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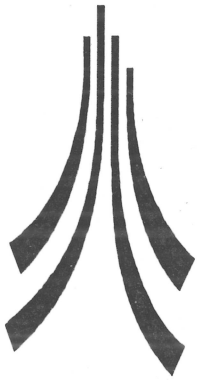

October 1998

TEWITFIELD VIKING TREASURE FIND SITE

LANCASHIRE

Assessment Report

Commissioned by: English Heritage

Tewitfield Viking Treasure Find Site
Carnforth
Lancashire

Archaeological Assessment Report

Report no 1998-99/014/AUA7825

Checked by Project Manager.

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The evaluation was undertaken by Richard Heawood, Andrea Scott and Graham Suggett, assisted by Elizabeth Worth. The finds were examined by Christine Howard-Davis. The main report was written by Richard Heawood, with the finds report by Christine Howard-Davis. The report was edited by Jamie Quartermaine and Rachel Newman. The project was managed by Jamie Quartermaine.

SUMMARY

In July 1998, Lancaster University Archaeological Unit carried out an archaeological evaluation of farmland near Tewitfield, North Lancashire (SD 5136 7372), at the request of Lancashire County Archaeological Service and funded by English Heritage.

A find of silver metalwork of Viking Age had been made by a metal detecting enthusiast in late 1997, in a field which had recently been ploughed and sown with grass for pasture. Two clusters of Bronze Age and Roman finds had also been located towards the south of the same field. The silverwork, which was subject to the Treasure Act, was inspected by specialists and found to be very similar in character to artefacts from the very large Cuerdale Hoard, found near Preston in 1840. Like the Cuerdale Hoard, it probably dated to the early tenth century. A geophysical survey, undertaken by English Heritage, revealed potentially significant resistivity anomalies in close proximity to the reported find spots, and raised the possibility that the finds might be associated with a buried feature. The present evaluation was required to provide an archaeological context for the treasure find, which would inform a Coroner's inquest into the significance and provenance of the silver and allow for the management of a potentially very important archaeological resource. The evaluation aimed to investigate several of the geophysical anomalies, and to identify the existence and character of any archaeological features in the area where the silver was found. It was also intended that it should evaluate the area of Bronze Age and Roman finds.

Evaluation trenches were excavated across the most significant geophysical anomalies, but all were found to be of natural origin, probably being meltwater channels created in periglacial conditions at the end of the last glaciation. A recent former field boundary and a modern feature, probably a post pit, were recorded, but no significant archaeological features were located. The trenches, trench spoil, and the immediate surrounding areas were subject to intensive metal detecting by Matt Hepworth and David Kierzek; in addition, two small open areas around the two reported concentrations of Viking Silver were partially stripped of topsoil to allow deeper detecting. No further silver objects were recovered, but a variety of iron, copper alloy, and lead artefacts were found. Those objects found which could be dated were predominantly of post-medieval or modern origin.

The evaluation has demonstrated that the Viking Silver finds were not associated with any boat burial or other major structure and it is unlikely that the site was the focus for either burial or settlement in the Viking period. It is probable that the presence of the silver was the result of a casual loss in antiquity or deliberate burial for later repossession. There is no evidence that further Viking artefacts remain in the field, but evaluation is by necessity a sampling exercise, with trial trenches investigating only a proportion of any area. However, the partial stripping of two key areas for deeper metal detecting suggests that no further material lies in the vicinity of the existing finds.

The results of the evaluation are presented and considered here in the form of an assessment report according to the format suggested in the English Heritage guideline document *Management of Archaeological Projects* 2nd edition (English Heritage 1991). No further post-excavation analysis of the evaluation archive is recommended.

