Middlemoor Windfarm, North of Alnwick, Northumberland

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SUMMARY

A proposal to erect a windfarm of 18 turbines at Middlemoor, North Alnwick (centred on NU 414 623) (Fig 1), has been submitted by Npower Renewables (NR 2005). Oxford Archaeology North (OA North) were invited by Robert Johns of Entec UK, acting on behalf of Npower Renewables, to undertake an archaeological evaluation to inform a planning application for the development. The evaluation was undertaken during August 2006 and entailed the excavation of 95 trenches.

The evaluation identified undated archaeological features in several areas, particularly in the vicinity of Turbine 18 (Trench 91) south of Victory Wood and Turbine 15 (Trench 87) within Linkhall Moor, both of which lie within the southern part of the development. These remains comprised a ditch and pits of potential prehistoric date. In addition, further remains of archaeological potential were encountered at the substation compound area, and across the proposed sites of Turbines 6, 9, 11, 12 and 14. The remains from these sites were mostly post-medieval in origin, and included a back-filled water-course and ridge and furrow in the vicinity of Hughe's Wood (Trenches 33 and 36 (Substation / Compound area)), old fence lines forming field boundaries (Trench 61 (Turbine 6) and Trench 75 (Turbine 11)), plough-marks (Trenches 8, 9, and 18 (Borrow Pit), and Trenches 52 (Turbine 1), 71 (Turbine 9), 73 (Turbine 10), 76 (Turbine 11) and 78 (Turbine 13)). There were also a number of nineteenth century land drains (Trenches 5 (Borrow Pit), Trenches 36 , 37 and 39 (Sub-station / compound) , and Trenches 47 (Turbine 5), 60-62 (Turbine 6), 75 (Turbine 11) and 85 (Turbine 16).

A possible example of prehistoric rock art was encountered some distance away from the site of a turbine (between Turbines 4 and 6), situated along the southern edge of a field bordering Middlemoor Road. The rock was *ex situ* and had been cleared from the adjacent field as a result of a programme of land improvement. The faint ring-marked loose boulder was the only piece identified during the course of the project, however, if confirmed it would reinforce the earlier Environmental Impact Assessment (NR 2005) that had highlighted the existence of rock art in the area.

As undated, and potentially prehistoric, features have been observed across the study area, it is recommended that a controlled top-soil strip, under archaeological supervision, be undertaken in selected areas where archaeological features have been found or sample areas where there have yet to be any investigation. This would include the area of the sub-station / site compound, the area of Turbines 15 and 18 and at the junctions of proposed access tracks. Elsewhere the turbine and crane bases should be subject to a watching brief during any ground disturbance.

Waterlogged plant remains were identified in a pond in the area of the proposed sub-station and it is recommended that the primary fills of the pond be subject to detailed palaeoenvironmental analysis and a monolith sample through the pond should be assessed for pollen analysis. AMS radiocarbon dates should be obtained from the primary fills of the pond, and from pits recorded in Trench 61 of Turbine 6.

Surviving elements of an earlier field system within the field containing Turbine 2 will potentially be impacted by the construction of access tracks; these are probably of post-medieval date, but could potentially have medieval origins. It is therefore recommended that a detailed archaeological survey be undertaken of all surface features within this field and of a road north of Turbine 1.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to express its thanks to Npower Renewables for commissioning the project, and to their staff Clare Wilson and Tim Daldry specifically for their help and support. We would also like to Robert Johns of Entec UK for his advice and assistance during the project, and to Chris Burgess of Northumberland County Council for his advice. We are particularly grateful to landowners Charlie Armstrong and Eddie Stafford for considerable logistical support and for access and advice concerning the agricultural landscape and warnings concerning amorous livestock. Thanks and deep appreciation are bestowed on the skills and local knowledge of the digger driver Arthur Smith.

The archaeological evaluation was directed by Sean McPhillips, who was assisted by Thomas Mace and Pip Haworth, who also completed all survey requirements. The report was compiled by Sean McPhillips, who also examined the finds. The environmental samples were assessed by Sandra Bonsall, and the illustrations were prepared by Mark Tidmarsh and Anne Dunkley. The report was edited by Jamie Quartermaine, who was also responsible for the project management.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 A proposal to erect a windfarm of 18 turbines at Middlemoor, north of Alnwick (centred on NU 414 623) (Fig 1), has been submitted by Npower Renewables (NR) and the archaeological potential of the area was examined as part of an Environmental Impact Assessment (EIA) for the site (NR 2005). This identified no direct effect of the development on known archaeological sites, but it established that the wider area has considerable potential for prehistoric remains. The EIA recommended that a programme of archaeological evaluation be undertaken, in advance of construction to confirm the presence or absence of archaeology within the footprint of the development. Following discussions with Northumberland County Council it was agreed that an archaeological evaluation be undertaken to inform the planning application. Robert Johns of Entec UK, acting on behalf of NR, invited Oxford Archaeology North (OA North) to submit a project design (*Appendix 2*) in response to a brief (*Appendix 1*) prepared by Nick Best, the Assistant County Archaeologist of Northumberland County Council. Following acceptance of the project design, OA North carried out the evaluation, during August 2006.

1.1.2 This report presents the results of the archaeological evaluation, and highlights the impact that the development will have upon the identified archaeological resource.

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 The project design (*Appendix 2*) provided for the excavation of 95 trial trenches that were focused on the sites of the proposed turbines (18 x 5m by 2m trenches), temporary crane stands (36 x 10m by 2m trenches), the electricity substation/compound (16x 10m by 2m trenches) the borrow pit (25 x 30m by 2m trenches). Two trenches on the site of the proposed electrical substation could not be excavated because of the presence of two large ponds along the northern edge of the field, and two trenches on the Borrow Pit site could not be excavated because of the presence of a silage mound in the south-eastern corner of the field. Several trenches containing archaeological potential were extended (Trenches 42, 47, 90 and 91) on the advice from Chris Burgess of Northumberland County Council, and a further two 10m long trenches (Trenches 96 and 97) were excavated across the area of a proposed service road close to the plantation on Camp Hill. This additional trenching was suggested by Rob Johns of Entec as part of agreed contingency trenching, in order to check the presence of any remains of a putative 'camp' noted during the EIA (NR 2005).

2.1.2 In all other respects the trenching was undertaken in accordance with the project design, and all work was consistent with the relevant standards and procedures provided by the Institute of Field Archaeologists.

2.2 EVALUATION TRENCHING

2.2.1 In total, 97 trenches were ultimately excavated across the site (Figs 2-5; *Appendices 3* and *4*). A machine fitted with a toothless ditching bucket was used to remove the uppermost levels to the subsoil, after which all archaeological features and structures were excavated manually. The trenches were excavated in a stratigraphical manner, whether by machine or by hand and were located by use of GPS equipment, which is accurate to +/- 0.02m, with altitude information being established from an Ordnance Survey Datum. Archaeological features within the trenches were planned using manual techniques.

2.2.2 Results of the field investigation were recorded using a paper system, adapted from that used by the Centre for Archaeology of English Heritage. The archive includes both a photographic record and large-scale plans and sections at an appropriate scale (1:50, 1:20, and 1:10). All artefacts and ecofacts were recorded using the same system, and were handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.

2.2.3 Photography was undertaken with 35mm cameras on archivable black-and-white print film as well as colour transparency, all frames including a visible, graduated metric scale. Digital photography was extensively used throughout the course of the fieldwork for presentation purposes. Photographic records were also maintained on special photographic *pro-forma* sheets.

2.3 ENVIRONMENTAL

2.3.1 In total, thirteen bulk samples were taken from secure deposits within the trenches. The samples varied between 1 and 16 litres in volume and were processed for the assessment of charred and waterlogged plant remains. It was hoped that the samples would yield information about the environment and economy of the site.

2.3.2 The samples were hand-floated and the flots were collected on 250 micron mesh and air dried. The flots were scanned with a Leica MZ6 stereo microscope and the plant material was recorded and provisionally identified. Plant remains were scored on a scale of abundance of 1 to 4, where 1 is rare (less than 4 items) and 4 is abundant (more than 100 items). The components of the matrix were also noted.

2.4 ARCHIVE

2.4.1 A full archive of the work has been produced to a professional standard in accordance with current English Heritage guidelines (1991) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). It is intended that the results obtained from the various investigations will be combined to form a single, integrated archive. When completed, the paper archive will be deposited with the Northumberland Record Office. In addition, a copy of the report will be forwarded to the Northumberland Sites and Monuments Record (SMR), and a summary sent to the National Monuments Record (NMR).

3. BACKGROUND

3.1 INTRODUCTION

3.1.1 The following section presents an overview of the natural, historical and archaeological background to the study area, and is intended to provide the wider context in which the results obtained from the evaluation may be placed. The background information, including the section on Location and Geology, is reproduced from the Environmental Statement compiled by Npower Renewables (NR 2005).

3.2 LOCATION AND GEOLOGY

3.2.1 ***Location:*** the site covers an area measuring approximately 7km^2 and is situated 8km north of Alnwick, roughly centred at NU 414 623 (Fig 1) (NR 2005). The site lies within the parish of Eglingham, which was formerly part of Ellingham Parish. Ellingham Parish was divided into a number of townships, which included North and South Charlton (North and South Charlton Tithe maps; OS First edition 6" to 1 mile map (1866)). The current parish of Eglingham is characterised by rural farmland and small settlements, with some surviving moorland in upland areas, such as that within parts of the site.

3.2.2 ***Geology:*** the site is underlain by faulted sedimentary rocks of the Carboniferous Lower Limestone Group, Scremerston Coal Group and Fell Sandstone Group. The Lower Limestone Group underlies the northern area of the site beneath North Charlton Moor and Middle Moor, and the south-eastern area from the village of North Charlton to the southern boundary at South Charlton (BGS 1972). The stone occasionally outcrops at the surface, particularly in the north-west. The entire group consists of a cyclical sequence of limestone, mudstone, and sandstone with rare coal. The Scremerston Coal Group is present beneath much of the site, except in its south-west and north-east corners. It is the highest solid stratum beneath parts of North Charlton Moor and Linkhall Moor in the centre of the site and also beneath Moor Plantation, Pond Wood and Brockley Hall in the south. It occasionally outcrops at the surface, especially beneath North Charlton Moor. The group comprised a cyclical sequence of thin argillaceous limestone, shale, sandstone, and thick and numerous seatearth and coal. It also contained a higher proportion of terrigenous material than the overlying limestone group. The Fell Sandstone is a fine-grained quartzitic sandstone and is present across the entire site. It is nearest to the surface south of Linkhall Moor (NU 152 218) and to the north of Moor Edge Plantation (NU 158 228), where there is evidence of disused quarries located in both areas. The complex pattern of subcrop is due to the presence of six faults within the site boundary. Within these faulted areas lie two coal seam outcrops associated with the Scremerston Coal group. Drift deposits of Glacial Till cover approximately 60% of the site. Such deposits tend to comprise clay, with lenses of sands and gravels. Sands and gravels are also present in the south-east corner of the site where there also associated permeable soils (BGS 1972). Peat is present on the location of Honeymug Bog, to the south of the March Cast watercourse (NU 153 237) and Outer Moss in the north-west corner of the site (NU 139 239).

3.2.3 The Soils of England and Wales sheet for this area classifies the soils underlying the majority of the site as Till from Palaeozoic and Mesozoic sandstone and shale (Lawes Agricultural Trust 1983). These are slowly permeable clay soils of the Dunkeswick Association, found on grassland and moist lowland and which can be seasonally waterlogged. The soils of the Wilcocks Association are derived from Palaeozoic sandstone, mudstone and shale and underlay approximately 0.75km^2 in the very north-west corner of the site. This area is the highest part of the site. The soils are slowly permeable, seasonally waterlogged, clay upland soils with a peaty surface horizon. Peaty soils are present in the north area of the site surrounding March cast and Outer Moss. The ridge of higher ground at Linkhall Moor is underlain by soils derived from Palaeozoic and Mesozoic sandstone. This area comprised well-drained acidic coarse loamy soils of the Anglezarke Association, with rocks and boulders present locally. Soils of the Wick 1 Association were present in the south-east corner of the site associated with glacio-fluvial and river terrace deposits, within deep well drained coarse sandy soils.

3.3 HISTORY AND ARCHAEOLOGY

3.3.1 ***Introduction:*** the EIA conducted in 2005 (NR 2005) identified the potential for unrecorded archaeological remains, particularly of prehistoric date, to exist in the area. It is thought that the general area has been occupied from the Mesolithic period, although identified sites and stray finds of Bronze Age, Iron Age and Medieval period dates suggest continued occupation in these periods. The main areas of interest identified were Camp Hill and North Charlton Moor (*Section 3.3.2*). Other than the nineteenth century record of Bronze Age activity on North Charlton Moor and post-medieval agricultural settlement and improvement, all recorded archaeological sites lie outside the study area.

3.3.2 ***Prehistoric Period:*** there is abundant evidence for prehistoric activity in the locality although there is little in the vicinity of the study area. However, archaeological remains of interest were excavated and recorded in the area of North Charlton Moor in the nineteenth century. These included Bronze Age cist burials (SMR 5011) that were revealed as a result of the opening of cairns by antiquarians. The exact location for these finds and the potential for surviving remains is not known, owing to the paucity of the contemporary record. The possibility of a camp on Camp Hill is suggested by the representation of a circular enclosure on the Tithe map of 1844 (North Charlton Tithe 1844). However, nothing is now evident at the site, which is planted with woodland and the depiction may even correlate with a cairn excavated in 1844, and which revealed a cist (SMR 5008). It was shown in the location of the Camp Hill Plantation on the OS 1st edition map (1866). The quality of any surviving remains in these areas is likely to be reduced owing to previous excavation and subsequent agricultural improvement, and any remains which are present within the afforested area on Camp Hill are likely to have been disturbed.

3.3.3 Other sites interest include the place name of Souterpot Cairn within the north-western area of the site, which is noted on current and superseded Ordnance Survey maps; however, no remains have been identified on the ground in this location. The nearest Scheduled Monuments to the site include the Iron Age defended settlement in Camp Plantation (SM 29339), which lies just outside the north-eastern boundary of the site, 1km north of Turbine 8, and West Linkhall Camp (SM ND371)

described as '4-sided with rampart and an entrance in the north-west corner, using natural boulder clay to form a defensive enclosure' (NR 2005, 256). In addition, cup and ring marked stones have been found on Brockdam Moor (SMR 5061), immediately to the north-east of the study area, and worked flint artefacts ranging in date from Mesolithic and Neolithic have been found, along with Bronze Age pottery vessels, from the excavation of cairns in the vicinity. Other stray find in the vicinity include a Bronze Age bronze spear tip (SMR 5010; NU 1365 2275) and axe hammer (SMR 5029; NU 165 235).

3.3.4 ***Romano-British Period:*** there are no known Roman sites within the study area, and the nearest sites were a Romano-British enclosed settlement was recorded 800m north-west of East Bolton (NU 12405 16665) and a settlement on Beanley Moor (NU 10895 18415); both sites are a considerable distance to the south-west of the study area.

3.3.5 ***Medieval Period***: medieval settlement in the area is characterised by a scattered pattern of individual isolated farmsteads, small hamlets, and by the market towns of Alnwick and Rothbury. Other Scheduled Monuments that lie in proximity to the site include North Charlton Medieval Village and open field system (SMR 29349) which is located to the east of the site. The remains of the village have been substantially altered by incongruous modern built development and other infrastructure within the present settlement and by the modern A1 road. The presence of the deserted medieval village of Linkhall (SMR 5055) is also postulated as a result of documentary evidence (Hodgson 1858); the precise location of this is not known, although it is likely to have been in the vicinity of the current East and West Linkhall, to the south east of the study area (NR 2005). Evidence of open field systems (SM 29349; SMR 5049) dating to the medieval period have been identified, and include three large open fields east and south-east of North Charlton called 'The Fatting Pasture', 'The Comb Hills', and 'The Stone Close'.

3.3.6 ***Post-Medieval Period***: considerable coal mining took place in the vicinity during the nineteenth century, although the coal workings at Ford Moss (NU 9653 3746) (Durham Mining Museum 2005; Vickers 1922) were worked from the mid seventeenth century to the early twentieth century, demonstrating the historic importance of mining in the Scremerston coal field during the industrial revolution. The late eighteenth and nineteenth centuries was a period of agricultural improvement and expansion which saw the use of more marginal land. The introduction of the enclosure radically changed the landscape providing increased yields and better husbandry. By the 1840's the medieval landscape had been replaced by an efficient managed pattern of broad, open field and large farm hamlets (OS First Edition map (1866)); however, the western part of Middlemoor, between Daneshill Plantation and Camp Hill was still unenclosed by the time of the OS first edition map (*ibid*). Remnants of these 'improvements' include sites of ridge and furrow identified close to East Ditchburn in the southern part of the study area, close to the proposed Turbine 17, and across the land close to Hughe's Wood in the central northern part of the study area.

3.4 CARTOGRAPHIC EVIDENCE

3.4.1 North and South Charlton and farmsteads in the vicinity are shown on county maps from the eighteenth century onwards, although few details within the site are generally shown. On Fryers map of 1820 a building denoted 'Herd's House' is shown on North Charlton Moor. On Greenwood's map of 1828 the area of Camp Hill is shown as 'Heathery' and it appears that three sides of a rectangular enclosure (to the north, east and south) may be suggested atop the summit of the hill.

3.4.2 The earliest detailed maps covering the site are the Tithe maps and accompanying apportionment for the townships of North and South Charlton, both of 1844. At the time of the Tithe maps, Middlemoor was still unenclosed, although several paths or tracks were shown crossing it. The main moorland road, that links North Charlton and the new Middlemoor farm, was shown, as was a track that extended north from it to Old Middlemoor; this latter track now survives as a footpath. Few of the wooded areas now present, such as Hughe's Wood, Clare's Wood and Peter's Wood were shown, and none were present on Linkhall Moor at this time.

3.4.3 Of particular note on the Tithe map for North Charlton is a feature shown on Camp Hill, which appears to represent a circular earthwork enclosure with an entrance to the south, in the general location of the present wooded area and the location of the cairn shown on the SMR (SMR 5008). A possible enclosure was also shown on Greenwood's map of 1828 as a rectilinear earthwork, which suggests that the remains of a camp may have been present at that time.

3.4.4 The OS First Edition map (1866) does not depict the Camp Hill enclosure, although the site of the cairn was shown and was annotated 'Four Stone coffins each containing an Urn and Human Bones found here about the year 1834'. Other site of interest, include a sluice south of the pond in Pond Wood, and Brockley Hall Tile Works and Clay Pit, both of which are on the southern edge of the study area.

3.4.5 Few features or significant changes were shown on the OS Second Edition map (1899), or subsequent editions. These chart the enclosure of the moorland and the increase in number of plantations. ''Old Shaft's' were shown in two locations to the north of the current Middlemoor farmstead, one of which is now the location of Hughe's Wood.

4. SUMMARY RESULTS

4.1 INTRODUCTION

4.1.1 In total, 97 trial trenches have been excavated across the study area (Figs 2-5), in accordance with the project specification. The trenches were intended to assess the nature, density, extent and state of preservation of any archaeological remains. This section presents a summary of the results obtained from each area of the archaeological evaluation, such as the borrow pit, the electrical substation/site compound, and the turbines (both turbine bases and temporary crane stands). The individual descriptions are presented in tabular form in *Appendix 4*, and those trenches that have revealed archaeological remains are described in greater detail below.

4.2 BORROW PIT

4.2.1 In total, 24 trenches were excavated across the site (Fig 3), and each measured 30m long by 2m wide. Within each trench there was little subsoil surviving, and many trenches revealed rock outcrops directly below the topsoil, especially within those along the southern part of the field. No prehistoric rock art was noted on these outcrops and in only one trench (Trench 9) was any significant archaeology identified (Fig 8), beyond drains and plough marks (e.g. Trenches 5 and 8 (Figs 6 and 7)).

4.2.2 ***Trench 9:*** (Fig 8) was aligned north/south, and was excavated to a depth of 0.30m. Topsoil was removed to a depth of 0.13m to reveal the underlying natural clay at a maximum depth of 0.24m. Several plough-marks, ***1014***, with north-west/south-east, and east/west alignments, were encountered at the northern end of the trench. The marks were typically set 0.35m apart, measured 0.16m in width and were cut into the natural clay. The fills, ***1013***, of the features all comprised light-grey sandy-silt which yielded no finds.

4.2.3 A small post-hole, ***1016***, and a burnt spread representing the upper fill, ***1017***, of a probable pit, ***1018***, were located adjacent to the edge of a plough-mark (Plate1). The post-hole, ***1016***, survived to a depth of 0.04m and was filled with a loose dark-brown silt, ***1015***. Burnt spread ***1017***, comprised a dark-brown sandy-silt that contained a deposit of charred remains, which was 0.08m thick; this sealed a compacted orange-grey burnt clay, ***1019***, representing the primary fill. The fills were contained within a sub-circular shaped feature, ***1018***, that measured 1.12m by 0.66m, and suggested the remains of a small bonfire. No dating evidence was recovered from either of these features.

4.3 SUBSTATION/SITE COMPOUND

4.3.1 It was intended to excavate 18 trenches across the proposed electrical substation and compound area located in the field directly north of Middlemoor Farm, although the presence of two large ponds along the northern edge of the field (Plate 2), restricted the number to 16 (Fig 3). Each trench measured 10m long by 2m wide. The undulating topography of the field contained well-preserved remains of

ridge and furrow of potentially medieval date surviving along its eastern edge and the archaeological evidence would suggest that the land has also undergone extensive drainage attempts, particularly in the northern part of the field. (Trench 33 revealed a large hollow, ***1030***, that was possibly a former pond, and two field drains, ***1031*** and ***1033***, were revealed in Trench 36). It is commonly known that this part of Northumberland is manganese and sulphur deficient (Arthur Smith pers comm), and it would appear that some effort was made to improve cultivation in the area. Traces of manganese, a black mineral similar in appearance to charcoal, were detected across the surface of many subsoil deposits, suggesting land improvement. Other attempts at drainage included machine-excavated ponds that were used as soak-aways to help divert water away from the cattle sheds in the farm, coupled with the installation of numerous drains. The field was also latterly used as a stone dump, and its surface has been extensively churned up by tractors during the twentieth century; as a result little topsoil has survived across the centre of the field.

4.3.2 ***Trench 27:*** was positioned in the eastern edge of the field and was excavated approximately east/west across the crown of a north/south aligned ridge and furrow (Plate 3). The ridge measured 4m wide and comprised a 0.23m thick deposit of sandy clay topsoil containing frequent stone inclusions, which sealed a reddish-yellow clay subsoil (Fig 10). The furrows along the east and west end of the trench were recorded at a depth of 0.17m below the top of the crown in the west, and 0.60m in the east. No finds were recovered from the trench.

4.3.3 All the identifiable ridges were aligned north/south and were visible along the eastern edge of the field. A distance of 10m was recorded between each visible ridge crown, which is relatively broad and normally a product of oxen ploughing and therefore probably of medieval date; however, no evidence of headland was observed to confirm the use of oxen ploughing.

