Bronze Age Barrows Iron Age, Roman, medieval and later activity on the route of the proposed Chelmsford Effluent Pipeline, Essex

Archaeological Evaluation Report

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Client: Northumbrian Water

OA East Report No: 1504
NGR: TL 74566 07917 to TL 82725 08795

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Bronze Age Barrows, Iron Age, Roman, medieval and later activity on the route of the proposed Chelmsford effluent pipeline, Essex

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Summary

Between 3rd June and 25th June 2013, OA East carried out an archaeological evaluation along the proposed route of the Chelmsford Effluent pipeline. This runs from near Chelmer village (TL 74566 07917) to Langford (TL 82725 08795), Essex. A total of 50 trenches, of various lengths, were excavated. This evaluation followed on from a desk based assessment and an aerial photographic survey of the proposed route. The trenches targeted cropmarks shown on the aerial survey, as well as areas where no features were shown.

At the western end of the pipeline Late Iron Age and Roman activity was found, including ditches and pits containing pottery. A few sherds of Saxon pottery suggest the continuation of activity in this area. At the eastern end of the pipeline at least two ploughed-out Bronze Age barrows were evaluated, one of which contained a minimum of six cremations, three of these were in truncated vessels. Elsewhere along the route several ditches were excavated. These were Iron Age, Roman and later in date.

1 INTRODUCTION

1.1 Location and scope of work

1.1.1 An archaeological evaluation was conducted along the route of a proposed effluent pipeline, continuing from near Chelmsford (TL 74566 07917) to Langford (TL 82725 08795) in Essex.

1.1.2 This archaeological evaluation was undertaken in accordance with a Brief issued by Essex County Council (ECC) supplemented by a Written Scheme of Investigation prepared by Mott MacDonald and a method statement prepared by OA East.

1.1.3 The work was designed to assist in defining the character and extent of any archaeological remains within the proposed redevelopment area, in accordance with the guidelines set out in *National Planning Policy Framework* (Department for Communities and Local Government March 2012). The results will enable decisions to be made by ECC, on behalf of the Local Planning Authority, with regard to the treatment of any archaeological remains found.

1.1.4 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

1.2 Geology and topography

1.2.1 The following text is taken from Mott MacDonald (2012a, 7). The British Geological Survey Map shows the site is located on bedrock geology comprising London Clay Formation clay, silt and sand overlain by various superficial deposits. Alluvium comprising clay, silt, sand and gravel is present along the Chelmer and Ter Valleys and is surrounded by River Terrace Deposits 1 –sand and gravel, River Terrace Deposits 2 – sand and gravel. Head deposits of silt, sand and gravel are located to the south of Springfield and Boreham as well as to the west of the River Ter, and to the south-east of Nounsley. The superficial deposit to the south of the River Chelmer, around Little Baddow, is mid Pleistocene, glaciofluvial sand and gravel. Tidal Flat deposits are present to the north-west of Maldon, at the end of the Blackwater Estuary. Pockets, sometimes large, of brickearth are present to the east of Boreham and south-east of Nounsley. Detailed descriptions of the local geology and ground conditions are presented in the geotechnical report for the study area (Mott MacDonald 2011).

1.2.2 The proposed new pipeline route is situated on the northern side of the Chelmer Valley between Chelmsford and Maldon/Heybridge. The land surrounding Brookend Sewage Treatment Works lies between the 15m and 20m AOD contours and rises to the west. The remainder of the new pipeline is proposed on land between 5m and 20m AOD along the northern floodplain and valley side of the River Chelmer, with the exception of the eastern end which is situated on land lying lower than 5m AOD. The existing pipeline is situated much closer to the river channel and therefore lies at an average 5m AOD throughout.

1.2.3 The site runs through the Chelmer and Blackwater Navigation Conservation Area which crosses from Chelmsford Borough Council in the west to Maldon District Council in the east. A high number of listed buildings and industrial sites associated with the Chelmer and Blackwater Navigation are located on both banks of the canalised river and several man-made feeder courses of historic significance run through the proposed pipeline route towards the Chelmer.

1.2.4 The Chelmer Valley is an area of high archaeological potential with evidence for human activity from the early prehistoric period onwards. This will be discussed in more detail below.

1.3 Archaeological and historical background

1.3.1 A full desk based assessment and aerial photographic survey have previously been carried out (Mott MacDonald 2012a, 2012b). These highlighted the area as containing significant archaeology, particularly of prehistoric date. The summary from the desk based assessment (Mott MacDonald 2012a) is given below:

1.3.2 The proposed pipeline will run through the largely rural landscape of the Chelmer Valley. Archaeological investigations in the area have revealed a number of important prehistoric sites, for example the Springfield Cursus, the causewayed enclosure at Springfield Lyons and the Scheduled Monument at Hoe Mill Barns. Aerial photographs have revealed a plethora of cropmarks along the proposed route, including ring ditches and barrows of probable prehistoric date, along the valley, with a topographic distinction between funerary monuments which have been located at levels below 20m AOD and settlement features above 20m AOD.

1.3.3 There are large gaps in the cropmark data and while the reasons for this are unknown, it is likely to be a combination of unsuitable crops/landuse at the time of capturing the photographs; underlying features being masked by alluvial build-up; and areas where either archaeological features do not survive or have never existed.

1.3.4 The two possible routes (following the existing pipeline or along a new route) have a high potential to contain prehistoric remains (dating in particular to the Bronze Age), medieval and post-medieval remains. There is a low potential for Roman and Saxon remains. The route following the existing pipeline will be laid at least 20m from the existing pipeline, and as such is likely to be outside the zone of ground disturbance from the construction of the original pipelines, however the land adjacent to the pipe trench will not have been disturbed and has a high potential to contain archaeological features. The new route runs through areas of recorded, though unexcavated, archaeological features and there is a high potential for the remainder of the route with no previously recorded features to contain well-preserved archaeological features and deposits.

1.4 Acknowledgements

1.4.1 The author would like to thank Mott MacDonald, who commissioned the work on behalf of Northumberland Water. The project was managed by James Drummond-Murray and directed by the author, with the assistance of Helen Stocks-Morgan. Excavation was carried out by Louise Bush, Andy Greef, Lindsey Kemp, Toby Knight, Pat Moan and Steve Morgan. Site survey was carried out by Pat Moan and Stuart Ladd.

2 AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The objective of this evaluation was to determine as far as reasonably possible the presence/absence, location, nature, extent, date, quality, condition and significance of any surviving archaeological deposits within the development area.

2.1.2 The specific aims given in the written scheme of investigation (Mott MacDonald 2013) were:

- Identify the date, approximate form and purpose of any archaeological deposit within the trenches, together with its likely extent, localised depth and quality of preservation;
- Target features identified through aerial photograph rectification;
- Evaluate the likely impact of past land uses, and the possible presence of masking colluvial/alluvial deposits;
- Establish the potential for the survival of environmental evidence and provide sufficient information to inform a mitigation strategy, should significant archaeological remains survive.

2.2 Methodology

2.2.1 A total of 50 trenches of varied length were excavated, although some had to be moved slightly from their intended position: Trench 9 was shortened slightly and moved away from a badger set, while trench 38 was moved east away from a beetle bank.

2.2.2 Machine excavation was carried out under constant archaeological supervision with a rubber tracked, 8 ton, 360^0 excavator using a toothless ditching bucket.

2.2.3 The site survey was carried out using a Leica 1200 GPS, with smartnet.

2.2.4 Spoil, exposed surfaces and features were scanned with a metal detector. All metal-detected and hand-collected finds were retained for inspection, other than those which were obviously modern.

2.2.5 All archaeological features and deposits were recorded using OA East's *pro-forma* sheets. Trench locations, plans and sections were recorded at appropriate scales and colour and monochrome photographs were taken of all relevant features and deposits.

2.2.6 Environmental samples were taken from a variety of archaeological and natural features, to assess the preservation and potential of environmental remains.

2.2.7 Site conditions were generally good, with bright sunshine for much of the time, although there were cloudy days and occasional rain showers, especially towards the end of the site work.

3 RESULTS

3.1 Introduction

3.1.1 The results are presented below by trench, with the trenches grouped into plots, as used across all aspects of the project by Essex and Suffolk Water. Descriptions of the geology encountered in each trench, along with topsoil and subsoil depths are given in appendix A. in addition, a context inventory is given in appendix B.

3.2 Trenches 1-11 (Plot 75)

3.2.1 Features of later Iron Age or Roman date were present in Trenches 1-9, many of theses ditches were previously visible as cropmarks. In addition, other ditches in this area were likely to be of post-medieval or modern date. Trench 10 was blank, while later medieval or early post-medieval activity was identified in trench 11.

Trench 1 (Fig. 2 and 2b)

3.2.2 Two ditches (**46** and **48**) were revealed in Trench 1. Ditch **46** was 1.56m wide and 0.65m deep, with steeply sloping sides and a concave base. It was filled by three deposits, the basal fill (45) was a pale yellowish grey, silty sand. This was overlain by 44, a mid reddish brown, silty sand. The upper fill (43), was a dark brownish grey, silty sand and was the only deposit to contain any finds. A single sherd (4g) of mid 1st to 2nd century AD pottery (App. D.3) came from this deposit. Ditch **46** appears to be part of a large enclosure ditch, shown as a cropmark on arieal photographs (Fig. 2b).

3.2.3 Ditch **48** was 1.70m wide and 0.26m deep, with gently sloping sides and a concave base. It was filled by a single deposit (47), which was a dark greyish brown, sandy silty, from which no finds were recovered. The darker deposit which filled Ditch **48** suggests it was potentially post medieval or modern in date.

3.2.4 In addition a single tree throw (**42**), containing no finds, was recorded in this trench. Tree throw **42** was 1.50m long, 0.90m wide and 0.24m deep. It was irregular in plan, with gently sloping sides and an uneven base. A single deposit (41) filled this feature and it was a pale brownish grey, silty sand.

Trench 2 (Fig. 2 and 2b)

3.2.5 Two inter-cutting pits (**20** and **22**) were excavated at the southern end of Trench 2, both continued byond the trench to the west. Pit **22** was cut by Pit **20**, it was greater than 0.20m wide, with a depth of 0.40m. It had steeply sloping sides, with a concave base and was filled by a single deposit (21), which contained no finds. Deposit 21 was a dark brownish grey, sandy silt.

3.2.6 Pit **20** was 1.20m wide and 0.40m deep, with steeply sloping sides and a flat base. It was filled by a single deposit (19), which was a dark brownish grey, sandy silt. Five sherds (93g) of mid 1st to 2nd century AD pottery (App. D.3) were recovered from this fill, along with two fragments (115g) of ceramic building material (App. D5). The building material is much later in date and is likely to be intrusive.

Trench 3 (Fig. 2 and 2b)

3.2.7 Three small, shallow postholes (**24**, **26**, **28**) formed a line at the western end of this trench, none contained any finds. They had diameters between 0.30m and 0.35m, with depths between 0.05m and 0.15m and were all sub-circular in plan, with concave

bases. Each was filled by a single deposit (23, 25, 27) which comprised dark orangey grey, sandy silts.

3.2.8 Another, larger posthole (**32**) was located against the northern limit of the trench, this had a diameter of 0.45m, with a depth of 0.25m. It was circular in plan, with steeply sloping sides and a flat base. A single deposit (31) filled this feature, it was a dark brownish grey, sandy silt and contained two sherds (13g) of mid 1st to 2nd century AD pottery (App. D.3).

3.2.9 Ditch **30** crossed the trench on an almost north-south alignment, it was 1.15m wide and 0.20m deep, with gently sloping sides and a flat base. Ditch **30** corresponds well with a cropmark shown on the aerial photographic survey (Fig. 2b). It was filled by a single deposit (29), which was a dark orangey grey, sandy silt, that contained no finds.

3.2.10 Ditch **38** was located at the eastern end of the trench, and also matched a north-south aligned ditch, shown on the aerial photographic survey (Fig. 2b). Ditch **38** was 1.30m wide and 0.60m deep, with steeply sloping sides and a concave base. It was filled by a single deposit (37), which was a dark greyish brown, sandy silt. The only finds from this feature were two fragments (98g) of ceramic building material (App. D.5).

3.2.11 Ditch **36** was located just to the west of Ditch **38** and passed through the trench on a north-west to south-east alignment. Ditch **36** was greater then 0.60m wide and was 0.20m deep, with gently sloping sides and a flat base. It was filled by 35, a mid grey, sandy silt which contained no finds.

3.2.12 Ditch **34** was perpendicular to Ditch **36**, although it was smaller, with a width of 0.40m and a depth of 0.06m. Ditch **34** had gently sloping sides and a concave base. It was filled by a single deposit (33), which was a mid grey, sandy silt, which contained no finds.

3.2.13 Ditch **40**, cut both ditches **36** and **34**, and was on the same orientation and adjacent to Ditch **36**. Ditch **40** was 1.40m wide and 0.35m deep, with steeply sloping sides and a flat base. This feature contained a single fill (39), which was a mid grey, sandy silt, from which no finds were recovered.

Trench 4 (Fig. 2 and 2c)

3.2.14 A single undated ditch (**170**) was recorded in this trench, which was on a north-east to south-west alignment. It was 1.18m wide and 0.30m deep, with steeply sloping sides and a flat base. Deposit 169 filled this features and this was a dark whitish grey, sandy silt, from which no finds were recovered.

3.2.15 In addition a test pit was dug to investigate a silty layer (171) covering much of the trench, this layer contained no finds and was cut by Ditch **170**. Deposit 171 was a pale grey, sandy silt.

Trench 5 (Fig. 2 and 2c)

3.2.16 Ditches **10** and **12** both crossed Trench 5 on a similar north-south orientation. Ditch **12** was 1.30m wide and 0.13m deep, with gently sloping sides and a flat base. It was filled by a single deposit (11), which was a pale greyish brown, silty sand. No finds were recovered from this feature.

3.2.17 Ditch **10** cut Ditch **12** and was 1.28m wide, with a depth of 0.16m. It had gently sloping sides, with a flat base and was filled by deposit 9, a mid greyish brown, silty sand. Two sherds (40g) of Saxon pottery (App. D.2) were recovered from this feature.

Trench 6 (Fig. 2 and 2c)

3.2.18 Two parallel ditches (**6**, **8**) crossed Trench 6 on a similar north-south alignment. Ditch **8** was 1,16m wide and 0.30m deep, with gently sloping sides and a concave base. A single deposit (7) filled this feature, which was a mid brownish grey, sandy silt. Ditch **8** contained no finds, but the paler fill it contained suggests it was possibly of Saxon or earlier date.

3.2.19 Ditch **6** was 1.40m wide and 0.59m deep, with a concave base and steeply sloping sides. Deposit 5 filled this feature, it was a dark brownish grey, sandy silt. It also contained no finds, but the darker deposit filling it and the fact it cut the subsoil, suggest that is is likely to be of post-medieval or modern date.

Trench 7 (Fig. 2)

3.2.20 No archaeological features were identified within this trench. However, a thin spread of silty material (15) was present, this was investigated by a hand dug sondage. Deposit 15 was a pale greyish brown, sandy silt. Three fragments (14g) of Late Bronze Age pottery, along with a single fragment (31g) of Early Bronze Age pottery (App. D.2), were recovered from the surface of this deposit.

Trench 8 (Fig. 2)

3.2.21 A single posthole (**18**), which contained no finds, was located at the northern end of this trench. Posthole **18** was circular in plan,with steeply sloping sides and a flat base. A single deposit (17) filled this posthole and it was a dark greyish brown, sandy silt. An environmental sample taken from this feature produced only moderate charcoal (App. E).

3.2.22 In addition, a similar layer (16) to that seen in Trench 7 was identified, this contained no finds.

Trench 9 (Fig. 2)

3.2.23 Two ditches (**2**, **4**) were recorded in this trench. Ditch **4** was 1.86m wide and 0.48m deep, with gently sloping sides and a concave base. It was filled by deposit 3, a dark greyish brown, sandy silt. The end of a shotgun cartridge and a single large fragment (1.126kg) of ceramic building material of 18th century date (App. D.5) were recovered from this fill.

3.2.24 Ditch **2** was on a west-north-west to east-south-east alignment and was 1.66m wide and 0.30m deep, with gently sloping sides and a flat base. It was filled by 1, a pale yellowish brown, silty sand. Ditch **2** contained a single sherd of pottery (8g) of Late Bronze Age date (App. D.2), together with a fragment of fired clay (46g), likely to be part of an oven/hearth lining (App. D.5).

Trench 10 (Fig. 2)

3.2.25 No archaeology was present in this trench.

Trench 11 (Fig. 2 and 2d)

3.2.26 Ditch **54** passed through Trench 11 on a north-east to south-west orientation. It was 2.30m wide and 0.70m deep, with steeply sloping sides and a flat base. Two deposits filled this ditch. The lower fill (53) was a dark blueish grey, silty clay. An environmental sample taken from this deposit produced fragments of waterlogged wood, along with seeds from bramble and stinging nettle (App. E). The upper fill (52) was a mid orangey

grey, silty clay, from which two sherds (27g) of mid 11th to 13th century pottery (App. D.4), together with 130g of animal bone, were recovered. In addition, a total of 1.581kg of ceramic building material, including brick, roof and ridge tile of late medieval date (App. D.5), was retrieved from this ditch.

