduations).

Figure 17: View of Trench 3, looking north east (scale = 1m x 0.5m graduations).

Figure 18: South east facing section through Trench 3, looking north-west (scale = 1m x 0.5m graduations).

Figure 19: West facing section through geological anomaly [303] within Trench 3 (scale = 1m x 0.5m graduations).

Figure 20: Oblique view of geological anomaly [303] within Trench 3 (scale = 1m x 0.5m graduations).

Figure 21: West facing section through geological anomaly [303] following machine excavation. (scale = 1m x 0.5m graduations).

Figure 22: Oblique view of geological anomaly [303] following machine excavation (scale = 1m x 0.5m graduations).

Figure 23: View of Trench 4, looking north (scale = 1m x 0.5m graduations).

Figure 24: East facing section through Trench 4 (scale = 1m in 0.5m graduations).

Figure 25: North facing section through geological feature [403] within Trench 4 (scale = 1m x 0.5m graduations).

Figure 26: View of Trench 5, looking west (scale = 1m x 0.5m graduations).

Figure 27: View of Trench 5, looking south-east (scale = 1m x 0.5m graduations).

Figure 28: South west facing section through Trench 5 (scale = 1m x 0.5m graduations).

Figure 29. South east facing section through Trench 6 (scale = 1m x 0.5m graduations).

Figure 30: View of Trench 6, looking south west (scale = 1m x 0.5m graduations).

Figure 31; View of Trench 7, looking south west (scale = 1m x 0.5m graduations).

Figure 32: South east facing section through Trench 7 (scale = 1m x 0.5m graduations).

Figure 33: South west section through Trench 8 (scale = 1m x 0.5m graduations).

Figure 34: View of Trench 8, looking south east (scale = 1m x 0.5m graduations).

Figure 35: View of Trench 9, looking west (scale = 1m x 0.5m graduations).

Figure 36: South facing section through Trench 9 (scale = 1m x 0.5m graduations).

Figure 37: South facing section through Trench 10 (scale = 1m x 0.5m graduations).

Figure 38: View of Trench 10, looking north west (scale = 1m x 0.5m graduations).

Figure 39: View of Trench 11, looking south-west (scale = 1m x 0.5m graduations).

Figure 40: North east facing section through Trench 11 (scale = 1m x 0.5m graduations).

Figure 41: South-east facing section through Trench 12 (scale = 1m x 0.5m graduations).

Figure 42: View of Trench 12, looking south west (scale = 1m x 0.5m graduations).

Figure 43: East facing section through gully [1203] and furrow [1205], within Trench 12 (scale = 2m x 0.5m graduations).

Figure 44: East facing section through furrow [1207], within Trench 12 (scale = 2m x 0.5m graduations).

Figure 45: View of Trench 13, looking south east (scale = 1m x 0.5m graduations).

Figure 46: North west facing section through Trench 13 (scale = 1m x 0.5m graduations).

Figure 47: West facing section through Trench 14 (scale = 1m x 0.5m graduations).

Figure 48: View of Trench 14, looking south (scale = 1m x 0.5m graduations).

Figure 49: South east facing section through furrow [1403], within Trench 14 (scale = 1m x 0.5m graduations).

Figure 50: South east facing section through furrow [1405], within Trench 14 (scale = 1m x 0.5m graduations).

Figure 51: View of Trench 15, looking west (scale = 1m x 0.5m graduations).

Figure 52: North facing section through Trench 15 (scale = 1m x 0.5m graduations).

Figure 53: South facing section through Trench 16 (scale = 1m x 0.5m graduations).

Figure 54: View of Trench 16, looking north east (scale = 1m x 0.5m graduations).

Figure 55: South east facing section through gully [1605] and furrow [1607] within Trench 16 (scale = 1m x 0.5m graduations).

Figure 56: South facing section through gully [1603] within Trench 16 (scale = 1m x 0.5m graduations).

APPENDIX II: CONTEXT SUMMARY TABLE

Trench	Context	Type	Description / Processual Interpretation	Thickness	Depth to top (BGL)
1	101	Deposit	Dark brown organic soil with occasional angular stones evenly distributed throughout its matrix. *Topsoil.*	0.27m	0
	102	Deposit	Fragmented sandstone with red clay inclusions. *Natural substrate.*	n/a	0.27m
2	201	Deposit	Dark brown organic soil with occasional angular stones evenly distributed throughout its matrix. *Topsoil.*	0.30m	0
	202	Deposit	Fragmented sandstone with red clay inclusions. *Natural substrate.*	n/a	0.30m
	203	Deposit	Brown-red sand and clay. *Natural substrate.*	n/a	0.30m
3	301	Deposit	Dark brown organic soil with occasional angular stones evenly distributed throughout its matrix. *Topsoil.*	0.25m	0
	302	Deposit	Fragmented sandstone with red clay inclusions. *Natural substrate.*	n/a	0.25m
	303	Cut	Cut of geological fracture within the underlying bedrock, aligned NW/SE. Filled by (304) *Naturally formed geological fracture within the bedrock*	n/a	0.25m
	304	Deposit	Brown-red sandy clay with occasional large angular sandstone fragment inclusions	n/a	0.25m