1. INTRODUCTION

1.1 Project Background

1.1.1 A find of silver metalwork of Viking Age date has been recovered from a field near Tewitfield, North Lancashire (SD 5136 7372). The assemblage was found by Matt Hepworth, a metal detecting enthusiast, who, in accordance with the Treasure Act, reported it to the Coroner and the Lancaster City Museum. The metalwork was then made available for inspection by specialists (Ben Edwards, Chris Howard-Davis, Dr Andrew White and Rachel Newman). The silver artefacts were recovered from a localised area, but were found together with a substantial amount of ironwork, much of which has been interpreted as being modern by Dr Andrew White of Lancaster City Museum and Chris Howard-Davis (LUAU). The silver itself has been identified as of early medieval date, and is considered by the specialists who have viewed it to be very similar in character to the material recovered from the Cuerdale Hoard. This was found in 1840 on the bank of the River Ribble, near Preston, and contained some 40kg of silver; as such it is the largest Viking-period hoard from North West Europe. The Cuerdale Hoard has been dated to the early part of the tenth century and has been interpreted as the pay chest of a war band or even a political payment (Graham-Campbell 1992; Newman 1996); although there are numerous hoards of silver recovered from Britain, it is relatively rare to find silver metalwork as grave goods, except in association with the richest of burials, which include those associated with ships (Graham-Campbell 1982).

1.1.2 Finds of Bronze Age and Roman metalwork have also been made in the same field. The precise find spots for these are uncertain, but they are believed to derive from areas close to the southern boundary of the field, indicating a spatial separation from the Viking-period material of *c*100m (M Hepworth pers comm).

1.1.3 The find is subject to the Treasure Act and it was thus agreed that the nature of the original deposition should be investigated to inform an inquest by the Lancashire County Coroner, and thereby establish the legal status of the material. The majority of hoards have been chance finds with no opportunity to investigate their context by scientific techniques; the circumstances within which they were deposited have therefore rarely been established. It was thus clearly desirable to implement a programme of archaeological fieldwork to provide an appropriate context for this material. The Lancashire County Archaeologist approached English Heritage to undertake a geophysical survey of the site, and this survey revealed potentially significant geophysical anomalies associated with the reported find spots. The survey raised the possibility that the finds may be associated with a burial feature (see below, *Section* 1.4.5), suggesting that the potential of the site might be of at least national significance. On the basis of these positive results it was decided by the County Archaeologist and the Inspector of Ancient Monuments that these anomalies should be investigated further to enable the establishment of a management strategy for the site and to inform the inquest.

1.1.4 The evaluation described here was intended to identify the existence and character of any archaeological features or stratigraphy, and to enable a suitable management plan to be enacted.

1.2 Topographical and Geological Context

1.2.1 The site is situated within the large flat bottomed glacially-cut valley between Endmoor and Carnforth; the northern head of the valley (Endmoor) is characterised by an area of substantial drumlins deposited at the end of the last glaciation. The valley is edged to the west by the Arnside/Silverdale limestone uplands and to the east by the Hutton Roof/Farleton limestone hills. The solid geology of the valley floor is Dinatian Carboniferous Limestone (Inst Geol Sci 1971) overlain by grey or reddish brown stony, clayey silt and gravels (Lawes Agric Trust 1983); the site is within 500m of modern gravel pits.

1.2.2 There is presently no river or stream extending along the length of the valley; indeed the nearest river is the Keer, which is 1.5km to the south and at an altitude of 20m below that of the site. The ground surface is well-drained, and there are some wetlands fairly close to the site, notably the Hilderstone Mosses, 2.5km to the north, and also near Warton, 1.5km to the south-west (Middleton *et al* 1995). However, the nearest known site with organic deposits suitable for palynological studies is some 10km south of Tewitfield at Thwaite House Moss, but even here the waterlogged deposits have been truncated through peat cutting and the early medieval deposits may have gone (*ibid*). The site is situated immediately adjacent to a presently dry valley that led between a glacially-cut pond, Holmer Tarn, and the River Keer; the base of this dry valley is presently occupied by the cutting of a railway line and the embankment of the A6 road. The site lies part-way up a gently sloped glacial hill, centred 1km to the north.

1.3 Archaeological Background

1.3.1 ***Silver Hoard:*** the hoard was found by metal detecting within a field which has been subject to intensive cultivation. The artefacts have been brought up by the plough and were all found within the top 80mm of topsoil.