3.2.27 A natural hollow (**51**), located at the southern end of the trench, was 0.52m deep and continued out of the trench on three sides. It was filled by two deposits, the lower of which (50) was a mid brownish grey, sandy silt, which contained no finds. The upper fill (49) was a mid brownish grey, sandy silt and six sherds (38g) of pottery of mid 11th to 13th century date (App. D.4) were recovered from this.

3.3 Trenches 12-17 (Plot 61)

3.3.1 The only features of archaeological interest in these trenches were three ditches, one of which contained struck flints, while another contained a small quantity of Roman pottery. These were located in Trenches 12 and 16. In addition, a furrow and the remains of a headland were recorded in Trench 17.

Trench 12 (Fig. 3)

3.3.2 Two perpendicular ditches (**55**, **57**) were located in Trench 12, both of which were shown on the aerial photograph survey. Ditch **57** was 1.50m wide and 0.30m deep, with gently sloping sides and a concave base. It was filled by a single deposit (58) which was a dark greyish brown, silty clay, which contained no finds.

3.3.3 Ditch **55** was located to the east of Ditch **57** was on a north-west to south-east alignment. It was 1.20m wide and 0.40m deep, with steeply sloping sides and a concave base. Deposit 56 filled this ditch and it was a mid greyish brown, silty clay. Two struck flints (App. D.1) were recovered from Ditch **55**.

Trenches 13, 14 and 15

3.3.4 No archaeological features were identified in any of these trenches.

Trench 16 (Fig. 3)

3.3.5 A single ditch (**59**) was found in this trench, on a north-east to south-west alignment. It was 0.60m wide and 0.22m deep, with steeply sloping sides and a concave base. Ditch **59** was filled by deposit 60, which was a mid brownish grey, silty clay. A small quantity of late 12th to 14th century pottery (2 sherds; 6g), along with a tiny piece (2g) of slag, were recovered from this ditch.

Trench 17 (Fig. 3)

3.3.6 A single furrow (**64**) was recorded in this trench, on a north-north-west to south-south-east orientation, parallel to the current field boundary. Furrow **64** was 1.70m wide and 0.24m deep, with gently sloping sides and a flat base. It was filled by two deposits, the lower of which (65) was a mid brownish grey clayey silt. The upper fill (66) was a dark brownish grey, clayey silt. No finds were recovered from either of these fills.

3.3.7 The subsoil (63) thickness increased at the eastern end of the trench and this almost certainly represents a medieval or post-medieval headland.

3.4 Trenches 18-22 (Plot 62)

3.4.1 A total of three ditches were identified in these trenches, one of these is probably modern, while another may be post-medieval. The third ditch, located in Trench 22, contained a single sherd of pottery, that was probably Roman in date.

Trenches 18 and 19

3.4.2 Neither of these trenches contained any archaeological features.

Trench 20 (Fig. 4)

3.4.3 A single large ditch (**67**) was recorded in this trench on a north-east to south-west alignment. Ditch **67** was shown on the aerial photograph survey. It was 2.10m wide and 0.60m deep, with moderately sloping sides and a concave base. Two deposits filled this feature. The basal fill (68) was a mid greyish brown, silty sand. This was overlain by deposit 69, which was a dark greyish brown, silty sand. The only find from this feature was a single animal tooth (from the lower fill), however the darker deposit which filled the ditch suggests it is of post-medieval date.

Trench 21 (Fig. 4)

3.4.4 A single ditch (**61**) was found in this trench, it was very shallow, filled with a topsoil-like deposit and on the same north to south orientation and line as the current tramlines in the field. It is therefore likely to be modern, even though it contained no finds, and is likely to relate to modern agriculture. Ditch **61** was 0.55m wide and 0.17m deep, with gently sloping sides and a flat base. The single deposit which filled it (62) was a mid brown silty loam.

Trench 22 (Fig. 4)

3.4.5 Ditch **72** was located in Trench 22 on a north-east to south-west orientation. It was 1.80m wide and 0.56m deep, with steeply sloping sides and a concave base. Deposit 71 filled this ditch and it was a pale greyish brown, clayey silt. It contained a single small abraded sherd of pottery (5g), of mid 1st to 2nd century AD date (App. D.3).

3.5 Trenches 23-29 (plot 78)

3.5.1 The only features identified in these trenches were two ditches, both within Trench 28, one of which contained a sherd of prehistoric pottery and a struck flint. A natural feature was also identified, which contained struck flint and prehistoric pottery.

Trenches 23, 24, 25 and 26

3.5.2 No archaeological features were present in any of these trenches.

Trench 27 (Fig. 5)

3.5.3 A large feature (**77**) was noted at the eastern end of this trench. This was situated in a slight dip in the current land surface and is likely to represent a small dry valley in-filled with colluvial deposits. Feature **77** was 3.80m wide and was excavated to a depth of 0.50m below the base of the trench. Two deposits were identified filling it. The lower deposit (78) was a mid yellowish brown, sandy silt. A single sherd (21g) of Middle Iron Age pottery (App. D.2) was recovered from this fill, along with a single struck flint (6g). The upper deposit (79) was a pale yellowish brown, sandy silt. The only finds from this upper deposit were two fragments (24g) of un-diagnostic fired clay (App. D.5). An

environmental sample, taken from deposit 78, produced a single undiagnostic charred cereal grain and a charred legume (App. E).

Trench 28 (Fig. 5)

3.5.4 Two perpendicular ditches (**73**, **75**) were recorded in this trench. The relationship between them was not discernible and it is possible that they were contemporary. Both ditches were shown on the aerial photographic survey and it is possible that they are associated with further cropmark features outside of the proposed pipeline easement to the south.

3.5.5 Ditch **73** was 0.65m wide and 0.12m deep, with gently sloping sides and a flat base. It was filled by 74, a dark greyish brown, silty sand, with very frequent gravel inclusions. A single sherd (3g) of Late Bronze Age pottery (App. D.2) and a single struck flint (40g) were recovered from Ditch **73**.

3.5.6 Ditch **75** was 0.90m wide and 0.35m deep, with a concave base and gently sloping sides. It was also filled by a single deposit (76), which was a mid greyish brown clayey silt. No finds were recovered from this ditch.

Trench 29

3.5.7 No archaeological features were present in this trench.

3.6 Trenches 30 to 36 (plot 123)

3.6.1 No archaeological features were observed in any of these trenches.

Trenches 30, 31 and 32

3.6.2 None of these trenches contained any archaeological features. However, Trench 32 was located at the bottom of a slight slope and contained a thick layer of colluvium. Large quantities of post-medieval ceramic building material were noted on the surface of the field in which these three trenches were located.

Trench 33, 34, 35, 36

3.6.3 No archaeological finds or features were identified in these trenches. Each was very shallow, with heavy grey clay natural.

3.7 Trenches 37 to 41 (plot 50)

3.7.1 Archaeological features were present in Trenches 37-39. The archaeology in Trench 37 was complex, but at least three ditches, probably of prehistoric date were present. Elsewhere within this plot, a post-medieval and an undated ditch were identified in Trench 39, along with a possible posthole and two tree throws in Trench 38.

Trench 37 (Fig. 7)

3.7.2 Trench 37 was located to test a possible barrow, identified as a cropmark. The trench was widened to double the standard width in order to better understand the archaeology present.

3.7.3 Three ditches were identified in Trench 37 (**158**, **164**, **166**), with Ditch **166** on a north-south orientation, towards the western end of the trench. Ditch **166** was 1.14m wide and 0.46m deep, with steeply sloping sides and a flat base. It was filled by deposit 165, a mid brownish grey sandy silt, from which no finds were recovered.

3.7.4 To these east of this, on a similar alignment, was a larger ditch (**164**), which was 1.96m wide and 0.84m deep, with steeply sloping sides and a flat base. It was filled by three deposits, the basal fill (168) was a mid brownish grey, silty sand. This was overlain by deposit 167, a mid grey, silty sand. The uppermost fill (163) was a dark brownish grey, silty sand. The only finds from this feature were four struck flints from the uppermost fill, all of which appear to be of Mesolithic date (App. D.1).

3.7.5 Ditch **164** cut adjacent Pit **162**, which was sub-circular in plan, with a width of 1.10m and a depth of 0.35m. It had steeply sloping sides and a flat base. Deposit 161 filled this feature and it was a mid to dark orangey grey, sandy silt, which contained a single sherd (8g) of Late Bronze Age pottery (App. D.2).

3.7.6 The most substantial feature located in Trench 37, was a curving ditch (**158**), which was located close to the eastern end of the trench. It was not at all clear if this ditch continued to curve through the trench, but a small sondage (**160**) suggested that it may have done. Ditch **158** was 2.20m wide and 0.90m deep, with steeply sloping sides and a flat base. It was filled by three deposits, the lowest of which (157) was a pale grey silty sand. Two struck flints (1g) were recovered from this fill, although only small quantities of charcoal were recovered from an environmental sample taken from this deposit. Deposit 156 overlay this and it was a pale greyish brown, silty sand. A further two struck flints (11g) were recovered from this fill. The uppermost fill (155) was a mid greyish brown, sandy silt, which also contained three struck flints (14g). All of the struck flints found within ditch **158** were of Mesolithic date (App.D.1).

3.7.7 Other features may also have been present within this trench, however almost all of the trench, other then the extreme eastern and western ends, were covered by a brown deposit. This was not removed by machine as it may have been archaeological in origin; also it may have obscured other features. A single sherd (6g) of Neolithic pottery (App. D.2) was recovered from the subsoil (173) within this trench.

Trench 38 (Fig. 7)

3.7.8 A possible posthole (**150**) and two probable tree throws (**152**, **154**) were excavated in Trench 38. Possible Posthole **150** was sub-circular in plan, with moderately sloping sides and a concave base. It had a diameter of 0.45m and was 0.35m deep. Deposit 149 filled this feature, it was a mid reddish grey, clayey silt, which contained no finds.

3.7.9 Tree throw **152** was sub-circular in plan, with gently sloping sides and an irregular base. It was only 0.05m deep and had a diameter of 0.60m. A single deposit (151) filled this feature and it was a mid greyish brown, sandy silt. A single struck flint (4g) was recovered from this fill (App. D.1).

3.7.10 To the west of Tree Throw **152** was Tree Throw **154**, which was irregular in plan and profile, with a width of 0.60m and a depth of 0.05m. It was filled by 153, a mid greyish brown, silty loam, containing no finds.

Trench 39 (Fig. 7)

3.7.11 Two ditches (**144**, **147**) were identified within Trench 39. The smaller ditch (**147**) was 0.40m wide and 0.07m deep, with gently sloping sides and a flat base. It was filled by a single deposit (148), which was a dark yellowish brown, clayey silt, which contained no finds.

3.7.12 Ditch **144** was larger, with a width of 2.20m and a depth of 0.80m. It had steeply sloping sides, with a concave base and was filled by two deposits. The basal fill (145) was a mid greyish brown, silty clay, which contained no finds. This was overlain by deposit

146, which was a mid brownish grey, silty clay. This upper fill contained a single sherd (85g) of residual Late Iron Age pottery (App. D.2) and 1059g of ceramic building material, of late medieval date (App. D.5).

Trenches 40 and 41

3.7.13 Neither of these trenches contained any archaeological features.

3.8 Trenches 42 and 43 (Plot 47)

3.8.1 The only feature in these two trenches was a single undated ditch.

Trench 42 (Fig. 8)

3.8.2 A single ditch (**142**) crossed this trench on a north-south alignment. It had steeply sloping sides and a concave base, with a width of 0.75m and a depth of 0.40m. A single deposit (143) filled this feature, which was a mid yellowish grey, silty clay. It contained no finds.

Trench 43

3.8.3 No archaeological features were present in this trench.

3.9 Trenches 44 to 50 (plot 14)

3.9.1 Trenches 44 and 45 contained the remains of ploughed-out barrows and several cremations. Trench 49 contained a prehistoric ditch and there were several further undated ditches also located in this plot.

Trench 44 (Fig. 8)

3.9.2 Trench 44 contained complex archaeology that appeared to be the remains of a ploughed-out triple ditched Barrow. None of the features in this trench were excavated. Three curvi-linear ditches (**117**, **119**, **121**) were recorded, along with six probable cremation deposits (**127**, **129**, **131**, **133**, **135**, **137**). The ditches were between 1.70m and 1.20m wide and their upper fills were mid greyish brown, silty sands. The probable cremations were circular or sub-circular in plan with diameters between 0.45m and 0.20m. Three of these contained the complete circumference of truncated ceramic vessels (**127**, **131**, **135**), while small quantities of cremated bone and occasional sherds of pottery were noted in other features. Pottery recovered from the surface of deposit 126 (which filled feature **127**) is of Middle Bronze Age date (App. D.2), although a sherd of intrusive Middle Iron Age pottery was also recovered. A further sherd (5g) of Middle Iron Age pottery (App. D.2) was also retrieved from spoil of this trench.

Trench 45 (Fig. 8)

3.9.3 Trench 45 was positioned over a circular cropmark, possibly representing a ploughed-out barrow. Two curvi-linear ditches were revealed, which almost certainly joined outside of the trench to form a circle. One of these (**85**) was excavated. Ditch **85** was 3.20m wide and 1m deep, with steeply sloping sides and a V-shaped base. It was filled by three deposits, the basal fill (86) was a mid yellowish brown, clayey sand. This was overlain by deposit 112, a mid yellowish brown, clayey sand. An environmental sample taken from deposit 112 contained infrequent charcoal (App. E). The final fill of Ditch **85** was deposit 113, a pale brown, sandy silt. The only finds from this feature were four sherds (24g) of Early Iron Age pottery (App. D.2) and 11 struck flints (327g), all from deposit 112. An area of possible pitting was identified in the centre of the trench, along

with another possible pit (**114**) adjacent to the barrow ditch. A single sherd (4g) of Saxon pottery (App. D.2) was recovered from the surface of the fill (115) of this pit, along with a single struck flint.

Trench 46 (Fig. 8)

3.9.4 A single ditch (**103**) crossed this trench on a north-south orientation. It was 1.10m wide and 0.51m deep, with steeply sloping sides and a concave base. Two deposits filled the feature, the lower of which (104) was a dark brownish grey, sandy silt. The upper fill (105) was a mid brown sandy silt. No finds were recovered from this ditch, but it is likely to be post-medieval or modern in date as fragments of wooden stakes were recovered from the upper fill (105).

Trench 47 (Fig. 8)

3.9.5 Five possible postholes (**87**, **89**, **91**, **93**, **95**) were located at the eastern end of this trench. They were all sub-circular in plan, with steeply sloping sides and concave bases. They had diameters between 0.50m and 0.35m and were between 0.35m and 0.15m deep. Each was filled by a single mid greyish brown, silty sand deposit (88, 90, 92, 94, 96). None contained any finds.

Trench 48 (Fig. 8)

3.9.6 Ditch **84** passed through this trench on a north-east to south-west alignment, no finds were recovered from it. It was 1.50m wide and 0.40m deep, with gently sloping sides and a flat base. A single deposit (83) filled this ditch and it was a dark reddish brown, silty sand.

3.9.7 A second smaller ditch (**98**) crossed the trench further to the south, on an almost east to west orientation, it also contained no finds. Ditch **98** was only 0.40m wide an 0.12m deep, with gently sloping sides and a concave base. It was filled by deposit 97, a dark reddish brown, silty sand.

3.9.8 A large pit or tree throw (**102**) was excavated in the middle of Trench 48. It was sub-circular in plan, with steeply sloping sides and a flat base. It was 1.20m wide an 0.32m deep and was filled by three deposits. The primary fill (101) was a pale yellowish brown, silty sand. This was overlain by deposit 100, a dark brownish grey sandy silt. A total of five struck flints (28g), along with 87g of burnt flint were recovered from this fill (App. D.1). In addition, an environmental sample taken from deposit 100 produced abundant charcoal, together with charred rodent droppings (App. E). The uppermost fill (99) was a mid reddish brown, sandy silt, which contained no finds.

Trench 49 (Fig. 8)

3.9.9 A single ditch (**80**) crossed the northern end of Trench 49 on an east-west orientation. It was 1.65m wide and 0.52m deep, with steeply sloping sides and a concave base. Two deposits filled this ditch, the basal fill (81) was a mid brownish grey, sandy silt. A single sherd (3g) of Late Bronze Age pottery (App. D.2) was found within this lower fill. The upper fill (82) was a mid brown, sandy silt, which contained no finds.