Trench	Context	Type	Description / Processual Interpretation	Thickness	Depth to top (BGL)
			Fill of [303]		
4	401	Deposit	Dark brown organic soil with occasional angular stones evenly distributed throughout its matrix. *Topsoil.*	0.29m	0
	402	Deposit	Fragmented sandstone with red clay inclusions. *Natural substrate.*	n/a	0.29m
	403	Cut	E-W aligned furrow Filled by (404) *Possible furrow -unknown date*	n/a	0.28m
	404	Deposit	Dark brown organic soil with occasional angular stones evenly distributed throughout its matrix. *Ploughsoil within [403]*	n/a	0.28m
5	501	Deposit	Dark brown organic soil with occasional angular stones evenly distributed throughout its matrix. *Topsoil.*	0.30m	0
	502	Deposit	Mid brown sand and clay with pockets of fragments sandstone. *Natural substrate.*	n/a	0.30m
6	601	Deposit	Dark brown organic soil with occasional angular stones evenly distributed throughout its matrix. *Topsoil.*	0.34m	0
	602	Deposit	Fragmented sandstone with red clay inclusions. *Natural substrate.*	n/a	0.34m
7	701	Deposit	Dark brown organic soil with occasional sub-angular stones evenly distributed throughout its matrix. *Topsoil*	0.35m	0
	702	Deposit	Fragmented sandstone with red clay inclusions.	n/a	0.35m

Trench	Context	Type	Description / Processual Interpretation	Thickness	Depth to top (BGL)
			Natural substrate.		
	703	Cut	Cut of land drain aligned NE/SW. Filled by (704) *Post-medieval land drain*	n/a	0.35m
	704	Deposit	Dark brown organic soil. Redeposited topsoil. Fill of [703]. *Fill of [703]*	n/a	0.35m
8	801	Deposit	Dark brown- grey organic soil. *Topsoil*	0.26m	0
	802	Deposit	Pink-grey sandy clay overlying sandstone bedrock *Natural substrate*	n/a	0.26m
9	901	Deposit	Dark brown-grey organic soil with rare sub-rounded stones evenly distributed throughout its matrix. *Topsoil*	0.34m	0
	902	Deposit	Pink-grey sandy clay overlying sandstone bedrock *Natural substrate*	n/a	0.34m
10	1001	Deposit	Dark brown-grey organic soil with rare sub-rounded stones evenly distributed throughout its matrix. *Topsoil*	0.36m	0
	1002	Deposit	Red-brown sandy clay overlying sandstone bedrock *Natural substrate*	n/a	0.36m
11	1101	Deposit	Dark brown- grey organic soil. *Topsoil*	0.22m	0
	1102	Deposit	Red-brown sand and clay.	n/a	0.22m

Trench	Context	Type	Description / Processual Interpretation	Thickness	Depth to top (BGL)
			Natural Substrate		
12	1201	Deposit	Dark brown- grey organic soil. *Topsoil*	0.28m	0
	1202	Deposit	Yellow-pink sand and clay. *Natural substrate*	n/a	0.28m
	1203	Cut	Cut of medieval furrow, aligned NW/SE. Filled by (1204) *Truncated remains of a furrow. Forms part of a Medieval ridge and furrow field system.*	0.28m	0.28m
	1204	Deposit	Brown-grey silty clay. *Fill of [1203]*	0.28m	0.28m
	1205	Cut	Cut of medieval furrow, aligned NW/SE. Filled by (1206) *Truncated remains of a furrow. Forms part of a Medieval ridge and furrow field system.*	0.09m	0.28m
	1206	Deposit	Brown-grey silt and clay. *Fill of [1203]*	0.09m	0.28m
	1207	Cut	Cut of medieval furrow, aligned NW/SE. Filled by (1204) *Truncated remains of a furrow. Forms part of a Medieval ridge and furrow field system.*	0.32m	0.28m
	1208	Deposit	Brown-grey silt and clay. *Fill of [1203]*	0.32m	0.28m
13	1301	Deposit	Dark brown organic soil with occasional sub-angular stones evenly distributed throughout its matrix. *Topsoil*	0.26m	0

Trench	Context	Type	Description / Processual Interpretation	Thickness	Depth to top (BGL)
	1302	Deposit	Pink-grey sand and clay *Natural Substrate*	n/a	0.36m
14	1401	Deposit	Dark brown organic soil with occasional sub-angular stones evenly distributed throughout its matrix. *Topsoil*	0.24m	o
	1402	Deposit	Yellow/brown sand and clay *Natural Substrate*	n/a	0.28m
	1403		Cut of medieval furrow, aligned NW/SE. Filled by (1404) *Truncated remains of a furrow. Forms part of a Medieval ridge and furrow field system.*	0.12m	0.28m
	1404		Brown-grey silt and clay. *Fill of [1403]*	0.12m	0.28m
	1405		Cut of medieval furrow, aligned NW/SE. Filled by (1406) *Truncated remains of a furrow. Forms part of a Medieval ridge and furrow field system.*	0.10m	0.28m
	1406		Brown-grey silty clay. *Fill of [1405]*	0.10m	0.28m
15	1501	Deposit	Dark grey-brown organic soil *Topsoil*	0.34m	0
	1502	Deposit	Brown-orange sand and clay *Natural Substrate*	n/a	0.34m
16	1601	Deposit	Dark grey-brown organic soil. *Topsoil*	0.35m	0