4.3.4 ***Trench 33:*** (Figs 3, 9 and 11; Plate 4) was excavated on an east/west alignment along the northern edge of the field parallel to the field boundary with Hughe's Wood. Remains of a sub-circular hollow, ***1030***, cut into the natural clay, ***1027***, were encountered across most of the trench, that has been interpreted as a former pond. The hollow was approximately 8m in diameter and survived to a depth of 1m below the turf. The primary fill, ***1029***, comprised a mottled silty sand that was 0.20m thick and was spread for a distance of 5.88m across the base of the feature above the natural clay, ***1027***. This was sealed by a 0.17m thick deposit of dark-grey-brown clay silt, ***1028***, that was in turn overlain by a mid-red-brown clay-silt, ***1024***, measuring 0.05m thick. The clay-silt, ***1024***, was cut by a drainage ditch, ***1023***, that entered the western edge of the pond, and also by a rubble bank, ***1025***, along its eastern edge. The bank was constructed from large amounts of stone rubble set above the natural to a height of 0.55m, and it may have been installed to either divert the water course away from the boundary around Hughe's Wood, or more likely to retain the water in the pond. No dating evidence was recovered from the trench, although intensive soil and pollen sampling was undertaken in order to obtain ecofactual evidence and other possible dateable material from the silts. The environmental results are assessed in *Section 4.7* below.

4.3.5 ***Trench 36***: (Figs 10 and 12) was located along the northern part of the field, directly south of Trench 33, and had an east/west alignment. Two connecting field drains, ***1031*** and ***1033***, were observed cutting the natural orange sand, ***1021***. Drain

1031 was aligned north-west/south-east; it was 0.60m wide, and was filled with loose stone at the base, sealed by a 0.32m thick redeposited sand and clay deposit, ***1032***. Drain ***1033*** followed a north-east/south-west alignment and was connected to drain ***1031*** in the central area of the trench. It would appear that drain ***1033*** was widened, ***1034***, to 0.60m at its western end (Fig 11) possibly to further improve the drainage.

4.4 TURBINES

4.4.1 In total, 54 trenches were excavated across proposed turbine and associated crane pad locations (Figs 2, 4 and 5). Few archaeological remains were encountered within the trenches, although deposits of possible archaeological interest were observed at the southern limit of the study area in the location of Turbine **18** (Trench 91). In addition, remains of unknown date were encountered along the western and southern parts of the study area in the location of Turbines **6** (Trench 61) and **15** (Trench 87), and post-medieval industrial remains, including waste from a possible coal pit were identified near to Old Middlemoor Farm (Turbine **8**, Trench 42). Several trenches containing archaeological remains were extended (Trenches 42, 47, 90 and 91) on the advice of Chris Burgess of Northumberland County Council. In addition, a further two 10m long trenches (Trenches 96 and 97) were excavated across the line of a proposed service road close to the plantation on Camp Hill.

4.4.2 Each trench across the turbine bases measured 5m by 2m, and a further two trenches, measuring 10m by 2m, were excavated across each turbine crane stand. The trench descriptions are summarised below in *Appendix 4* and those trenches that have revealed archaeological remains are described below:

4.4.3 ***Turbine 1:*** (Fig 2) although no archaeology was identified by the evaluation trenches, a 5m wide level grassed surface, which possibly represents the remains of a track-way, was noted to the north of the proposed turbine location. This feature lies close to the brow of the hill and is aligned east/west from the direction of Outer Moss. This feature lies beyond the northern edge of the turbine trenches (Trenches 51 to 53) and its date and importance is not known.

4.4.4 ***Turbine 2:*** (Fig 2) the evaluation at Turbine 2 did not identify any archaeological remains; however, the field which it is within is one of the few that has not been improved. It contains a substantial number of earthwork features relating to a former, probably post-medieval, field system. These, for the most part, are earthern banks, associated ditches in some places.

4.4.5 ***Turbine 5:*** the south-western area of the field, containing turbines 3 and 5, originally contained an old water course/stream which ran east/west along the southern edges of the field. The stream was seemingly ploughed over and drains were installed as part of an episode of land improvement during the last century. This resulted in a large extant bank of material along the northern edge of the old water course, and this has since grassed over.

4.4.6 ***Trench 47:*** was aligned north/south and was initially excavated to 10m by 2m in size and was then subsequently extended by 5m from the northern end at the request of the Northumberland County Council Archaeologist. This was required in order to further examine a disturbed dark-grey-brown clay subsoil that was revealed at the trench base. This was 0.45m below the turf and was diffused along the northern and

southern edges by a yellow clay (Plate 5), at each end, representing the back fills of two modern water pipes.

4.4.7 ***Turbine 6***: the field has been subject to repeated episodes of extensive drainage, exemplified by the presence of land drains across each trench (Trenches 60 to 62).

4.4.8 ***Trench 61*****:** (Fig 13) was aligned north-east/south-west, measured 10m by 2m, and was excavated to a maximum depth of 0.36m (Plate 6). Two features of unknown date were encountered cutting the natural clay. A post-hole/pit, ***1036***, was located along the southern part of the trench and comprised an oval-shaped cut measuring 0.76m by 0.40m by 0.20m deep, with sharp oblique edges and a rounded base. This feature was surrounded by an ochre coloured natural clay, that has possibly been coloured as a result of heat exposure. It was filled with an ash-rich dark-grey-brown silty-sand, ***1037***, containing frequent charcoal fragments. The second feature was located towards the north-eastern end of the trench and comprised a lozenge-shaped cut, ***1039***, measuring 0.36m by 0.18m, and which survived to a depth of 0.10m. The feature had a 'U'-shaped profile and was filled with a mid-brown-grey silty-clay, ***1038***, that had a high charcoal content. No dating evidence was recovered from either feature although both have been sampled for the potential recovery of environmental remains.

4.4.9 ***Turbine 8:*** the proposed turbine is to the south of Old Middlemoor Farm, and to the north-west of Hughe's Wood, where an 'Old Shaft' was shown on the OS First Edition map (1866).

4.4.10 ***Trench 42***: the topsoil was a light brown silty-clay containing numerous small stones and coal flecks. This overlay a dark-red sandy clay, with seams of decayed sandstone exposed, diffused with pale yellow sandy clay at the north-west end of the trench. A north/south aligned drain possibly associated with Old Middlemoor Farm was identified crossing the trench. A possible deposit of coal waste was identified at the southern end of the trench and, as a consequence, the trench was extended 5m to further investigate the deposit. Beyond the coal deposit, which could be scattered waste from the former shaft at Hughe's Wood, no distinctive archaeology was encountered.

4.4.11 ***Turbine 11***: Trenches 75 to 77 were located along a high plateau in the field close to Middlemoor Road, within North Charlton Moor. This field has improved, as demonstrated by the presence of drains in the trenches.

4.4.12 ***Trench 75:*** (Fig 14; Plate 7) contained two drains, ***1050*** and ***1051***, located along its eastern side, which were cut into a pale-brown natural clay, ***1049***. Drain ***1051*** was aligned north/south and contained several fragments of ceramic drain pipe within its fill, ***1052***, that dated no earlier than the mid-twentieth century. Drain ***1050*** was aligned north-east/south-west, and was joined to drain ***1051*** close to the west-facing section of the trench. Two shallow (<50mm deep) post-holes, ***1053*** and ***1055***, of unknown function, were set 0.35m apart along the western edge of the trench; neither contained dating evidence. A third feature, ***1047***, was observed along the centre of the trench. It was oval in plan and had a shallow base with gradual sloping sides. It was filled with a soft-grey heavily rooted silty-clay, ***1048***, surviving to a depth of 0.08m. The nature of the fill suggests that the feature may be a small tree bole. The features were all sealed by the topsoil.

4.4.13 ***Turbine 12***: Trenches 66 to 68 were located within a low-lying area to the north-west of Middlemoor Farm. The field contained an east/west aligned ditch, that possibly formed part of an old field boundary.

4.4.14 ***Trench 66:*** (Figs 15 and 16; Plate 8) was aligned north/south and was excavated across the width of a possible old field boundary ditch, which was located along the southern limit of the trench. (Fig 15). The deposits encountered reflected the damp environment and included humified topsoil and manganese-rich subsoils. The subsoils were rich in composition varying between a grey to pale-red-brown sandy clay that was diffused with a water-worn gravel along the southern part of the trench in the base of the ditch. No finds were recovered.

4.4.15 ***Trench 67:*** (Fig 17) was aligned north/south and had a mid-grey-brown silty-sand with occasional sub-angular sandstone topsoil, that was 0.08m thick. This overlay a mid-orange-brown sandy clay that was streaked with manganese. Within the trench were two pairs of post holes, ***1041/1043, 1045a*** and ***1045b***, which were approximately 2m apart, and were potentially derived from a modern fence-line.

4.4.16 ***Turbine 15:*** Trenches 87-89 were located on flat, marshy land on Linkhall Moor which had thick tussocky grass; the land was unimproved.

4.4.17 ***Trench 87:*** the trench was aligned north-east/south-west. The topsoil was 0.15m thick and overlay a compact, orangey-brown fine sand subsoil, ***1069***, that had patches of light-grey sand. A sub-rectangular, steep sided pit, ***1067***, was identified (Plate 9) cutting a sub-soil deposit of grey sand, ***1070***. It measured 1.55m x 1.2m and was 0.17m deep. It was filled with a mid-brown silty loam, ***1068***, that was similar to the overlying topsoil. No finds were recovered from the pit and it was of unknown date and function.

4.4.18 ***Turbine 18***: Trenches 90 to 92 were located along the sloping edge of the field to the south-west of Victory Wood. Trench 91 contained possible evidence of prehistoric activity represented by linear features and a large pit.

4.4.19 ***Trench 90***: Trench 90 measured 5m by 2m, but was extended by 5m from both the southern and northern ends to trace further potential archaeological features similar to those identified in Trenches 91 and 92; however, no traces were found in the original trench or its extensions.

4.4.20 ***Trench 91:*** the topsoil was removed to a depth of 0.09m exposing an underlying sandy-silt subsoil, ***1071***, that was 0.19m thick. This was removed to reveal a natural grey sandy-clay, ***1072***. Several features were observed cutting the natural clay along the western part of the trench (Fig 18). No dating evidence was recovered from any of the fills of these features, suggesting that they may be of prehistoric origin. These included a sinuously curved, but essentially north-east/south-west aligned ditch, ***1065*** (Plate 10) and several small pits/post-holes, ***1059***, ***1061*** and ***1063***, located along the western edge of the ditch, and a pit, ***1057***, at the southern terminal of the ditch. In addition, several faint residues of plough-marks of probable post-medieval date were observed cutting the natural clay following a similar broad alignment as ditch ***1065***.

4.4.21 Ditch ***1065*** was at least 2.50m long and 0.33m wide, and had a 'U'-shaped profile. It survived to a depth of 0.10m; however, the feature became gradually deeper at the north- east end, and shallower at the south-west end, perhaps suggesting a terminus. Its base was lined with loose stone that was in turn overlain by a dark-grey-brown sandy-silt, ***1066***. Pit ***1057*** was sub-rounded in plan and measured

0.85m by 0.42m and survived to a depth of 0.16m. The feature had a concave base with smooth sloping sides; it was filled with a dark-brown sandy-silt, ***1058***, that had few inclusions. Post-holes ***1059*** and ***1061*** were almost identical in shape and depth, each being 0.18m in diameter and 0.07m depth, with V-shaped profiles. Both post-holes were filled with a dark-brown sandy-silt (***1060*** and ***1062*** respectively). Pit/post-hole ***1063*** was sub-rounded in plan and aligned east/west, measuring 0.45m long by 0.31m wide and 0.10m deep; it was filled with a grey-brown clay-silt, ***1064***. The trench was extended 2m along the southern edge to examine the full dimensions of pit ***1057***, and a further 0.38m width of the feature was exposed.

4.5 PUTATIVE ROCK ART

4.5.1 A single example of a possible element of rock art was located within a field close to Middlemoor Road centred on NU 413851 623123. The stone (Plates 11 and 12) was observed amongst boulders that had been dragged to the edge of the field as part of field clearance operations. The carving comprises a deep grooved sub-circular panel, measuring 0.25m by 0.15m, which enclosed a faint design (Fig 19). The design bears a faint resemblance to an occulus-style motif, within a sub-circular shaped panel, that was carved along the upper surface of a roughly 1m long by 0.50m high sandstone block. It would appear that the carving was not 'finished' or had been broken off at one edge. There is a vaguely similar design found at Hangingstones Rock on Ilkley Moor (Boughey and Vickerman 2003, Plate **83**), although the latter was a much more elaborate example. This is not a conventional rock art pattern and there is the possibility that the form reflects a natural process of surface layer separation, which has resulted in irregular patterns on the rock. Consequently, it cannot be confirmed that this it was of anthropogenic origin.

4.5.2 The area, however, is known to be rich in carved prehistoric 'cup and ring'-type rock art (NR 2005). Examples of the rock art phenomenon known within the locality, occur on both outcropping bedrock and 'portable' stones or boulders incorporated into later prehistoric funerary and clearance cairns.

4.6 FINDS

4.6.1 A limited number of artefacts (37 fragments) were recovered from largely unstratified deposits during the evaluation. Of these, 26 were animal bone fragments deriving from the fill of a land drain, ***1032***, in Trench 36. The remainder comprised fragments of fuel waste, glass, slag and ceramic drain pipe. The absence of pottery amongst the assemblage precludes accurate dating; however, some of the material, such as the drain pipe and glass, can be broadly dated to the nineteenth and twentieth centuries. The entire assemblage is summarised in Table 1 below.

CONTEXT	TRENCH	MATERIAL	QUANTITY	DESCRIPTION	DATE
1032	36	Animal Bone	26	Sheep/goat	Not closely datable
1046	70	Industrial Residue	1	Fuel waste	Not closely datable
1052	74	Ceramic	4	Drain pipe	19th/20the century

1056	81	Ceramic	2	Drain pipe	19th/20the century
1056	81	Industrial Residue	2	Slag	Not closely datable
Unstrat	72	Glass	1	Wine bottle	19th century
Unstrat	83	Industrial Residue	1	Slag	Not closely datable

Table 1: Range of material collected during the evaluation

4.6.2 The paucity of artefacts is surprising, given the ploughing activity identified across many parts of the study area. Quite often waste material, such as pottery, glass, industrial residues and animal bone, is imported into the topsoil as part of the manuring process, and its apparent absence would suggest that the land has not been substantially manured or improved.

4.7 ENVIRONMENTAL

4.7.1 In total, 13 environmental samples were taken from various features on the site, the different feature types are shown on Table 2 below. All the samples were taken from secure contexts for the assessment of charred and waterlogged plant remains.

Feature	Number of samples
Pit	4
Ditch	1
Drain	2
Pond	3
Posthole	2
Amorphous feature	1

Table 2: Number of samples from each feature type.

4.7.2 ***Results:*** the environmental results are shown below in Table 3. Charcoal was present in six of the samples, and was abundant in three pit samples. The charcoal preservation was poor and was in some samples encrustated. No other charred plant remains were found in any of the samples.

Sample number	Context	Feature	Sample vol. ml.	Flot description	Plant remains	Potential
1	***1017***	Pit ***1018*** (Trench 9)	100	Charcoal >2mm (2) Modern roots (3), Modern seeds (2)		None
2	***1032***	Probable drain ***1033*** (Trench 36)	200	Modern roots (3), Modern seeds (1)		None
3	***1024***	Tertiary fill of pond (***1030***) (Trench 33)	200	Charcoal >2mm 1 (1), Modern roots (2), insect remains (1)	WPR seeds (4) including *Juncus*, *Urtica dioica*, *Urtica urens*, *Rumex acetosella*	Moderate
4	***1028***	Secondary fill of pond	450	Charcoal 2 >2mm 2, Modern roots (2)	WPR seeds (3) *Carex*, Rubus	Moderate

		(***1030***) (Trench 33)			fructicosus, Juncus, Rumex acetosella , *Poaceae*	
5	***1029***	Primary fill of pond (***1030***) (Trench 33)	300	Wood and roots (4), earthworm egg cases (1), insect remains (1)	WPR (4) *Corylus avellana fragment, Rumex acetosella, Porentilla erecta, Potamogeton sp, Juncus), Carex trigonous, Cirsium, Ranunculus flammula, cf Euphorbia), Viola), Chara/Nitella 00 spores, Asteraceae*, Culm node	Good plus Dating
6	***1035***	Field drain (***1034***) (Trench 36)	200	Coal (3), clinker (1), modern roots (3)		None
7	***1037***	Pit (***1036***) (Trench 61, Turbine 6)	400	Charcoal >2mm (3), modern roots (4) modern seeds (1)		Dating
8	***1038***	Pit (***1039***) (Trench 61, Turbine 6)	90	Charcoal >2mm (4), modern roots (4) Modern seeds (1)		Dating
9	***1040***	Posthole (***1041***) (Trench 67, Turbine 12)	5	Charcoal >2mm 2, modern roots (2)		None
10	***1044***	Posthole (***1045***) (Trench 67, Turbine 12)	110	Charcoal >2mm (2), >2mm 2, modern roots (3)		None
11	***1048***	Amorphous feature (***1047***) (Trench 75, Turbine 11)	18	Modern roots (2)		None
13	***1058***	Pit (***1057***) (Trench 91, Turbine 18)	300	Modern seeds (1), Modern seeds (1)		None
14	***1066***	Ditch (***1065***) (Trench 91, Turbine 18)	10	Modern seeds (1) Modern seeds (1)		None

Table 3: Assessment of plant remains from Middle moor Wind Farm.

Plants scored on a scale of 1-4 where 1 is rare (1-5 items) and 4 is abundant (more than 100 items)

Key: WPR = waterlogged plant remains

4.7.3 The primary fill, ***1029***, of pond ***1030*** (Trench 33), contained abundant waterlogged plant remains which included *Corylus avellana* (hazelnut) fragments, *Potamogeton* (pondweeds), *Juncus* (rushes), *Carex* (sedges), *Cirsium* (thistles), *Rumex acetosella* (sheep sorrel), wood fragments, amorphous plant remains and culm nodes (from

straw). The two overlying samples, fills ***1024*** and ***1028***, also produced good quantities of waterlogged plant remains. Charcoal was also present in the two upper fills, ***1024*** and ***1028***, of the pond.

4.7.4 Waterlogged plant remains were preserved in the three fills of pond **1030** and were abundant in the primary fill, ***1029***. The identification of crop processing waste together with some weeds of cultivated/waste ground, for example spurge (*cf Euphorbia*) and violets (*Viola*), suggest that some arable waste has accumulated in the fills. Rushes (*Juncus*), sedges (*Carex*), thistles (*Cirsium*), cinquefoils (*Potentilla erecta*-type) and indeterminate Asteraceae were probably growing around the margins of the pond with lesser spearwort (*Ranuncuculus flammula*), pondweed (*Potamogeton* sp) and alga *Chara/Nitella* growing in the pond.

4.7.5 Due to the abundant waterlogged plant remains that were preserved in the primary fill, ***1029***, of pond ***1030,*** it is possible to date when the fills started to accumulate. If suitable charcoal fragments in pits, ***1036*** and ***1039*** (Trench 61), are identified these could be dated.

5. DISCUSSION

5.1 INTRODUCTION

5.1.1 The programme of archaeological evaluation has provided a comprehensive assessment of the extent and nature of the sub-surface archaeological resource within the development area, and has resulted in the identification of areas of archaeological potential. The archaeological features identified by the evaluation are discussed by period in the following section.

5.2 PREHISTORIC PERIOD

5.2.1 It seems possible that the study area would have been conducive for prehistoric settlement on account of the natural topography and its location. The presence of the putative rock art found close to Middlemoor Road would appear to confirm this potential. In addition, several trenches contained archaeological deposits that could be of prehistoric origin; however, these were undated and are described under *Section 5.5*.

5.2.2 The discovery of the single fragment of putative rock art identified on a boulder located approximately 70m south of Turbine **6**, provided a possible indication of prehistoric remains on the site. The stone was undoubtedly not *in situ*, and was located some distance from the proposed development, however, its presence in the field is potentially indicative of prehistoric activity in the area. No definitive parallels with the style of decoration have been identified in comparison with the abundant examples illustrated in the Beckensall archive of rock art discovered in Northumberland (Beckensall 1999; www.rockart.ncl.ac.uk); although, a vaguely similar design was found at Hangingstones Rock on Ilkley Moor (Boughey and Vickerman 2003, Plate **83**). There is also the possibility that it had a natural origin, reflecting frost-induced separation of surface layers resulting in irregular patterns on the rock face.

5.3 ROMAN/MEDIEVAL PERIOD

5.3.1 No deposits or feature pertaining to the Roman of Medieval periods were encountered during the evaluation.

5.4 POST-MEDIEVAL PERIOD

5.4.1 The evaluation identified various post-medieval agricultural features which included plough-marks at the borrow pit site (Trenches 8, 9, 16, 18 and 21) and on the sites of the turbines (Trenches 51, 52, 63, 71, 73, 76, 78, 89 and 91) and ridge and furrow (Trench *27*) at the substation site. Fence lines of unknown date, but probably post-medieval, were also encountered in Trenches 58, 61, 67 and 75. The other notable post-medieval feature was a ditch possibly representing an old field boundary within Trench 66 at Turbine **12**.

5.4.2 It would seem that a large part of the study area has undergone periods of intensive land reclamation/improvement during the nineteenth and twentieth centuries. This

was identified by the presence of sand blended with traces of peat, which was noted in many fields along the northern part of the study area.

5.5 UNKNOWN DATE

5.5.1 A number of features were identified during the evaluation that had no finds and no diagnostic form, such that it was not possible to attribute a date to them. The absence of finds is potentially significant in that post-medieval features commonly do have artefacts as a result of night-soiling. The absence of finds would suggest that these features were of an earlier, prehistoric date though they could as easily be of later date.

5.5.2 ***Trench 9:*** post-hole ***1016*** and burnt spread ***1017*** are not particularly diagnostic but could represent a central tent post and a small bonfire. Although no dating evidence was recovered from these features, a prehistoric origin cannot be excluded.

5.5.3 ***Trench 33***: waterlogged plant remains were preserved in the fills of pond ***1030*** and were abundant in the primary fill, ***1029***. Although no dating evidence was recovered, the identification of crop processing waste, together with some weeds of cultivated/waste ground, suggest that some arable waste has accumulated in the fills.

5.5.3 ***Trench 61:*** the features in this trench, post-hole/pit ***1036*** and diamond-shaped cut, ***1039***, each had a high charcoal content although no dating evidence was recovered from either feature, it is worth noting that the piece of putative rock art was discovered within the same field as these features.

5.5.4 ***Trench 87*****:** the trench was excavated within an unimproved boggy area of Linkhall Moor, and as such had the potential for undisturbed archaeological deposits. Pit ***1067*** had an unknown function and no other similar features were encountered in the other trenches (Trenches 88 and 89) around Turbine **15**.

5.5.5 ***Trench 91:*** the ditch and pits encountered in the trench were undated, although a prehistoric date cannot be excluded.

5.5.6 ***Turbine 1:*** an east/west aligned grassed surface/track was located close to the brow of the hill south of Turbine 1, running from the direction of Outer Moss towards Souterpot Dean and possibly represents the remains of a track-way of unknown date. The feature was observed running beyond the northern edge of the turbine trenches (Trenches 51 to 53), although it may warrant further investigation during construction of the access road to the turbine, which will cross it.

6. IMPACT AND SIGNIFICANCE

6.1 IMPACT

6.1.1 The construction of the crane stand adjacent to Turbine **18** (Trench 91), in its present proposed position, will damage the archaeology in that specific location. No remains were encountered in the other two trenches and there is no evidence of any archaeological features on the site of Turbine **18**.

6.1.2 The construction of the crane stands for Turbine **6** (Trench 61) and Turbine **15** (Trench 87), in their present positions, will damage the archaeological resource in those locations. The identified archaeological resource on the site of the Turbine **6** crane base is a drainage ditch and of limited archaeological significance. The archaeological resource on the site of Turbine **15** crane-base is an undated plough mark and is also of only limited archaeological significance.

6.1.3 The field containing Turbine **2** is one of the few that has not been ploughed or improved. As such, there are a considerable number of surface features relating to a former field system, comprising earthen banks and traces of associated ditches. Although this field system would not be directly affected by the construction of the turbines, the construction of the access tracks would undoubtedly affect elements of it. Similarly just to the north of Turbine **1** is the line of a former trackway, which is now grassed over. This also has the potential to be impacted by the construction of the access tracks.