Trench 50 (Fig. 8)

3.9.10 Ditch **110** passed across the eastern end of this trench on a north-south alignment. It was 1.44m wide and 0.45m deep, with moderately sloping sides and a concave base. It was filled by a single deposit (111), which was a dark brown, sandy silt and contained no finds.

3.9.11 To the west of this were Ditches **108** and **106**, which were directly adjacent to each other, with Ditch **106** cutting Ditch **108**. Ditch **108** was 0.76m wide and 0.20m deep, with moderately sloping sides and a concave base. Ditch **108** was filled by deposit 109, which was a mid brown sandy silt. Ditch **106** was 2.50m wide and only 0.22m deep, with gently sloping sides and a flat base. It was filled by a single deposit (107), which was a dark brown, sandy silt. Neither of these two inter-cutting ditches contained any finds.

3.10 Finds Summary

3.10.1 A quantification of the finds recovered is given in Appendix C. Full reports on this material are given in Appendix D.

Lithics (App. D.1))

3.10.2 The evaluation resulted in the recovery of 44 struck flints and a small quantity of unworked burnt fragments. Although the struck flint assemblage is not large it does indicate fairly persistent activity along sections of the pipeline. The bulk of the flintwork dates to the Mesolithic and Early Neolithic periods, with a concentration of the former being identified in Trench 37 and the latter in Trench 45. Smaller quantities of later prehistoric flintwork have also been identified.

Prehistoric and Saxon pottery (App. D.2)

3.10.3 A total of 49 sherds (354g) of handmade pottery were recovered from the evaluation, with a low mean sherd weight (MSW) of 7.2g. The pottery was derived from seventeen contexts in eleven different trenches, with material recovered from pits, ditches, a cremation, and various buried soil and subsoil horizons. With the exception of three plain Saxon sherds (47g) in vegetable tempered fabrics, all the pottery dates to the Prehistoric period, with ceramics spanning the Neolithic to Late Iron Age. Most contexts yielded single fragments of pottery, and in general, there were few diagnostic features sherds such as rims, bases or decorated pieces.

Roman pottery (App. D.3)

3.10.4 The evaluation produced a small assemblage of Early Roman pottery totalling 10 sherds, weighing 0.120kg, recovered from five contexts. The overall assemblage is fragmentary and abraded and has an average sherd weight of *c.*12g due to the presence of a large storage jar sherd. The majority of the sherds are smaller and abraded suggesting that they were not found within their site of primary deposition. The poor condition of the pottery can be attributed not only to the natural action of the local clay soils but also to post-depositional processes (such as middening and/or manuring during the Roman and post-Roman periods) that have resulted little evidence for surface finishes or residues surving

Medieval pottery (App. D.4)

3.10.5 The excavation produced a small medieval pottery assemblage of 11 sherds, weighing 0.107kg, recovered from four contexts. The majority of this pottery was found in Trench 11.

Ceramic building material (App. D.5)

3.10.6 A very small assemblage of fired clay, brick, floor and roof tile was recovered comprising 39 fragments (4.164kg). The material recovered largely consisted of brick

and roof tile from Ditches **54** and **144** which were probably late medieval in date. These fragments were relatively unabraded and signify that relatively wealthy buildings may have been fairly close to these features.

3.11 Environmental Summary

3.11.1 A full report on the environmental samples is given in Appendix E, while the very small quantity of animal bone recovered is discussed below.

Animal bone (Chris Faine)

3.11.2 145g of animal bone was recovered from the evaluation. The assemblage consisted of only 3 fragments; two partial cattle radii from context 52 and neonatal horse premolar from context 69.

Environmental samples (App. E.1)

3.11.3 A total of nine environmental samples were taken from a variety of features, including at least one each from features of Bronze Age, Iron Age or Roman and later medieval/post medieval date. All of these were processed by flotation, primarily for the recovery of plant microfossils. The recovery of a single charred grain and legume is scant evidence of occupation at this site and cannot be considered significant. Wood charcoal is evidence of burning that may have been deliberate or accidental.

3.12 Results Summary

3.12.1 The table below gives a summary of the features identified in each trench, together with their potential date. This shows that Trenches 1-9 appear to have been in and area of Iron Age and Roman archaeology, while Trenches 44-50 are in an area that included barrows. Trench 37 appears to contain further prehistoric archaeology, while scattered prehistoric, Roman and post-medieval ditches were located along the rest of the proposed pipeline route.

Plot no	Trench no	Features	Probable date
75	1	2 ditches	Roman and post-medieval/modern
	2	2 pits	Roman
	3	4 postholes, 4 ditches	Iron Age/Roman and undated
	4	Ditch	Undated
	5	2 ditches	Saxon and undated
	6	2 ditches	Iron Age/Roman? and post-medieval/modern
	7	Silty layer	Early and Late Bronze Age
	8	Posthole and silty layer	Iron Age and undated
	9	Two ditches	Late Bronze Age Age and post medieval/modern
	10	None	
	11	Ditch and natural hollow	medieval and late medieval/early post-medieval
61	12	2 ditches	Undated
	13	None	
	14	None	

Plot no	Trench no	Features	Probable date
	15	None	
	16	Ditch	12th-14th century
	17	Furrow and headland	medieval/post-medieval
62	18	None	
	19	None	
	20	Ditch	Post-medieval?
	21	Ditch	Modern
	22	Ditch	Roman
78	23	None	
	24	None	
	25	None	
	26	None	
	27	Natural feature	Middle Iron Age pottery
	28	Two ditches	Late bronze Age?
	29	None	
123	30	None	
	31	None	
	32	None	
	33	None	
	34	None	
	35	None	
	36	None	
50	37	3 ditches	Prehistoric
	38	Posthole and 2 tree throws	Undated
	39	Two ditches	Post-medieval and undated
	40	None	
	41	None	
47	42	Ditch	Undated
	43	None	
14	44	Barrow with cremations	Early Bronze Age and Middle Bronze Age
	45	Barrow	Early Bronze Age and Saxon?
	46	Ditch	Post-medieval/modern
	47	5 post-holes	Undated
	48	2 ditches and pit/tree throw	Middle Iron Age and Undated
	49	Ditch	Late Bronze Age
	50	3 ditches	Undated

4 DISCUSSION AND CONCLUSIONS

4.1 Trenches 1-9

4.1.1 As indicated by the aerial photographic survey (Mott MacDonald 2012b) Trenches 1-9 appear to be located within an area of Later Iron Age and Roman activity. It is difficult to interpret exactly what form this activity took from the current evaluation results, but a small scale farming landscape of field systems and enclosures, possibly with occupation, seems most likely. The presence of Saxon pottery within Ditch **10** (Trench 5) is of particular interest, as it may indicate an unusual example of activity continuing on this rural site into the post-Roman period.

4.2 Trench 11

4.2.1 The large ditch (**54**) located in Trench 11 is most likely of late medieval origin, as indicated by the relatively large quantity (1.581kg) of un-abraded ceramic building material it contained. The two sherds of earlier medieval pottery found within this ditch are likely to be residual, although, together with further pottery of the same date recovered from natural hollow **51** within the same trench, they could indicate earlier activity in the vicinity. The ceramic building material recovered from this ditch may suggest a building of later medieval date somewhere nearby.

4.3 Trench 37

4.3.1 Although the archaeology in Trench 37 was not easily visible within the trench, at least three ditches, probably of prehistoric date, were recorded. It is not clear whether these relate to a ring-ditch or ploughed-out barrow, as originally suggested by the aerial photographic survey, or if they are parts of enclosures or a field system. The presence of a several Mesolithic flints in this trench may relate to the presence of a knapping scatter of this date.

4.4 Trenches 44-50

4.4.1 The aerial photographic assessment clearly shows a collection of barrows or ring ditches within the field in which Trenches 44-50 were dug. These are all located on an area of higher ground, which drops off sharply by *c.*1.5m just to the east of Trench 48. The triple ditched barrow located in Trench 44 is a very unusual form of barrow, while that located in Tench 45 is of a more standard form. The cremations located in Trench 44 are likely to be Middle Bronze Age in date, and it would not be unusual to find Middle Bronze Age re-use of an earlier barrow. It is of interest that a single sherd of pottery recovered from a feature within Trench 45 appears to be of Saxon date. While such a small quantity of pottery is not conclusive, it does hint at potential Saxon re-use of the barrow or ring-ditch located in this trench.

4.4.2 Some of the ditches located in Trenches 46-50 may well be prehistoric and relate to field systems associated with the barrow cemetery. The presence of Late Bronze Age pottery in one of these ditches and Middle Iron Age pottery in another, suggests that this area may have continued to be used for a prolonged period.

4.5 Significance

4.5.1 This evaluation has shown that there to be activity of Early Bronze Age, Iron Age, Roman, Saxon, medieval and post-medieval date along the proposed route of the Chelmsford Effluent pipeline.

APPENDIX A. TRENCH DESCRIPTIONS

Plot no	Trench no	Max. Topsoil depth (m)	Max. Subsoil depth (m)	Geology
75	1	0.40	0.18	Gravels
	2	0.40	0.17	Gravels
	3	0.31	0.16	Gravels
	4	0.35	0.18	Gravels
	5	0.30	0.17	Gravels
	6	0.35	0.08	Gravels
	7	0.35	0.13	Gravels
	8	0.35	0.11	Gravels
	9	0.37	0.11	Gravels
	10	0.37	0.12	Gravels
	11	0.34	0.10	Gravels
61	12	0.30	0.10	Brickearth and gravels
	13	0.35	0.15	Brickearth
	14	0.30	0.15	Brickearth
	15	0.21	0.13	Brickearth
	16	0.34	0.20	Brickearth
	17	0.30	0.12	Brickearth
62	18	0.38	0.10	Clayey Gravels
	19	0.42	0.10	Brickearth and gravels
	20	0.24	0.12	Clayey gravels
	21	0.20	0.15	Clayey gravels
	22	0.35	0.15	Brickearth
78	23	0.35	0.10	Brickearth and gravels
	24	0.30	0.20	Brickearth
	25	0.38	0.22	Brickearth
	26	0.36	0.08	Gravelly clay
	27	0.35	0.20	Brickearth
	28	0.20	0.15	Gravelly clay
	29	0.20	0.05	Clean orange clay with gravel patches
123	30	0.35	0.15	Gravels
	31	0.45	0.45	Gravel with clay bands
	32	0.30	0.10	Gravel with clay bands
	33	0.15	0.10	Grey clay
	34	0.20	0.10	Grey clay
	35	0.20	0.10	Grey clay

Plot no	Trench no	Max. Topsoil depth (m)	Max. Subsoil depth (m)	Geology
	36	0.20	0.15	Grey clay
50	37	0.20	0.15	Silty gravels
	38	0.36	0.12	Gravels
	39	0.34	0.20	gravels
	40	0.20	0.00	Gravels with clay patches
	41	0.31	0.00	Gravels with clay patches
47	42	0.30	0.10	Gravelly clay
	43	0.31	0.10	Gravelly clay
	44	0.32	0.08	Gravels
	45	0.32	0.00	Gravels
	46	0.23	0.10	Gravels
	47	0.30	0.10	Gravels
	48	0.40	0.58	Gravels
	49	0.18	0.07	Gravels
	50	0.20	0.10	Gravels

APPENDIX B. CONTEXT INVENTORY

Context	Trench	Cut	Category	Feature Type
1	9	2	fill	ditch
2	9	2	cut	ditch
3	9	4	fill	ditch
4	9	4	cut	ditch
5	6	6	fill	ditch
6	6	6	cut	ditch
7	6	8	fill	ditch
8	6	8	cut	ditch
9	5	10	fill	ditch
10	5	10	cut	ditch
11	5	12	fill	ditch
12	5	12	cut	ditch
13		0	finds unit	
14	7	0	finds unit	
15	7	0	layer	
16	8	0	layer	
17	8	18	fill	post hole
19	2	20	fill	pit
20	2	20	cut	pit
21	2	22	fill	pit
22	2	22	cut	pit
23	3	24	fill	post hole
24	3	24	cut	post hole
25	3	26	fill	post hole
26	3	26	cut	post hole
27	3	28	fill	post hole
28	3	28	cut	post hole
29	3	30	fill	ditch
30	3	30	cut	ditch
31	3	32	fill	post hole
32	3	32	cut	post hole
33	3	34	fill	ditch
34	3	34	cut	ditch
35	3	36	fill	ditch
36	3	36	cut	ditch
37	3	38	fill	ditch
38	3	38	cut	ditch
39	3	40	fill	ditch
40	3	40	cut	ditch
41	1	42	fill	tree throw
42	1	42	cut	tree throw
43	1	46	fill	ditch
44	1	46	fill	ditch

Context	Trench	Cut	Category	Feature Type
45	1	46	fill	ditch
46	1	46	cut	ditch
47	1	48	fill	ditch
48	1	48	cut	ditch
49	11	51	fill	natural
50	11	51	fill	natural
51	11	51	cut	natural
52	11	54	fill	ditch
53	11	54	fill	ditch
54	11	54	cut	ditch
55	12	55	cut	ditch
56	12	55	fill	ditch
57	12	57	cut	ditch
58	12	57	fill	ditch
59	16	59	cut	ditch
60	16	59	fill	ditch
61	21	61	cut	ditch
62	21	61	fill	ditch
63	17		layer	headland spread
64	17	64	cut	furrow
65	17	64	fill	furrow
66	17	64	fill	furrow fill
67	20	67	cut	ditch
68	20	67	fill	ditch
69	20	67	fill	ditch
71	22	72	fill	ditch
72	22	72	cut	ditch
73	28	73	cut	ditch
74	28	73	fill	ditch
75	28	75	cut	ditch
76	28	75	fill	ditch
77	27	77	cut	natural
78	27	77	fill	natural
79	27	77	fill	natural
80	49	80	cut	ditch
81	49	80	fill	ditch
82	49	80	fill	ditch
83	48	84	fill	ditch
84	48	84	cut	ditch
85	45	85	cut	ditch
86	45	85	fill	ditch
87	47	87	cut	post hole
88	47	87	fill	post hole
89	47	89	cut	post hole

Context	Trench	Cut	Category	Feature Type
90	47	89	fill	post hole
91	47	91	cut	post hole
92	47	91	fill	post hole
93	47	93	cut	post hole
94	47	93	fill	post hole
95	47	95	cut	post hole
96	47	95	fill	post hole
97	48	98	fill	gully
98	48	98	cut	gully
99	48	102	fill	pit / tree throw
100	48	102	fill	pit / tree throw
101	48	102	fill	pit / tree throw
102	48	102	cut	pit / tree throw
103	46	103	cut	ditch
104	46	103	fill	ditch
105	46	103	fill	ditch
106	50	106	cut	ditch
107	50	106	fill	ditch
108	50	108	cut	ditch
109	50	108	fill	ditch
110	50	110	cut	ditch
111	50	110	fill	ditch
112	45	85	fill	ditch
113	45	85	fill	ditch
114	45	114	cut	pit
115	45	114	fill	pit
116	44	117	fill	ditch
117	44	117	cut	ditch
118	44	119	fill	ditch
119	44	119	cut	ditch
120	44	121	fill	ditch
121	44	121	cut	ditch
122		123	fill	ditch
123	44	123	cut	ditch
124	44	125	fill	ditch
125	44	125	cut	ditch
126	44	127	fill	cremation
127	44	127	cut	cremation
128	44	129	fill	cremation
129	44	129	cut	cremation
130	44	131	fill	cremation
131	44	131	cut	cremation
132	44	133	fill	cremation
133	44	133	cut	cremation
134	44	135	fill	cremation

Context	Trench	Cut	Category	Feature Type
135	44	135	cut	cremation
136	44	137	fill	cremation
137	44	137	cut	cremation
138	44	139	fill	cremation
139	44	139	cut	cremation
140	44	0	finds unit	spot find
141	44	0	finds unit	finds from spoil
142	42	142	cut	ditch
143	42	142	fill	ditch
144	39	144	cut	ditch
145	39	144	fill	ditch
146	39	144	fill	ditch
147	39	147	cut	ditch
148	39	147	fill	ditch
149	38	150	fill	post hole
150	38	150	cut	pit
151	38	152	fill	natural
152	38	152	cut	natural
153	38	154	fill	natural
154	38	154	cut	natural
155	37	158	fill	ditch
156	37	158	fill	ditch
157	37	158	fill	ditch
158	37	158	cut	ditch
159	37	160	fill	sondage
160	37	160	cut	sondage
161	37	162	fill	pit
162	37	162	cut	pit
163	37	164	fill	ditch
164	37	164	cut	ditch
165	37	166	fill	ditch
166	37	166	cut	ditch
167	37	164	fill	ditch
168	37	164	fill	ditch
169	4	170	fill	ditch
170	4	170	cut	ditch
171	4	0	layer	alluvial
172	4	0	layer	Alluvial
173	37	0	Finds unit	Finds from subsoil