Trench	Context	Type	Description / Processual Interpretation	Thickness	Depth to top (BGL)
	1602	Deposit	Brown-orange sand and clay *Natural Substrate*	n/a	0.35m
	1603	Cut	Cut of probable animal burrow, aligned NE/SW. Filled by (1604) *Truncated remains of a probable animal burrow*.	0.22m	0.35m
	1604	Deposit	Brown-grey silt and clay. *Fill of [1603]*	0.22m	0.35m
	1605	Cut	Cut of medieval furrow, aligned NW/SE. Filled by (1606) *Truncated remains of a furrow. Forms part of a Medieval ridge and furrow field system.*	0.11m	0.35m
	1606	Fill	Brown-grey silt and clay. *Fill of [1605]*	0.11m	0.35m
	1607	Cut	Cut of medieval furrow, aligned NW/SE. Filled by (1608) *Truncated remains of a furrow. Forms part of a Medieval ridge and furrow field system.*	0.19m	0.35m
	1608	Fill	Brown-grey silt and clay. *Fill of [1607]*	0,.19m	0.35m

Table 3: Context Table

APPENDIX III: Written Scheme of Investigation

Land to the east of Longhoughton Quarry, Longhoughton, Northumberland

Written Scheme of Investigation for Archaeological Evaluation

The Eco Centre, Windmill Way, Hebburn, Tyne and Wear NE31 1SR
www.archaeologicalresearchservices.com

Prepared on behalf of:	Northumberland Estates
Date of compilation:	May 2018
Planning Reference:	18/01285/CCMEIA
Local Authority:	Northumberland County Council
Site central NGR:	NU 23579 15383

TABLE OF CONTENTS

1 INTRODUCTION

1.1 Archaeological Research Services Ltd (ARS Ltd) was commissioned by Northumberland Estates to undertake a scheme of evaluation trenching of land to the east of Longhoughton Quarry, Longhoughton in Northumberland. This is following the submission of an Environmental Statement (ES) which was submitted alongside a planning application for a proposed eastern extension of the quarry in April 2018. The proposed development area (PDA) is centred at NU 23579 15383 (Figure 1) and is *c.*20.36ha in area. However fieldwork is not required in the western area where there is a large quarry void and the central field where no ground disturbance is proposed. Since the preparation of the planning application, the crops within the PDA have been harvested, and this has allowed for a geophysical survey to be undertaken across an area of *c.*4.5 ha (Figure 2), the remainder being unsuitable for survey due to the presence of dense vegetation. The results of the geophysical survey have informed the locations of the evaluation trenches detailed in this WSI, in consultation the Assistant County Archaeologist.

1.2 The underlying solid geology of the north-western part of the PDA comprises Quartz-Microgabbro of *Great Whin Sill*, to the south-east of this is a band of Limestone, Sandstone, Siltstone and Mudstone of the *Alston Formation*, and there is a further band of Limestone of the *Great Limestone Member* immediately south-east of this. The whole of the eastern side of the PDA comprises Mudstone, Sandstone and Limestone of the *Stainmore Formation* covered with a superficial deposit of Devensian Till (British Geological Survey 2017).

1.3 This document comprises a Written Scheme of Investigation (WSI) confirming the methodologies for a scheme of evaluation trenching to be undertaken by ARS Ltd in accordance with guidance from Nick Best, Assistant County Archaeologist, Northumberland County Council.

1.4 The archaeological works will be carried out in accordance with the National Planning Policy Framework (NPPF) paragraph 128 (DCLG 2012), where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

2 ARCHAEOLOGICAL BACKGROUND

2.1 Initial data collection undertaken during the production of the ES chapter for a 1km study area surrounding the PDA identified a total of 30 heritage assets which are recorded on the Northumberland HER, 21 of which comprise Listed Buildings, but no heritage assets are currently recorded within the PDA itself (Brown 2017). In addition, the NRHE contains 12 entries within the 1km study area, four of which are assets also recorded on the NHLE, and eight of which correspond with entries on the HER. Evaluation trenching recently undertaken as part of an assessment of a proposed new aggregate recycling centre immediately to the west of the PDA

located the remains of probable post-medieval walls, along with a ditch and pit of unknown date (Cockcroft 2017).

2.2 Since the Planning Application and Environmental Statement were submitted in 2017, the harvesting of a root crop within the PDA has enabled a geophysical survey to be undertaken. The results of the geophysical survey appear to be strongly influenced by the underlying geology and pedology. The results identified a number of anomalies of probable and possible archaeological origin. Of most interest are two groups of anomalies in the north and south of field 1 (the northern surveyed area) and two groups of anomalies towards the centre of field 2 (the eastern surveyed area), all of which are considered to have moderate potential to be of archaeological interest.

3 AIMS AND OBJECTIVES

3.1 Regional Research Aims and Objectives

3.1.1 Research objectives identified in North-East Regional Framework for the late Bronze Age and Iron Age (Petts and Gerrard 2006, 136), Roman period (Petts and Gerrard 2006, 145-6), later medieval period (Petts and Gerrard 2006, 170) and post-medieval period (Petts and Gerrard 2006, 181) considered to be the most relevant to the project include the following.

- I2 Changing landscapes.
- R1 Landscape survey.
- MDii Landscape.
- PM5 Landscapes and mansions of the 18th century.

3.2 Evaluation Aims and Objectives

3.2.1 The aim of the programme of archaeological evaluation is to recover and record through excavation any potential archaeological remains that may be encountered prior to the proposed development taking place.