1.3.2 The hoard of silverwork comprises two silver ingots, which are up to 32.5g in weight and have been deliberately clipped in antiquity. They also have marker lines along the length of the ingots reflecting denominations of value. There are two fragments of bracelet (*c*20.5g weight) which have again been deliberately cut, removing both terminals; the implication is that the bracelet was at the time of loss serving as an item of currency rather than as jewellery. The assemblage includes three Kufic dirhems, which are extremely thin, being only *c*3.2g, in weight and consequently have a relatively low base metal value. There are also four pieces of hack-silver.

1.3.3 The silverwork has a remarkable similarity to the component pieces of the Cuerdale Hoard, though the Tewitfield pieces are typically less complete and reflect a lower base metal value than those from Cuerdale. The close similarity to the Cuerdale material would suggest a date for deposition in the early tenth century; the Cuerdale Hoard was dated to AD 905 principally on the basis of the component Kufic coins (Archibald 1992).

1.3.4 Also reported from the same locality were two blue beads, one of which has been dated to the fourth century, and there was also a fourth century coin (Shotter D pers comm).

1.3.5 In addition to the silverwork there was a considerable amount of ironwork, some of which is of very modern origin, including tractor parts. Many of the iron fragments are hand forged nails, but are not the sort of clenched nails that would be typically associated with a boat (Howard-Davis pers comm). It has not been possible to ascribe even a broad date to the nail assemblage.

1.3.6 The silver assemblage displays all the characteristics of working currency, rather than ornate or exotic pieces. As such they are more likely to reflect a lost purse than the assemblage associated with a wealthy burial. The majority of Norse silver finds in Britain have been from isolated hoards rather than from funerary contexts and this is also the most probable explanation for the Tewitfield assemblage.

1.4 Previous work

1.4.1 Following the recovery of the artefacts, a programme of geophysical survey was undertaken by the English Heritage Ancient Monuments Laboratory (AML), at the request of Lancashire County Archaeological Service, in conjunction with a locational survey by the Lancaster University Archaeological Unit (LUAU). The results of the investigation are presented in the AML report (*Appendix 2*, below*)*, but can be summarised briefly here. Magnetometry survey identified a former field boundary, a possible ditch-like feature in the south-east of the survey area, and a number of anomalies which may indicate infilled pits, but no anomalous features close to the silver find-spots. The method was inhibited by the presence of modern ferrous rubbish, and by the relatively constant magnetic susceptibility values of the soil.

1.4.2 A resistivity survey appeared to produce more significant results. An elliptical low resistance anomaly which was *c*20m by 6m in size and orientated north/south was detected (anomaly A) located in the immediate vicinity of the reported find spots of the silver (Fig 2). Resistivity was lowest within an area *c*4m in diameter towards the northern end of the anomaly. Anomaly A was situated within a more amorphous, less pronounced, but larger, low resistance anomaly which has been interpreted as being a geomorphological feature. Vertical electrical imaging suggested that anomaly A might be *c*1.2-1.5m deep in its central portion, becoming shallower to the north and south, and that a discrete high resistance feature might underlie it at its deepest point. A broad (14m wide) low-resistance linear anomaly, anomaly B, was situated to the north-east, orientated north-west/south-east, running across the slope of the field. Vertical electrical imaging suggested that it might be less deep than anomaly A, and thus different in origin. Anomaly B was thought to represent a palaeochannel, or a glacially-cut scar, as this area has sustained considerable glacial movement and there are many morainal mounds in this area, particularly to the north. Other low resistance anomalies of similar proportions to anomaly A were also thought to be of natural origin.

1.4.3 A ground probing radar survey was undertaken as part of a further programme of geophysical investigation of anomaly A. A single highly tentative anomaly was detected, equating with the location of the low resistance response. It was thought to represent a shallow feature extending from *c*0.8m-1.0m below the ground surface. Confidence in the result was not great because the difficulties of applying the method over glacial till, the combination of high clay content and signal scattering from the numerous small pebbles being problematic.

1.4.4 Soil samples were measured for magnetic susceptibility, but the variations measured were seemingly random, with no significant difference between samples taken from on or away from the low resistance anomaly. The result may derive partly from modern contamination.