APPENDIX C. FINDS QUANTIFICATION

Context	Material	Object Name	Weight in kg
1	Ceramic	Ceramic Building Material	0.046
1	Ceramic	Vessel	0.008
3	Ceramic	Ceramic Building Material	1.127
9	Ceramic	Vessel	0.040
11	Ceramic	Vessel	0.021
13	Ceramic	Vessel	0.000
14	Ceramic	Vessel	0.000
15	Ceramic	Vessel	0.031
19	Ceramic	Ceramic Building Material	0.115
19	Ceramic	Vessel	0.095
31	Ceramic	Vessel	0.013
37	Ceramic	Ceramic Building Material	0.098
43	Ceramic	Vessel	0.004
49	Ceramic	Vessel	0.000
52	Ceramic	Ceramic Building Material	1.052
52	Bone	Bone	0.130
52	Ceramic	Vessel	0.027
53	Ceramic	Ceramic Building Material	0.529
56	Flint		0.012
60	Ceramic	Vessel	0.005
60	Slag/clinker		0.002
69	Bone	Bone	0.007
70	Flint		0.010
71	Ceramic	Vessel	0.005
74	Ceramic	Vessel	0.003
74	Flint		0.040
78	Ceramic	Vessel	0.020
78	Flint		0.006
79	Fired clay	Fired clay	0.024
81	Ceramic	Vessel	0.004
81	Flint		0.001
83	Ceramic	Vessel	0.004
100	Flint		0.092
100	Flint		0.024
112	Ceramic	Vessel	0.024
112	Flint		0.327

Context	Material	Object Name	Weight in kg
115	Ceramic	Vessel	0.004
115	Flint		0.013
126	Ceramic	Vessel	0.080
130	Ceramic	Vessel	0.010
135	Ceramic	Vessel	0.105
140	Flint		0.005
141	Ceramic	Ceramic Building Material	0.008
146	Ceramic	Ceramic Building Material	0.149
146	Ceramic	Vessel	0.084
146	Ceramic	Ceramic Building Material	0.391
146	Ceramic	Ceramic Building Material	0.519
151	Flint		0.004
155	Flint		0.000
156	Flint		0.011
157	Flint		0.001
161	Ceramic	Vessel	0.008
163	Flint		0.014
173	Ceramic	Vessel	0.006
99999	Flint		0.017
99999	Ceramic	Vessel	0.005
99999	Flint		0.004
99999	Flint		0.022
99999	Flint		0.086
99999	Flint		0.001
99999	Ceramic	Vessel	0.036

APPENDIX D. FINDS REPORTS

D.1 Lithics

by Barry Bishop

Introduction

D.1.1 The evaluation along the route of the pipeline resulted in the recovery of 44 struck flints and a small quantity of unworked burnt fragments. Struck flint was found in nine trenches spaced along the course of route which covers *c.*10km. This report quantifies and briefly describes the material, assesses its significance and recommends any further work required for it to achieve its full research potential. As the trenches are not necessarily in close proximity, this report describes the flintwork from each trench separately. The report should be read in conjunction with the catalogue, which details each struck piece separately, including typology, raw materials, condition and suggested dating (see below). All metrical descriptions follow the methodology established by Saville (1980).

Trench 5

D.1.2 This trench produced a single fragmented core from unstratified deposits. Although the core had produced some blades, it is not systematically worked and therefore is probably more likely to be of Neolithic date rather than Mesolithic.

Trench 12

D.1.3 Trench 12 contributed two struck pieces, both from Ditch **55**. They comprise a blade or blade-like flake of Mesolithic or Early Neolithic date and which may have been utilized, and a burnt conchoidally fractured chunk.

Trench 27

D.1.4 This trench produced two struck pieces. A badly-hit flake in good condition came from dry valley **77**. It has been lightly retouched along its left lateral margin, and its opposite right margin is naturally blunt, suggesting it was used in the manner of a knife or saw. Its dating is uncertain but the lack of skill shown in its detachment combined with the rather irregular retouch is suggestive of later prehistoric industries, particularly those of the latter second or first millennium BC. The second struck piece consists of a small blade-like flake of Mesolithic or Early Neolithic date that may have been notched at its distal end. It is in good condition despite being recovered from unstratified contexts.

Trench 28

D.1.5 Trench 28 produced a single struck piece, from Ditch **73**. It consists of a small thick flake with a wide and obtuse striking platform and it has a pronounced bulb of percussion. It is most characteristic of later prehistoric industries and could be at least broadly contemporary with the feature from which it was recovered, although its condition suggests it had been ‘kicking around’ for some time prior to incorporation.

Trench 37

D.1.6 This trench produced eleven struck flints from two ditches. Ditch **158** produced seven pieces from three of its fills. Fill [155] contained an obliquely truncated microlith with additionally basal blunting, which can be classed as Clark's (1934) type C2a. These are dateable to the Mesolithic, its size being most suggestive of Middle-Late Mesolithic examples (Pitts and Jacobi 1979). Also present is a blade-like flake and plunged blade. The latter has been steeply retouched, possibly as a device to aid handling, and which would have facilitated use as a cutting implement. Fill [156] produced a burnt prismatic blade fragment and a decortication flake of blade dimension. Fill [157] produced a further two prismatic blades. All of the pieces from this ditch would comfortably fit into a Mesolithic context although they have presumably been residually deposited. They are in a good or only slightly chipped condition, suggesting that they have not travelled far from where originally deposited. It is perhaps most likely that the ditch has cut through an earlier knapping scatter.

D.1.7 Ditch **164** produced four struck pieces, all from fill 163. These comprise a prismatic blade of a similar date to those from Ditch **158**, a decortication flake with blade dimensions and two flakes, one of which has a finely faceted striking platform. Although not all are as closely dateable as those from Ditch **158** they too would not be out-of-place within a Mesolithic context and do suggest extensive flint-using activities of that period in the vicinity of this trench.

Trench 38

D.1.8 Trench 38 produced 3 struck pieces. Tree-throw hollow contained a complete prismatic blade and two blade cores were recovered from unstratified contexts. All show some post-depositional damage but this is not severe, although the blade does appear to have been lightly burnt at some point. The struck pieces from this trench can be dated to the Mesolithic or Early Neolithic, with the former date being most likely. They might represent an extension of the Mesolithic flintworking activity seen in Trench 37, but together these certainly indicate fairly intensive activity in this part of the landscape.

Trench 44

D.1.9 This trench produced three struck pieces, all from unstratified deposits. They comprise a prismatic blade and two flakes, one with a facetted striking platform and the other with blade-like scars on its dorsal surface. They are all most likely to be Mesolithic or Early Neolithic in date.

Trench 45

D.1.10 This trench produced 14 struck flints, 11 of which came from Ditch **85**. The assemblage from this ditch includes a serrated blade, a prismatic blade, two blade cores, a flake core and two rejuvenation type flakes. The pieces are in a good or only slightly chipped condition and most are made from a similar translucent black flint. If the assemblage does represent a single industry, it is most reminiscent of Early Neolithic assemblages, and certainly some of the pieces are unlikely to have been made long after this. All of the pieces other than the serrated blade can be regarded as knapping waste.

D.1.11 Trench 45 also produced a large narrow flake and an end-scraper from unstratified deposits, and a fragment of a core which came from Pit **114**. None are closely dateable but taken together they are also most reminiscent of Neolithic industries.

D.1.12 Whether the assemblage is related chronologically to the ditch or has become residually introduced at a later date, is difficult to determine. The basic homogeneity of

the pieces and their predominantly good condition does indicate, however, that they were recovered from close to where originally discarded.

Trench 48

D.1.13 Trench 48 produced a small quantity of variably burnt alluvial pebble fragments from pit or tree-throw [102]. Also from this feature are three prismatic blades, two of which are burnt, a blade-like flake and a core preparation flake, all made from the same raw materials although do not refit. All retain some cortex and taken together they suggest the preparation of blade-cores and can be dated to the Mesolithic or Early Neolithic.

Other Contexts

D.1.14 Also submitted for analysis are two flakes from context [70] that have no trench number. Neither is particularly diagnostic and they can only be dated to the Neolithic or Bronze Age.

Significance and Recommendations

D.1.15 Although the struck flint assemblage is not large it does indicate fairly persistent activity along at least sections of the pipeline. This is perhaps of no great surprise, given that it loosely follows the river Chelmer and through an area of national importance due to its significant prehistoric remains. The bulk of the flintwork dates to the Mesolithic and Early Neolithic periods, with a concentration of the former being identified in Trench 37 and the latter in Trench 45. Smaller quantities of later prehistoric flintwork have also been identified. The findings so far, however, are likely to have provided only a small window into what in prehistory is likely to have been an intensively and extensively inhabited landscape.

D.1.16 This report and its accompanying data base are sufficient for purposes of archiving and no further work is warranted. However, should further fieldwork be considered and more informative assemblages recovered, this material should be incorporated into the analyses and fully reported.

Context	Trench	Feature	Decortication Flake	Flake	Prismatic blade	Flake Core	Blade Core	Conchoidal chunk	Retouched flake	Burnt Flint (no.)	Burnt Flint (wt:g)	Colour	Cortex	Condition	Recortication	Suggested Dating	Comments
+	5	Unstrat					1					Semi-translucent light brown	None	Slightly Abraded	None	Meso-Neo	Produced mostly flakes but some blades. Abandoned due to a large and severe hinge/step fracture. Weighs 22g.
56	12	Ditch 55		1								Semi-translucent light brown	None	Slightly Abraded	None	Meso-ENeo	Broken blade or blade-like flake with distal end missing. Fine edge damage may have accrued from being utilized.
56	12	Ditch 55						1				Unknown	Thermal scar	Burnt	Incipient	Undated	Burnt fragment of a large flake or core
78	27	PC77							1			Mottled grey semi-translucent	Rolled	Good	None	?MBA-IA	Mis-struck but narrow flake with fine but irregular and slightly denticulated retouch along its left lateral margin. Its right margin consists predominantly of cortex. Probable knife/saw. 41X23X10mm
+	27	Unstrat		1								Translucent black	None	Good	None	Meso-ENeo	Small flake with blade-like scars on dorsal. Has a small notch at distal end which might be genuine but could have accrued post-depositionally
74	28	Ditch 73		1								Translucent black	Thermal scar	Chipped	None	?MBA-IA	Small thick flake with wide striking platform
155	37	Ditch 158							1			Translucent black	None	Good	Incipient	Meso	Obliquely truncated microlith. The proximal end has been truncated with abrupt retouch along the right lateral margin, although its tip is missing. The distal end has been transversely blunted. >33X10X4mm
155	37	Ditch 158		1								Translucent black	None	Good	None	Meso-ENeo	Narrow flake with blade-like scars on distal
155	37	Ditch 158							1			Translucent black	Rough weathered	Slightly Abraded	None	Meso-ENeo	Plunged blade removing base of a prismatic blade core. Has rather rough steep scalar retouch along its left lateral margin, possibly to aid handling. 66X26X14mm

Context	Trench	Feature	Decortication Flake	Flake	Prismatic blade	Flake Core	Blade Core	Conchoidal chunk	Retouched flake	Burnt Flint (no.)	Burnt Flint (wt:g)	Colour	Cortex	Condition	Recortication	Suggested Dating	Comments
156	37	Ditch 158			1							Unknown	Rough weathered	Burnt	Incipient	Meso-ENeo	Burnt medial section of a large but thin prismatic blade
156	37	Ditch 158	1									Brown translucent	Rolled	Good	None	Meso-Neo	Trimmed striking platform and is of blade dimensions
157	37	Ditch 158			1							Semi-translucent light brown	None	Slightly Abraded	None	Meso-ENeo	Systematically struck prismatic blade missing its distal end
157	37	Ditch 158			1							Brown translucent	None	Slightly Abraded	None	Meso-ENeo	Long and narrow micro-blade 7mm wide, proximal and distal ends missing
163	37	Ditch 164	1									Translucent black	Bullhead bed	Slightly Abraded	None	Meso-Neo	Of blade dimensions
163	37	Ditch 164			1							Brown translucent	None	Slightly Abraded	None	Meso-ENeo	Broken with proximal end missing
163	37	Ditch 164		1								Brown translucent	Rough weathered	Slightly Abraded	None	Meso-Neo	Large, thin but heavily fragmented flake
163	37	Ditch 164		1								Translucent black	Rolled	Slightly Abraded	None	Meso-Neo	Flake or even possibly a blade with a facetted striking platform. Distal end missing
151	38	TT152			1							Opaque grey	None	Slightly Abraded	Incipient	Meso-ENeo	Virtually complete, measures 48X12X5mm. Its distal end appears lightly burnt
+	38	Unstrat					1					Translucent Black	None	Slightly Abraded	Blue	Meso	Classic opposed platformed 'front and side' type blade core with rejuvenated platforms and a shaped back. 62g.
+	38	Unstrat					1					Translucent Black	Rough weathered	Chipped	Incipient	Meso	Small heavily reduced micro-blade core with two platforms on front and side at oblique angles. 25g.
140	44	Unstrat			1							Brown translucent	None	Chipped	Blue	Meso-ENeo	Complete but very chipped

Context	Trench	Feature	Decortication Flake	Flake	Prismatic blade	Flake Core	Blade Core	Conchoidal chunk	Retouched flake	Burnt Flint (no.)	Burnt Flint (wt:g)	Colour	Cortex	Condition	Recortication	Suggested Dating	Comments
140	44	Unstrat		1								Translucent black	Thermal scar	Chipped	None	Meso-ENeo	Has some blade-like dorsal scars. Possibly retouched but uncertain as much post-depositional damage
140	44	Unstrat		1								Translucent black	Rough weathered	Slightly Abraded	None	Meso-Neo	Has a partially facetted striking platform
112	45	Ditch 85	1									Brown translucent	Rolled	Slightly Abraded	None	Undated	Very thick decortication flake
112	45	Ditch 85						1				Grey translucent	Rough weathered	Good	None	Undated	Probably a thermal disintegrated core fragment
112	45	Ditch 85		1								Brown translucent	Rough weathered	Slightly Abraded	None	Neo-BA	Thick flake with severe hinge fracture scars on dorsal. Possibly struck to removed these
112	45	Ditch 85				1						Translucent black	Rolled	Slightly Abraded	None	Neo-BA	Irregularly worked unshaped core that produced wide flakes from a number of platforms. 45g.
112	45	Ditch 85						1				Translucent black	Rolled	Good	None	Neo-BA	Inverse' flake struck from a thermally fracture rounded cobble
112	45	Ditch 85		1								Translucent black	None	Good	None	Neo-EBA	Thick flake retaining part of a striking platform with many incipient Hertzian cones on its dorsal surface. cf core tablet but not from a systematically worked core
112	45	Ditch 85					1					Translucent black	Rough weathered	Good	None	Neo-EBA	Core that has produced many thick non-prismatic blades from many platforms. 71g.
112	45	Ditch 85					1					Translucent black	Rough weathered	Good	None	Neo-EBA	Irregularly worked with many platforms but with some wide blades produced. 33g.
112	45	Ditch 85						1				Translucent black	Rolled	Good	None	Undated	Probably a fragment from a disintegrated core
112	45	Ditch 85							1			Translucent black	Rough weathered	Good	None	Meso-ENeo	Prismatic blade with fine serrations along its left lateral margin and cortical 'backing' along its

Context	Trench	Feature	Decortication Flake	Flake	Prismatic blade	Flake Core	Blade Core	Conchoidal chunk	Retouched flake	Burnt Flint (no.)	Burnt Flint (wt:g)	Colour	Cortex	Condition	Recortication	Suggested Dating	Comments
																	right. The working edge is slightly worn and also has spalling on both sides of its tang-like distal end, suggesting the possibility that it might have been hafted. 60X19X4mm
112	45	Ditch 85			1							Translucent black	None	Slightly Abraded	None	Meso-ENeo	Medial section of a prismatic probable blade
115	45	P114						1				Translucent black	Rough weathered	Chipped	None	Meso-EBA	Fragment from a thermally disintegrated, possible blade, core, although it does not appear to have been systematically worked
+	45	Unstrat		1								Grey translucent	None	Chipped	None	Neo/EBA	Large narrow flake
+	45	Unstrat							1			Translucent black	Rough weathered	Chipped	None	Neo/EBA	Narrow flake with blade-like dorsal scars and steep convex scalar retouch around distal. End-scraper
100	48	P/TT 102								21	87	Unknown	Rolled	Burnt	Unknown	Undated	Variable although mostly heavily burnt small rounded pebbles
100	48	P/TT 102		1								Translucent black	Rough weathered	Good	None	Meso-ENeo	Small flake with some blade-like dorsal scars
100	48	P/TT 102		1								Translucent black	Rough weathered	Good	None	Meso-EBA	Core shaping or mass-reduction flake
100	48	P/TT 102			1							Translucent black	Rough weathered	Burnt	None	Meso-ENeo	Burnt blade with missing distal end and a dorsal surface that retains much cortex but also many very narrow blade scars
100	48	P/TT 102			1							Translucent black	Rough weathered	Burnt	None	Meso-ENeo	Burnt blade with proximal end missing
100	48	P/TT 102			1							Translucent black	Rough weathered	Slightly Abraded	None	Meso-ENeo	Complete prismatic blade retaining cortex at its distal end. Possibly utilized. 53X15X5mm

Context	Trench	Feature	Decortication Flake	Flake	Prismatic blade	Flake Core	Blade Core	Conchoidal chunk	Retouched flake	Burnt Flint (no.)	Burnt Flint (wt:g)	Colour	Cortex	Condition	Recortication	Suggested Dating	Comments
70	?	?	1									Brown translucent	Rolled	Slightly Abraded	None	Undated	Flake retaining c.70% cortex but with no dateable attributes
70	?	?		1								Opaque grey	Rough weathered	Slightly Abraded	None	Meso-EBA	Small undiagnostic flake

D.2 Prehistoric and Saxon Pottery

by Matt Brudenell

D.2.1 A total of 49 sherds (354g) of handmade pottery were recovered from the evaluation, with a low mean sherd weight (MSW) of 7.2. The pottery was derived from 17 contexts in 11 different trenches, with material recovered from pits, ditches, a cremation, and various buried soil and subsoil horizons. With the exception of three plain Saxon sherds (47g) in vegetable tempered fabrics, all the pottery dates to the Prehistoric period, with ceramics spanning the Neolithic to Late Iron Age (Table 1). Most contexts yielded single fragments of pottery, and in general, there were few diagnostic features sherds such as rims, bases or decorated pieces. As a consequence, the dates assigned to the pottery are predominately based on the character of the fabrics. The following report provides a quantified summary of the assemblage, and spot dates for material recovered.