3.2.2 The objectives of the programme of archaeological investigation are as follows.

- To identify the presence/ absence of archaeological features and deposits within the site, particularly in relation to potential features identified in the geophysical survey.
- To record all archaeological features and deposits encountered.
- To sample sufficient of the archaeological features and deposits to establish relative sequence, likely dating and quality of preservation.
- To gather sufficient information to establish the character, extent, form, function and likely status of any surviving archaeological deposits with a view to evaluating their significance.

3.2.3 Achieving these objectives will involve a phased programme of investigation as follows.

- Targeted trenching to confirm the origin of the potential archaeological features identified in the geophysical survey.
- Further mitigation excavation work should significant archaeological remains be encountered.
- On completion of the on-site archaeological works, post-excavation analysis, reporting, publication and archiving to be carried out.

4 EVALUATION TRENCHING

4.1 Coverage and mitigation fieldwork

4.1.1 It has been agreed with NCC's Assistant County Archaeologist that a 3% sample of the area covered by the geophysical survey will be targeted by trial trenches, and if no significant archaeological remains are encountered then no further monitoring would be required. However, there will be a requirement for up to 2% of contingency trenching should the nature and extent of any archaeological remains identified need clarification. Such a contingency allowance will be agreed in consultation with the Assistant County Archaeologist for Northumberland County Council and the Client before implementation.

4.1.2 The evaluation will comprise the excavation of 12 no. 2m by 50m trenches, and 4 no. 2m by 25m trenches, as illustrated on Figure 3. This provides a 3.1% sample of the area that was suitable for geophysical survey (*c.*4.51 ha) as depicted on Figure 2.

4.1.3 The field located in between the two survey areas has not been subject to any fieldwork requirements as there will be no ground disturbance within this area, although a pipe will run across the surface of the field which will feed into the balancing pond (Nick Beale, Wardell Armstrong *pers. comm.)*.

4.1.4 The rationale behind the location of each of the trenches is set out below:

- Trench 1 (50m by 2m) – to evaluate an area of possible ridge and furrow and an apparently 'blank' area.
- Trench 2 (50m by 2m) – to evaluate the possible western (anomaly 7) and eastern (anomaly 9) sides of an enclosure.
- Trench 3 (25m by 2m) – to evaluate the possible southern side of an enclosure (anomaly 6).
- Trench 4 (25m by 2m) - to evaluate the possible southern side of an enclosure (anomaly 6).
- Trench 5 (50m by 2m) – to evaluate a cluster of features of possible archaeological origin (anomaly group 10)

- Trench 6 (50m by 2m) – to evaluate a cluster of anomalies (anomaly group 11) interpreted as being probably of modern origin, being associated with an adjacent quarry void.
- Trench 7 (25m by 2m) – to evaluate two possible pits (anomalies 15 and 16).
- Trench 8 (50m by 2m) – to evaluate a cluster of possible archaeological features (anomaly group 5) and an extremely strong negative anomaly (3) that surrounds a broad positive anomaly (4) thought to be of likely natural origin.
- Trench 9 (50m by 2m) – to evaluate an apparently blank area and a cluster of probable geological or possible archaeological feature.
- Trench 10 (50m by 2m) - to evaluate an apparently blank area and a cluster of probable geological or possible archaeological features.
- Trench 11 (50m by 2m) – to evaluate a cluster of probable geological or possible archaeological features, and an area of probable ridge and furrow.
- Trench 12 (50m by 2m) - to evaluate a cluster of probable geological or possible archaeological features
- Trench 13 (50m by 2m) - to evaluate a cluster of probable geological or possible archaeological features, and a cluster of feature of possible archaeological interest (anomaly group 2).
- Trench 14 (50m by 2m) - to evaluate a cluster of probable geological or possible archaeological features, and a cluster of feature of possible archaeological interest (anomaly group 2).
- Trench 15 (25m by 2m) - to evaluate an apparently 'blank' area and a cluster of feature of possible archaeological interest (anomaly group 2).
- Trench 16 (50m by 2m) – to evaluate an apparently blank area.

4.1.5 Any proposed changes to the evaluation trench locations previously agreed upon will be discussed with the Assistant County Archaeologist for Northumberland County Council prior to implementation. The trenches will also be excavated intelligently, i.e. so that if a discrete feature such as a grave cut was to extend beyond the trench, then the trench would be extended to reveal the whole of the feature.

4.1.6 Depending on the results of the trenching further phase(s) of archaeological mitigation fieldwork in the form of either a controlled watching brief or strip/map/record, may be required which would need to be the subject of an addendum to this WSI or a separate WSI.

4.2 Methodologyn

4.2.1 A programme of evaluation trenching will evaluate the likely impacts on any buried archaeological remains of the proposed development. The size and location of the trenches has been agreed with the Assistant County Archaeologist for Northumberland County Council (see section 4.1 above).

4.2.2 Any proposed changes in the siting of the evaluation trenches will be discussed and agreed with the Assistant County Archaeologist for Northumberland County Council.

4.2.3 All site operations will be carried out in a safe manner in accordance with ARS Ltd's health and safety policy. Deep sections such as those across ditches or pits will be shored as necessary. A risk assessment will be prepared before commencement on site.

4.2.4 All elements of the archaeological evaluation will be carried out in accordance with the CIfA *CoderofrConduct* (CIfA 2014a) and *StandardrandrGuidancer forranrArchaeologicalrFieldrEvaluationr*(CIfA 2014c).*r*

4.2.5 Hard standing, un-stratified modern material will be removed mechanically by a machine using a toothless ditching bucket, under continuous archaeological supervision. The recent overburden will be removed down to the first significant archaeological horizon in successive level spits. No machinery will track over areas that have previously been stripped until the area has been signed off by ARS Ltd.