6.2 SIGNIFICANCE

6.2.1 The results obtained from this work have identified one part of the study area in particular that contained *in situ* archaeological remains, in the vicinity of Turbine **18** south of Victory Wood, and Turbine **15** within Linkhall Moor, both at the southern limit of the development. These remains comprised a ditch and pits of potential prehistoric date. In addition, further remains of archaeological potential were encountered at the substation compound area, and across the proposed sites of Turbines **6**, **9**, **11**, **12** and **14**. The remains from these sites were mostly post-medieval in origin, and included a back-filled water-course and ridge and furrow in the vicinity of Hughe's Wood (Trenches 33 and 36 (Substation / compound), old fence lines forming field boundaries (Trenches 61 (Turbine **6**) and 75 (Turbine **11**)), plough-marks (Trenches 8, 9, and 18 (Borrowpit); Trenches 52 (Turbine **1**), 71 (Turbine **9**), 73 (Turbine **10**), 76 (Turbine **11**) and 78 (Turbine **13**)) and nineteenth century land drains (Trenches 5 (Borrowpit), 36, 37, 39 (Substation/compound), 47 (Turbine **5**), 60-62 (Turbine **6**), 75 (Turbine 11) and 85 (Turbine **16**)).

6.2.2 A single example of putative prehistoric rock art was encountered some distance away from any proposed development. The rock was *ex situ* and had been cleared from the adjacent field as a result of a programme of land improvement. The finding of this element of rockart reinforces the findings of the EIA (NR 2005) that had highlighted the existence of rock art in the area.

6.2.3 The presence of putative rock art and other possible prehistoric remains identified during the archaeological evaluation is potentially of regional importance, and if

confirmed would add to the range of examples documented from the area (NR 2005). In addition, palaeoenvironmental archaeologists consider that it is important to attempt to identify suitable natural deposits within the area to study and date possible anthropogenic changes in the local vegetational history by palynology (pollen analysis).

7. RECOMMENDATIONS

7.1 INTRODUCTION

7.1.1 The archaeological evaluation has demonstrated that a potentially significant archaeological resource survives across the extent of the study area and the following section provides recommendations for its mitigation in advance of the development.

7.2 BORROW PIT

7.2.1 The remains encountered in Trench 9 were of unknown date although a prehistoric origin cannot be excluded. In addition post-medieval agricultural features, which included plough-marks, were encountered in Trenches 8, 9, 16, 18 and 21.

7.2.2 No other deposits or features of significance were identified, indicating that this area has little archaeological potential. It is considered unlikely that further detailed investigation of this area would reveal significant archaeological deposits; however, a watching brief should be maintained during the topsoil strip to examine the area around Trench 9 and to check the perceived low level of archaeological remains at the site.

7.3 SUBSTATION/SITE COMPOUND

7.3.1 ***Introduction:*** post-medieval features, such as ridge and furrow, were observed across the eastern end of the field, particularly in Trench 27, and remains of unknown date including a probable pond, were encountered in Trench 33. The samples collected from the pond fills have the potential to furnish important palaeoenvironmental information.

7.3.2 ***Topsoil Strip:*** the area of the substation / site compound has the potential for post-medieval remains, as well as palaeoenvironmental deposits. It is therefore recommended that a controlled topsoil strip be undertaken across this area under archaeological supervision. The topsoil clearance would need to be carefully undertaken using a 360º excavator with a toothless ditching bucket, removing material in spits to ensure that any significant archaeological deposits are identified.

7.3.3 ***Waterlogged plant remains***: it is recommended that the sample from primary fill, ***1029*** of pond ***1030*** is taken for further analysis together along with the samples from the upper two contexts ***1024*** and ***1028***. The two upper fills, although not as rich as the primary fill, are important due to their stratigraphic position and would give an insight into ecological changes over time.

7.3.4 ***Site specific and regional pollen***: a monolith sample was taken through all three contexts of pond ***1030***, during the evaluation and it is recommended that this should be assessed for pollen analysis. It is also recommended that a targeted programme of environmental fieldwork should be undertaken to identify and sample a suitable natural deposit from within the study area for palynological analysis. This will then be assessed as to it's potential for analysis.

7.3.5 ***Dating***: as part of the analysis on the monlith sample from the primary fill of pond ***1030***, it is recommended that an assessment be undertaken of the potential for AMS radiocarbon dating to determine when the pond was infilled.

7.4 TURBINES

7.4.1 Possible prehistoric remains were observed in the vicinity of two turbines (Turbines **15** and **18**), with further remains pertaining to the post-medieval period. A controlled topsoil strip and watching brief is advised across areas thought to contain potential remains, and includes the environs of Turbines **15** and **18** on Linkhall Moor. The top-soil would need to be carefully stripped using a 360° excavator with a toothless ditching bucket and excavation should be undertaken in spits to ensure that any significant archaeological deposits are identified. If significant archaeological remains are identified, there may be a requirement for more intensive excavation as appropriate.

7.4.2 The location of the putative rock art near Turbine **6** highlights the potential for further remains that could be extant under the ground surface. Therefore, it is recommended that a watching brief be maintained during all ground disturbances in the western part of the study area, north of Middlemoor Road. Elsewhere it is recommended that a watching brief be undertaken on the sites of the proposed crane and turbine bases.

7.4.3 ***Trenches 96 and 97 on Camp Hill:*** no deposits or features of significance were identified close to Turbine **9** or along the proposed access road. However, this does not necessarily indicate that there is no archaeology in the area and it would be worthwhile conducting a controlled watching brief during ground disturbances across this area as a final check for archaeological remains.

7.4.4 ***Trench 61 (Turbine 6):*** the pit fills in Trench 61 had high charcoal content and it is recommended that suitable charcoal fragments be extracted from pits ***1036*** and ***1039*** for AMS dating. The dates will be submitted to Dr Gordon Cook at the Scottish Universities Environmental Research Centre (SUERC).

7.5 ACCESS ROUTES

7.5.1 ***Areas of Turbines 1 and 2:*** the elements of the field system within the field containing Turbine **2** will potentially be impacted upon by the construction of access tracks. It is recommended that a detailed archaeological survey be undertaken of all surface features within this field, which would include all the extant elements of the field system. Similarly, the line of road to the north of Turbine **1** will potentially be affected by the construction of access tracks and should be subject to a detailed topographic survey.

7.5.2 Where the proposed access tracks cross the lines of the field boundaries and the grassed over road, these should be subject to careful excavation and detailed cross-section drawings through the features should be produced.

7.5.3 The junctions of the access tracks reflect a greater intensity of ground clearance activity, and it is recommended that in these areas the topsoil should be removed in a controlled manner with a 360° degree mechanical excavator using a toothless

ditching bucket. An archaeological watching brief should be maintained during this process.

8. BIBLIOGRAPHY

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Tithe Map of North Charlton, 1844

Tithe Map of South Charlton, 1844

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Beckensall, S, 1999 *British prehistoric rock art*, Stroud

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Durham Mining Museum, 2005 Gazetteer of coal mines in the North-east (http://www.dmm.org.uk/colliery)

Hodgson, J, 1858 *History of Northumberland, Vols 1 and 3*, Newcastle upon Tyne

Institute of Field Archaeologists (IFA), 1992 *Guidelines for data collection and compilation, London*

Lawes Agricultural Trust, 1983 *Soils of Northern England (Soil Survey of England and Wales)*, Harpenden

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Stace, C, 1991 *New Flora of the British Isles*, Cambridge

UKIC, 1990, *Guidelines for the Preparation of Excavation Archives for Long Term Storage*

University of Newcastle, 2004 *Northumberland Rock Art, Web Access to the Beckensall Archive* (http://rockart.ncl.ac.uk/)

Vickers, KH, 1922 *A History of Northumberland, Vol 11*, Newcastle upon Tyne

APPENDIX 1: PROJECT BRIEF

Planning ref: 06/00025/CPC

NCCCT ref: A14/3; 5425

Grid ref: NU 1527 2262

LAND AT MIDDLEMOOR, ALNWICK, NORTHUMBERLAND

Brief for an Archaeological Evaluation

Introduction

A planning application has been submitted to the Department of Trade and Industry (Power Station and Pipe-Line Consents) for the construction of a windfarm, associated infrastructure and services on land at Middlemoor, Alnwick, Northumberland (Fig 1). An archaeological assessment and walkover survey has been undertaken on behalf of the applicant as a component of the supporting Environmental Impact Assessment (Chapter 12, 'Cultural Heritage'). This assessment indicates that the application lies within an area of high archaeological potential. Details of known archaeological sites and findspots listed by the Northumberland SMR within and adjacent to the application area include:

- Prehistoric cup and ring marked rocks dating from the Neolithic and Bronze Age
- Prehistoric flint assemblages (indicative of settlement and land use)
- Prehistoric burial cairns, burial cists and funerary urns (multiple sites)
- Cropmarks indicative of a prehistoric field systems
- Bronze Age weapons and tools (including an axe-hammer and a spear head)
- Iron Age defended settlements
- Medieval settlements and field systems

The Northumberland SMR lists only the sites of known archaeological features. As the assessment correctly recognises (section 12.3.11), the potential for further unknown archaeological features to survive within the development site is high.

The application boundary encloses a large upland area and potential also exists for the development to directly or indirectly impact ancient peat deposits containing archaeological and palaeoenvironmental data.

Northumberland County Council Conservation Team has therefore advised the determining officer at the DTI that the archaeological potential of the site should be further investigated prior to the determination of this planning application. In this instance, it has been agreed that this should take the form of an archaeological evaluation.

This brief constitutes Northumberland County Council Conservation Team's justification for the investigation, its objectives and the strategy and procedures to apply to the archaeological evaluation. The results of this work will be used to inform the planning decision.

This brief does not constitute the 'written scheme of investigation'. It is intended to establish the project parameters to enable an archaeological consultant or contractor to tender for the work and once commissioned to prepare and submit an appropriate Method Statement, Project Design or Specification to the Conservation Team for approval prior to work commencing. The project design/specification should be based on a thorough study of all relevant background information, in particular any assessment or evaluation reports or, in their absence, data held or referenced in Northumberland Sites and Monuments Record Office (SMR).

The extent of the development (Fig 1) has been taken from plans submitted on behalf of the applicant. The archaeological consultant or contractor will need to confirm the extent of the development and the nature of the works with the developer as part of the specification.

SITE SPECIFIC REQUIREMENTS

The evaluation work proposed here is designed to ascertain whether there are any archaeological constraints that may affect the planned development. The purpose of trial excavation is to establish the presence or absence of archaeological remains, their quality, depth and preservation.

Potential impacts to the archaeological resource within the application area will derive from the construction and/or operation of:

- The wind turbines (including temporary crane stands)
- Haul/service roads
- Borrow/quarry pits
- Temporary construction compounds
- Electricity substations
- Buried cables and surfaces

The most significant potential impact to archaeological features and deposits within the application area is likely to derive from the installation of the wind turbines. This impact should be assessed by the evaluation of a minimum of 5% of the surface area of the turbine base including the area of the crane stand. If the applicant is seeking a micrositing condition, the evaluation should assess 5% of the whole of the microsite.

Subject to confirmation of proposed construction methodologies, additional trenches should be located to investigate:

- The haul/service roads
- Any borrow /quarry pits
- The footprint of the any other buildings proposed
- The footprints of other infrastructure required by the development

Access arrangements, especially for mechanical excavation equipment, should be confirmed with the person or body commissioning the work, and where appropriate also with the land owner. Utility information should be requested prior to work commencing on site, so that the utilities can be avoided.

Should any subsequent changes to the evaluation requirements be necessary these should be discussed with the Assistant County Archaeologist, incorporated within the required 'Written Scheme of Investigation' and approved prior to work commencing on site.

GENERAL STANDARDS

All work should be carried out in compliance with the codes of practice of the Institute of Field Archaeologists (IFA) [1] and will follow the IFA Standard and Guidance for Archaeological Field Evaluation.[2] Archaeological contractors must be able to prove that they have appropriate excavation experience and current insurance to undertake excavations.

The contractor should provide an indication of the resources they are proposing to use on the site, expressed where appropriate as a number of person days for each grade.

All staff must be suitably qualified and experienced for their project roles. Short CVs/relevant career histories should be provided in the specification for all site staff of supervisor or higher grade as well as any specialists involved in the project either in the field or during the post excavation phase. Details must also be supplied for office based staff involved in the management and direction of the project.

[1] Institute of Field Archaeologists, 2000, Code of Conduct
[2] Institute of Field Archaeologists, 2001, Standard and Guidance for archaeological field evaluation

PRE-SITE WORK PREPARATION

i) A specification in line with this brief must be submitted and approved by Northumberland County Council Conservation Team prior to work commencing.

ii) An appropriate environmental sampling strategy is a mandatory part of this project. Advice on such a strategy must be obtained from the English Heritage Scientific Advisor for North-East England, Dr Jacqui Huntley, Department of Archaeology, University of Durham, Science Laboratories, South Road, Durham. The sampling strategy should be included in the specification and submitted to the County Archaeologist for approval.

iii) The relevant museum should be contacted to discuss archiving, prior to work commencing.

iv) All staff must familiarise themselves with the archaeological background of the site, and the results of any previous work in the area, prior to the start of work on site. All staff must be aware of the work required under the specification, and must understand the projects aims and methodologies.

FIELDWORK

i) Topsoil and unstratified modern material may be removed mechanically by a machine using a **wide toothless ditching blade**. This must be carried out under continuous archaeological supervision

ii) The topsoil or recent overburden should be removed in successive level spits down to the first significant archaeological horizon or the natural subsoil, whichever is encountered first.

iii) All faces of the trench that require examination or recording must be cleaned sufficiently to establish the presence or absence of archaeological remains

iv) The top of the first significant archaeological horizon or the natural subsoil must be cleaned sufficiently to allow for its inspection for features.

v) All subsequent deposits must be excavated by hand

vi) The archaeology must be investigated sufficiently to establish its nature, extent and date, unless it is deemed of sufficient importance to require total preservation *in situ*. All features exposed should be sample excavated. This would typically comprise:

  i) 50% of every discrete feature

  ii) 25% of the area of linear/curvilinear features with a non-uniform fill

  iii) 10% of the area of linear/curvilinear features with a uniform fill

vii) Within the constraints of the site, the excavations should be maintained in a manner that allows quick and easy inspection without any requirement for additional cleaning.

viii) Deposits should be assessed for their potential for providing environmental or dating evidence. Sampling should be in line with the strategy agreed with Jacqui Huntley and the Conservation Team

ix) In the event of human burials being discovered, they should be left *in situ*, covered and protected and the coroners' office should be informed. If removal is essential, work must comply with relevant Home Office regulations.

x) Appropriate procedures under the relevant legislation must be followed in the event of the discovery of artefacts covered by the provisions of the Treasure Act 1996.

xi) The drawn record from the site must include a representative selection of long sections from the excavations that clearly allow the nature and depth and any significant changes in the deposits recorded to be demonstrated. If there is any uncertainty, advice should be sought from the Assistant County Archaeologist as to which sections may be appropriate for inclusion within the site record.

xii) During and after the excavation, all recovered artefacts must be stored in the appropriate materials and storage conditions to ensure minimal deterioration and loss of information (this should include controlled storage, correct packaging, regular monitoring of conditions, immediate selection for conservation of vulnerable material).

SITE-SPECIFIC FIELDWORK REQUIREMENTS

The application area is located in an area known to be rich in carved prehistoric 'cup and ring' type rock-art. Examples of the phenomenon known within the locality occur on both outcropping bedrock and 'portable' stones or boulders incorporated into later prehistoric funerary and clearance cairns.

The project archaeologists should familiarise themselves with the nature and appearance of this type of rock art prior to work commencing. Any natural bedrock or large portable stones exposed during the evaluation work (including cairn material) should be carefully examined for traces of rock art as part of the evaluation process.

Particular care should be taken during machine stripping of all trenches. In the event that natural bedrock is encountered within the evaluation trenches, exposed rock surfaces should be cleaned by hand not by machine and examined for evidence of rock art.

Details of the proposed recording methodology for any rock art encountered should be included within the WSI. (Advice on the appropriate techniques may be requested from the Conservation Team if required).

An appropriate conservation strategy must be agreed with the Conservation Team in the event that any rock art is identified.

CONTINGENCY

In some circumstances a programme of evaluation may, in answering the questions posed, also raise others of an unexpected nature. Every attempt should be made to deal with the problem by agreed modification of the specification while fieldwork is in progress.

A contingency sum should be allowed for the excavation of an additional **200** linear metres of trenching to answer particular issues that may arise during fieldwork. **Failure to make this allowance, where appropriate, may necessitate further evaluation work being recommended to the local authority and a delay in the decision making process.**

The activation of the contingency must only be undertaken after discussion with, and with the agreement of the County Archaeological Officer. A representative of the developer/owner etc should be present at such discussions.

RECORDING

i) The evaluation trenches should be accurately related to the National Grid and located on a 1:2500 or 1:1250 map of the area.

ii) A full and proper record (written, graphic and photographic as appropriate) should be made for all work, using pro forma record sheets and text descriptions appropriate to the work. Accurate scale plans and section drawings should be drawn at 1:50, 1:20 and 1:10 scales as appropriate

iii) The stratigraphy of all trenches should be recorded even where no archaeological deposit have been identified

iv) All archaeological deposits and features, the current ground level and base of each trench must be recorded with an **above ordnance datum (aOD)** level.

v) A photographic record of all contexts should be taken in colour transparency and black and white print and should include a clearly visible, graduated metric scale. A register of all photographs should be kept

vi) Where stratified deposits are encountered, a 'Harris' matrix should be compiled

POST EXCAVATION WORK, ARCHIVE, AND REPORT PREPARATION

FINDS

All finds processing, conservation work and storage of finds must be carried out in compliance with the IFA Guidelines for Finds Work and those set by UKIC.

The deposition and disposal of artefacts must be agreed with the legal owner and recipient museum **prior** to the work taking place. Where the landowner decides to retain artefacts, adequate provision must be made for recording them. Details of land ownership should be provided by the developer.

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

SITE ARCHIVE

The archive and the finds must be deposited in the appropriate local museum, within **6 months** of completion of the post-excavation work and report.

Before the commencement of fieldwork, contact should be made with the landowners and with the appropriate local museum to make the relevant arrangements. Details of land ownership should be provided by the developer. Details of the appropriate museum can be provided by the Assistant County Archaeologist.

Northumberland County Council will require confirmation that the archive had been submitted in a satisfactory form to the relevant museum.

REPORT

The evaluation is the second stage in a potential multi-staged programme of archaeological work and has been requested prior to the determination of planning permission.

Due to the strict deadlines laid out in the planning system, the archaeological contractor or consultant should submit copies of the report to Northumberland County Council Conservation Team and their client within 28 working days of being commissioned to carry out the work, unless agreed in advance with all relevant parties.

The evaluation report should be submitted as a 'stand-alone' document in the first instance. Once approved by the Conservation Team, a copy of the evaluation report should also be included as an appendix to the EIA.

The Conservation Team require <u>two copies</u> of the report (one bound and one unbound)

Each page and paragraph should be numbered within the report and illustrations cross-referenced within the text.

The report should include the following as a minimum:

i) Planning application number, Northumberland County Council Conservation Team reference, OASIS reference number and an 8 figure grid reference

ii) A location plan of the site at an appropriate scale of at least 1:10 000

iii) A location plan showing trench locations within the site. This must be at a recognisable planning scale, and located with reference to the national grid, to allow the results to be accurately plotted on the Sites and Monuments Record

iv) Plans and sections of archaeology located at a recognisable planning scale (1:10, 1:20, 1:50 or 1:100, as appropriate)

v) A summary statement of the results

vi) A table summarising the deposits, features, classes and numbers of artefacts encountered and spot dating of significant finds

vii) Any variation to the above requirements should be approved by the planning authority prior to work being submitted

OASIS

Northumberland County Council Conservation Team and SMR support the Online Access to Index of Archaeological Investigations (OASIS) Project. The overall aim of the OASIS project is to provide an online

index to the mass of archaeological grey literature that has been produced as a result of the advent of large scale developer funded fieldwork.

The archaeological consultant or contractor must therefore complete the online OASIS form at http://ads.ahds.ac.uk/project/oasis/. If the contractors are unfamiliar with OASIS, they are advised to contact Northumberland SMR prior to completing the form. Once a report has become a public document by submission to or incorporation into the SMR, Northumberland SMR will validate the OASIS form thus placing the information into the public domain on the OASIS website. **The archaeological consultant or contractor must indicate that they agree to this procedure within the specification/project design/written scheme of investigation submitted to Northumberland County Council Conservation Team for approval**

PUBLICATION

A summary should be prepared for 'Archaeology in Northumberland' and submitted to Sarah MacLean, Northumberland Historic Records Officer, by December of the year in which the work is completed.

A short report of the work should also be submitted to a local journal if appropriate.

MONITORING

The County Archaeologist must be informed on the start date and timetable for the evaluation **in advance** of work commencing.

Reasonable access to the site will be afforded to the County Archaeologist or his/her nominee at all times, for the purposes of monitoring the archaeological evaluation

Regular communication between the archaeological contractor, the County Archaeologist and other interested parties must be maintained to ensure the project aims and objectives are achieved.

FURTHER GUIDANCE

Any further guidance or queries regarding the provision of a specification should be directed to:

Nick Best
Assistant County Archaeologist
Northumberland County Council
County Hall
Morpeth
Northumberland
NE61 2EF

Tel: 01670 534057
Fax: 01670 533086
e-mail: nbest@northumberland.gov.uk

02/03/06

APPENDIX 2: PROJECT DESIGN

Oxford Archaeology North

27th July 2006

MIDDLEMOOR WINDFARM,

ALNWICK

NORTHUMBERLAND

EVALUATION

Proposals

The following project design is offered in response to a request from Robert Johns, Entec UK, for an evaluation on the site of the proposed windfarm, at Middlemoor, North of Alnwick, Northumberland..

1. INTRODUCTION

1.1 CONTRACT BACKGROUND

1.1.1 Oxford Archaeology North has been invited by Robert Johns of Entec UK, on behalf Npower Renewables, to submit a project design and costs for an evaluation on the site of the proposed windfarm at Middlemoor, North Alnwick. This is in response to a brief prepared by Nick Best, Assistant County Archaeologist, of Northumberland County Council. The evaluation is required to examine the sites of the proposed turbines, the temporary crane stands, the service roads, the electricity substations, and the borrow pits.

1.1.2 ***Archaeological Background:*** the archaeological potential of the site has been examined as part of an Environmental Impact Assessment for the site (Chapter 12 Cultural Heritage), which has established that the wider area has considerable potential for prehistoric remains, which include cup and ring marked rocks, artefact assemblages and individual find spots, burial cairns, cropmarks of prehistoric field systems, and Iron Age enclosed settlements. Given the considerable archaeological potential of the wider area there is a requirement for a detailed archaeological evaluation of those areas that will be impacted by the development.

1.2 OXFORD ARCHAEOLOGY NORTH

1.2.1 Oxford Archaeology North (OA North) has considerable experience of the archaeological survey and evaluation of sites and monuments of all periods, having undertaken a great number of small and large projects during the past 20 years. Projects have been undertaken to fulfil the different requirements of various clients and planning authorities, and to very rigorous timetables. OA North has considerable experience of the recording of historic buildings together with the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 20 years. Fieldwork has taken place within the planning process and construction programmes, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. OA North undertook the earlier assessment report (OA North 2002) on the site and has considerable familiarity with the site and its archaeology.

1.2.2 OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an Institute of Field Archaeologists (IFA) registered organisation, registration number 17, and all its members of staff operate subject to the IFA Code of Conduct.