Period	No./wt.(g) sherds	Context no.	Trench no.
Neolithic	3/21	13,130,173	5,37,44
Early Bronze Age	1/31	15	7
Middle Bronze Age	25/71	126	44
Late Bronze Age	7/37	1,14,74,81,161	7,9,28,37,49
Early Iron Age	4/24	112	45
Middle Iron Age	5/38	78,83,126,99999	27,44,48
Late Iron Age	1/85	146	39
Saxon	3/47	9,115	5,45
TOTAL	*49/354*	-	-

Table 1: Prehistoric and Saxon pottery by period

D.2.2 All the ceramics have been fully recorded following the recommendations laid out by the Prehistoric Ceramics Research Group (PCRG 2009). The fabric series follows the system devised for Essex by Nigel Brown.

Assemblage characteristics

D.2.3 The assemblage was dominated by sherds in burnt flint tempered fabrics, particularly coarseware fabric D (Table 2). Sherds in fabric D can date to the Neolithic, Bronze Age or Early Iron Age in Essex, though fabric D wares from the Late Bronze Age and Early Iron Age tend to be harder, more compact, and have a little quartz sand in their clay matrix. Only two sherds in fabric D (16) were thought to be Neolithic in this assemblage, these deriving from the subsoil (context 173) in Trench 37, and cremation 131 in Trench 44. The latter (10g) is considered to be residual, though the surface of cremation 127 in the same trench yielded 25 (71g) fragments of Middle Bronze Age pottery in Fabric D (plus two burnished Middle Iron Age sherds, 8g). Other sherds in fabric D have been dated to the Late Bronze Age (six sherds, 34g) and Early Iron Age (1 sherd, 1g). The Late Bronze Age material included a two rim sherds from ditch 80, Trench 49, and pit 162, Trench 37. The former had a tapered lip, typical of the period, whilst the latter was rounded and probably derived from a simple barrel-shaped jar, similar to vessels published from Broads Green (Brown 1988a).

Fabric	No./wt.(g) sherds	% of fabric (by wt.)	MNV	Fabric date range
D	34/122	34.5	3	NEO, MBA, LBA, EIA
E	2/23	6.5	-	LBA, EIA
F	3/29	8.2	-	MIA
H	3/8	2.3	2	EIA, MIA
I	1/4	1.1	-	MIA
M	1/85	24	-	LIA
N	3/47	13.3	-	SAX
O	1/5	1.4	-	NEO?
Q	1/31	8.8	-	EBA
TOTAL	*49/354*	*100.1*	*5*	-

Table 2. Fabric frequency, vessel counts and period attribution.

MNV = minimum number of vessels, calculated as the total number of different rims and bases identified (4 different rims, 1 base).

Fabrics:

Size of inclusions
S = less than 1mm diameter
M = 1-2mm diameter
L = more than 2mm diameter

Density of inclusions
1 = less than 6 per cm^2
2 = 6-10 per cm^2
3 = more than 10 per cm^2

D: Flint, S-L 2 poorly sorted
E: Flint and sand, S-M 2
F: Sand, S-M 2-3 with addition of occasional L flint
H: Sand, S 2
I: Sand, S-M 2-3
M: Grog, often with some sand or flint and occasional small rounded or sub-angular voids
N: Vegetable temper
O: Quartz and flint and some sand S-L 2 poorly sorted
Q: Flint S-L, Grog S-M 2

D.2.4 Sherds in fabric E dated to the Late Bronze Age (one sherd, 3g) and Early Iron Age (one sherd, 20g), whilst the sandy wares of fabrics F, H and I were of Early Iron Age (two sherds, 3g) and Middle Iron Age (five sherds, 38g) origin .The two Early Iron Age sherds in fabric H were everted rims, almost certainly derived from fineware bowls. Both were recovered from context 112 in Barrow ditch 85 (Trench 45), and are similar to examples from well F.840 at Lofts Farm (Brown 1988b). Sherds in other fabrics can be dated to individual periods, and are summarised in Table 2, with further information on context given in Table 3. Of note is the Early Bronze Age impressed decorated sherd from context 15, Trench 7, which is probably derived from a Beaker vessel.

Context	Feature no.	Trench	Feature type	No. sherds	Weight (g)	Spot date
1	2	9	Ditch	1	8	LBA
9	10	5	Ditch	2	43	SAX
13	-	5	Spread	1	5	?NEO
14	-	7	Silty spread	3	14	LBA
15	-	7	Silty spread	1	31	EBA
74	73	28	Ditch	1	4	LBA
78	77	27	Colluvium deposit	1	21	MIA
81	80	49	Ditch	1	3	LBA
83	84	48	Ditch	1	4	MIA
112	85	45	Barrow ditch	4	24	EIA
115	114	45	Pit	1	4	SAX
126	127	44	Cremation	27	79	MBA, MIA
130	131	44	Cremation	1	10	NEO
146	144	39	Ditch	1	85	LIA
161	162	37	Pit	1	8	LBA
173	-	37	Subsoil	1	6	NEO
99999	-	44	Topsoil	1	5	MIA

Table 3. Prehistoric and Saxon Pottery by context

D.3 Roman Pottery

by Stephen Wadeson

Introduction

D.3.1 Evaluation produced a small assemblage of Early Roman pottery totalling 10 sherds, weighing 0.120kg recovered from five contexts (table 4). The overall assemblage is fragmentary and abraded and has an average sherd weight of *c*. 12g due to the presence of a large storage jar sherd. The majority of the sherds are smaller and abraded suggesting that they were not found within their site of primary deposition. The poor condition of the pottery can be attributed not only to the natural action of the local clay soils but also from post-depositional processes (such as middening and/or manuring during the Roman and post-Roman periods) and as a result little evidence for surface finishes or residues survive.

Methodology

D.3.2 The assemblage was examined in accordance with the guidelines set down by the Study Group for Roman Pottery (Webster 1976; Darling 2004; Willis 2004). The total assemblage was studied and a preliminary catalogue was prepared. The sherds were examined using a magnifying lens (x10 magnification) and were divided into fabric groups defined on the basis of inclusion types present. The fabric codes are descriptive and abbreviated by the main letters of the title (Sandy grey ware = SGW) vessel form was also recorded. All sherds have been counted, classified and weighed to the nearest whole gram. Decoration and abrasion were also noted and a spot date has been provided for each individual sherd and context.

D.3.3 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

Assemblage

D.3.4 The assemblage is of an utilitarian nature with locally produced domestic coarse wares, specifically sandy grey wares dominating. Pottery of this type is common in most domestic assemblages in this region throughout the Roman period.

D.3.5 Context 19 produced the largest group of sherds, primarily consisting of Early Roman sandy grey ware sherds, as well as the only example of a fine ware in the assemblage, a single sherd of South Gaulish Samian (Tomber and Dore 1998, 28) from La Graufesenque (*c*. 50-110AD). From context 60 a rim sherd from a black surfaced red ware jar was was recovered, also present is a single body sherd in a sandy grey ware fabric; further examples of this fabric recovered from contexts 43, 49, and 71.

D.3.6 Vessel forms present indicate a domestic coarse ware assemblage with limited access to high status products. The small number of sherds recovered during excavation is common on many rural sites and would suggest; there is an as yet unlocated Romano-British settlement or farmstead near to the area of excavation. The small size of the assemblage makes it difficult to assess beyond providing basic dating information for the site.

Context	Trench	Fabric	Sherd/Basic Form	Sherd Count	Weight (kg)	Context Date Range
19	**2**	Sandy Grey Ware	S/Jar Body sherd	1	0.052	MC1-C2
		Sandy Grey Ware	Jar rim sherd	1	0.013	MC1-MC2
		Sandy Grey Ware	Body Sherd	2	0.022	MC1-C2
		South Gaulish Samian	Platter base sherd	1	0.006	MC1-EC2
31	**3**	Black Surfaced Red ware	Body Sherd	1	0.009	MC1-MC2
		Sandy Grey Ware	Body Sherd	1	0.006	MC1-C2
43	**1**	Sandy Grey Ware	Body Sherd	1	0.004	MC1-C2
49	**11**	Sandy Grey Ware	Body Sherd	1	0.003	MC1-C2
71	**22**	Sandy Grey Ware	Body Sherd	1	0.005	MC1-C2
Total				**10**	**0.120**	

Table 4: Roman Pottery Dating Summary Catalogue

D.4 Medieval Pottery

by Carole Fletcher

Introduction

D.4.1 The evaluation produced a small medieval pottery assemblage of 11 sherds, weighing 0.107kg, recovered from four contexts. The condition of the overall assemblage is moderately abraded to abraded. The average sherd weight from individual contexts is small to moderate at 10g.

Methodology

D.4.2 The Medieval Pottery Research Group (MPRG) documents *A guide to the classification of medieval ceramic forms* (MPRG, 1998) and *Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics* (MPRG, 2001) act as a standard.

D.4.3 Dating was carried out using OA East's in-house system based on that previously used at the Museum of London. Fabric classification has been carried out for all previously described medieval and post-medieval types. All sherds have been counted, classified and weighed. All the pottery has been recorded and dated on a context-by-context basis. The archives are curated by Oxford Archaeology East until formal deposition.

Context	*Fabric*	*Sherd/Basic Form*	*Sherd Count*	*Weight (kg)*	*Context Date Range*
49	Early Medieval Sandy Shelly ware (Fabric 12C type)	Body sherd	2	0.013	Mid 11th-early 13th century
	Early Medieval Sandy ware (Fabric 13)	Base sherd	1	0.017	
	Early Medieval Sandy ware (Fabric 13)	Base sherd	1	0.005	
	Early Medieval Sandy ware (Fabric 13)	Body sherd	2	0.003	
52	Early Medieval Sandy ware (Fabric 13) Mid 11th-early 13th century) Very abraded	Jar rim sherd	1	0.015	Mid 11th-early 13th century
	Early Medieval Sandy Shelly ware (Fabric 12C type)	Base sherd	1	0.012	
60	Medieval Sandy Greyware (Fabric 20)	Body sherd	2	0.006	Late 12th-late 14th century
99999	Medieval Sandy Greyware (Fabric 20)	Jug base sherd	1	0.036	

Table 5: medieval pottery Dating Summary Catalogue

Assemblage

D.4.4 Context 49 produced the largest group of sherds, mainly from several Early Medieval Sandy ware jars and also a single sherd of Early Medieval Sandy Shelly ware; similar fabrics were recovered from context 52. Context 60 produced two small abraded sherds

of Medieval Sandy Greyware, and an abraded thumbed base sherd from a Medieval Sandy Greyware jug was recovered as an unstratified find from trench 27.

D.4.5 Domestic in origin, these sherds represents low levels of occupation close to the site or rubbish disposal on the site from the 11th to the late 14th century.

D.5 Fired clay, Brick, Floor and Roof Tile

By Rob Atkins BSocSc. DipArch MIfA

Methodology

D.5.1 A very small collection of fired clay, brick, floor and roof tile were recovered comprising 39 fragments (4.164kg; Table 6).

Type	No. of contexts	No. Fragments	Weight (g)
Fired clay	2	3	70
Brick	2	4	800
Floor tile/floor brick	3	3	1631
Ceramic peg tile	5	28	1555
Ceramic ridge tile	1	1	108
Total		**39**	**4164**

Table 6: Fired clay, brick, floor and roof tile

D.5.2 All complete thickness of brick and floor tile were recorded. The peg holes of the tiles were assessed to differentiate them between one and two peg hole types.

Results

Fired clay

D.5.3 Three fired clay fragments (70g) were found in two contexts (1 (Ditch **2**) and 79). A fired clay fragment (46g) from Ditch **2** was up to 15mm thick and was in a orange sandy fabric. It had been smoothed on one side, had a vegetative impression and had probably been part of a lining from a oven/hearth. Two fragments (24g) from context 79 were undiagnostic.

Brick

D.5.4 Four brick fragments (0.8kg), are likely to date to the late medieval/early post-medieval period (14th-16th century). Two (67g) were found in context 53 (Ditch **54**), one was definitely sanded and they were in an orange and an orange/red sandy fabric respectively An impression from a leaf (?beech) was on the top surface of the latter. Two fragments were recovered from context 146 (Ditch **144**) and both were sanded. One was a part brick (0.52kg), 50mm (2") thick with near vertical arises and was in an orange sandy fabric. The other fragment (0.113kg) was in an orange sandy fabric with some flint inclusions up to 8mm in length. It was 55mm (2½") thick, not too well made with an internal void and had been slightly overfired.

Floor tile/floor brick

D.5.5 There were two probable late medieval/early post medieval floor tile/brick and a late post-medieval floor brick fragment (collectively weighing 1.631kg). The two former (from Pit **20** and Ditch **144)** were both sanded, in a hard orange sandy fabric and were 33mm and 34mm thick respectively with vertical arrises (not chamfered). The latter's surface had been worn smooth from ware. A *c.*18th century floor brick (1.126kg) from Ditch **4** was in a

hard orange sandy fabric. It was more than 155mm by 128mm in size (probably only a small part of a large square floor brick) and was 35mm (1½") thick with vertical arises.

Ceramic peg tile

D.5.6 There were 28 ceramic peg tiles (1.555kg) from five contexts and all are likely to be medieval or early post-medieval in date (with the former more likely). Context 52 (ditch **54**) had 19 ceramic peg tile fragments (0.945kg), with nine (0.389kg) in a hard orange sandy fabric with reduced grey core and 10 fully oxidised (0.556kg). One fragment had impressions from three fingers and another had a sub-rounded peg hole, 30mm from side of this tile (2 peg hole type). Context 53 (Ditch **54**) had six tile fragments (0.462kg), five in a hard orange fabric with reduced grey core (0.408kg) and one fully oxidised (54g). Ditch 38, layer 141 and Ditch **144** all had single small tile fragments (98g, 9g and 41g respectively).

Ceramic ridge tile

D.5.7 A single ridge tile fragment (0.108kg) was found in Ditch **54** in a hard orange sandy fabric with reduced grey core.

Discussion

D.5.8 The collection was small and so further interpretation is limited. The collection largely consisted of brick and roof tile from Ditches **54** and **144** which were probably late medieval in date. These fragments were relatively unabraded and signify relatively wealthy buildings may have been fairly close to these features.

APPENDIX E. ENVIRONMENTAL REPORTS

E.1 Environmental samples

By Rachel Fosberry

Introduction

E.1.1 A total of nine bulk samples were taken during the evaluation phase of the site at Chelmsford Effluent. The purpose of this assessment is to determine whether plant remains are present, their mode of preservation and whether they are of interpretable value with regard to domestic, agricultural and industrial activities, diet, economy and rubbish disposal.

Methodology

E.1.2 The total volume of each standard bulk sample (up to twenty litres) was processed by tank flotation for the recovery of charred plant remains, dating evidence and any other artefactual evidence that might be present. The floating component (flot) of the samples was collected in a 0.3mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve. Both flot and residues were allowed to air dry. A magnet was dragged through each residue fraction prior to sorting for artefacts. Any artefacts present were noted and reintegrated with the hand-excavated finds. The flot was examined under a binocular microscope and the presence of any plant remains or other artefacts are noted in Table 7. Identification of plant remains is with reference to the *Digital Seed Atlas of the Netherlands* and the authors' own reference collection. Nomenclature is according to Stace (1997).