4.2.6 The trenches will be cleaned by hand sufficiently to allow the identification and planning of archaeological features.

4.2.7 All identified archaeological features will be sufficiently sampled by hand excavation to allow their date, nature and degree of survival to be ascertained. All features thus investigated will be recorded in plan and section and all finds recovered retained for analysis.

4.2.8 Site recording will follow standard conventions outlined in the *SiterRecordingr Manual* of Museum of London Archaeology (MoLAS) (2002).

4.2.9 For sealed and stratigraphically secure deposits that have the potential to provide environmental evidence relating to diet and economy, dating evidence or landuse regime, a minimum of 40 litres of sample will be taken, or 100% of the sample if smaller.

4.2.10 In the case of waterlogged or anaerobic deposits a minimum sample size of 20L will be taken.

4.2.11 Should a sequence of superimposed deposits of note be present column sampling may be considered.

4.2.12 In all instances sampling strategies will be in accordance with guidelines issued by Historic England's *EnvironmentalrArchaeology:rArGuidertortheirTheoryrandr PracticerMethods,rfromrsamplingrandrrecoveryrtorpostrexcavation* (Campbell *etral*. 2011).

4.2.13 Should other types of environmental deposits be encountered, appropriate specialist advice will be sought and an appropriate sampling strategy devised. Samples will be assessed by a suitable specialist with provision for further analysis as required. Advice from the Historic England Scientific Advisor will be taken as appropriate.

542.14 Should hearths, kilns, or ovens, be encountered during the evaluation provision will be made to collect one archaeo-magnetic date to be calculated from each individual hearth surface (or in the case of domestic dwelling sites a minimum of one per building identified).

4.2.15 In such event samples will be collected from the site and processed by a suitably trained specialist for dating purposes and at point of discovery, the Assistant County Archaeologist for Northumberland County Council will be contacted to discuss the appropriate response. The appropriate sampling strategy will also be discussed in advance of samples being taken with Historic England.

4.2.16 Any human remains encountered will initially be left *in-situ* and, if deemed necessary, removal entailing the excavation of the entire burial will be undertaken once a Coroners licence has been obtained, in accordance with the relevant Ministry of Justice regulations. Excavation of human remains will follow discussion with the Assistant County Archaeologist for Northumberland County Council.

4.2.17 Finds of "treasure" will be reported to the Coroner in accordance with the Treasure Act (DCMS 2008). The Portable Antiquities Scheme Finds Liaison Officer will also be notified.

Coroner
17 Church Street
Berwick-Upon-Tweed
Northumberland
TC15 1EE
Tel No: 01289 304318

Finds Liaison Officer
Archaeology Section
Durham County Council
County Hall
Durham
DH1 5UQ
Tel No: 03000 267 011

4.2.18 The Assistant County Archaeologist for Northumberland County Council will also be notified and, if necessary, a site meeting arranged to determine if further investigation in the vicinity of the find spot is required.

4.2.19 All stratified finds will be collected by context or, where appropriate, individually recorded in 3 dimensions.

4.2.20 Unstratified finds of intrinsic value or which contribute to the project objectives will be collected. All pottery of 19th century or earlier will be retained, whether stratified or un-stratified.

4.2.21 All finds processing, conservation work and storage of finds will be carried out in compliance with the CIfA *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (2014d).

4.2.22 Artefact collection and discard policies will be appropriate for the defined purpose.

4.2.23 Bulk finds which are not discarded will be washed and, with the exception of animal bone, marked. Marking and labelling will be indelible and irremovable by abrasion. Bulk finds will be appropriately bagged, boxed and recorded. This process will be carried out no later than two months after the end of the excavation.

4.2.24 All small finds will be recorded as individual items and appropriately packaged (e.g. lithics in self-sealing plastic bags and ceramic in acid-free tissue paper). Vulnerable objects will be specially packaged and textile, painted glass and coins stored in appropriate specialist systems. This process will be carried out within two days of the small find being excavated.

4.2.25 All retained artefacts and ecofacts will be cleaned and packaged in accordance with the requirements of the recipient museum.

4.2.26 During and after the evaluation all objects will be stored in appropriate materials and storage conditions to ensure minimal deterioration and loss of information (including controlled storage, correct packaging, and regular monitoring, immediate selection for conservation of vulnerable material). All storage will have appropriate security provision.

4.2.27 The deposition and disposal of artefacts will be agreed with the legal owner and the repository for the archive prior to the work taking place.

4.3 Recordingn

4.3.1 The site and evaluation trenches will be tied into the National Grid and located on a 1:2500 or 1:1250 map of the area. The site will be recorded in accordance with the ARS Ltd. field recording manual.

4.3.2 The trenches will be planned at an appropriate scale; 1:20 where complex deposits are present or 1:50 in areas of lesser complexity (to be omitted if the trench is completely blank). One representative long section of the trench will be produced, at an appropriate scale, if necessary. Sections and profiles of each feature identified will be drawn at 1:10 or 1:20, depending on the size of the feature. Spot levels relative to ordnance datum in metres will be taken as appropriate.

4.3.3 For brick structures the record will include details of brick dimensions and type (handmade/machine-made, plain/frogged), mortar (colour, composition, hardness) and the extent of structures (number of courses, thickness in skins). Brick samples will be taken for structures likely to pre-date the mid-19th century.