2. OBJECTIVES

2.1 The following programme has been designed, in accordance with a brief by the Assistant County Archaeologist to provide an evaluation of the proposed wind farm. The required stages to achieve these ends are as follows:

2.2 EVALUATION TRENCHING

2.2.1 To implement a programme of trial trenching examining 5% of the 'turbine/crane pad locations', 'site compound' and 'borrow pit'. Trenches will also be machined on proposed access track routes, where appropriate according to the results of the ongoing evaluation.

2.3 REPORT

2.3.1 A written report will present an assessment of the significance of the data generated by this programme within a local and regional context. It will present the evaluation and make an assessment of the archaeological potential of the area, and make recommendations for further work.

3. METHOD STATEMENT

3.1 EVALUATION TRENCHING

3.2.1 The brief requires the evaluation of the areas of the turbines, cranepads, substation, site compound and borrow pit. The evaluation will examine 5% of each of the areas of proposed development

impact and the trenches will be of varying length subject to the size and character of the site to be examined. For the purposes of costing the trenches are defined as 30m in length, but in practice it will be necessary to excavate smaller trenches in order to examine each of these areas and these are as defined below:

No	Name	Area	Total Area	No. of standard 30m x 2m trenches	Actual trenches
18	Turbine foundations	15m x 15m (225sqm)	4050sqm	3.3	18 5m x 2m trenches
18	Crane Pads	42m x 22m (924sqm)	16,632sqm	13.8	36 10m x 2m trenches
1	Substation	2342sqm	2342sqm	2	6 10m x 2m trenches
1	Site Compound	5000sqm	5000sqm	4.2	12 10m x 2m trenches
1	Borrow Pit	30,369sqm	30,369 sqm	25.3	26 30m x 2m trenches
	Total		**58,393sqm**	**48.6**	

3.2.2 ***Methods:*** the programme of trenching will establish the presence or absence of any previously unsuspected archaeological deposits and, if established, will then test their date, nature, depth and quality of preservation. Within any given area the orientation of the trenches will be alternately varied so as to identify any linear features extending through the site. The arrangement will be adjusted so as to target any surface features of particular significance. The initial layout of the trenches will be agreed with the Northumberland Assistant County Archaeologist and the Entec UK Archaeological Consultant.

3.2.3 The trenches will be excavated by a combination of mechanised and manual techniques; the topsoil will be removed by mechanical excavator, fitted with a 1.8m wide toothless bucket, down to the first significant archaeological horizon or natural. Any archaeological deposits identified will be manually cleaned and then any features identified will be manually excavated. The machine excavation will not intrude into any potential archaeological stratigraphy and all machine excavation will be undertaken under careful archaeological supervision. One long section of each trench will be manually cleaned to enable close examination and recording, and the trench floor will be manually cleaned by hoe and manual excavation techniques around any suspected archaeological features or deposits. Typically the entire floor of the trench will not be cleaned in its entirety unless extensive features are revealed by the mechanical cleaning within the trench. Any revealed features will be subject to evaluation, which will entail the excavation of 50% of discrete features, 25% of linear features with non-uniform fill, and 10% of linear features with uniform fill. Sensitive deposits will be manually excavated, which will enable an assessment of the nature, date, survival and depth of deposits and features. Excavation will not exceed 1.25m deep to accommodate health and safety constraints. The trench will be excavated in a stratigraphical manner, whether by machine or by hand.

3.2.4 ***Environmental Sampling:*** environmental samples (bulk samples of 30 litres volume, to be sub-sampled at a later stage) will be collected from stratified undisturbed deposits and will particularly target negative features (gullies, pits and ditches). A sampling strategy for environmental samples will be subject to Jacqui Huntley, English Heritage regional advisor. Subject to the results of the excavation an assessment of any environmental samples will be undertaken by the in-house palaeoecological specialist, who will examine the potential for further analysis. The assessment would examine the potential for macrofossil, arthropod, palynological and general biological analysis. The palaeoecological assessment will only be called into effect if good waterlogged deposits are identified and will be subject to the agreement of the Northumberland Assistant County Archaeologist and the client.

3.2.5 Samples will also be collected for technological, pedological and chronological analysis as appropriate. If necessary, access to conservation advice and facilities can be made available. OA North maintains close relationships with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs artefact and palaeozoological specialists with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation.

3.2.6 ***Rock Art:*** any outcropping rock or large stones will be examined for potential rock art. Any exposed bedrock will be excavated / cleaned manually rather than by machine. Any rock art will be carefully cleaned, and will be recorded by means of a variety of techniques which will included face on (semi-rectified) photography, rubbing onto film, and by detailed manual drawing using a grid set up over the rock. The outline of the rock will be precisely located using GPS techniques. In the event of complex or extensive rock art remains, it may be possible to utilise close range laser scanning techniques which create a very precise three dimensional model of the surface of the rock. The taking of casts of the rock is strongly discouraged as it always tend to leave behind traces of the casting medium.

3.2.7 ***Recording:*** the trench will be located by use of differential GPS equipment which is accurate to +/- 0.05m; altitude information will be established with respect to GPS Ordnance Survey Datum. Archaeological features within the trenches will be planned using manual techniques. All information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.

3.2.8 Results of the field investigation will be recorded using a paper system, adapted from that used by Centre for Archaeology of English Heritage. The archive will include both a photographic record and accurate large scale plans and sections at an appropriate scale (1:50, 1:20, and 1:10). All artefacts and ecofacts will be recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration. A Harris matrix will be compiled for any stratified deposits encountered.

3.3 REPORT

3.3.1 ***Archive:*** the results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects*, 2nd edition, 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. It will include summary processing and analysis of all features, finds, or palaeoenvironmental data recovered during fieldwork, which will be catalogued by context. This archive can be provided in the English Heritage Centre for Archaeology format and a synthesis will be included in the Northumberland Historic Environment Record. A copy of the archive can also be made available for deposition with the National Archaeological Record. OA North practice is to deposit the original record archive of projects (paper, magnetic and plastic media) together with the material archive (artefacts, ecofacts, and samples) with an appropriate museum.

3.3.2 ***Report:*** one bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further two copies will be submitted to the Northumberland Historic Environment Record, one bound and one unbound. The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and present an assessment of the history of the site. The report will include the following:

- a summary
- a description of the methodology
- a description of the results
- a list of the finds
- a description of the collective assemblage

- a complete bibliography of sources from which data has been derived
- a list of further sources identified during the programme of work, but not examined in detail
- a set of recommendations for further work.

3.3.3 Illustrative material will include a location map, site map, a trench location map, trench plans, survey maps, and also pertinent photographs.

3.4 OTHER MATTERS

3.4.1 ***Health and Safety:*** OA North conforms to all health and safety guidelines as contained in the Lancaster University Manual of Health and Safety and the safety manual compiled by the Standing Conference of Archaeological Unit Managers. The work will be in accordance with Health and Safety at Work Act (1974), the Council for British Archaeology Handbook No. 6, *Safety in Archaeological Fieldwork* (1989).

3.4.2 Full regard will, of course, be given to all constraints (services etc) during the watching brief and fabric survey, as well as to all Health and Safety considerations. It is assumed that the client will provide a current service map. OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. A risk assessment will be completed in advance of the project's commencement. If there is a requirement to excavate trenches deeper than 1.25m the trenches will be stepped out to minimise section collapse. Drivers and mechanical plant will be appropriately certified and copies of certificates will be made for OA North records. Spill kits will be provided by the plant hire company (P A Robson). Care will be taken to ensure that only an appropriate banksman is working near to a machine and that he / she will be beyond the reach of the bucket. Care will be taken to maintain a high standard of hygiene and so minimise the risks from Leptospirosis (Weil's Disease) and other soil born diseases.

3.4.3 ***Services:*** Service details have been provided by Npower and the information has been incorporated onto CAD mapping for the site. All available service plans will be considered in the positioning of the trenches. As a matter of course the Unit uses a U-Scan device prior to any excavation to test for services. OA North has consulted with the landowner to establish the location of any services through the area and near to any of the proposed turbines. At the same meeting site risks, access issues, and reinstatement issues have been addressed.

3.4.4 ***Stock Control:*** care will be taken to ensure that stock are kept removed from the trenches to ensure that there is no risk to personnel from the cattle and that there is no risk to the stock arising out of the machinery on site and the open trench. The farmer will undertake to fence off the trenches in advance of their excavation. As far as is possible the trenches will be backfilled at the close of the working day.

3.4.5 ***Insurance:*** the insurance in respect of claims for personal injury to or the death of any person under a contract of service with the unit and arising out of an in the course of such person's employment shall comply with the employers' liability (Compulsory Insurance) Act 1969 and any statutory orders made there under. For all other claims to cover the liability of OA North, in respect of personal injury or damage to property by negligence of OA North or any of its employees, there applies the insurance cover of £2m for any one occurrence or series of occurrences arising out of one event.

3.4.6 ***Reinstatement:*** it has been agreed that OA North will keep subsoil and top soil separate during excavation and that on backfilling the soils will be replaced in reverse order. The area of the borrow pits will be subject to considerable disturbance and it has been agreed that the land owner will plough the land following the completion of the evaluation and that the cost of this will be passed onto Npower.

3.4.7 ***Confidentiality:*** the report is designed as a document for the specific use of the Client, for the particular purpose as defined in the project design, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose will be fulfilled by separate arrangement.

3.4.8 ***Project Monitoring:*** whilst the work is undertaken for the client, the Assistant County Archaeologist will be kept fully informed of the work and its results and will be afforded all reasonable access to the site during the ongoing evaluation. Any proposed changes to the agreed project design will be agreed with Assistant County Archaeologist in consultation with the Client. OA North will afford safe access to an Entec representative as appropriate.

3.4.9 ***Contingency:*** contingencies are defined for the provision of a palaeoenvironmental assessment, and faunal remains analysis. The palaeoenvironmental analysis would be subject to an assessment by the OA North palaeoenvironmental specialist (E Huckerby). A contingency is defined for an additional 200m of trenching, which is equivalent to seven 30m x 2m trenches.

4. WORK PROGRAMME

4.1 ***Timetable:*** the combined fieldwork element is timetabled to take 17 days and will start on 31st July.

4.2 The post-excavation element of the programme would typically take 30 days; however, if required, an interim report out can be arranged within a short timescale to satisfy the immediate requirements of the archaeological curator.

4.3 The project will be managed by **Jamie Quartermaine BA Surv Dip MIFA** (Unit Project Manager) to whom all correspondence should be addressed. OA North adheres by the IFA's Code of Conduct and the Code of Approved Practice for the regulation of Contractual Arrangements in Field Archaeology.

APPENDIX 3: CONTEXT LIST

Areas abbreviated by; BP = Borrow Pit. SS/C = Sub-Station and Compound. TU1 = Turbine

Context No	Area	Trench	Description
1000	BP	8	Topsoil
1001	BP	8	Orange/grey clay subsoil below ***1000***
1002	BP	8	Natural clay
1003	BP	8	Fill of plough-mark ***1004***
1004	BP	8	Plough-mark
1005	BP	5	Fill of linear ditch ***1006***
1006	BP	5	Linear ditch
1007	BP	5	Topsoil
1008	BP	5	Yellow/orange sand subsoil below ***1007***
1009	BP	5	Natural sandy silt
1010	BP	9	Topsoil
1011	BP	9	Grey/brown sandy-silt subsoil below ***1010***
1012	BP	9	Natural orange/grey clay
1013	BP	9	Fill of plough-mark ***1014***
1014	BP	9	Plough-mark
1015	BP	9	Fill of post-hole ***1016***
1016	BP	9	Post-hole
1017	BP	9	Upper fill of pit ***1018***
1018	BP	9	Cut of pit
1019	BP	9	Primary fill of ***1018***
1020	SS/C	36	Topsoil
1021	SS/C	36	Natural clay
1022	SS/C	33	Fill of drain ***1023***

Context No	Area	Trench	Description
1023	SS/C	33	Land drain
1024	SS/C	33	Tertiary silt fill of pond ***1030***
1025	SS/C	33	Rubble construction deposit
1026	SS/C	33	Topsoil
1027	SS/C	33	Natural clay
1028	SS/C	33	Secondary fill of pond ***1030***
1029	SS/C	33	Primary fill of pond ***1030***
1030	SS/C	33	Pond
1031	SS/C	36	Land drain
1032	SS/C	36	Fill of drain ***1033***
1033	SS/C	36	Land drain
1034	SS/C	36	Re-cut of land drain trench
1035	SS/C	36	Fill of ***1034***
1036	TU6	61	Pit
1037	TU6	61	Fill of pit ***1036***
1038	TU6	61	Fill of post-hole ***1039***
1039	TU6	61	Post-hole
1040	TU12	67	Fill of post-hole ***1041***
1041	TU12	67	Post-hole
1042	TU12	67	Fill of post-hole ***1043***
1043	TU12	67	Post-hole
1044	TU12	67	Fill of post-hole ***1045***
1045	TU12	67	Post-hole
1046	TU9	70	Rocky out-crop
1047	TU11	75	Amorphous shaped spread/feature
1048	TU11	75	Fill of feature ***1047***
1049	TU11	75	Pale cream/brown sandy-clay natural at the southern end of the trench

Context No	Area	Trench	Description
1050	TU11	75	North-east/south-west aligned drain
1051	TU11	75	North/south aligned drain
1052	TU11	175	Fill of drain ***1051***
1053	TU11	75	Post-hole
1054	TU11	75	Mottled orange/brown sandy-clay natural
1055	TU11	75	Post-hole
1056	TU14	81	Clinker deposit at the southern end of the trench
1057	TU18	91	Cut of pit
1058	TU18	91	Fill of ***1057***
1059	TU18	91	Post-hole
1060	TU18	91	Fill of ***1059***
1061	TU18	91	Post-hole south of ***1059***
1062	TU18	91	Fill of ***1059***
1063	TU18	91	Post-hole
1064	TU18	91	Fill of ***1063***
1065	TU18	91	Ditch cur
1066	TU18	91	Fill of ditch ***1065***
1067	TU15	87	Pit located along the trench edge west-facing section
1068	TU15	87	Fill of pit 1067
1069	TU15	87	Orange-brown sandy subsoil
1069	TU15	87	Grey sandy subsoil
1071	TU18	91	Sandy-silt subsoil
1072	TU18	91	Natural grey sandy clay

APPENDIX 4: TRENCH DESCRIPTIONS

BORROW PIT

All trenches are 30m x 2m in size

Trench	Depth	Topsoil	Sub soil	Archaeology
1	0.5m	Light brown friable sandy silt with occasional coal fragments and <5% small stones. 0.15m thick	Orange/brown clay-silt with seams of sandstone outcrop making up >20% of horizon	Sterile
2	0.3m	Light brown friable sandy silt. 0.15m thick	Orange/brown clay-silt with occasional coal fragments	Sterile, although a large rectangular cut sandstone (1m by 0.23m thick) was found placed on its side within the subsoil at the southern end of the trench. No visible markings were observed
3	0.35 m	Light greyish-brown sandy-silt with <2% small stones. 0.19m thick	Light orange-brown clay-silt with <2% small angular stones	Sterile
4	0.54 m	Light greyish-brown friable sandy-silt with <2% small angular stones. 0.14m thick	Dark orange-brown friable clay-silt with <2% small angular stones and quartz, measuring 0.27m thick, sealing a decayed sandstone horizon	Sterile
5	0.5m	Light greyish-brown friable sandy-silt with <2% small sub-angular stones. 0.17m thick	Mid orange-brown silty-clay, 0.25m thick with <2% small angular stones., sealing decayed water worn sandstone at the northern end of the trench	North/south aligned V-shaped ditch ***1006***, filled with dark grey-brown silty-sand (***1005***) containing frequent stone inclusions, no finds. The stone presence suggests the ditch was used for drainage
6	0.41 m	Mid grey-brown sandy-silt with <2% small angular stones.. 0.13m thick	Mid orange-grey silty-clay with <2% small angular stones, 0.18m thick, sealing natural sandstone	Sterile
7	0.3m	Light brown sandy-silt. 0.23m thick	Yellow-orange clay-silt interspersed with outcrops of sandstone. Decayed seams were observed concentrated at the southern part of the trench close to the edge of the disused quarry	Sterile
8	0.39 m	Light grey-brown friable sandy-silt (***1000***) with <2% small angular stones.. 0.15m thick	Mid orange-grey compact silty-clay (***1001***) with <2% small angular and sub-rounded stones. measuring 0.23m thick, sealing natural orange-yellow sandy-clay (***1002***) with sandstone inclusions	The base of a north-east/south-west aligned plough mark (***1004***) measuring 8.90m long by 0.08m wide, was observed at the eastern end of the trench cutting clay ***1002***. No finds were recovered from its light grey-brown silt fill (***1003***).
9	0.3m	Light grey-brown friable sandy-silt (***1010***) with <2% small angular stones. 0.13m	Mid grey-brown sandy-silt (***1011***) with <2% small stones, measuring 0.11m thick, sealing natural light	A small post-hole (***1016***) and a burnt spread (***1018***) were encountered across the northern

		thick	orange-grey clay (***1012***) with <2% small and medium angular and sub-rounded stones.	end of the trench. In addition, four plough marks (***1014***) spaced 0.40m apart and aligned north-west/south-east were observed in proximity to ***1016*** and ***1017***. The furrows extended for a total length of 2.50m. The marks each had a similar V-shaped profile as plough mark ***1004*** in trench 8, and were probably all created by the same plough-share during the post-medieval period
10	0.34 m	Light grey-brown friable sandy-silt with <2% mixed angular and sub-rounded stones. 0.09m thick	Dark orange-brown silty-clay with <2% angular stones, measuring 0.18m thick sealing light orange-grey sandy-clay with small-medium stone inclusions	Sterile
11	0.39 m	Dark grey-brown friable sandy-silt with <2% small and medium angular and sub-angular stones. 0.16m thick	Dark orange-brown compact sandy-clay with <2% small angular stones, measuring 0.20m thick, sealing orange-yellow compact natural clay containing medium stone and small quartz inclusions	Sterile
12	0.4m	Dark grey-brown silty-sand with <2% angular and sub-angular stones. 0.16m thick	Mid orange-brown silty-clay measuring 0.20m thick, sealing natural mid orange-brown silty sand containing 20% small to medium stones	Sterile
13	0.35 m	Dark brown silty-clay with few (<5%) small sub-rounded stones. 0.15m thick	Mid grey-brown silty-sand measuring 0.20m thick, sealing mid orange-brown compacted sandy-silt containing rounded and angular stone varying between 0.07m to 0.23m in size	Sterile
14	0.35 m	Dark brown-black humic silty-sand. 0.10m thick	Mid grey-brown silty-sand with occasional small sandstone inclusions measuring 0.25m thick, sealing mid orange-brown sandy silt with 15% small stone inclusions	Sterile
15	0.34 m	Dark brown-black silty-sand. 0.10m thick	Mid grey-brown silty-sand with <5% small sub-angular stones measuring 0.20m thick, sealing mid orange-brown compacted sandy-silt containing <10% medium to large sandstones of between 0.10m to 0.40m in size	Sterile
16	0.35 m	Dark brown-black sandy-silt with <5% sub-rounded stones. 0.10m thick	Mid grey-brown silty-sand with <5% sub-rounded stones, .measuring 0.20m thick, sealing mid orange-brown compacted sandy-silt containing coal flecks. A small area of degraded sandstone outcrop identified across the centre of the trench	Remnant of a plough-strike was observed across a stone outcrop (measuring 0.35m by 0.25m) at the northern end of the trench
17	0.33	Dark brown-black sandy-silt.	Mid grey-brown silty-sand with	Sterile

	m	0.12m thick	isolated patches of charcoal flecks and <2% small sub-angular stones.. This sealed mid orange-brown stony sandy-silt containing 15% angular and sub-angular quarried sandstone of between 0.04m to 0.15m in size	
18	0.30 m	Dark brown-black sandy-silt with frequent small angular and sub-angular stones.	Mid grey-brown sandy-silt sealing natural mid orange-brown stony sandy clay. At least three seams of stone outcrop were observed across the trench within the natural clay	Two north/south aligned plough-marks set 1m apart were observed across the trench for a distance of 30m. The cut of the features measured 0.16m wide and survived to a shallow depth of 0.01m.
19	0.46 m	Light grey-brown friable sandy-silt with <2% small angular stones. 0.22m thick	Mid orange-brown friable sandy silt with <2% small angular stones, measuring 0.28m, sealing orange-yellow clay natural. Several large angular stones measuring on average 0.69m by 0.41m, were present in the natural along the south-east end of the trench	Sterile
20	0.38 m	Light grey-brown friable sandy-silt with <2% small angular stones. 0.14m thick	Dark orange-brown silty-clay diffused with variable orange and brown sandy-clay with <2% small sub-angular stones, measuring up to 0.22m in thickness. Patches of red-grey clay were randomly spread across the trench that had no determinate function	Sterile
21	0.35 m	Light brown sandy-silt with frequent small stone inclusions. 0.2m at the eastern end of the trench to 0.35m in the west	Varied throughout the trench dependant on the common occurrence of natural sandstone bedrock seams, such as pale red-yellow clay-silt at the western end of the trench, to friable yellow clay across the centre, which diffused with pale-red clay at eastern end	Several stone outcrops bore randomly aligned plough strikes, although no accurate plough-lines were identified in the trench
22	0.28 m	Mid brown sandy-silt with <10% small rounded and sub-rounded stones. 0.10m thick	Orange-brown sandy-clay containing intermittent bands of natural stone	Sterile
23	0.31 m	Mid grey-brown friable sandy-silt with <2% small angular stones. 0.16m thick	Mid orange-brown friable sandy-silt with <2% small angular stones, measuring 0.13m thick, sealing orange compact sandy-clay containing many rocky outcrops, especially at the western end of the trench	Sterile
24	0.30 m	Mid brown sandy-silt. 0.15m thick	Mid grey-brown sandy-silt diffused with small patches of mid orange-brown sandy clay, and seams of stone outcrops	Sterile