Quantification

E.1.3 For the purpose of this initial assessment, items such as seeds, cereal grains and small animal bones have been scanned and recorded qualitatively according to the following categories:

= 1-10, ## = 11-50, ### = 51+ specimens #### = 100+ specimens

Items that cannot be easily quantified such as charcoal, magnetic residues and fragmented bone have been scored for abundance

+ = rare, ++ = moderate, +++ = abundant

Results

Sample No.	Context No.	Cut No.	Feature Type	Volume processed (L)	Flot Volume (ml)	Cereals	Legumes	Weed Seeds	Charcoal <2mm	Charcoal > 2mm	Flot comments
1	23	24	post hole	5	1	0	0	0	0	0	
2	27	28	post hole	2	1	0	0	0	+	0	
3	37	38	ditch	15	10	0	0	0	0	0	
4	17	18	post hole	5	35	0	0	0	++	++	
5	53	54	ditch	19	30	0	0	#	+	0	
6	78	77	palaeochannel	20	5	#	#	0	++	+	single charred indeterminate grain, single charred 5mm legume
7	100	102	pit	17	145	0	0	0	++++	++++	charred rodent droppings
8	112	85	ring ditch	17	1	0	0	0	+	0	
9	157	158	ditch	15	1	0	0	0	+	0	

Table7: Environmental samples from CMEP13

E.1.4 Plant remains are extremely scarce; a single indeterminate charred cereal grain and charred legume are present in Sample 6, fill 78 of Dry Valley **77**. Wood charcoal is abundant in Sample 7, fill 100 of Pit **102** and this sample also contains evidence of burnt rodent droppings. Waterlogged wood fragments recovered from Sample 5, fill 53 of Ditch **54** do not have any evidence of being worked. This sample also contains untransformed seeds of bramble (Rubus sp.) and stinging nettle (Urtica dioicia) The remaining samples are mainly devoid of preserved plant remains other than some charcoal in Sample 4, fill 17 of Post hole **18**, which may be evidence of the post having been burnt.

Discussion

E.1.5 The recovery of a single charred grain and legume is scant evidence of occupation at this site and cannot be considered significant. Wood charcoal is evidence of burning that may have been deliberate or accidental (lightening strike).

Statement of potential

E.1.6 The lack of preserved plant remains precludes any further interpretation. No additional work is required.

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APPENDIX G. OASIS REPORT FORM

All fields are required unless they are not applicable.

Project Details

OASIS Number	oxfordar3-153761		
Project Name	Chelmesford effluent pipeline		
Project Dates (fieldwork) Start	03-06-2013	Finish	25-06-2013
Previous Work (by OA East)	No	Future Work	Unknown

Project Reference Codes

Site Code	CHEP13	Planning App. No.	
HER No.		Related HER/OASIS No.	

Type of Project/Techniques Used

Prompt	Select Prompt (this should be in your brief/spec)...
Development Type	Pipelines/Cables

Please select all techniques used:

☐ Aerial Photography - interpretation	☐ Grab-Sampling	☐ Remote Operated Vehicle Survey
☐ Aerial Photography - new	☐ Gravity-Core	☒ Sample Trenches
☐ Annotated Sketch	☐ Laser Scanning	☐ Survey/Recording Of Fabric/Structure
☐ Augering	☒ Measured Survey	☒ Targeted Trenches
☐ Dendrochronological Survey	☒ Metal Detectors	☐ Test Pits
☐ Documentary Search	☐ Phosphate Survey	☐ Topographic Survey
☒ Environmental Sampling	☐ Photogrammetric Survey	☐ Vibro-core
☐ Fieldwalking	☒ Photographic Survey	☐ Visual Inspection (Initial Site Visit)
☐ Geophysical Survey	☐ Rectified Photography	

Monument Types/Significant Finds & Their Periods

List feature types using the NMR Monument Type Thesaurus and significant finds using the MDA Object type Thesaurus together with their respective periods. If no features/finds were found, please state "none".

Monument	Period	Object	Period
barrow	Bronze Age -2.5k to -700	pottery	Roman 43 to 410
ditch	Iron Age -800 to 43	pottery	Iron Age -800 to 43
ditch	Roman 43 to 410	pottery	Medieval 1066 to 1540
ditch	Post Medieval 1540 to 1901	flint	Late Prehistoric -4k to 43
pit	Roman 43 to 410	flint	Mesolithic -10k to -4k

Project Location

County	Essex	Site Address (including postcode if possible)	
District	chelmsford, maldon	from chelmer village (TL 74566 07917) to Langford (TL 82725 08795)	
Parish	multiple		
HER	essex		
Study Area	c. 9km long	National Grid Reference	

Project Originators

Organisation	OA EAST
Project Brief Originator	Maria Medlycott
Project Design Originator	Mott Mcdonald
Project Manager	James Drummond-Murray
Supervisor	Nick Gilmour

Project Archives

Physical Archive	Digital Archive	Paper Archive
Location ...	OA East office, Bar Hill	Location ...
Accession ID ...	CHEP13	Accession ID ...

Archive Contents/Media

	Physical Contents	Digital Contents	Paper Contents
Animal Bones	☒	☐	☐
Ceramics	☒	☐	☒
Environmental	☒	☐	☒
Glass	☐	☐	☐
Human Bones	☐	☐	☐
Industrial	☐	☐	☐
Leather	☐	☐	☐
Metal	☐	☐	☐
Stratigraphic		☐	☐
Survey		☐	☐
Textiles	☐	☐	☐
Wood	☐	☐	☒
Worked Bone	☐	☐	☐
Worked Stone/Lithic	☒	☐	☒
None	☐	☐	☐
Other	☐	☐	☐

Digital Media		Paper Media
☒ Database	☐ Aerial Photos	
☒ GIS	☒ Context Sheet	
☐ Geophysics	☒ Correspondence	
☒ Images	☐ Diary	
☒ Illustrations	☐ Drawing	
☐ Moving Image	☐ Manuscript	
☐ Spreadsheets	☐ Map	
☒ Survey	☐ Matrices	
☒ Text	☐ Microfilm	
☐ Virtual Reality	☐ Misc.	
	☐ Research/Notes	

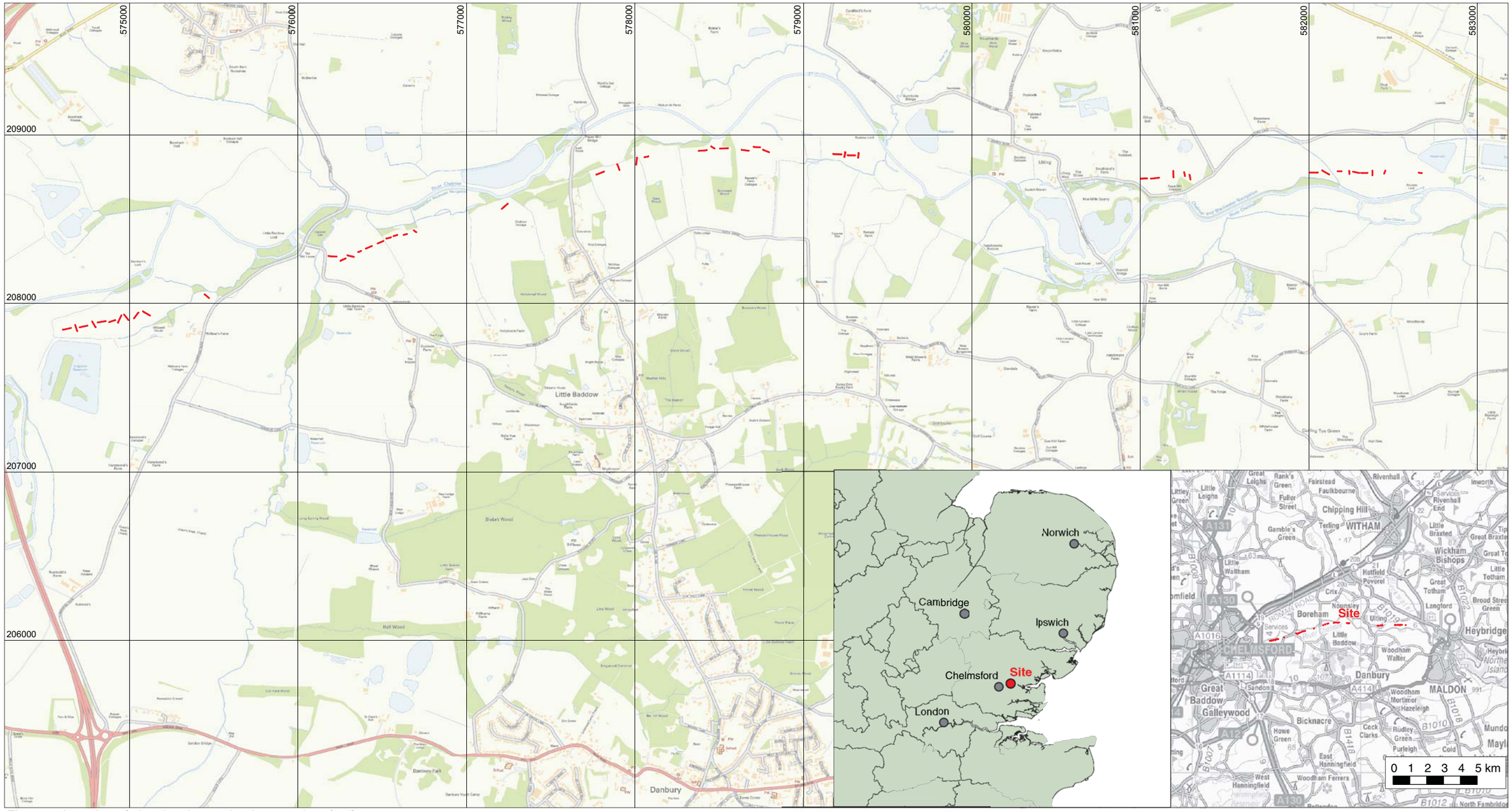
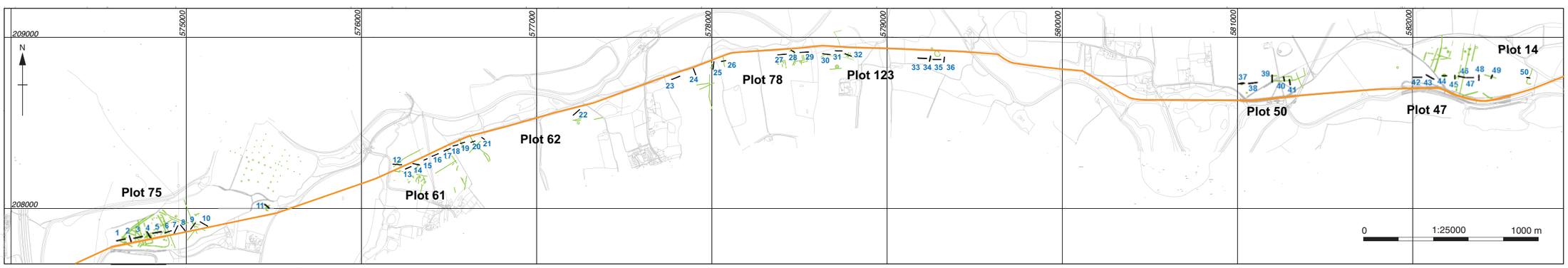


Figure 1: Location of site showing evaluation trenches (red)

Figure 2: Plan of trenches 1 to 11 (Plot 75) Scale 1:2500



Overall plan of trenches 1-50 and related plots. Scale 1:25000

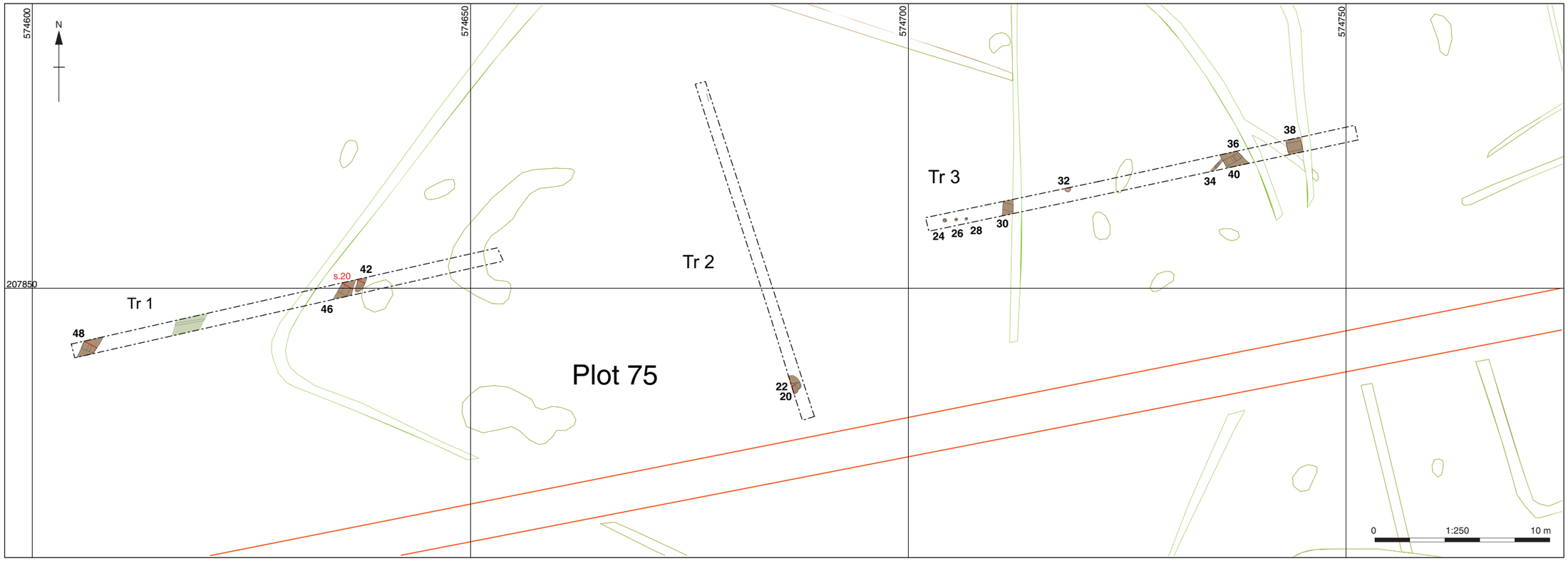
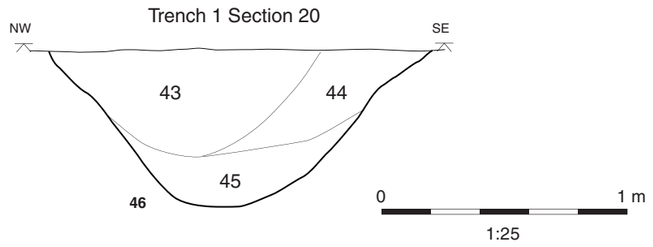
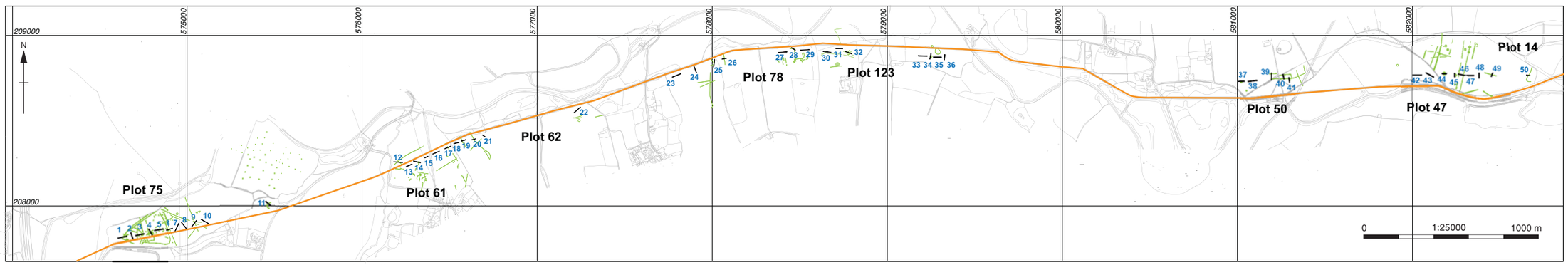


Figure 2b: Plan and seclected section of Trenches 1, 2 and 3 (Plot 75). Scale 1:250