1.4.5 ***Interpretation of the Low Resistance Anomaly:*** the small oval-shaped anomaly was very well defined, and, prior to the present evaluation, was regarded as potentially an archaeological feature. Its shape and size were not inconsistent with previously

recorded Viking ship burials or ships (eg the eleventh century Knarr-type boat Skudelev 1 (16m x 4.5m) which was deliberately sunk in the Roskilde Fjord (Olsen and Crumlin-Pederson 1978) and because of its spatial association with the reported find spots of the silver artefacts (Fig 3) there was a slight possibility that the anomaly could have been a burial feature.

2. ORIGINAL RESEARCH DESIGN

2.1 Aims and objectives

2.1.1 The evaluation was conducted in accordance with a project design (*Appendix 1*), prepared in response to a verbal brief by the Lancashire County Archaeological Service, and was produced in consultation with English Heritage.

2.1.2 The following research objectives were specified:

- the evaluation by trial trenching of the small elliptical geophysical anomaly with the aim of establishing, if possible, the function, date and significance of those remains. However, the evaluation trenching would not cause unnecessary disturbance to the site; no more than 20% of the anomaly would be investigated by this method. Excavation down to natural deposits would be undertaken in those parts of the trenches that extended beyond the anomaly or within the base of the anomaly if it had been established that the feature was of natural origin, or that such action would not compromise the integrity of the site. The remaining parts of the trenches, within the extent of the anomaly, would be excavated only down to the top of any identified archaeological deposits, but the evaluation would involve the characterisation of any exposed features by half sectioning;
- to establish the character and origin of the large north-west/south-east negative resistance anomaly by means of a series of machine-cut trenches excavated across it; (the precise number of trenches was to be determined by the preliminary results of the evaluation;)
- to define the extent, size, character and condition of any archaeological deposits by excavation of machine-cut control trenches around the locality of the silver find site;
- to undertake an evaluation in that part of the field where Bronze Age artefacts had been recovered to establish the stratigraphic context of these reported finds;
- to inform the coroner's inquest into the significance and provenance of the material.

2.1.3 It was additionally intended that the programme would:

- investigate and record artefacts from all periods revealed during evaluation, examining the range and character of the artefactual evidence within a regional context;
- include preparation of an archive for the project to the specification provided in *Appendix* 3 of MAP2, to professional standards;
- include preparation of an assessment of the results in accordance with MAP2, addressing the potential for further fieldwork and/or analysis.

3. FIELDWORK METHODOLOGY

3.1 Evaluation Methodology

3.1.1 The fieldwork was carried out in accordance with the agreed method statement provided in the project design (*Appendix 1*), and was recorded in the prescribed manner. Throughout the evaluation, the team from LUAU worked closely with two amateur metal detectorists, Matt Hepworth and David Kierzek, who examined excavation spoil and the bases of the excavated trenches.

3.1.2 Evaluation trenches were excavated in the positions defined in the project design, where trench positions had been specified. Those trenches required for the investigation of an area of Bronze Age and Roman metal detector finds to the south of the field were positioned on the basis of information provided by Matt Hepworth. These trenches were longer than envisaged by the project design because of the imprecision of the locational information.

3.1.3 All trenches were excavated to the width of a five foot toothless ditching bucket, which resulted in trenches *c*1.6m wide. The project design had envisaged use of a range of trench widths, but in the event this proved impractical.

3.1.4 After the removal of topsoil by machine, all trenches were scanned by metal detector. Additionally, the topsoil was spread out adjacent to the trenches to allow for effective metal detecting of all spoil removed by machine.

3.1.5 All trenches were photographed after the removal of topsoil. Manual cleaning of trenches using hoes and trowels was attempted, but, because of the high stone content of the underlying gravels, this was found to produce a surface less clean than that which resulted from the initial machining. Nevertheless, in order to allow for the retrieval of non-metallic finds, Trenches 1, 2, 7, 9, and 12 were cleaned manually after they had been inspected for features and photographed.