4.3.4 A full and proper record (written, graphic and photographic as appropriate) will be made for all work, using pre-printed record sheets with text descriptions appropriate to the work.

4.3.5 A stratigraphy of the site will be recorded even where no archaeological deposits have been identified.

4.3.6 The heights above sea level will be recorded for all deposits and features in metres above Ordnance Datum (aOD).

4.3.7 A full photographic record will be maintained including photographs of all significant features and overall photographs of the trench. All images will be taken in high resolution colour digital format (minimum 7.1 megapixels). A supplementary record of working images will be taken to demonstrate how the site was investigated and what the prevailing conditions were like during excavation.

4.3. A stratigraphic matrix will be compiled for all trenches where superimposed archaeological deposits, features or structures are encountered.

4.4 Finds Processing and Storage

4.4.1 All finds processing, conservation work and storage of finds will be carried out in accordance with the CIfA (2014e) *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* and the UKIC (1990) *Guidelines for the Preparation of Archives for Long-Term Storage.*

4.4.2 Artefact collection and discard policies will be appropriate for the defined purpose.

4.4.3 Bulk finds which are not discarded will be washed and, with the exception of animal bone, marked. Marking and labelling will be indelible and irremovable by abrasion. Bulk finds will be appropriately bagged, boxed and recorded. This process will be carried out no later than two months after the end of the excavation.

4.4.4 All small finds will be recorded as individual items and appropriately packaged (e.g. lithics in self-sealing plastic bags and ceramic in acid-free tissue paper). Vulnerable objects will be specially packaged and textile, painted glass and coins stored in appropriate specialist systems. This process will be carried out within two days of the small find being excavated.

4.4.5 During and after the excavation all objects will be stored in appropriate materials and storage conditions to ensure minimal deterioration and loss of information (including controlled storage, correct packaging, and regular monitoring, immediate selection for conservation of vulnerable material). All storage will have appropriate security provision.

4.4.6 The deposition and disposal of artefacts will be agreed with the legal owner and the recipient museum prior to the work taking place. All finds except treasure trove are the property of the landowner.

4.4.7 All retained artefacts and ecofacts will be cleaned and packaged in accordance with the requirements of the recipient museum

4.5 Report

4.5.1 Following completion of the evaluation, ARS Ltd will produce a report which will be submitted to the local authority for approval no later than 6 months following completion of the fieldwork, which will include:

- Non-technical summary
- Introductory statement to include
  - Planning application number,
  - Northumberland Conservation reference,
  - OASIS reference number, Archive reference and an eight figure grid reference
- Aims and purpose of the project
- Methodology

- A location plan showing all excavated areas and any archaeological features with respect to nearby fixed structures and roads
- Illustrations of all archaeological features with appropriately scaled hachured plans and sections
- An narrative summary of results
- Conclusions
- Supporting data – tabulated or in appendices to include:
  - Specialist Reports
  - Structural and Stratigraphic details including context summary tables with depths aOD and BGS
- Index to archive and details of archive location
- References
- Statement of intent regarding publication
- Confirmation of archive transfer arrangements
- A copy of the OASIS form
- A copy of the Northumberland County Councils "check list".

4.5.2 Within the report:

- All plans will be clearly related to the national grid.
- All levels will be quoted relative to ordnance datum.
- 9.3 If significant archaeological remains are identified the report will include:
- Detailed description and plans (at 1:50 scale) of any areas which provided significant archaeological information, all feature plans and sections (at 1:10 or 1:20 scale), select artefact illustrations, photographs and an overall site plan showing all recorded archaeological features.
- Finds quantification and assessment.
- Assessment of any palaeo-environmental samples taken.
- A summary of the extent, depth and state of preservation of archaeological deposits across the site.

4.5.3 One bound copy of the final report with a digital copy of the report in PDF/A format on disk will be deposited with the Northumberland Historic Environment Record (HER). A copy of the report should be uploaded as part of the OASIS record.

4.6 ArchiveDepositionn

4.6.1 No later than six weeks after completion of the evaluation a digital, paper and artefactual archive, which will consist of all primary written documents, plans, sections, photographs and electronic data will be submitted in a format agreed in

discussion with the Assistant County Archaeologist for Northumberland County Council and the museum curator. The Digital archive will be supplied to ADS and photographs will be supplied in uncompressed baseline TIFF format.

4.6.2 All artefacts and associated material will be cleaned, recorded, properly stored and deposited in the archive.

4.6.3 The Assistant County Archaeologist for Northumberland County Council will be notified on completion of fieldwork, with a timetable for reporting and archive deposition.

4.6.4 Written confirmation of the archive transfer arrangements, including a date (confirmed or projected) for the transfer, will be included as part of the final report.

4.6.5 At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form will be completed for submission to the HER. This will include an uploaded .pdf version of the entire report (a paper copy will also be included within the archive).

4.6.6 The Assistant County Archaeologist for Northumberland County Council will be notified of the final deposition of the archive.

5 MONITORING ARRANGEMENTS

5.1 Archaeological Research Services Ltd will give no less than 5 working days' notice to the Assistant County Archaeologist prior to the commencement of the evaluation.

Nick Best
Assistant County Archaeologist
Northumberland Conservation
Development Services
Northumberland County Council
County Hall
Morpeth
NE61 2EF
Tel: 01670 622657.

5.2 ARS Ltd will liaise with the Assistant County Archaeologist for Northumberland County Council at regular intervals throughout the course of the work.