Overall plan of trenches 1-50 and related plots. Scale 1:25000

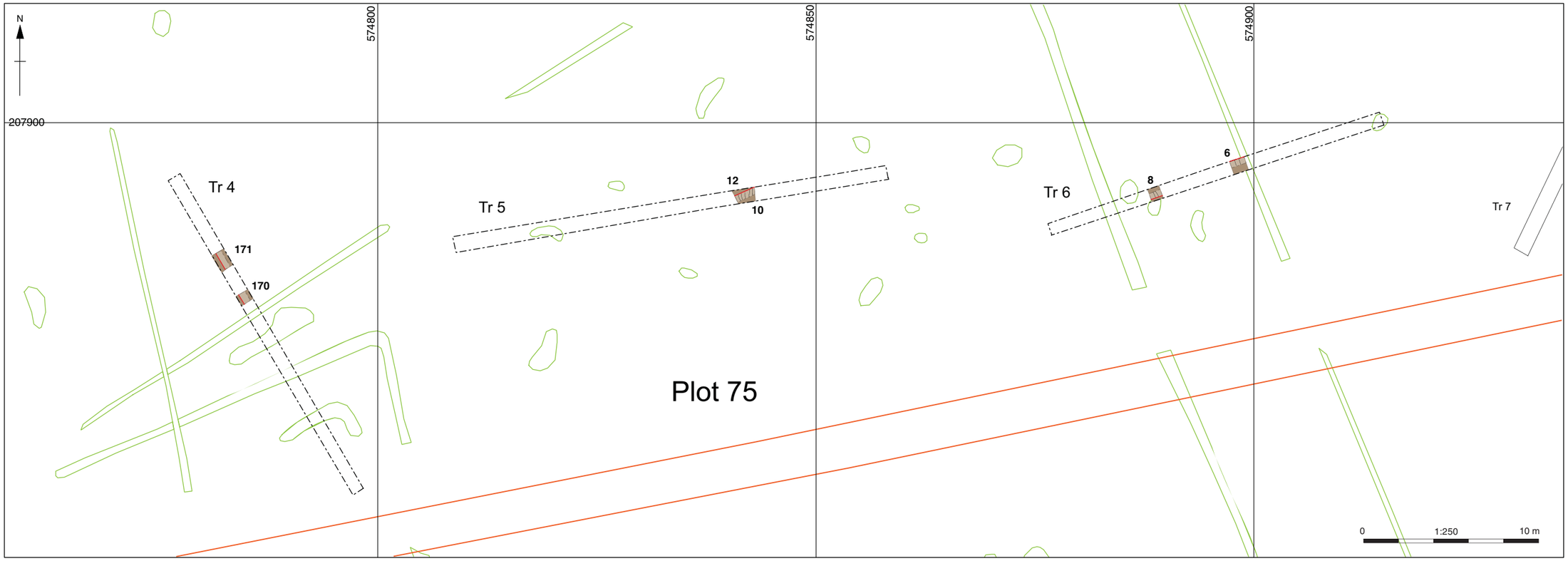
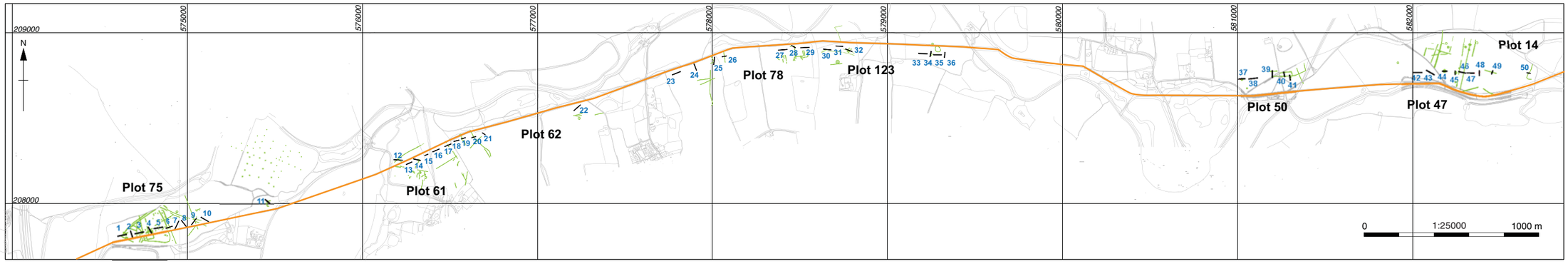


Figure 2c: Plan of Trenches 4, 5 and 6 (Plot 75). Scale 1:250



Overall plan of trenches 1-50 and related plots. Scale 1:25000

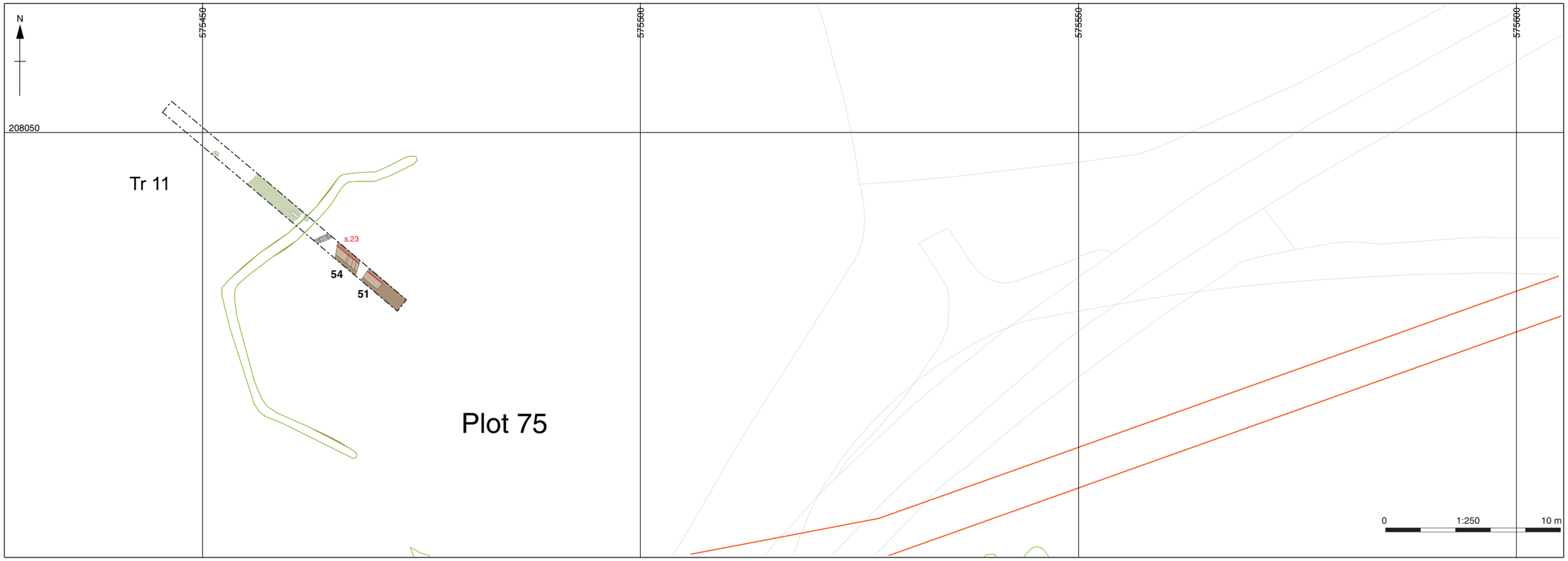
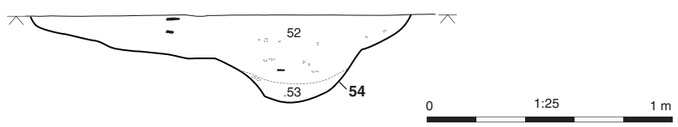
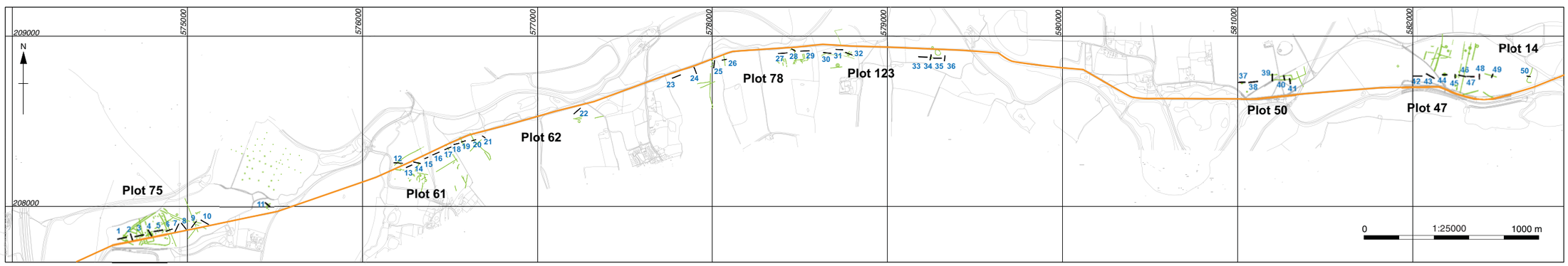


Figure 2d: Plan and selected section of Trench 11 (Plot 75). Scale 1:250

Trench 11 Section 23





Overall plan of trenches 1-50 and related plots. Scale 1:25000

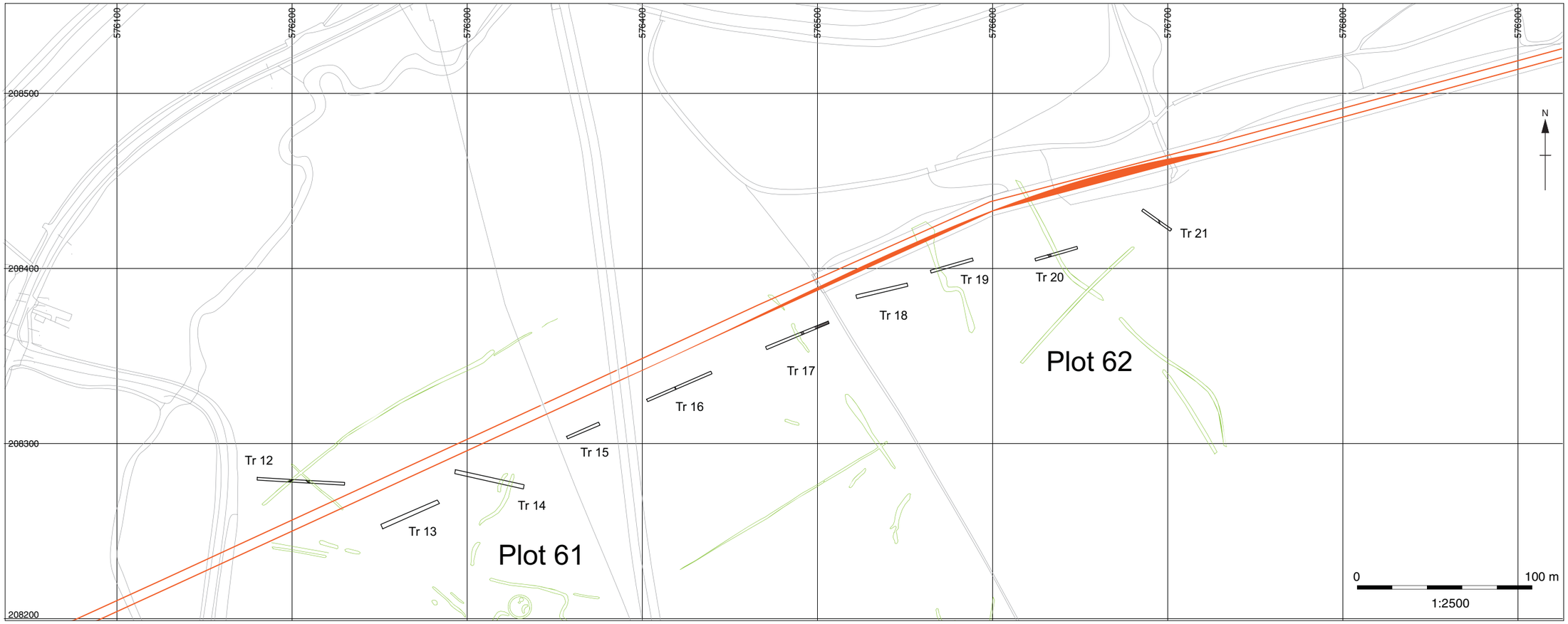
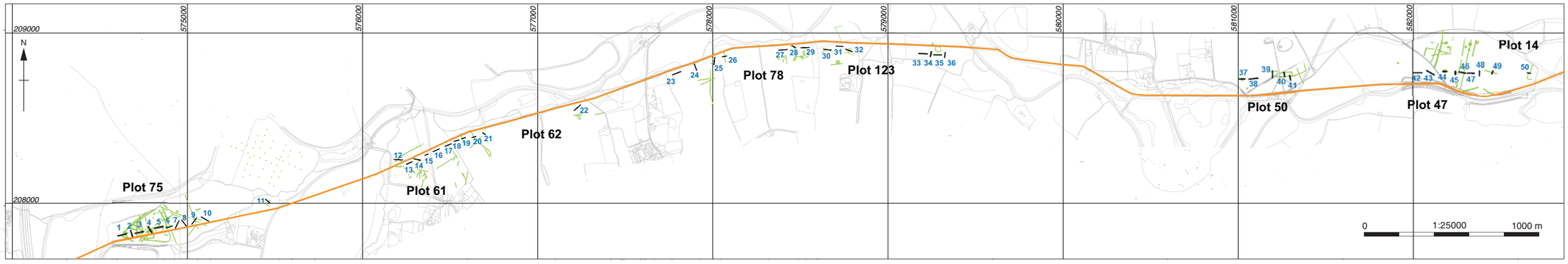
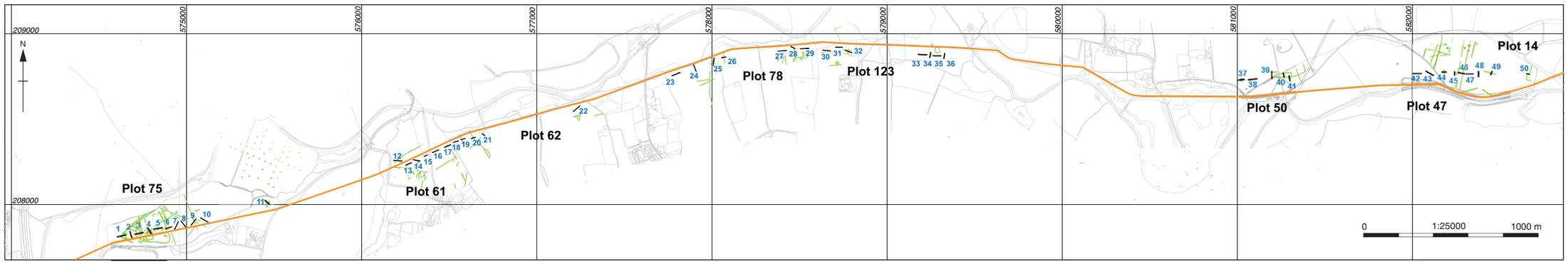