3.1.6 During the course of the evaluation, permission was obtained from Lancashire County Archaeological Service, English Heritage, and the landowner, to open a further two trenches (14 and 15). These took the form of small open areas which were partially stripped of topsoil to allow the metal detectorists to scan the area around the existing Viking silver finds to a greater depth.

3.1.7 ***Recording:*** the trenches and features identified within them were recorded using standard LUAU *pro-forma* recording sheets. Plans and sections were drawn on drafting film at scales of 1:20 and 1:10 as appropriate (summary context details are presented in *Appendix 2)*. A photographic record was maintained and any finds recovered from the trenches were bagged and recorded by context. Additionally, finds recovered from the trench spoil by use of a metal detector were bagged and labelled by trench. Finds recovered by metal detector scanning of Trenches 14 and 15, and further finds from scanning the area around the trenches, were bagged and located in three dimensions using a total station. All artefacts were recorded using the same *pro-forma* based system.

3.1.8 The trenches were located using a total station, and were plotted onto the Computer Aided Drafting (CAD) plan of the area prepared after initial site survey by LUAU.

3.2 Finds Methodology

3.2.1 All finds have been handled and stored in accordance with LUAU standard practice, which follows current IFA guidelines, in order to minimise deterioration. All artefacts found during the course of the project will remain the property of the landowner, but a discard policy for the finds at the completion of the project may be instigated subject to discussions with the landowner, the Lancashire County Archaeological Service (LCAS) and the Lancashire Museums Service.

3.3 Archive and deposition

3.3.1 A full archive to professional standards, following current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991) has been compiled in accordance with the project design. The project archive represents the collation and indexing of all the data and material gathered during the course of the project. It includes *pro-forma* recording sheets, a photographic archive, an accurate digital survey of the site tied into the Ordnance Survey grid and accurate hand drawn large scale sections (scale 1:20 and 1:10).

3.3.2 Arrangements will be made for the deposition of the archive with the Lancashire Museums Service along with any excavated material which is retained, as recommended by the Museum and Galleries Commission. A copy of the report will be deposited with LCAS, for inclusion in the county Sites and Monuments Record (SMR).

3.4 Monitoring

3.4.1 The fieldwork was monitored by Peter Iles of Lancashire County Archaeological Service. All adjustments to the defined evaluation programme were discussed with the Lancashire County Archaeological Service and the English Heritage Inspector of Ancient Monuments.

4. QUANTIFICATION AND ASSESSMENT

4.1 Assessment objectives

4.1.1 The principal aim of this assessment was to evaluate all classes of data from the evaluation at Tewitfield, Lancashire, in order to formulate a programme of further analysis and eventual publication if required.

4.1.2 The objectives of this assessment correspond to those laid out in the guideline document *Management of Archaeological Projects* 2nd edition (English Heritage, 1991). It will present:

- a factual summary, characterising the quantity and perceived quality of the data contained in the site archive;
- a statement of the academic potential of this data;
- recommendations on the storage and curation of this data.

4.2 Material Assessed

4.2.1 The primary archives, which are currently held at LUAU offices in Lancaster, consist of three main categories:

- Paper archive;
- Digital Archive;
- Artefact archive.

4.2.2 ***Paper archive:*** all stratigraphic and artefact records are hand written on LUAU *pro-formas*. Section drawings exist as field drawings. Digital survey data is maintained on disk, but hard copy is kept both of the original data, and of the plans and topographical surveys produced from them.

4.2.3 ***Digital archive:*** the survey data, including data for creation of trench and feature plans, were captured in digital form by total station, and were translated into a digital computer-aided draughting (CAD) system. All survey and excavation plan drawings are maintained as digital files. In addition, three section drawings were digitised for CAD presentation.

4.2.4 ***Artefact archive:*** finds were processed, and have been maintained in suitable conditions, at LUAU offices in Lancaster.

4.3 Quantification

4.3.1 ***Paper Archive:*** the paper archive contains the following records:

Components	***Records***	***Comment***
context records	21	of which 7 relate to topsoil of which 6 relate to probable natural deposits of which 8 relate to 2 modern cut features
finds records	36	
plans	N/A	features and trenches planned by total station

		and shown on digital drawing
sections	6	of which 2 relate to modern features of which 4 relate to a probable palaeochannel
colour slides	9	
colour prints	67	
monochrome	66	

4.3.2 ***Digital Archive:*** the digital archive consists of raw survey data files; digital plan drawings of the site and immediate surroundings, and of the central area around the low resistance anomaly; and two section drawings digitised from the paper archive.