5.3 The client will afford reasonable access to the Assistant County Archaeologist for Northumberland County Council, or their representative, for the purposes of monitoring the archaeological mitigation

6 TIMETABLE, STAFFING AND RESOURCES

6.1 The outline timetable for the works is as follows. This will be updated by email as the project progresses.

Proposed Commencement Date	Task
Early June 2018 (TBC)	Archaeological Excavation
June-August 2018	Finds processing, report and archiving

6.2 The Project Manager for the fieldwork will be Reuben Thorpe, MCIfA, Projects Manager at ARS Ltd. The Project Officer for the evaluation trenching will be Dr David Cockcroft, Assistant Project Officer at ARS Ltd.

6.3 Finds analysis will be carried out by appropriately qualified specialists as detailed subject to availability.

- Flint and prehistoric pottery: Dr Robin Holgate MCIfA/Dr Clive Waddington MCIfA
- Romano-British pottery: Ian Rowlandson/Paul Bidwell
- Samian ware: Dr Gwladys Monteil
- Romano-British small finds Lindsay Allason-Jones MCIfA
- Medieval and post-medieval pottery: Dr Chris Cumberpatch/Dr Robin Holgate MCIfA
- Medieval and post-medieval glass, metalwork and clay pipes: Mike Wood MCIfA
- Plant macrofossils and charcoals: Luke Parker
- Human and animal bone: Milena Grzybowska
- Radiocarbon dating: Prof Gordon Cook (SUERC)
- Finds conservation: Vicky Garlick (Durham University)

7 GENERAL ITEMS

7.1 Health and Safety

7.1.1 All work will be carried out in accordance with The Health and Safety at Work Act 1974. Specific health and safety policies exist for all out workplaces and all staff employed will be made aware of the policy and any relevant issues. The particular risks involved with this project will be assessed, recorded and relevant mitigation measures put in place as part of a full risk assessment, which will be compiled in advance of fieldwork. ARS Ltd retains Citation as its expert health and safety consultants.

7.2 Insurance Cover

7.2.1 ARS Ltd has full insurance cover for employee liability (£10 million) public liability (£5 million), professional indemnity (£2 million) and all-risks cover.

7.3 Changes to the Written Scheme of Investigation

7.3.1 Changes to the approved methodology or programme of works will only be made with prior written approval of the Assistant County Archaeologist for Northumberland County Council.

7.4 Community Engagement and Outreach

7.4.1 Any opportunities for engaging the local community in any archaeological findings should be sought, for example a guided site tour and/or dissemination of information via ARS Ltd's website and local media.

7.5 Publication

7.5.1 If significant archaeological remains are recorded, a summary of the project with, if appropriate, selected drawings, illustrations and photographs will be prepared for publication in online, journal or monograph form as appropriate. A summary should also be prepared for *Archaeology in Northumberland* and submitted to the Northumberland HER Officer, by December of the year in which the work is completed. Additional popular articles will also be produced for local and/or national magazines as appropriate. The final form of the publication is to be agreed with the planning archaeologist and the client dependent on the results of the fieldwork

7.6 Publicity and Copyright

7.6.1 Any publicity will be handled by the client. ARS Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988). Licence will be granted for the HER to use the report which may include partial dissemination to others.