PROPOSED SUBSTATION / COMPOUND

Each trench was 10m x 2m in size

Trench	Depth	Topsoil	Sub soil	Archaeology
25	0.42m	Light grey-brown friable sandy-silt. 0.20m thick <1% mixed angular stones	Mid grey-brown friable sandy-silt measuring 0.18m thick sealing mid yellow-grey sandy clay	Residual marks of disused modern drainage at the northern end of the trench
26	0.58m	Light grey-brown friable sandy-silt with <1% mixed angular and sub-rounded stones. 0.21m thick	Dark orange-brown sandy-silt with <2% angular and sub-angular stone, measuring 0.23m thick, sealing light yellow-grey compact sandy-clay with <2% small and medium stones	Sterile
27	0.34m-0.49m	Light grey-brown friable sandy-silt with infrequent small-medium stones comprising quartz, granite and sandstone. 0.23m-0.30m thick	Dark red sandy clay along the western and east limits of the trench, diffused with pale red-yellow clay with frequent angular stones beneath the crown of the ridge	Ridge and furrow
28	0.37m	Mid grey-brown sandy-silt. 0.12m thick	Differential clay mid grey-brown to orange-brown containing small sandstone, quartz, granite and coal fragments	Ridge and furrow, trench was orientated north-west/south-east along the line of the ridge,
29	0.4m	Mid grey-brown sandy-silt	Differential clay/soils comprising mid grey brown sandy clay to orange-brown clay, containing frequent loose sandstone. A small cluster of stone was observed within the western side of the trench within a possible furrow	Ridge and furrow, trench excavated east/west across the line of the earthwork
30	0.5m	Mid brown friable sandy clay with infrequent sandstone pebbles, measuring up to 0.30m thick in a ditch at the eastern end of the trench	Mid orange-brown sandy clay with >50% stones comprising loose small round stones/pebbles and coal, possibly deriving from an old water course	North/south aligned drainage ditch measuring 1.5m wide along the eastern end of the trench, heading toward the field boundary
31	0.4m	Mid brown friable sandy clay, with infrequent small water worn pebbles. 0.25m thick	Differential sandy clay with two distinct extremely stony areas along the north and south limit of the trench, separated by a spread of dark orange-brown sandy clay spread containing manganese patches	The differential subsoil deposits maybe associated with an old water course, and may represent an attempt to irrigate
32	0.4m	Mid grey-brown sandy clay with infrequent small sandstone	Differential sandy clay similar to the clay in Trench 31,	The high gravel content within the subsoil suggests silted residue of old

		pebbles. 0.25m thick	although there were linear bands of gravel running east/west across the trench containing small coal fragments. These bands were diffuses with compact natural mid brown clay	water courses
33	0.70m	Light grey-brown friable sandy-clay (***1026***) measuring 0.20m thick, containing 10% rounded and sub-rounded pebbles measuring 0.02m to 0.10m.	Mid orange-brown sandy-clay (***1027***)	Pond (***1030***), serviced by a drain (***1022***) at the western edge of the trench. A raised north/south aligned bank (***1025***) along the eastern edge of the trench installed to possibly contain the water in the pond
34	0.65m	Dark grey-brown sandy-clay measuring 0.20m in thickness, with occasional sub-rounded sandstone measuring between 0.02 and 0.05m.	Orange-brown sandy clay with occasional small pebbles and frequent manganese patches	North-east/south-west aligned drain, measuring 7.5m long and 0.25m wide. The drain was heading in the direction of pond ***1030*** in Trench 33
35		Mid grey-brown sandy-clay	Mid orange-brown sandy-clay with <5% coal fragments	Shallow ditch measuring 0.90m wide and 0.10m deep, aligned north-east/south-west across the trench. It was filled with dark grey-brown sandy clay containing frequent stones
36	0.62m	Light grey-brown friable sandy-silt (***1020***), measuring 0.32m	The natural deposit (***1021***) was variable in the trench from yellow-orange loose sand at the eastern end, patches of dark orange-grey sandy clay across the centre of the trench	Two field drains aligned north-west/south-east and north-east/south-west, cut through natural sandy clay, that seemingly joined across the centre of the trench. The junction of the drains resembled a circular ditch, similar to the type of feature commonly associated with a prehistoric round house, although upon investigation of the ditches, no material other than large amounts of water-worn stones were identified.
37	0.55m	Mid brown sandy-clay, measuring between 0.20m to 0.30m in thickness	Mid yellow sandy-clay sloping downwards to the south-east	North-east/south-west aligned field drain located at the eastern end of the trench
38	0.30m	No topsoil survived as the trench was excavated across a stripped area of the field to provide a cattle pen	Red-orange firm sandy clay that diffused with grey-mottled clay across the central area of the trench	Sterile
39	1.35m	Degraded light brown sandy clay <10cm in thickness	Manganese streaked mottled sandy-clay, sealing dark grey-blue clay encountered in the western end of the 6m trench extension at a depth of 1.35m	Two land drains; plastic pipe aligned north/south at the western end of the trench, and an east/west aligned remnant of disused drain across the centre of the trench
40	0.4m	Degraded light brown sandy clay <10cm in thickness	Grey and yellow mottled saturated clay, interspersed with frequent angular stones of varying size	Traces of an old ridge line were observed running north-east/south-west across the trench. North/south aligned drain cut into natural clay across the southern end of the trench heading toward the 'soak-away' to the north-eat
41	0.60m	Stony disturbed clay mixed	Coal streaked yellow sandy	Sterile, western edge of the trench

		with subsoil, measuring 0.48m thick	clay	was lined with stone tumble that was associated with the stone dump deposited in the 20th century

SITES OF THE PROPOSED TURBINES

Trench numbers designated 'base' were located on the sites of Turbine Bases, otherwise they were on the sites of the crane stands

Unless otherwise stated all Turbine Base trenches were 5m x 2m in size and all Crane Stand trenches were 10m x 2m

Trench / Turbine	**Depth**	**Topography**	**Topsoil**	**Subsoil**	**Archaeology**
42/**8**/base 10m x 2m	0.3m	Northern end of field south of Old Middlemoor Farm	Light brown silty-clay containing numerous small stones and coal flecks	Dark red sandy clay, with seams of decayed sandstone exposed, diffused with pale yellow sandy clay at the north-west end of the trench	North/south aligned drain possibly associated with Old Middlemoor Farm, trench extended 5m south to investigate coal deposit, no distinctive archaeology encountered
43/**8**	0.35m	Northern end of field south of Old Middlemoor Farm	Light brown silty-clay containing numerous small stones	Concentrations of manganese were observed in random patches across the trench, that suggest a residue of land reclamation episode, this is reflected in the variable silty-sand subsoil diffused with yellow and grey clay. Natural bedrock was exposed in the northern part of the trench	North-east/south-west aligned 0.10m wide linear feature, extending 4.5m along the southern end of the trench
44/**8**	0.3m	Northern end of field south of Old Middlemoor Farm	Light brown silty-clay	Mid orange sandy clay, diffused with dark grey clay at the southern end of the trench, and grey sandy-silt at the north end	Sterile
45/**5**/base	0.56m	Disturbed bank located south-east of Daneshill Plantation	Light brown silty-clay, measuring 0.26m thick	Yellow-grey clay measuring 0.24m, which in turn sealed dark red clay which contained 0.10m to 0.15m sized broken lumps of sandstone	Sterile
46/**5**	0.4m	Disturbed bank located south-east of Daneshill Plantation	Light brown friable silty-clay containing frequent small-medium angular stones	Mixed yellow-brown sandy-clay streaked with manganese and decayed sandstone	Two pipe trenches following identical east/west alignments, along the north and south ends of the trench. The pipe may have been installed as part of land reclamation in the

					20th century
47/**5** 15m x 2m	0.45m	Disturbed bank located south-east of Daneshill Plantation	Light brown friable silty-clay	Dark red clay with common sandstone outcrops and loose granite	Two pipe trenches at the north and south ends of the trench. Trench extended 5m north (see below).
48/**3**/base	0.4m	Natural hollow at the north-western end of the field	Light brown-grey silty-sand with infrequent small pebbles and angular stone	Yellow-red sandy-clay with <5% natural stone outcrop	Sterile
49/**3**	0.4m	Natural hollow at the north-western end of the field	Light brown-grey silty-sand	Pale yellow-red sandy-clay	Amorphous shaped feature (drain?) cutting the natural clay filled with abundant loose stone within a grey sandy-silt at the southern end of the trench
50/**3**	0.35m	Natural hollow at the north-western end of the field	Light brown-grey silty-sand. 0.23m thick	Yellow 'moor band' clay. A single piece of natural bedrock located at the eastern end of the trench, laid within ironstone rich clay	Sterile
51/**1**	0.35m	Close to the northern edge of the field boundary, north-west of Souterpot Cairn	Mid grey-brown friable sandy-silt measuring 0.25m thick	Light orange-grey loose sandy-clay with occasional small stones. A tree bole measuring 1.10m in diameter was located within the centre of the trench filled with dark brown silty-clay	Two north-east/south-west aligned 0.10m wide plough marks set 1.20m apart, located at the northern end of the trench
52/**1**	0.3m	Close to the northern edge of the field boundary, north-west of Souterpot Cairn	Mid grey-brown silty-clay measuring 0.17m thick containing infrequent small stones	Mid orange sandy-clay	East/west aligned plough-mark running across the centre of the trench, measuring 0.05m wide
53/**1**/base	0.27m	Close to the northern edge of the field boundary, north-west of Souterpot Cairn	Pale brown loose friable clay. 0/17m thick	Yellow-red sandy-clay containing streaks of grey clay lenses, and several stones measuring <10cm	Sterile
54/**2**	0.28m	Northern edge of field, along eastern aligned slope	Mid grey-brown friable sandy-silt	Variable light yellow-grey and orange sandy clay. Two possible tree/bush boles were located at the south-east corner and the north-west corner of the trench	Sterile
55/**2**	0.43m	Northern edge of field, along eastern	Dark grey sandy-clay with abundant	Light yellow-brown clay diffused with dark	Sterile

		aligned slope	root intrusion, measuring 0.19m thick	orange clay along the western edge of the trench	
56/**2**/base	0.33m	Northern edge of field, along eastern aligned slope	Dark grey sandy-silt, measuring 0.12m thick	Mid grey-brown fine sandy-silt interface between the topsoil and orange-brown sandy clay natural. No inclusions	Sterile
57/**4**/base	0.31m	South-west of Daneshill Plantation	Light grey-brown friable sandy-silt measuring 0.14m thick	Mid grey-brown compact silty-clay measuring 0.12m thick, sealing variable coloured sandy clay	Sterile
58/**4**	0.33m	South-west of Daneshill Plantation	Dark grey-brown sandy-silt, 0.15m thick	Dark grey-brown silty clay measuring 0.20m sealing light yellow-grey sandy clay containing occasional stones. Two tree boles along the north-eastern corner of the trench	Two stone packed post-holes set 2.10m apart located at the southern half of trench cutting the subsoil. No finds recovered although they may represent an old fence line
59/**4**	0.3m	South-west of Daneshill Plantation	Dark grey-brown friable sandy-clay with occasional small stone inclusions	Yellow-pale brown sandy clay	North-west/south-east aligned (drain?) cutting the yellow clay. It measured 0.12m wide and 0.08m deep, located along the southern part of the trench
60/**6**/base	0.38m	Marshy area at the southern end o the field, south-east of turbine **4**	Light grey-brown friable sandy-silt. 0.18m thick	Mid orange-brown loose sandy-silt, measuring 0.17m thick, sealing light orange-grey sandy-clay with patches of white sand	North/south aligned drainage ditch, bonded to a field drain aligned north-east/south-west. Both cutting natural clay
61/**6**	0.36m	Marshy area at the southern end o the field, south-east of turbine **4**	Light grey-brown friable sandy-silt. 0.15m thick	Mid orange-brown loose sandy-silt measuring 0.17m thick, sealing yellow-brown sandy-clay	Burnt spread/pit? (***1036***), post-hole (***1039***), modern field drain containing pipe fragments
62/**6**	0.39m	Marshy area at the southern end o the field, south-east of turbine **4**	Dark brown humic sandy-clay containing frequent iron panning and roots. 0.30m thick	Variable sandy-clay and pale brown sand. Tree bole in the centre of the trench measuring approximately 0.50m by 0.35m	North-west/south-east aligned land drain, measuring 0.12m wide
63/**7**/base	0.27m	Southern part of recently divided field, north-east of Clare's Wood	Light grey-brown friable sandy-silt. 0.18m thick	Light yellow-orange compact silty-clay	North/south aligned plough mark measuring 0/10m wide and 0.03m deep. East/west aligned modern field drain measuring 0.15m cutting across the

					ploughmark
64/**7**	0.38m	Southern part of recently divided field, north-east of Clare's Wood	Light grey-brown friable sandy-silt. 0.10m thick	Mid grey-brown sandy-silt, sealing light orange-grey sandy clay with patches of white sand	Field drain aligned east/west
65/**7**	0.24m	Southern part of recently divided field, north-east of Clare's Wood	Light grey-brown friable sandy-silt. 0.15m thick	Manganese streaked light red-brown sandy-clay with patches of pale brown sand and dark red mud clay lenses. Several loose unworked stone lumps scattered stone across the surface	North-east/south-west aligned modern field drain, heading toward a pond located to the immediate north of the trenches
66/**12**/base	0.50m	Low-lying area north-west of Middlemoor Farm	Humified dark brown silty-clay. 0.20m to 0.45m	Manganese rich grey, clay with pale red-brown sandy-clay. Diffused with water-worn gravel	East-west aligned ditch, possibly part of an old field boundary
67/**12**	0.31m	Low-lying area north-west of Middlemoor Farm. Trench excavated in rough grass, possibly disturbed by a spoil heap 10m to the immediate east	Mid grey-brown silty-sand with occasional sub-angular sandstone. 0.08m thick	Mid orange-brown sandy clay streaked with manganese	Two probable post-holes (***1041*** and ***1043***) spaced 2m apart deriving from a modern fence-line
68/**12**	0.34m	Low-lying area north-west of Middlemoor Farm. Trench excavated in rough grass, possibly disturbed by a spoil heap 10m to the immediate east	Mid grey-brown silty-sand with occasional sub-angular sandstone. 0.14m thick	Mid orange-brown sandy-clay with manganese streaks, with occasional patches of grey-brown silty-clay	Modern field drain aligned east/west along the northern end of the trench
69/**9**/base	0.34m	Central area of the field along the ridge of Camp Hill, west of tree plantation	Mid brown sandy-clay heavily rooted, with occasional small round stones	Yellow-red sandy-clay with traces of iron panning and occasional round and angular stones of varying sizes (3-5cm and 8-10cm).	A band of light yellow-red sand aligned east/west along the northern part of the trench resembled the fill of a linear cut, although on investigation it turned out to be a thin differential natural deposit
70/**9**	0.37m	Central area of the field along the ridge of Camp Hill, west of tree plantation	Dark grey-brown sandy-clay. 0.15m thick	Yellow-orange sandy-clay, mottled with occasional root disturbance and rock outcrops	Sterile, except for single piece of fuel waste from root disturbance
71/**9**	0.38m	Central area of the field along the ridge of Camp Hill, west of tree plantation	Dark grey-brown sandy-clay.	Mid orange-yellow compact sandy-clay with occasional small to medium sized angular stones	Two plough-marks aligned east/west across the south part of the trench. A large flat stone measuring 0.43m by 0.35m, was located 3m

					from the western end of the trench, that maybe remains of a post-pad
72/**10**/base	0.36m	Heathery Tops	Mid grey-brown sandy-clay. 0.30m thick	Mid orange-brown silty-clay	Sterile
73/**10**	0.35m	Heathery Tops	Dark grey-brown friable sandy clay	Mid orange-brown compact silty-clay	Three 0.05m wide east/west aligned plough-marks set 0.35m apart across the southern part of the trench, and a single plough-mark at the northern end. East/west aligned modern field drain
74/**10**	0.35m	Heathery Tops	Mid grey-brown sandy-clay	Mid orange-brown compact sandy-clay	Field drain aligned east/west along the northern end of the trench
75/**11**/base	0.35m	High part of the field close to Middlemoor Road	Dark brown humified sandy-clay	Grey silty-sand measuring 0.20m thick, sealing mottled natural sandy-clay (***1054***)	Two post-holes (***1053*** and ***1055***), pit ***1047***, and two 20th century drains aligned north/south (***1051***) and north-east/south-west (***1050***) located along the eastern half of the trench
76/**11**	0.44m	High part of the field close to Middlemoor Road	Mid grey-brown friable sandy-clay. 0.42m thick	Light yellow-orange compact sandy-clay, with patches of pale yellow sand. Two dark brown silted possible tree boles were observed within the sand at the southern end of the trench	Five east/west aligned set 0.35m apart and one north/south aligned plough-marks
77/**11**	0.35m	High part of the field close to Middlemoor Road	Dark grey-brown sandy-clay-	Variable mottled sandy clay with occasional manganese patches	East/west aligned modern field drain
78/**13**	0.35m	Level plateau across northern part of the field	Mid grey-brown sandy-silt with occasional sandstone, and heavily rooted. 0.25m thick	Pale yellow sandy-clay with several large natural stone outcrops, especially in the southern end of the trench	Traces of plough-marks measuring 0.05m wide and 0.01m deep along the northern half of the trench. Modern field drain
79/**13**	0.32m	Level plateau across northern part of the field	Mid grey silty-sand with occasional small sandstone. 0.25m thick	Compact pale red-brown sandy-silt with a few natural stone outcrops	Sterile
80/**13**/base	0.30m	Level plateau across northern part of the field, trench positioned in the adjoining field east of	Mid grey sandy-silt/clay heavily rooted. 0.28m thick	Compact pale red-brown sandy-silt	Sterile

		trenches 78 and 79			
81/**14**	0.30m	Bottom of an undulating hill south-west of Moor Edge Plantation	Mid grey-brown sandy-silt. 0.15m thick	Mid orange-brown sandy-silt, measuring 0.13m thick, sealing light grey-yellow compact clay	Stamped land drain aligned east/west at the southern end of the trench, cutting natural clay and sealed by a thin layer (0.02m) of dark grey-brown sandy-silt (***1056***) that yielded a single lump of iron slag
82/**14**	0.35m	Bottom of an undulating hill south-west of Moor Edge Plantation	Mid grey-brown sandy-silt with occasional angular stones. 0.27m thick	Variable grey sand diffused with grey-yellow sandy-clay. Gorse bush boles	North/south aligned machine-cut field drain
83/**14**/base	0.28m	Bottom of an undulating hill south-west of Moor Edge Plantation	Mid brown-grey humic sandy-clay. 0.13m thick	Grey silt interface between topsoil and natural yellow sandy-clay	Sterile
84/**16**/base	0.32m	Reclaimed land/boggy, Linkhall Moor	Heavily rooted humified dark brown sandy-clay. 0.12m thick	Mid brown sand measuring 0.09m thick, which sealed pale cream-brown sand at 0.05m thick, which overlaid mottled grey/orange sandy-clay natural. Two possible gorse bush boles in the western end of the trench within the mottled clay.	Two isolated lumps of angular sandstone were present but no rock art identified
85/**16**	0.45m	Reclaimed land/boggy, Linkhall Moor	Dark brown loam. 0.10m thick	Mid brown fine sand, that sealed orange fine sandy clay with light grey patches	Two possible north/south aligned drains. The easternmost drain cuts the topsoil, the west drain was identified as a light grey line cutting the natural clay
86/**16**	0.37m	Reclaimed land/boggy, Linkhall Moor	Very dark brown sandy-silt. 0.23m thick	Light orange-brown compact silty-sand that contained several areas of rooting from marsh land bushes.	An isolated sandstone lump was located along the western edge of the trench, but no rock art identified
87/**15**	0.4m	Flat marshy land, Linkhall Moor	Mid brown silty loam. 0.15m thick	Mid orange-brown fine compact silty-sand, with patches of light grey sand	Sub-rectangular steep sided pit (***1067***) of unknown function cutting grey sand, measuring 1.55m by 1.20m by 0.17m deep, half of it exposed along the trench west-facing section. Fill (***1068***) similar to topsoil
88/**15**	0.3m	Flat marshy land, Linkhall Moor	Dark brown sandy loam with occasional small	Light brown compact sandy-silt, with orange and light grey mottled	Sterile

			pebbles	sand	
89/**15**/base	0.32m	Flat marshy land, Linkhall Moor	Dark grey-brown sandy-silt	Light orange-yellow loose silty-sand with occasional small angular stones, with dense patches of thin iron panning crust	A possible gully or plough-mark was observed aligned north/south across the centre of the trench
90/**18**/base 10m x 2m	0.36m	Sloping part of field along the western edge of Victory Wood	Mid brown-grey silty sand/clay with occasional small stones, measuring 0.23m thick	Pale yellow-red firm sandy clay containing several loose stone inclusions. The trench extension did not expose any subsoil change	Modern drain aligned east/west cut into the topsoil
91/**18** 15m x 2m	0.28m	Sloping part of field along the western edge of Victory Wood	Dark grey-brown sandy-silt. 0.09m thick	Light grey-brown sandy-silt measuring 0.19m thick sealing light orange-grey sandy-clay	Three parallel north-east/south-west aligned plough marks observed at the eastern end of the trench, a ditch (***1065***) following identical alignment. This was bordered along its western edge by two post-holes (***1059*** and ***1063***), and terminated into a large pit (***1057***). All three features possibly had prehistoric origins
92/**18**	0.33m	Sloping part of field along the western edge of Victory Wood	Mid grey-brown friable sandy-silt with occasional small stones. 0.22m thick	Yellow-orange compact sandy-clay	A north/south aligned field drain cutting natural clay was encountered at the north-east end of the trench
93/**17**/base	0.38m	Sloping part of field that contained large hollows (disused quarries?)	Mid brown silt with small pebble inclusions. 0.20m thick	Mid orange-brown sandy-clay	Sterile
94/**17**	0.31m	Sloping part of field that contained large hollows (disused quarries?)	Mid brown silt with small pebble inclusions. 0.22m thick	Light orange-brown mixed clay and sand	Modern field drain aligned north-west/south-east across the south part of the trench
95/**17**	0.27m	Sloping part of field that contained large hollows (disused quarries?)	Mid brown silt with small pebble inclusions. 0.19m thick	Light orange-brown mixed clay and sand	Sterile
96 10m x 2m	0.37m	Central area of the field along the ridge of Camp Hill, west of tree plantation	Dark grey-brown sandy-clay. 0.15m thick	Yellow-orange sandy-clay, mottled with occasional root disturbance and rock outcrops	Sterile,
97	0.34m	Central area of the	Dark grey-brown	Yellow-orange sandy-	Sterile

10m x 2m		field along the ridge of Camp Hill, west of tree plantation	sandy-clay. 0.12m thick	clay	

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Figure 7: Plan of Trench 8

Figure 8: Plan of Trench 9

Figure 9: Plan of Trench 33

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Figure 12: North-facing section through Trench 36

Figure 13: Plan of Trench 61

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Figure 19: Tracing of putative rock art

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Plate 2: Soak-away ponds along the northern edge of the substation/site compound field

Plate 3; Trench 27; view of ridge and furrow, looking west

Plate 4: Trench 33: view of drain and silted pond, looking east

Plate 5: Trench 47: showing disturbed topsoil bordered by clay subsoil

Plate 6: Trench 61; general view looking north-east

Plate 7: Trench 75; view of drains, looking north-east

Plate 8: Trench 66; looking north-west

Plate 9: Trench 87; pit ***1067***, looking east

Plate 10: Trench 91; ditch ***1065***, looking north-east

Plate 11: Carved stone amongst boulders along the southern edge of the field containing Trenches 60 to 62

Plate 12: Detail of putative 'rock art'