Figure 3: Plan of trenches 12- 17 (Plot 61) and 18-21 (Plot 62). Scale 1:2500



Overall plan of trenches 1-50 and related plots. Scale 1:25000

Figure 4: Plan of trenches 18 to 22 (Plot 62) Scale 1:2500



Overall plan of trenches 1-50 and related plots. Scale 1:25000

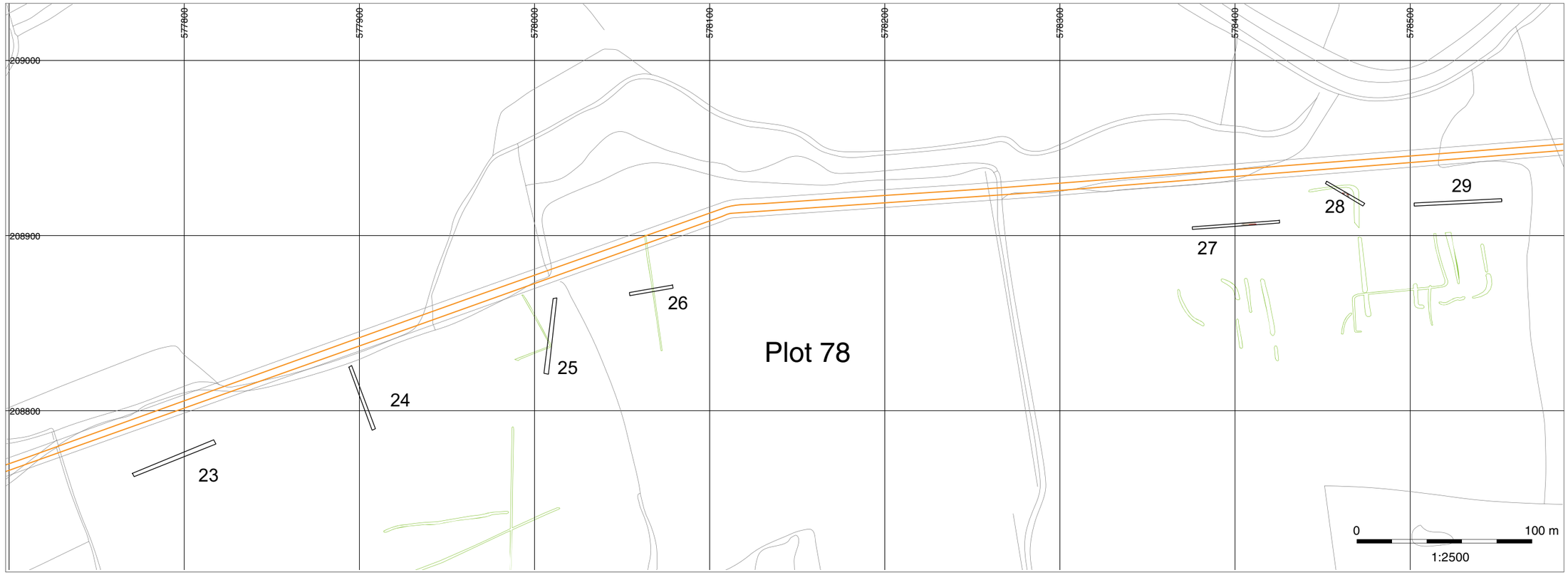


Figure 5: Plan of trenches 23 to 29 (Plot 78) Scale 1:2500

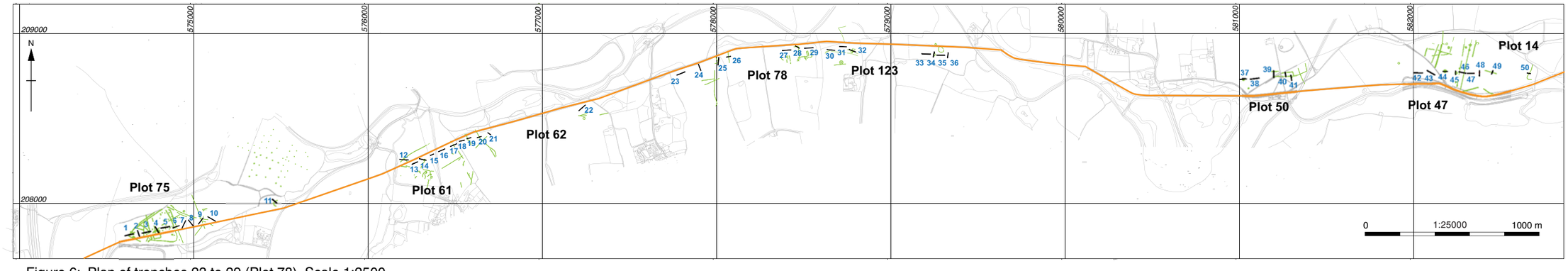


Figure 6: Plan of trenches 23 to 29 (Plot 78) Scale 1:2500

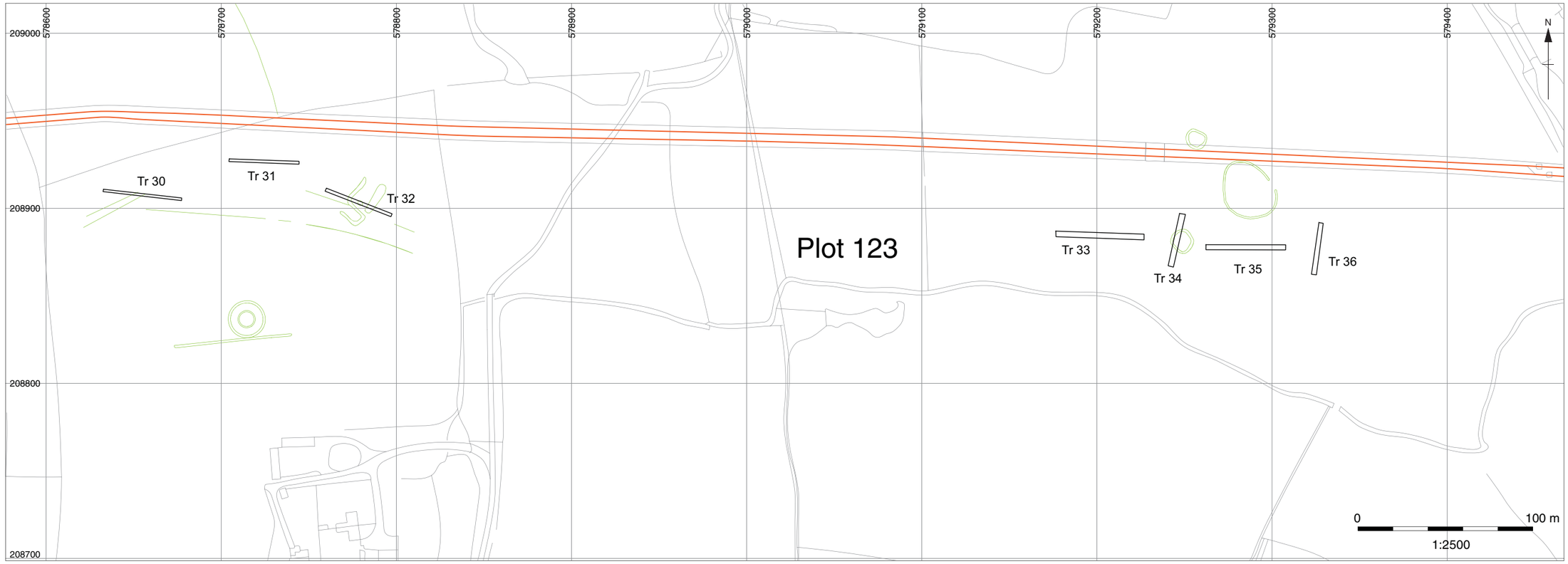
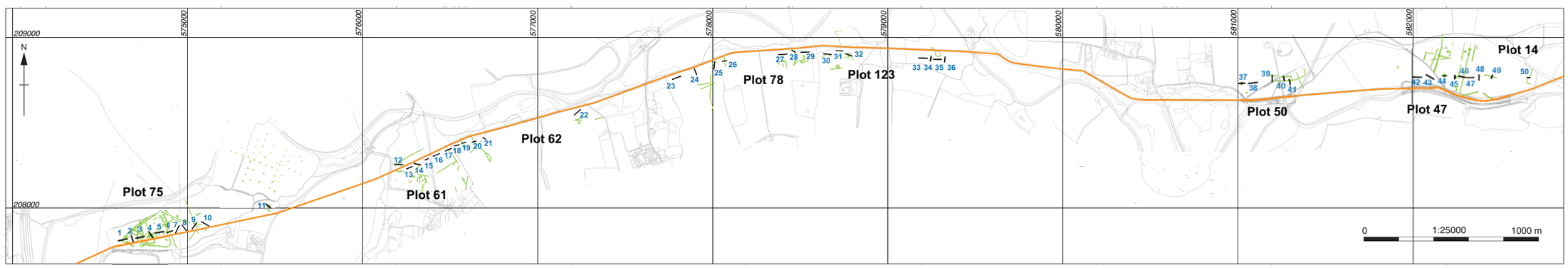


Figure 6: Plan of trenches 30 to 36 (Plot 123) Scale 1:2500



Overall plan of trenches 1-50 and related plots. Scale 1:25000

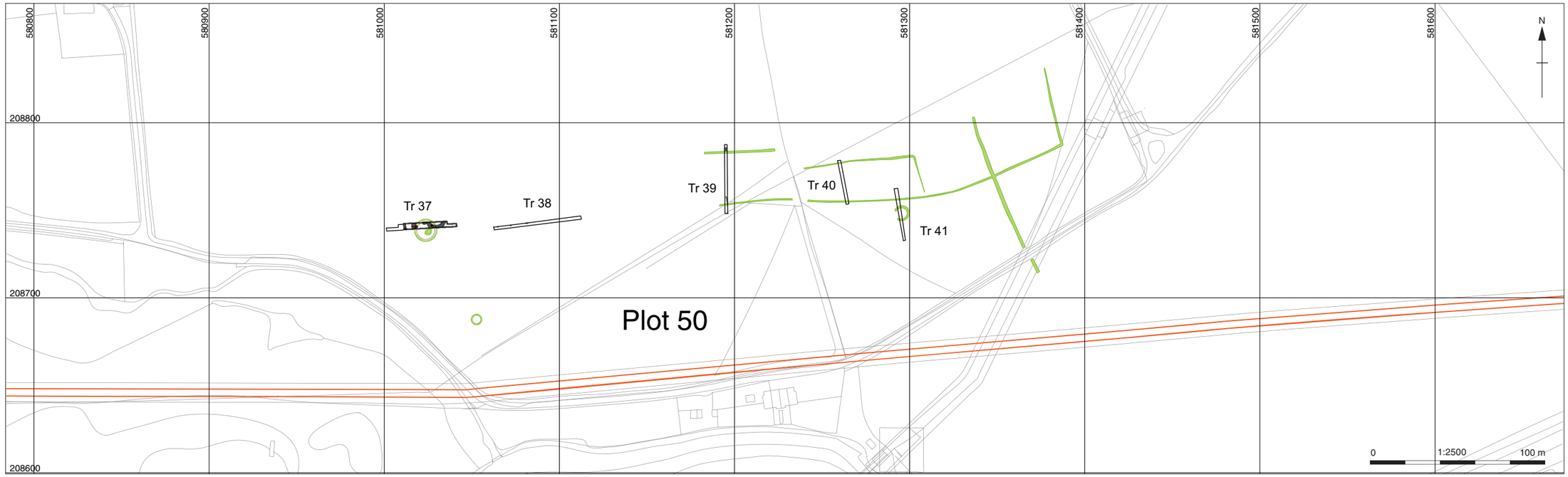
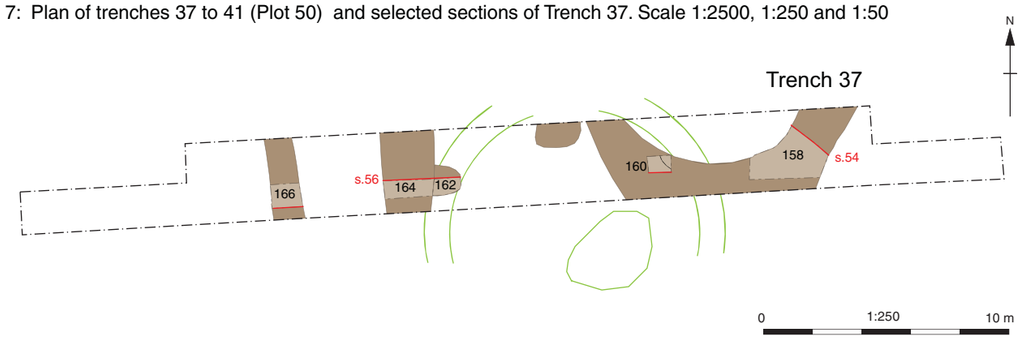
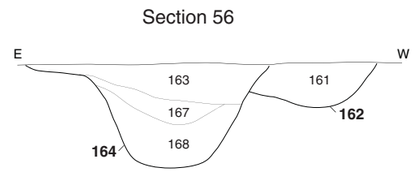
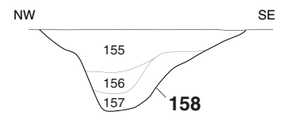
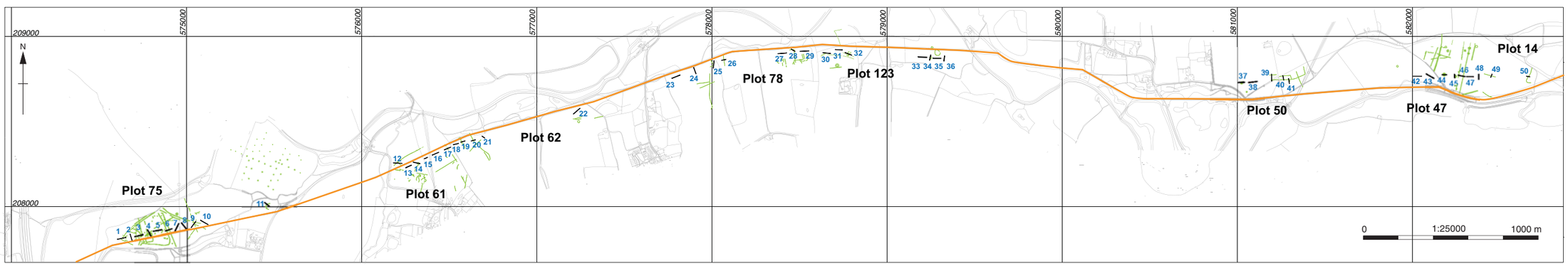


Figure 7: Plan of trenches 37 to 41 (Plot 50) and selected sections of Trench 37. Scale 1:2500, 1:250 and 1:50









Overall plan of trenches 1-50 and related plots. Scale 1:25000

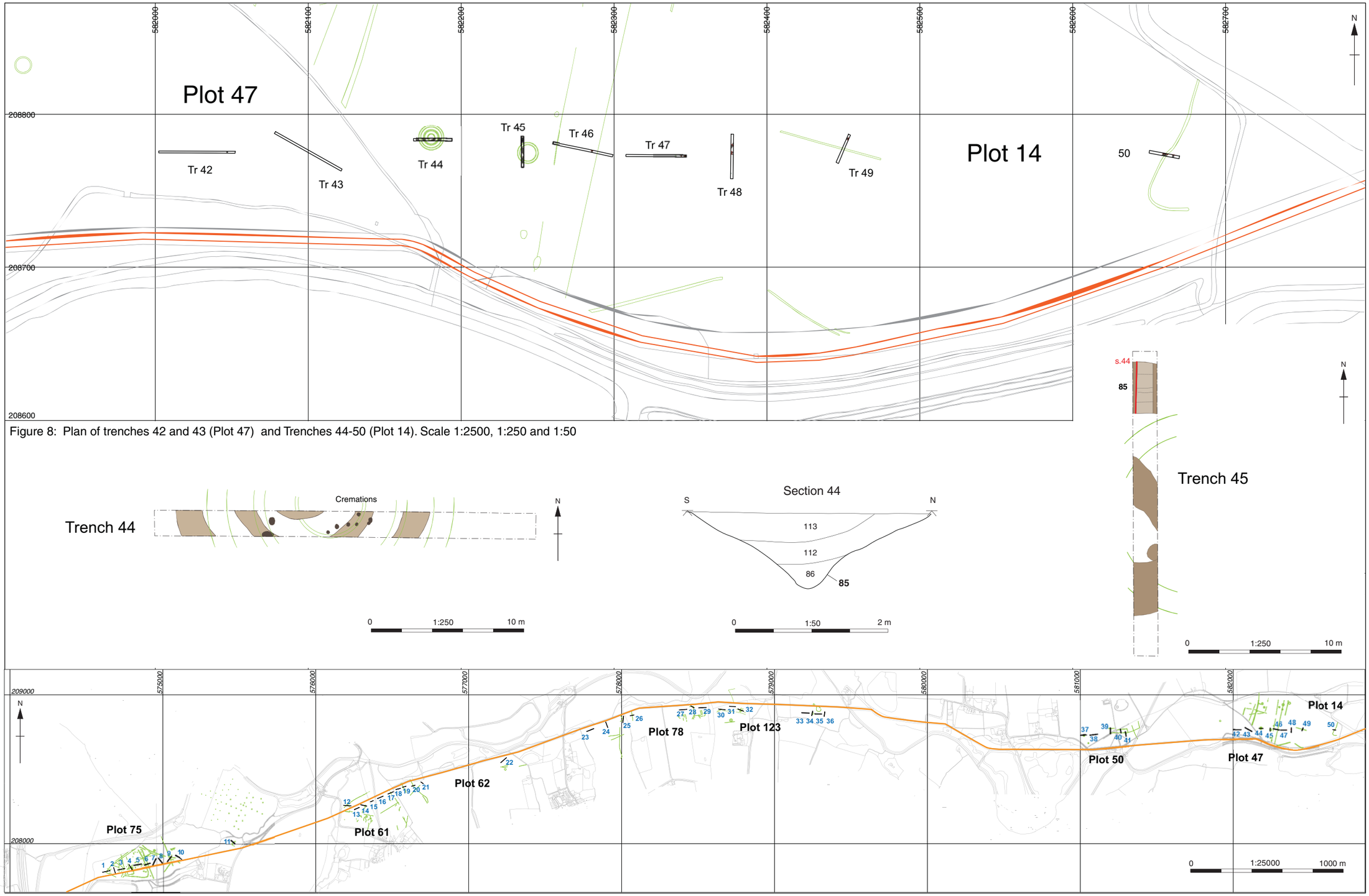


Figure 8: Plan of trenches 42 and 43 (Plot 47) and Trenches 44-50 (Plot 14). Scale 1:2500, 1:250 and 1:50

Overall plan of trenches 1-50 and related plots. Scale 1:25000

Plate 1: Ditch 46, trench 1 from the south west

Plate 2: Ditch 38, trench 3, from the south

Plate 4: Trench 37, from the east

Plate 6: Ditch 85, Trench 45, from the west

Plate 3: Trench 11, from the south east

Plate 5: Trench 44, from the east

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