8 REFERENCES

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10 FIGURESn

Site name:	Longhoughton Quarry
Date:	November 2017
Drawn by:	AB
Scale:	Varies

Northumberland

Application boundary

N

Figure 1:
Site location

Archaeological Research Services Ltd

Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Tel: 01629 814540

www.archaeologicalresearchservices.com

Site name: Longhoughton Quarry
Date: May 2018
Drawn by: AB
Scale: 1:5000 @ A4

Application boundary

Geophysical survey area

N

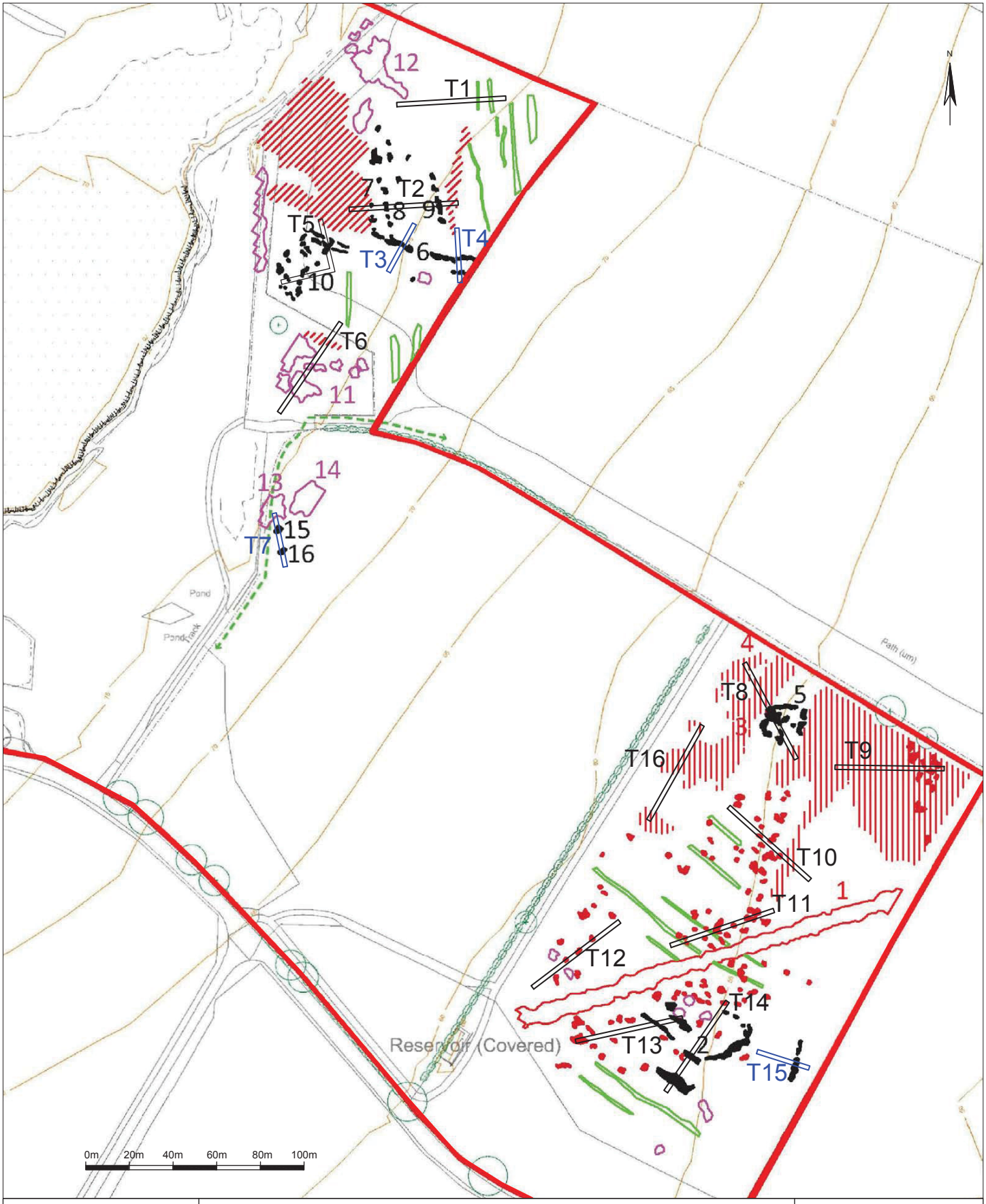
Figure 2:
Geophysical survey coverage

Archaeological Research Services Ltd

Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Tel: 0114 2750140

www.archaeologicalresearchservices.com



Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Evaluation trenches

Key:
- Proposed development area (PDA)
- 50m x 2m evaluation trench
- 25m x 2m evaluation trench

Site Code: Longhoughton
Drawing Ref: Figure 3
Date: May 2018
Drawn: RD
Scale: As shown

APPENDIX IV: OASIS

OASIS DATA COLLECTION FORM: England

Printable version

OASIS ID: archaeol5-334295

Project details

Project name	An Archaeological Evaluation on land east of Longhoughton Quarry Northumberland
Short description of the project	In 2018 Archaeological Research Services Ltd (ARS Ltd) was commissioned by Northumberland Estates to undertake an archaeological evaluation on land east of Longhoughton Quarry, Northumberland. The archaeological evaluation, which was undertaken as part of a phased plan of archaeological works, followed an earlier geophysical survey and comprised the excavation of 16 trial trenches. All archaeological works were undertaken in advance of planning application (18/01285/CCMEIA) for the lateral extension of the current quarry extraction area. Evaluation trenches targeted a possible rectilinear enclosure and associated features in the north-west of the proposed development area identified from geophysical survey. Additional trenches targeted possible archaeological features toward the south-western extent of the site.
Project dates	Start: 29-10-2018 End: 07-11-2018
Previous/future work	Yes / Not known
Any associated project reference codes	18/01285/CCMEIA - Planning Application No.
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 1 - Minimal cultivation
Monument type	RIDGE AND FURROW Medieval
Significant Finds	N/A None
Methods & techniques	"Targeted Trenches"
Development type	Mineral extraction (e.g. sand, gravel, stone, coal, ore, etc.)
Prompt	Direction from Local Planning Authority - PPG16
Position in the planning process	Not known / Not recorded

Project location

Country	England
Site location	NORTHUMBERLAND ALNWICK LONGHOUGHTON Longhoughton Quarry
Study area	20.36 Hectares
Site coordinates	NU 23798 15226 55.430329661327 -1.623900425483 55 25 49 N 001 37 26 W Point

Project creators

Name of	Archaeological Research Services Ltd

Organisation	
Project brief originator	Archaeological Research Services Ltd
Project design originator	Archaeological Research Services Ltd
Project director/manager	Rupert Lotherington
Project supervisor	Michael Nicholson
Type of sponsor/funding body	developer

Project archives

Physical Archive Exists?	No
Digital Archive recipient	Great North Museum
Digital Contents	"none"
Digital Media available	"GIS","Images raster / digital photography","Text"
Paper Archive recipient	Great North Museum
Paper Contents	"none"
Paper Media available	"Context sheet","Report"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	An Archaeological Evaluation on land east of Longhoughton Quarry Northumberland
Author(s)/Editor(s)	Michael Nicholson
Other bibliographic details	2018/205
Date	2018
Issuer or publisher	Archaeological Research Services Ltd
Place of issue or publication	Hebburn
Description	PDF

Entered by	Michael Nicholson (michael@archaeologicalresearchservices.com)
Entered on	20 November 2018

OASIS:

Please e-mail Historic England for OASIS help and advice