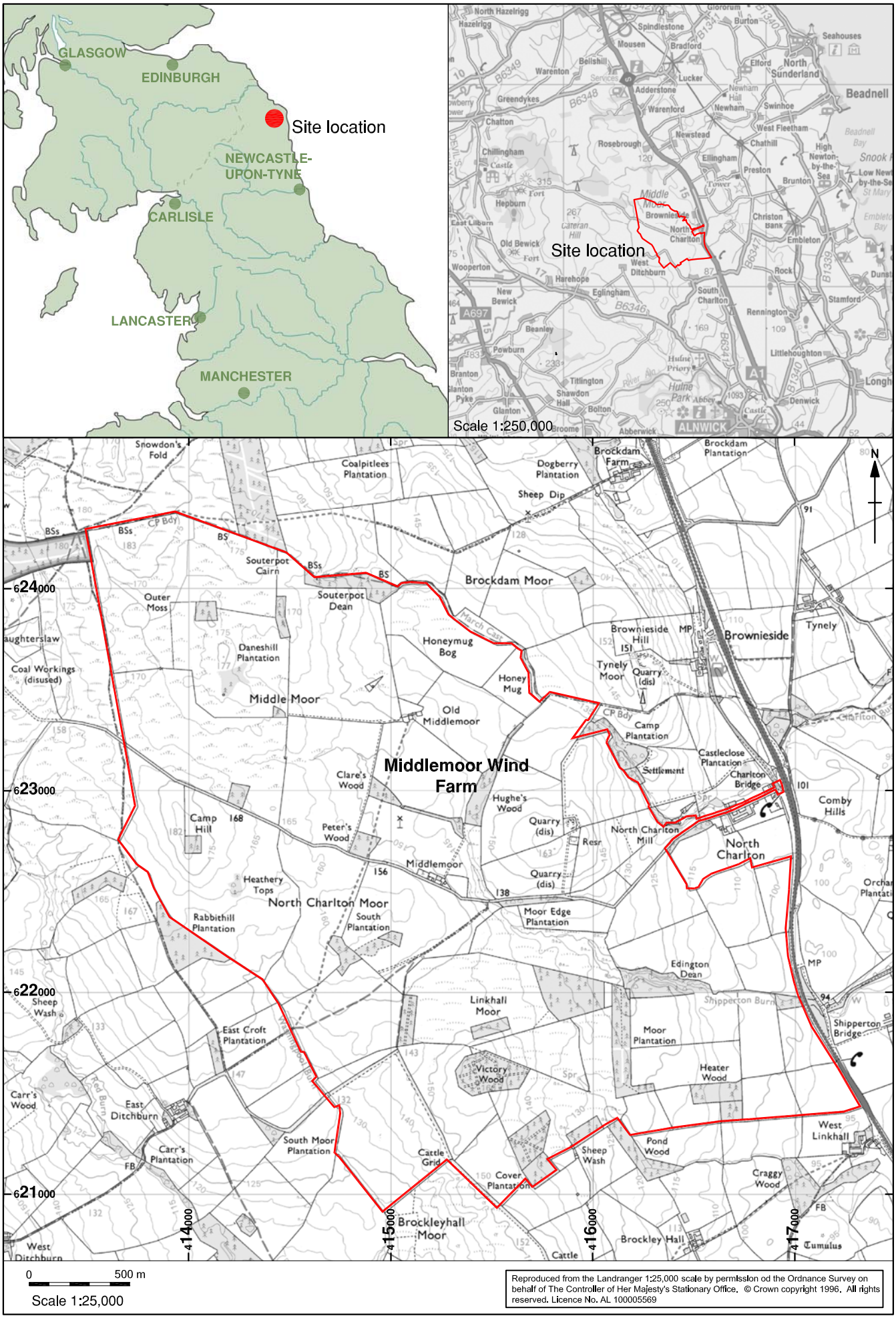

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Figure 1: Site Location

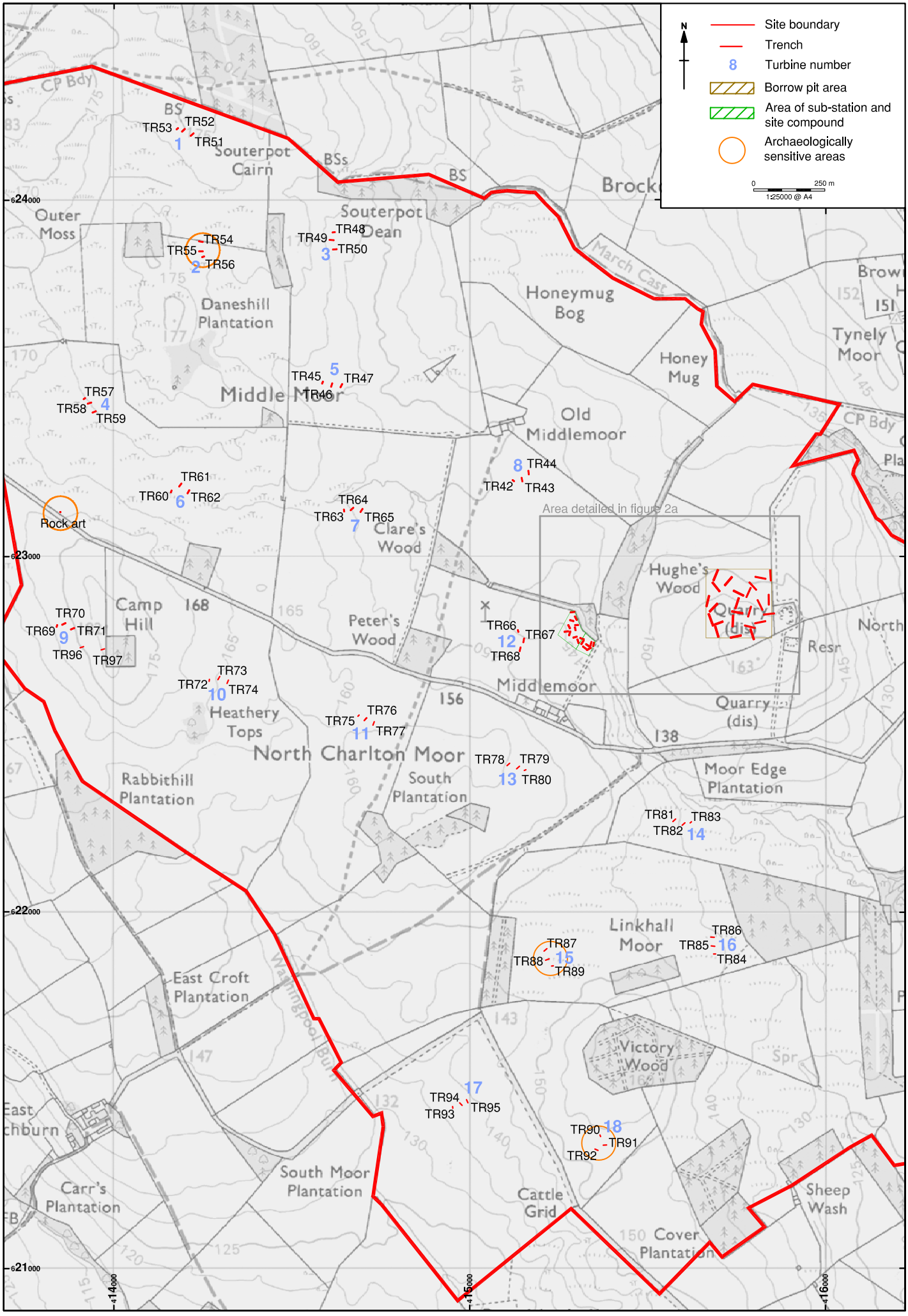

Figure 2: Location of trenches across the proposed wind turbines

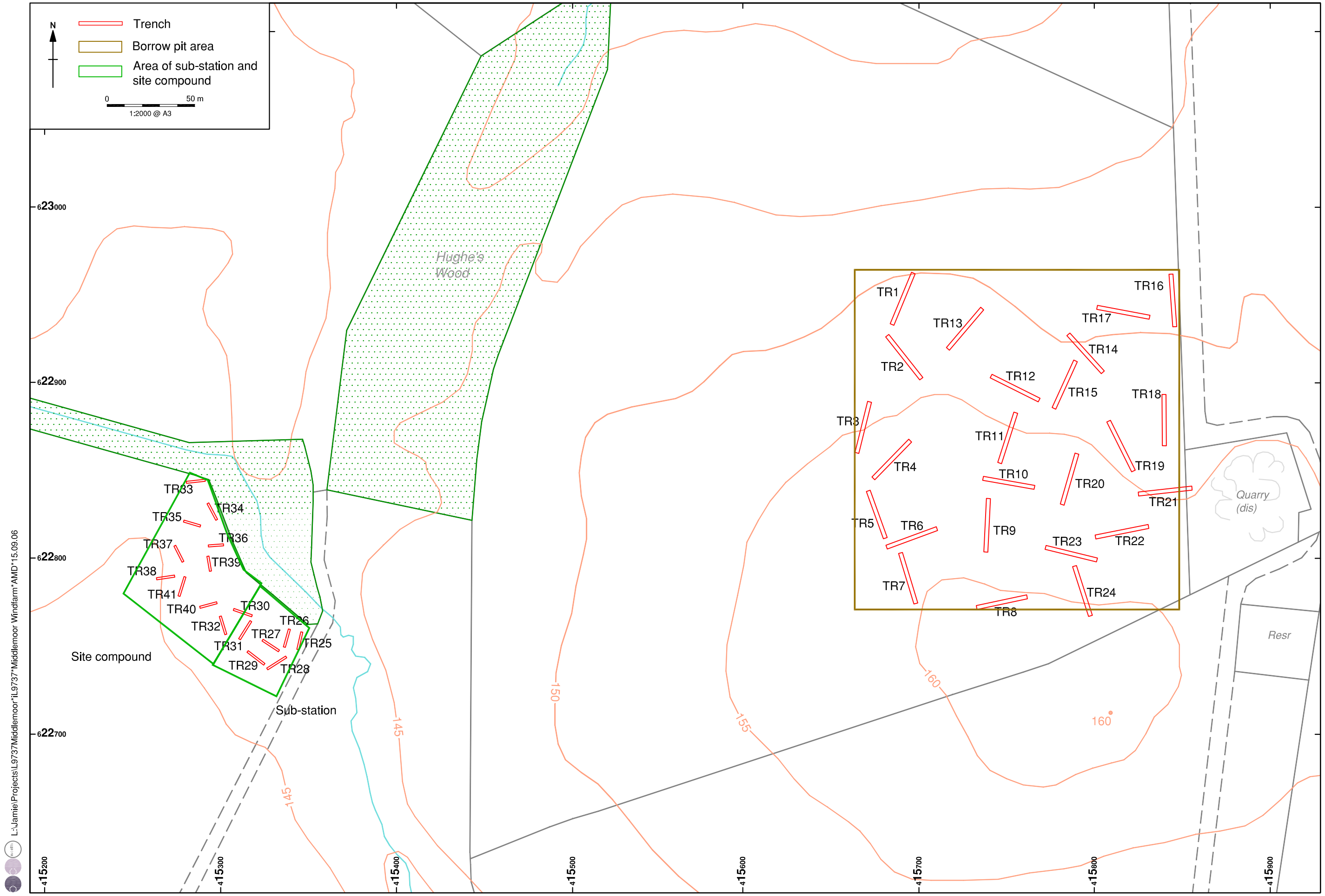

Figure 3: Location of trenches accross the proposed borrow pit and sub-station / site compound areas

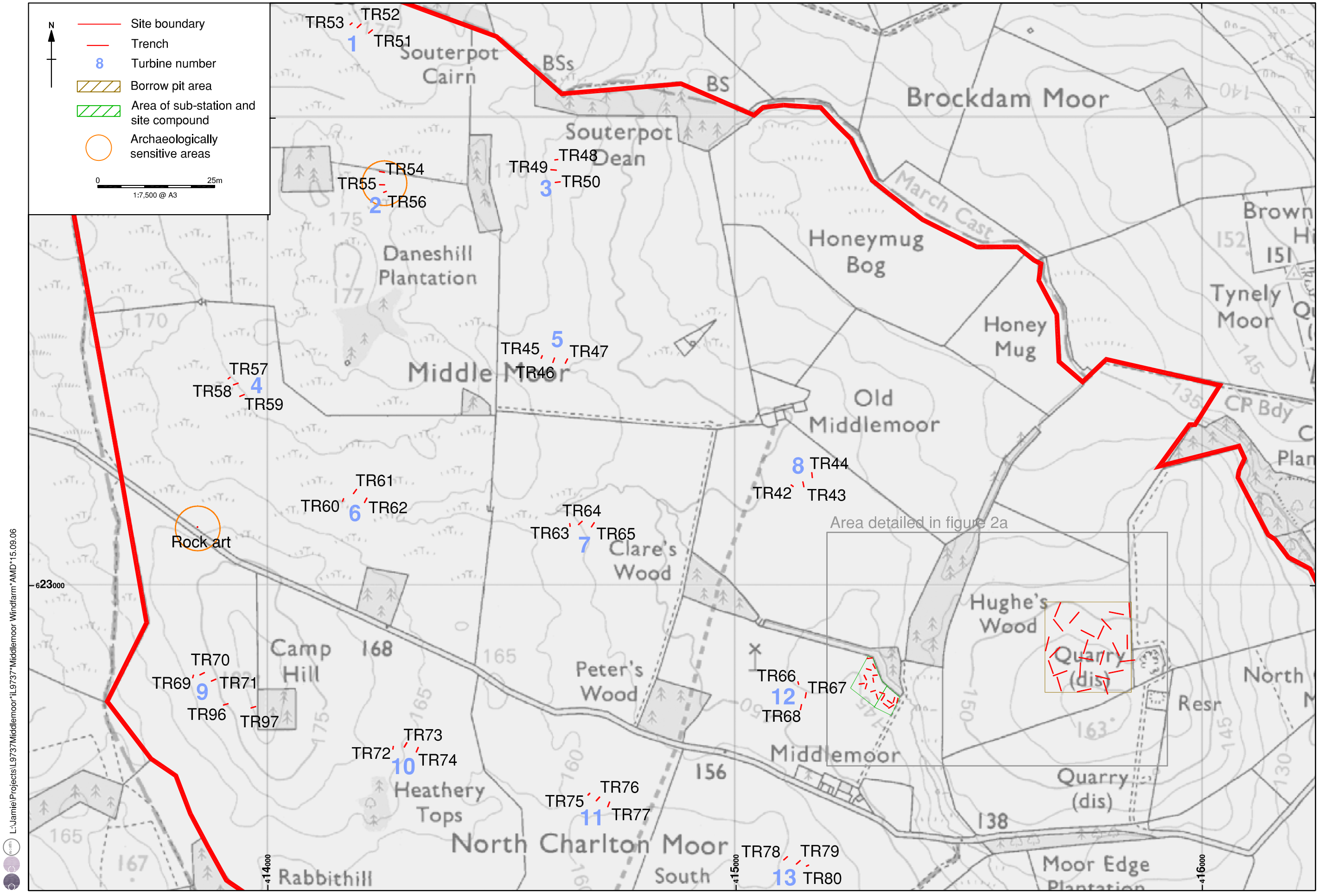

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Figure 4: Location of trenches across the northern area of proposed wind turbines

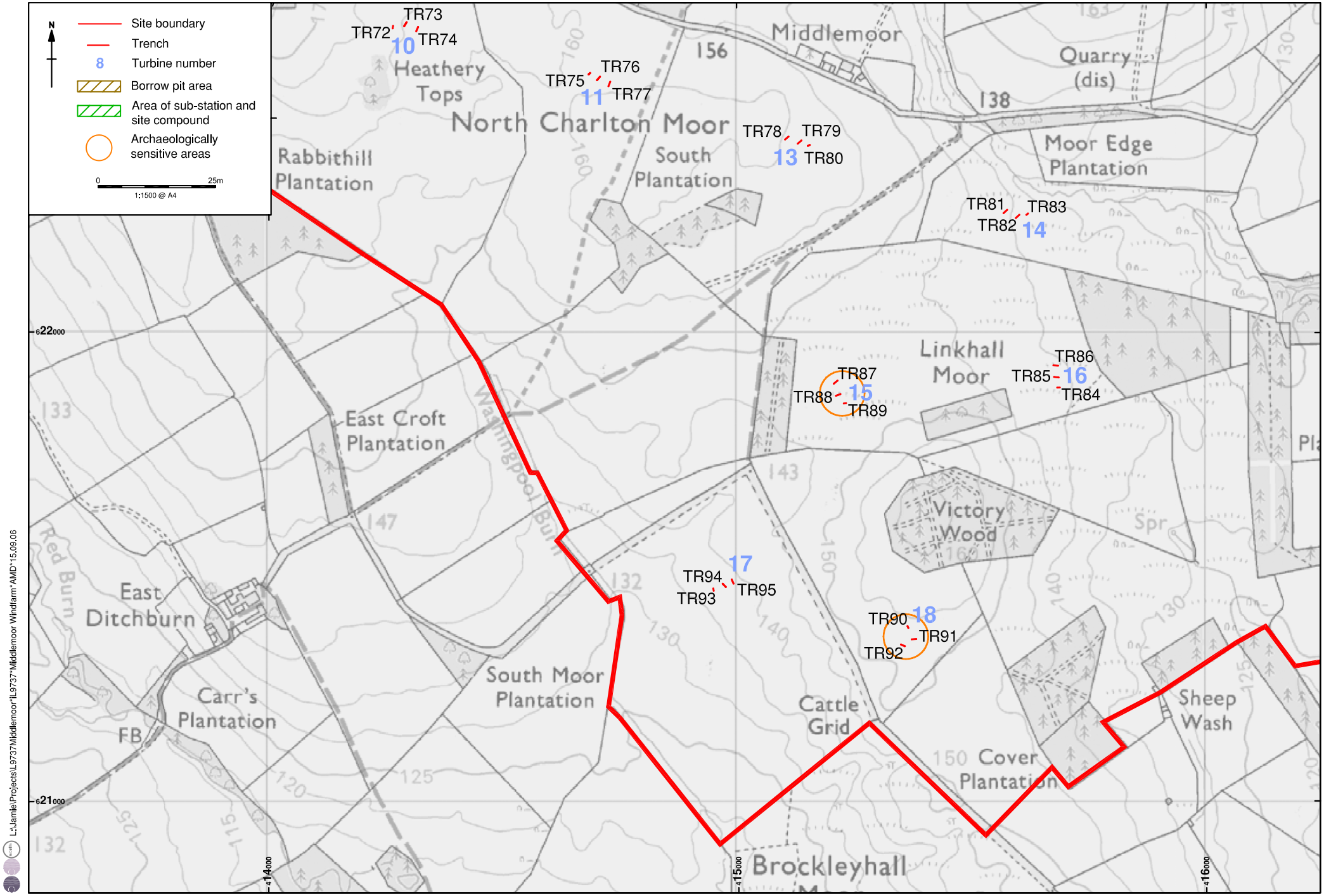

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Figure 5: Location of trenches across the southern area of proposed wind turbines

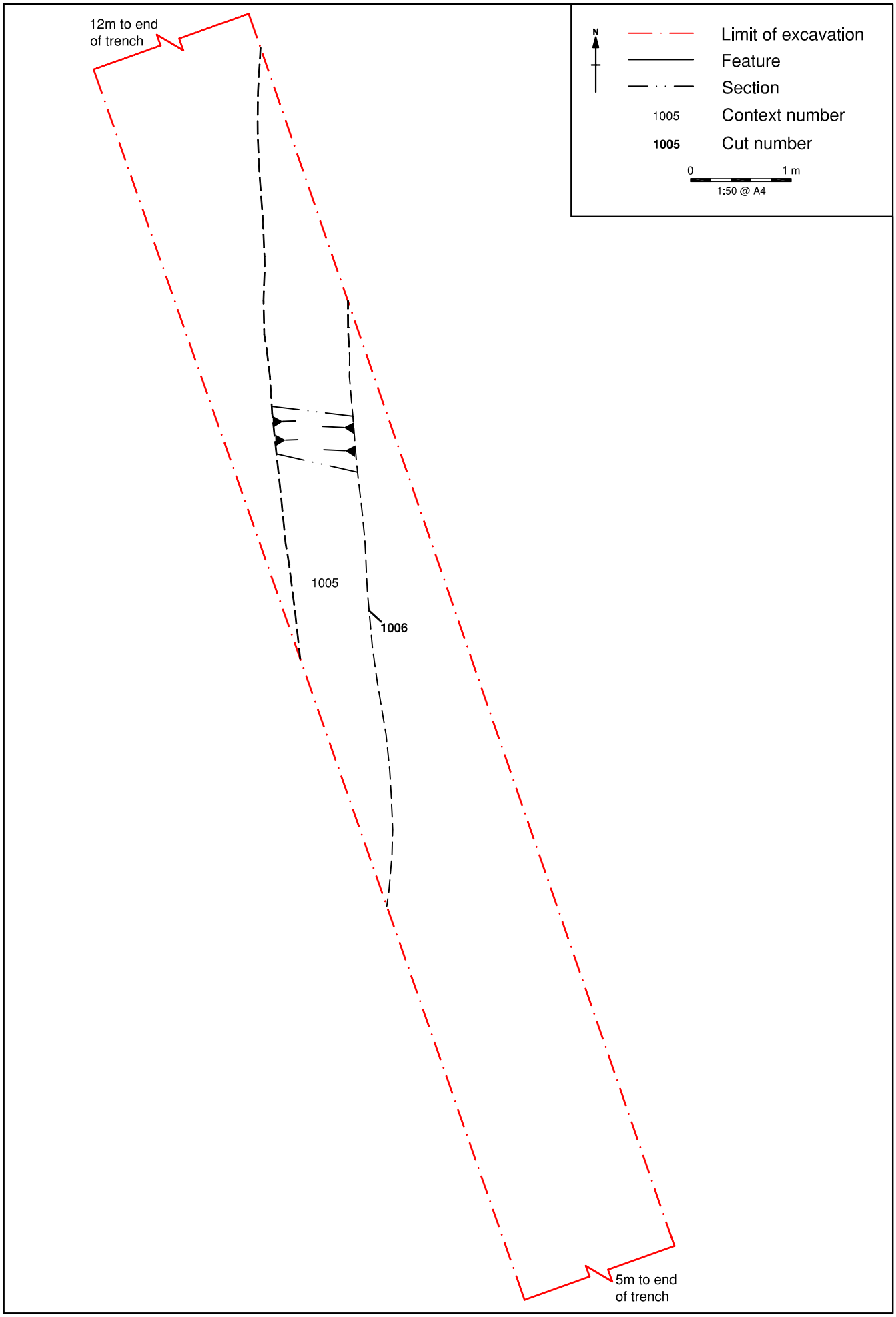

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Figure 6: Plan of Trench 5

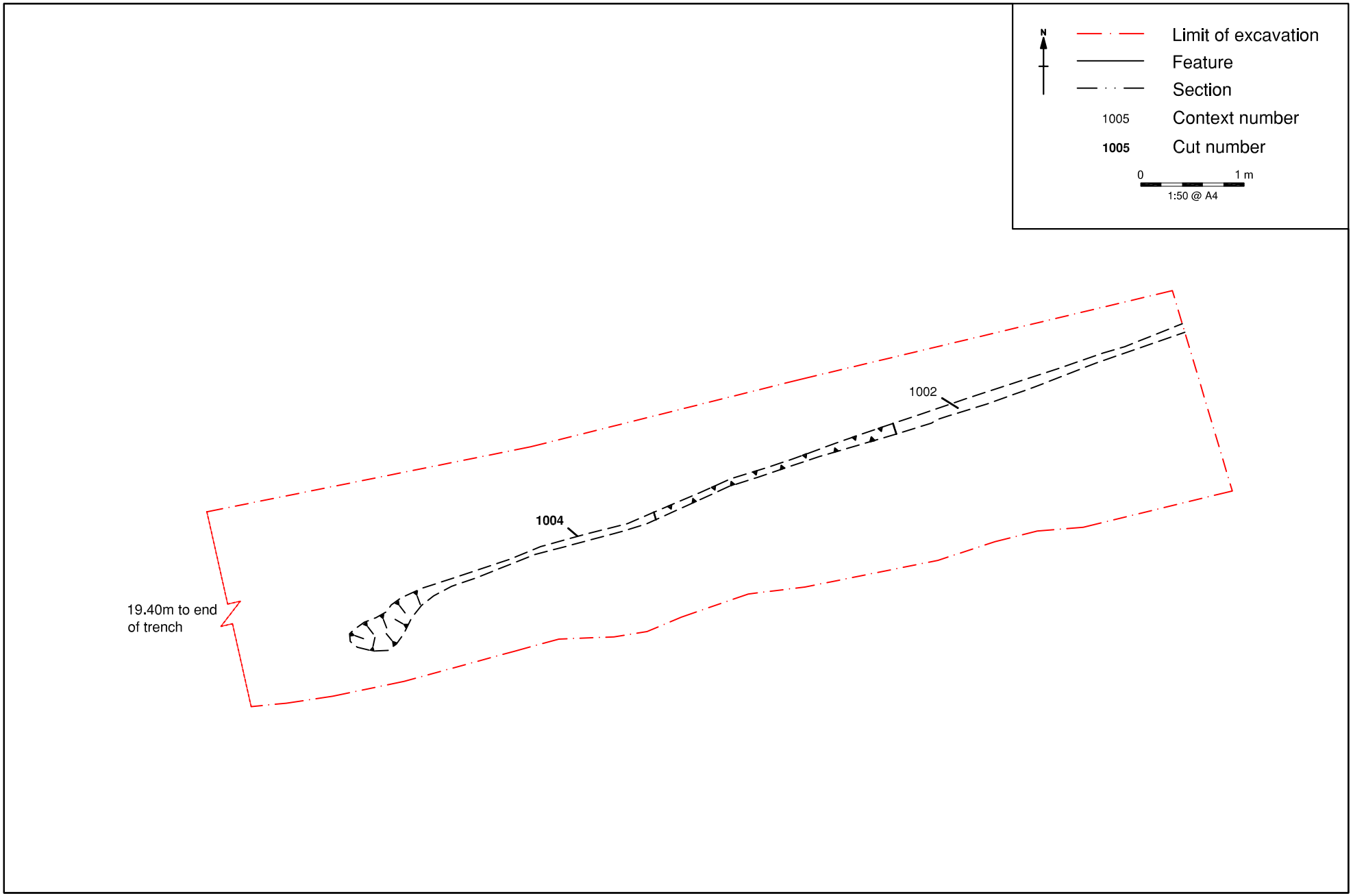

Figure 7: Plan of Trench 8

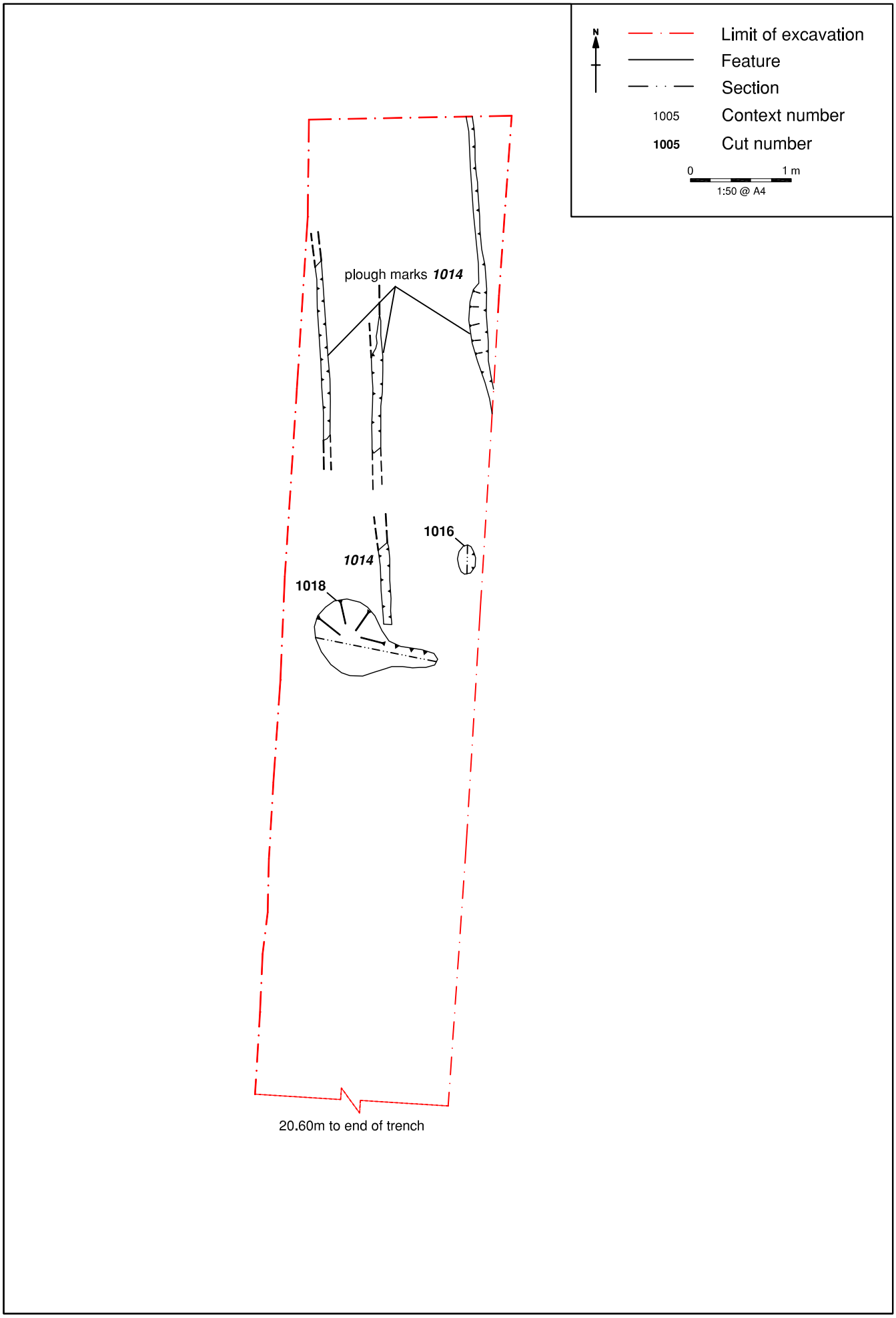

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Figure 8: Plan of Trench 9

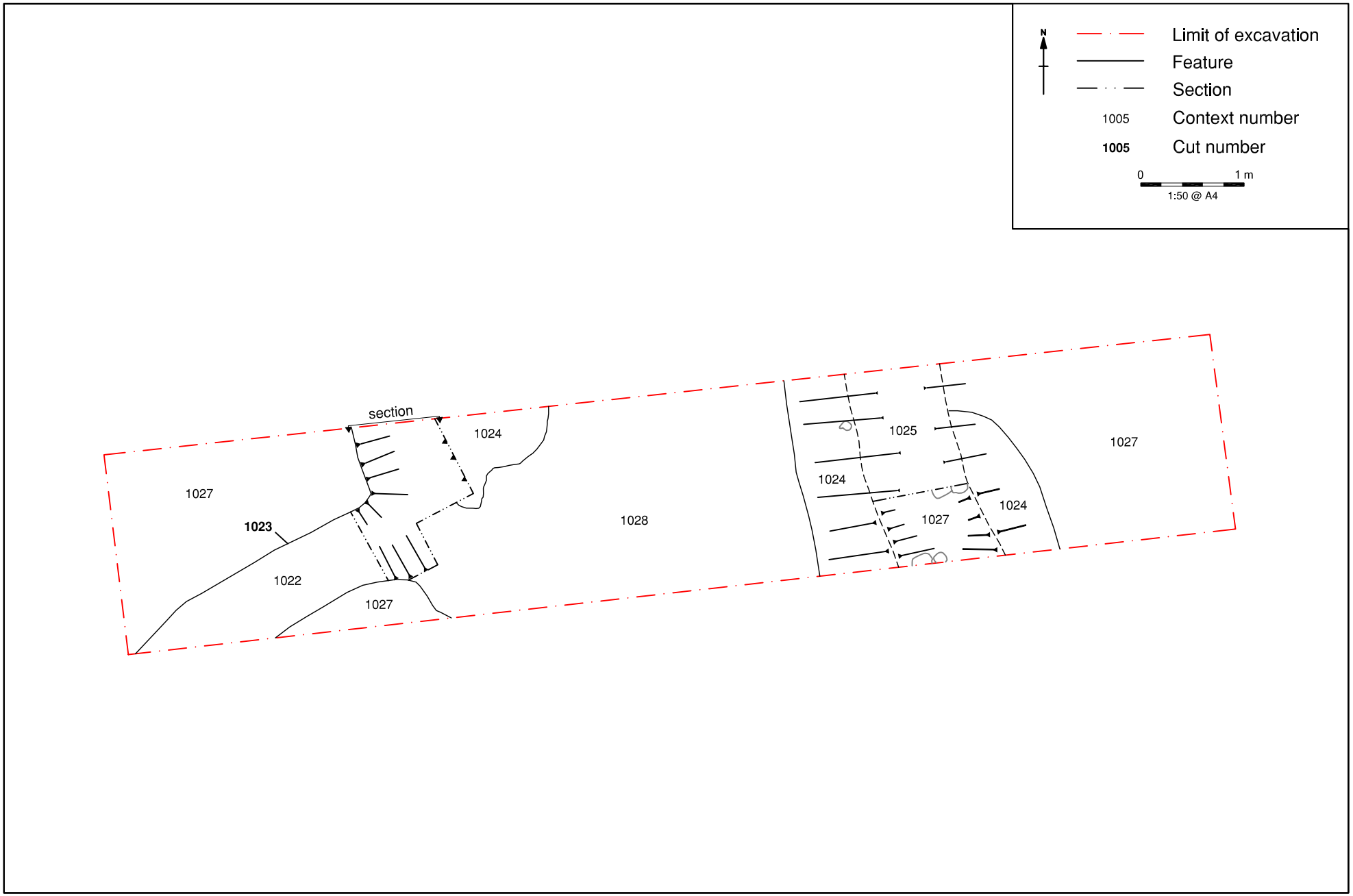

Figure 9: Plan of Trench 33

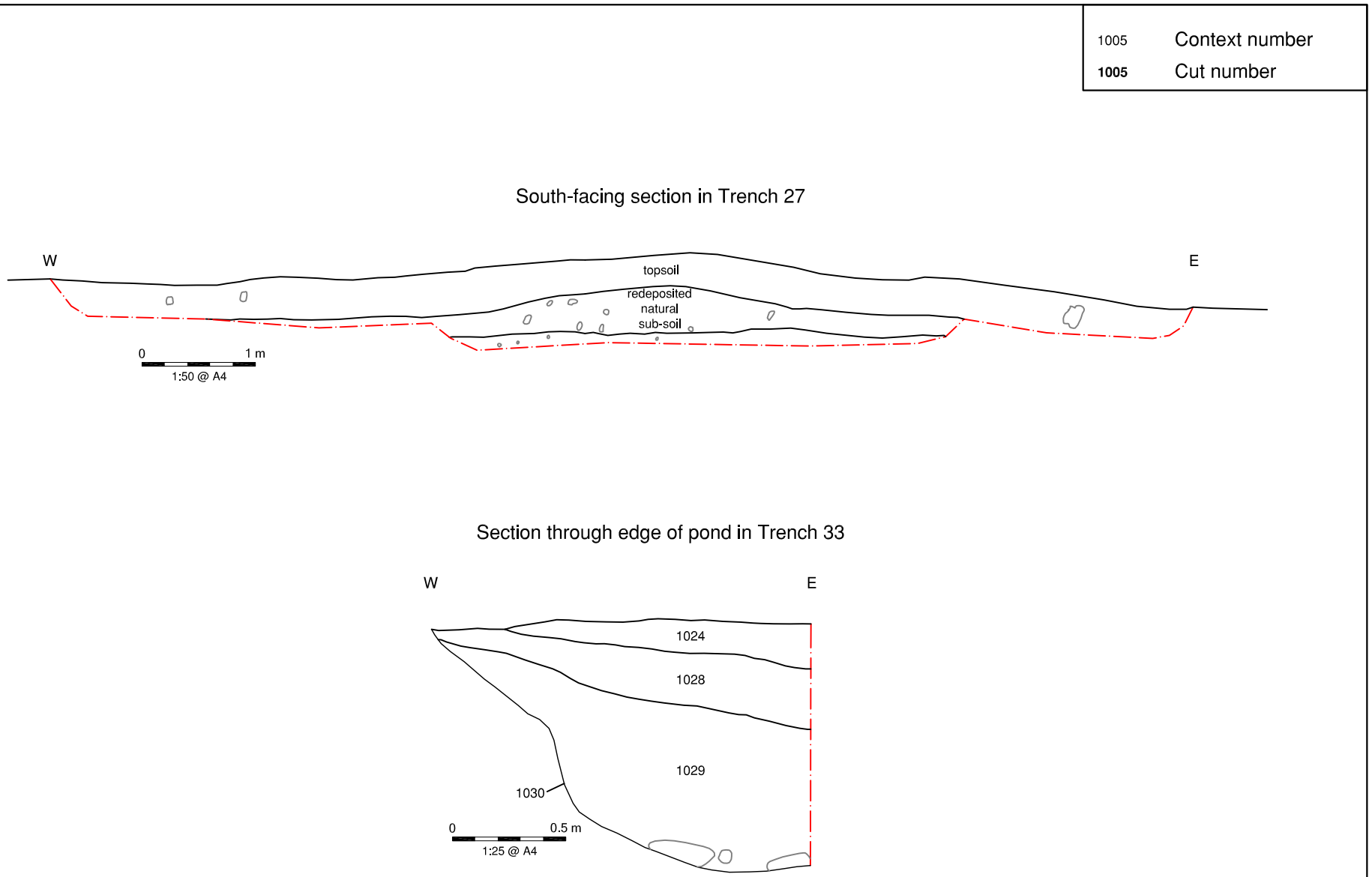

Figure 10: Section from trenches in the sub-station and site compound area

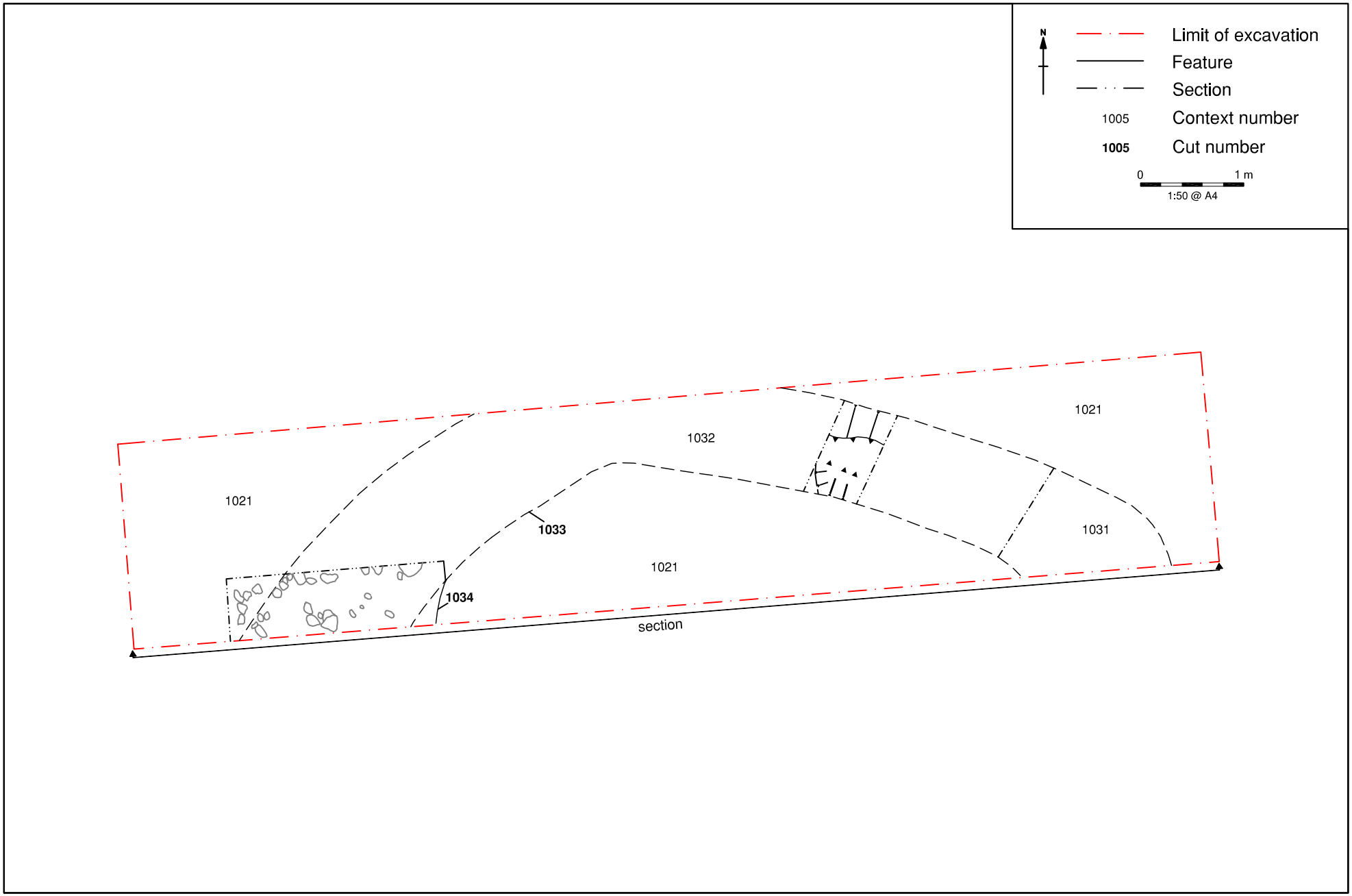

Figure 11: Plan of Trench 36

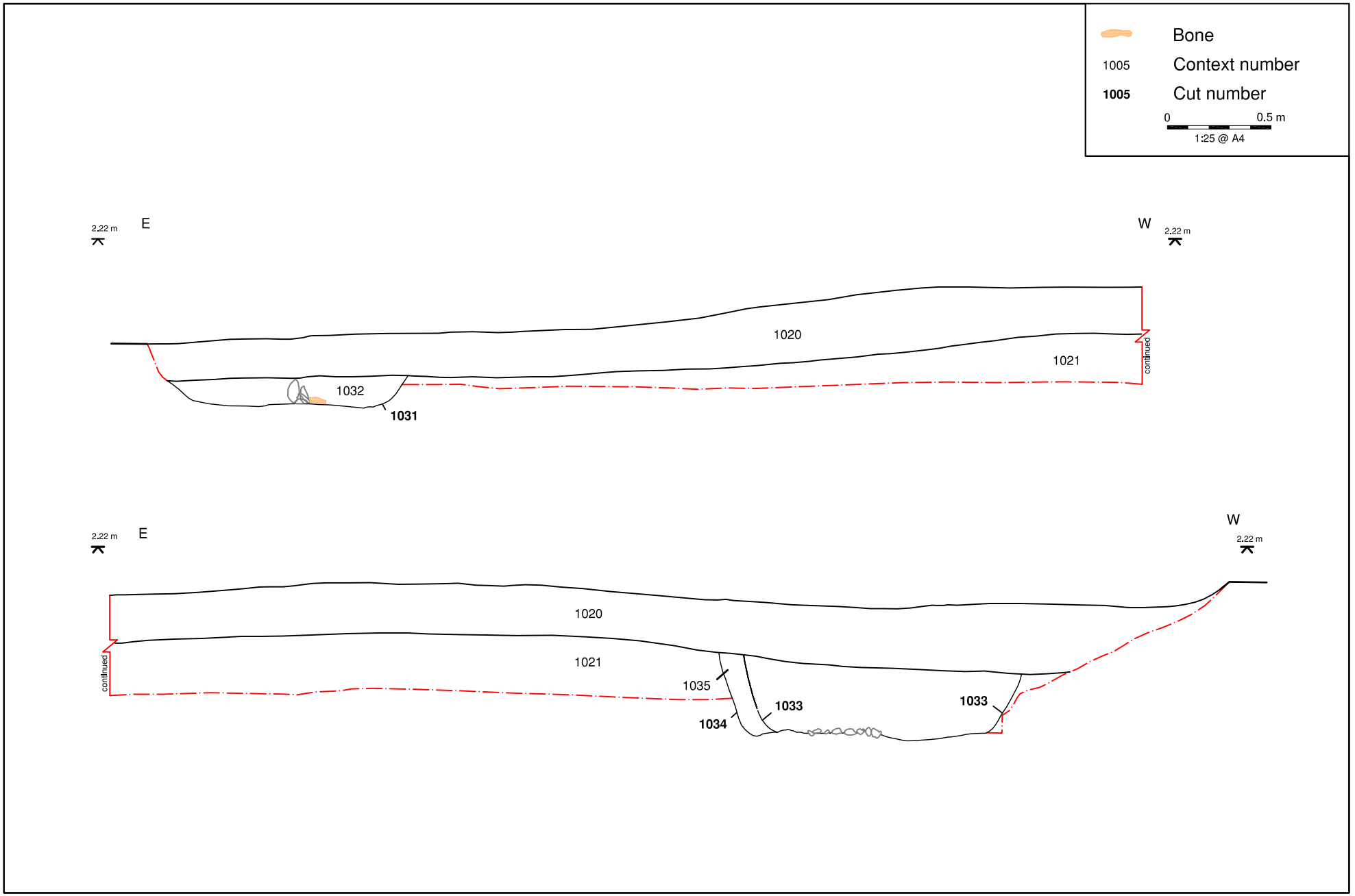

Figure 12: North-facing section through Trench 36

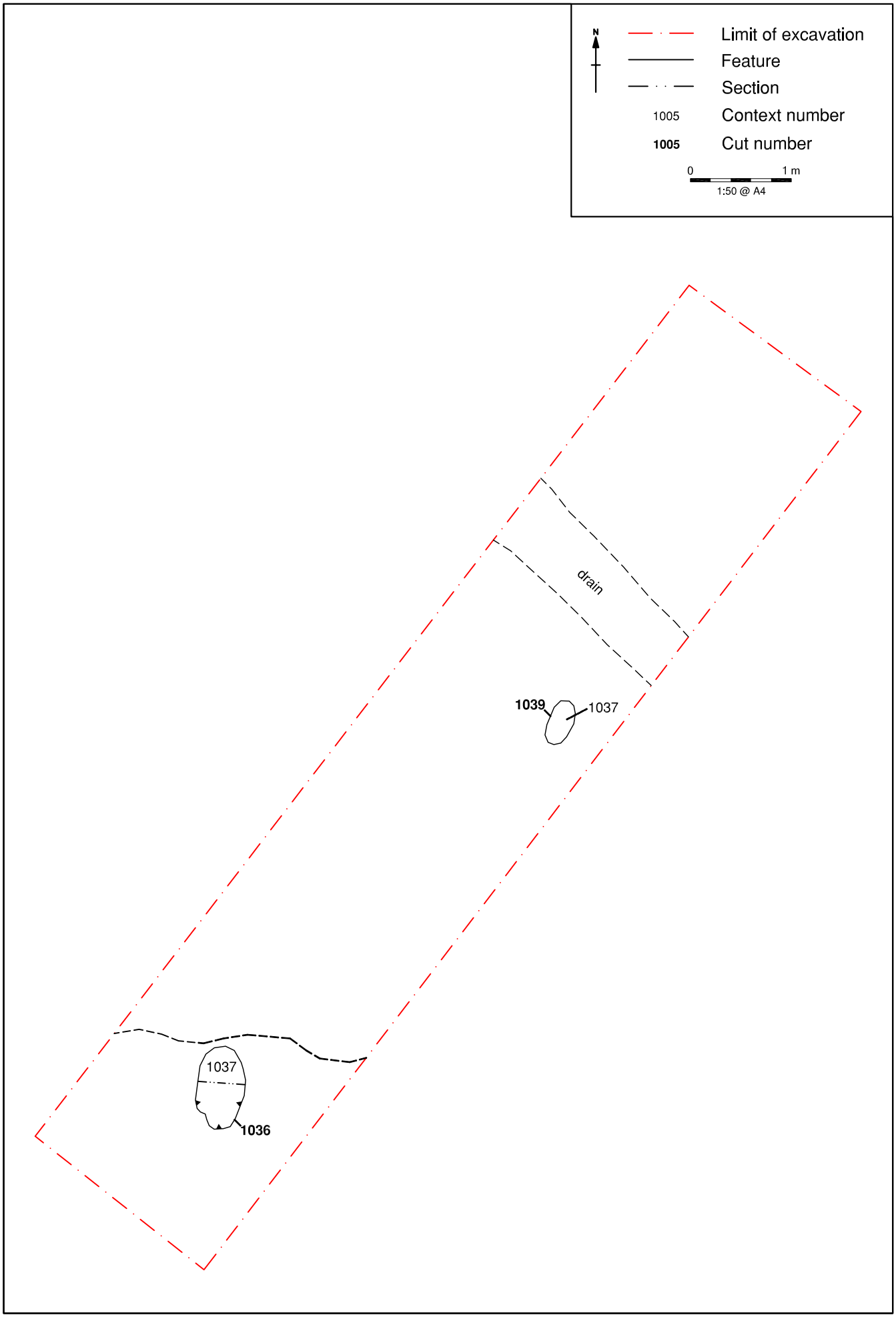

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Figure 13: Plan of Trench 61

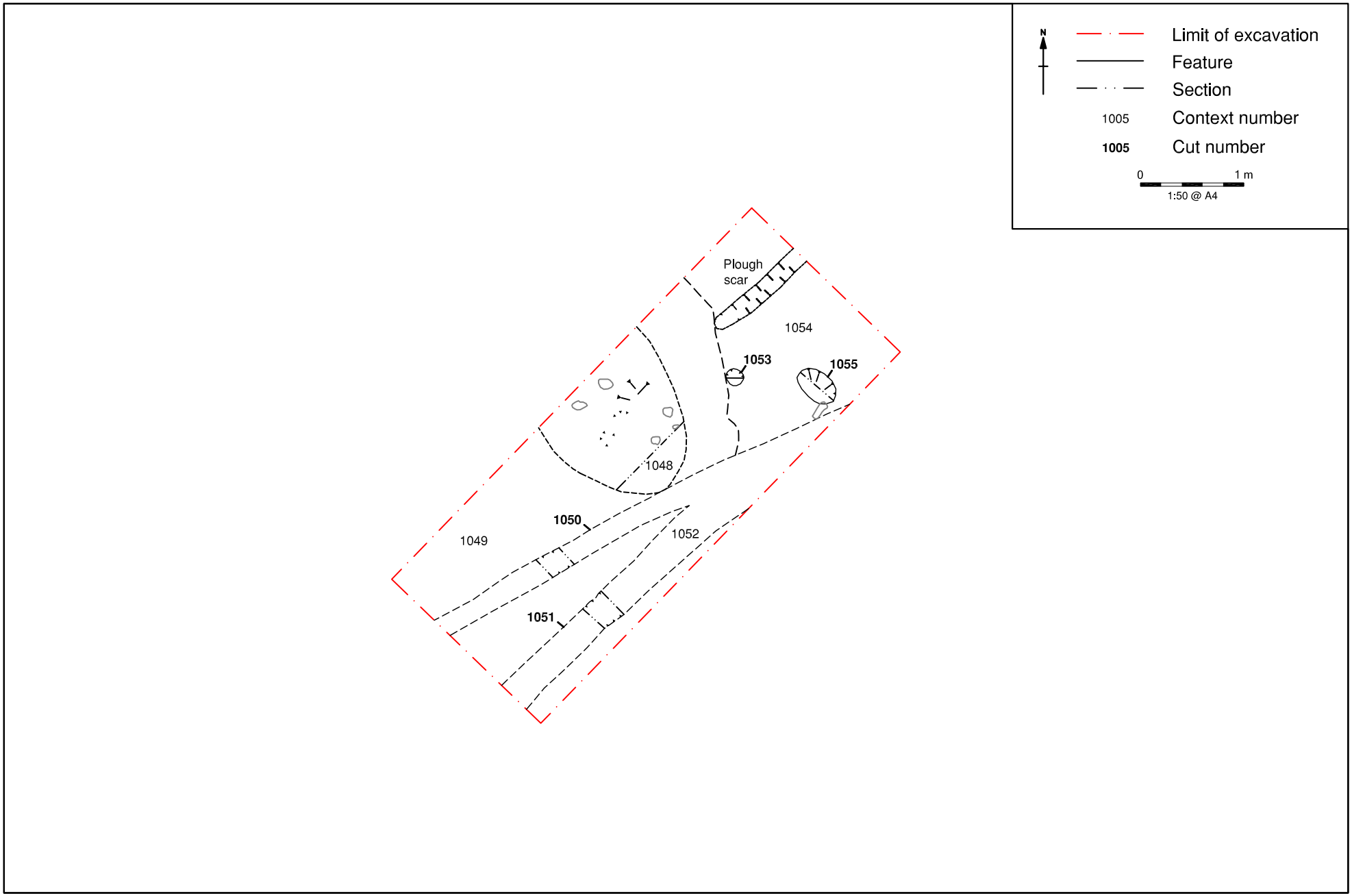

Figure 14: Plan of Trench 75

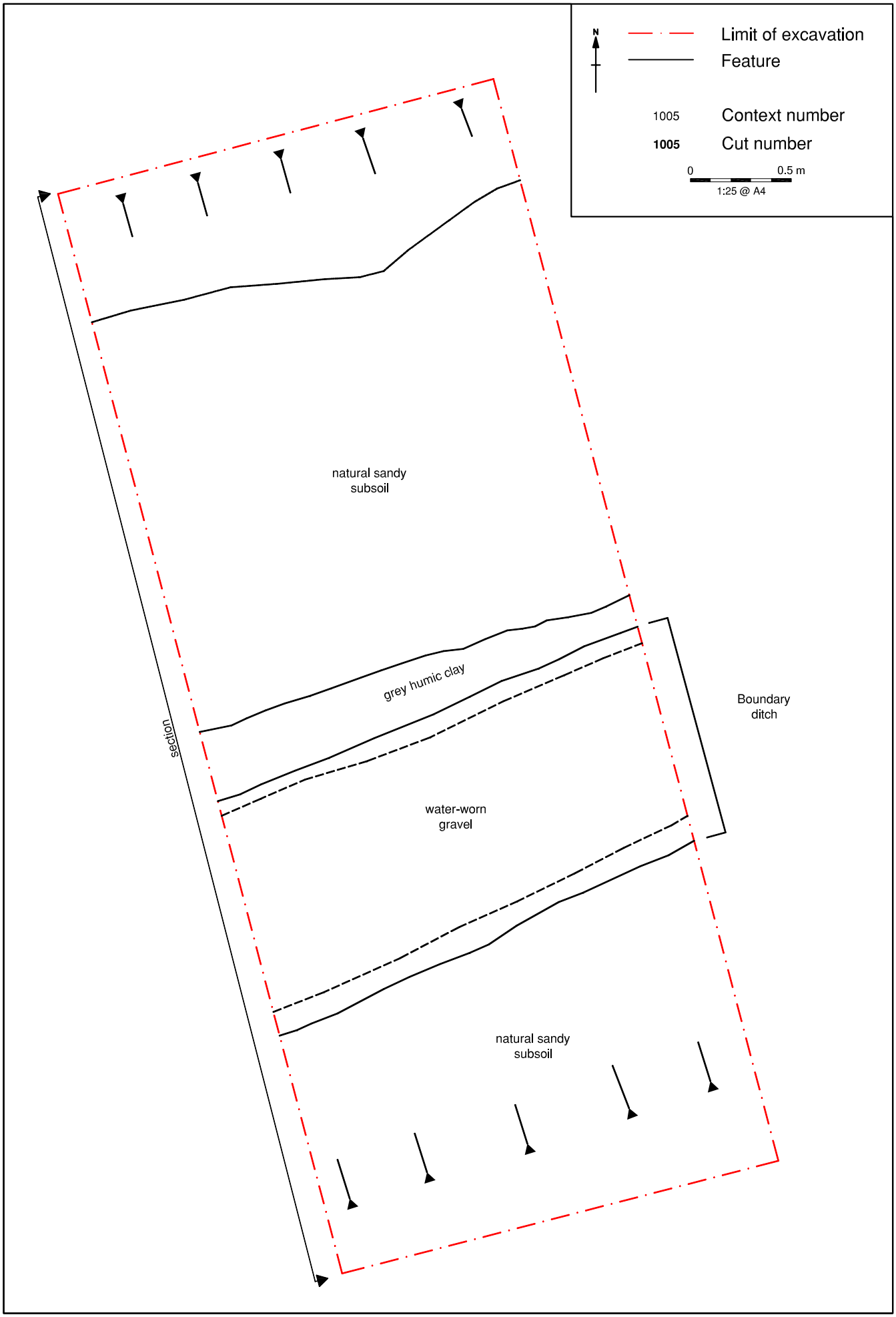

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Figure 15: Plan of Trench 66

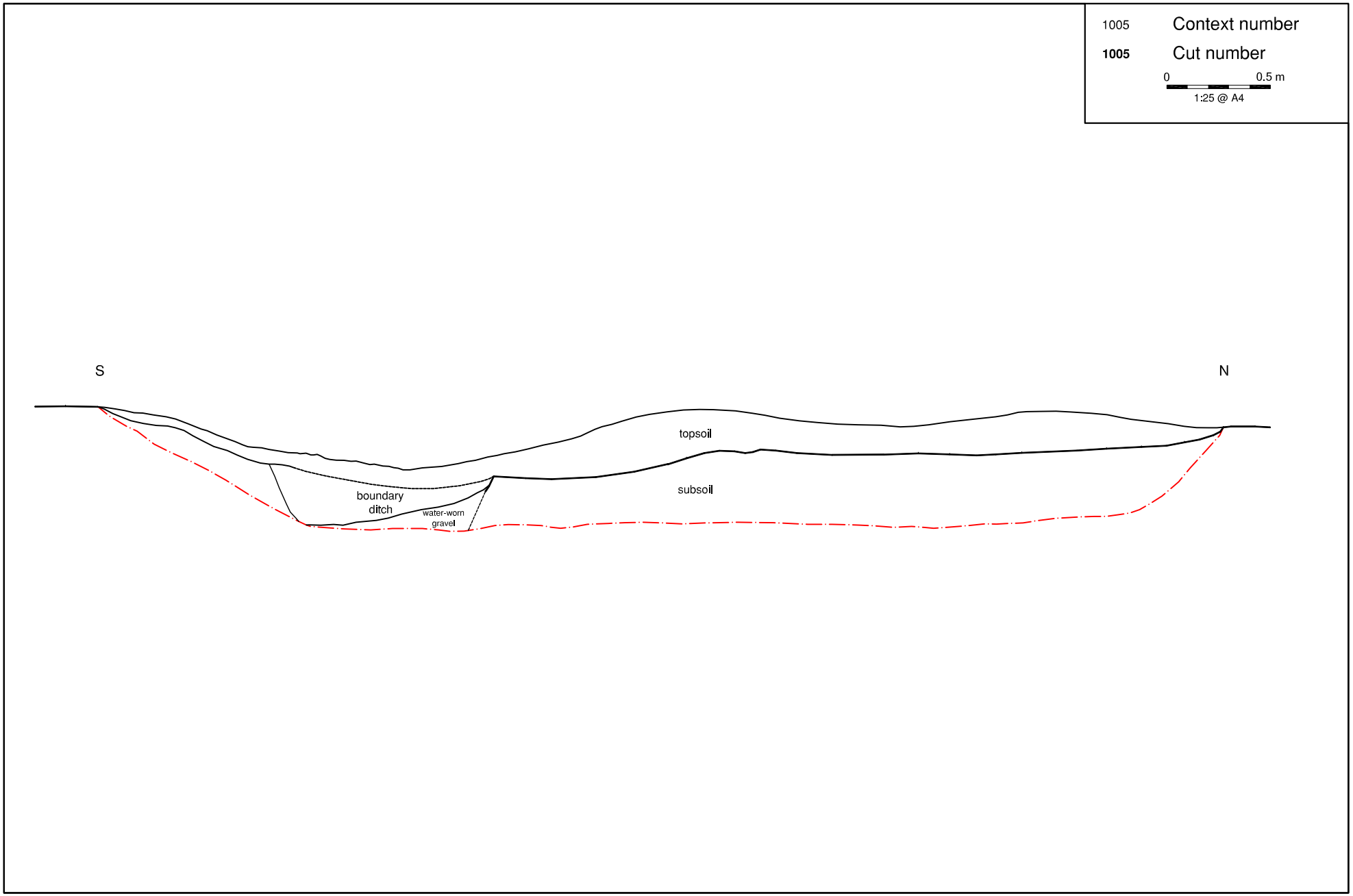

Figure 16: North-facing section through Trench 66

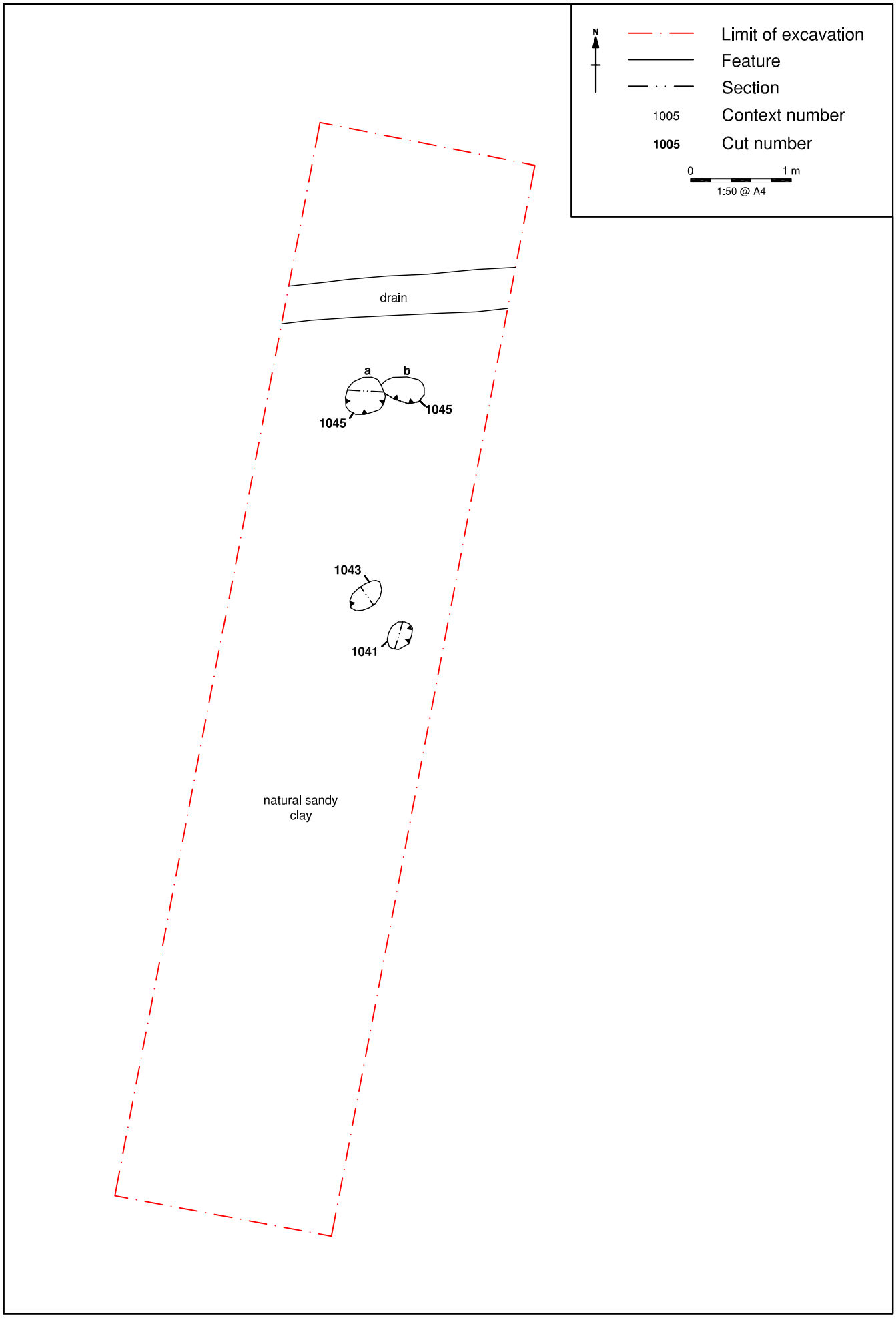

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Figure 17: Plan of Trench 67

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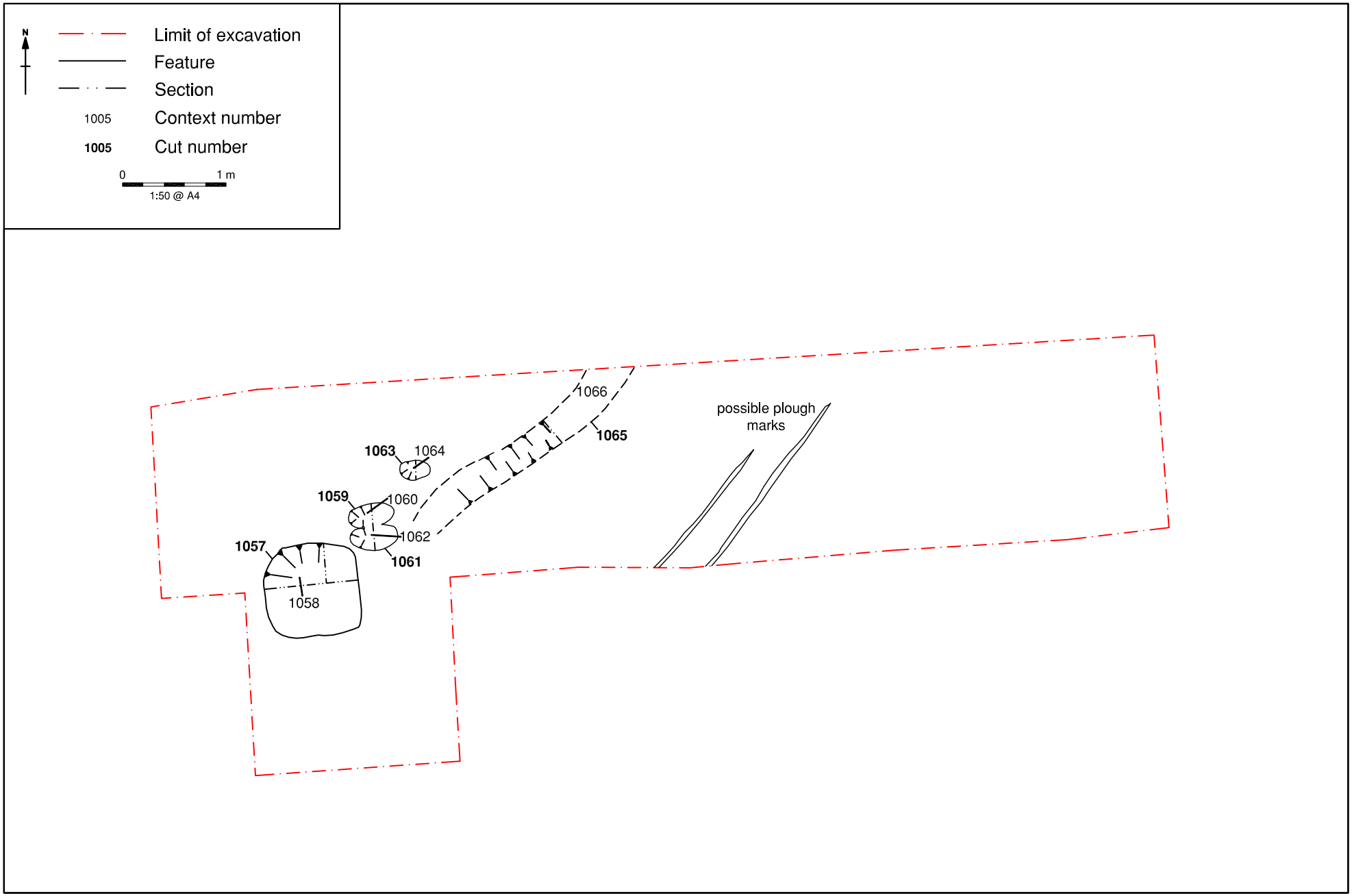

Figure 18: Plan of Trench 91

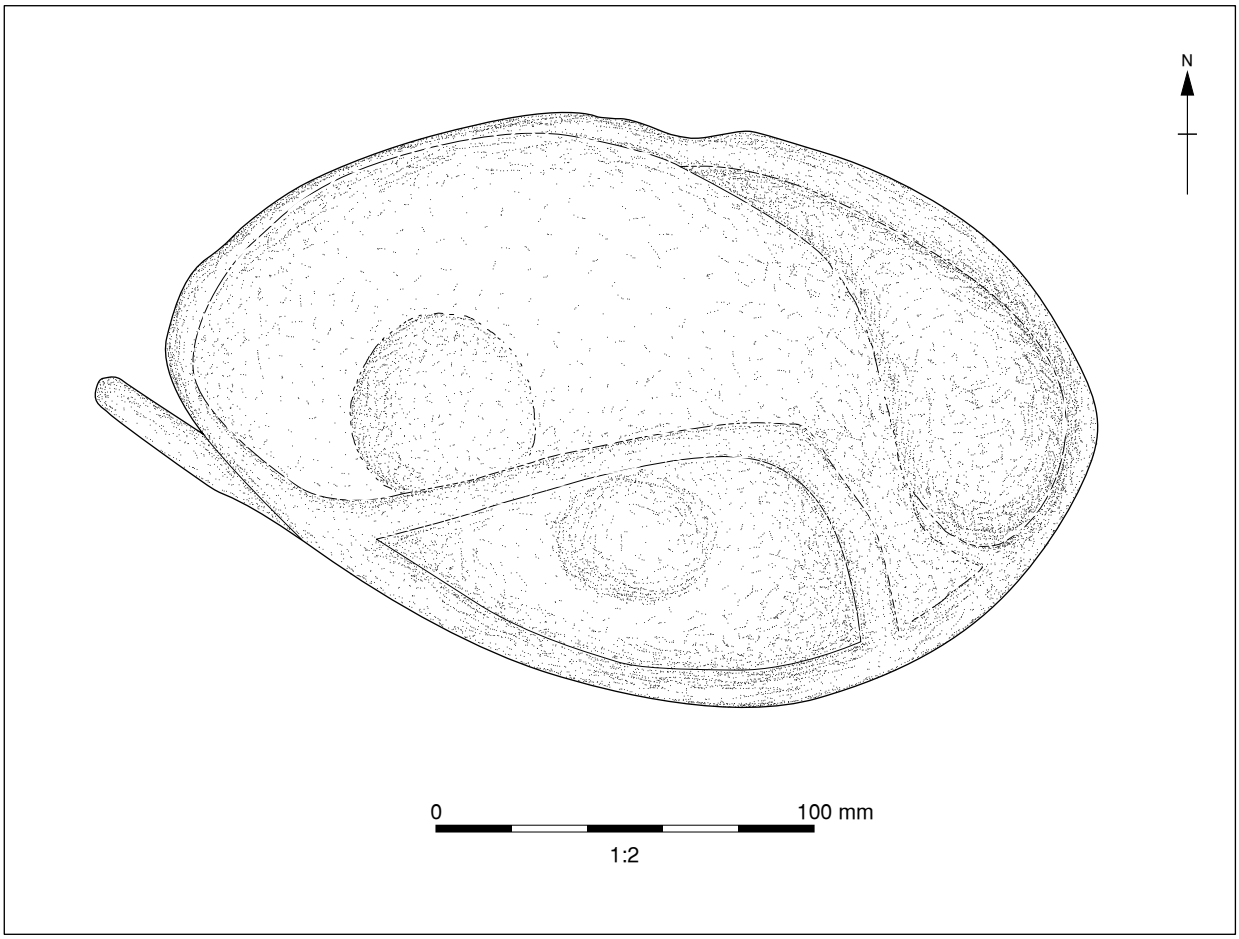

Figure 19: Illustration of the possible rock art

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Plate 11: Possible carved stone amongst boulders along the southern edge of the field containing Trenches 60 to 62

Plate 12: Detail of putative ‘rock art’