4.3.3 ***Finds Archive:*** 36 object record numbers were attributed to finds. The finds consist of excavated objects; objects recovered by metal detecting from the spoil heaps; objects recovered by controlled metal detecting from Trenches 14 and 15; and objects recovered by controlled metal detecting around the evaluation trenches. The finds were mostly of ironwork, but copper alloy and lead objects were also found, as well as a small amount of pottery and glass.

4.4 Procedures for Assessment

4.4.1 ***Stratigraphic Data:*** following fieldwork the site records were checked and ordered, but the lack of significant archaeological features made any grouping or phasing of the contexts unnecessary. The deposits recorded were thus described and characterised largely on the basis of their field interpretation. As well as allowing the potential of the archive to be assessed, this analysis also informed the evaluation results (*Section 6*).

4.4.2 ***Finds Data:*** a small number of objects was recovered during the clearance of the site, and subsequently by controlled use of metal-detecting equipment. All finds collected during the field investigation, including those from metal-detecting, were examined.

4.4.3 The pottery was washed and ironwork dried. With the exception of the ironwork, all material was in good condition and required no further cleaning or conservation prior to assessment. The ironwork, although corroded, was in sufficiently good condition to allow identification without X-radiography.

4.4.4 The finds were visually examined by a finds specialist, and were accordingly characterised, dated, and assessed. As well as allowing assessment of the evaluation archive, the analysis informed the results and discussion (*Section 6*).

5. CURATION AND CONSERVATION

5.1 Recipient Organisations

5.1.1 The paper archive will be deposited with the Lancashire Record Office.

5.1.2 On the basis of the assessment of the finds archive, it has been suggested that all the finds from this evaluation be discarded (*Section 5.3*).

5.2 Conservation

5.2.1 There will be no conservation requirement for material from the evaluation.

5.3 Discard policy

5.3.1 It is recommended that, with the consent of the owners, the very small artefactual archive be discarded. It is considered to be of no relevance to further study of the site.

6. RESULTS AND DISCUSSION

6.1 Introduction

6.1.1 Summary results of the evaluation trenching are presented below. More detailed context descriptions are presented in *Appendix 2* and the features are graphically shown in Figures 2-4.

6.2 Trench 1

6.2.1 Trench 1 was positioned in order to investigate the northern terminus of the elliptical geophysical survey anomaly. The trench measured *c*6.60m x 1.60m wide, and was excavated to a maximum depth of 1.42m. It was aligned north /south.

6.2.2 A depth of *c*0.24m of dark greyish brown clay silt topsoil [104] was removed by machine. A single cut feature [109] was identified, which was roughly semi-circular in plan but extended beyond the western limit of excavation, and appeared to be a pit. It measured 1.09m x >0.79m x >1.12m deep, with near vertical sides and a sharp upper break of slope.

6.2.3 The upper fill [105] was a hard deposit of light grey sand and gravel (*c*0.50m deep) which may have been deposited as a capping of hardcore. Below, a grey silt fill was excavated [106] containing two sherds of modern pottery and a sherd of modern glass. It sealed a fill of yellowish brown clay silt, [120], which was probably a backfill of redeposited geological clay. Two timber posts of rectangular cross section were also recorded within the cut ([107] and [108]). Post [108] was centrally located within the excavated portion of the feature; it measured 0.14m x >0.06m x >0.92m long, and appeared to have been deposited before any of the recorded fills. It was not quite vertically positioned, lying at an angle of *c*1 in 12 (x in y). Post [107] lay on the southern edge of the cut, and measured 0.12m x 0.08m x 0.30m deep. It had been deposited before [105] but had no relationship with the other fills. The upper ends of both posts had been sawn off square, possibly before they were deposited.

6.2.4 Cut [109] truncated a layer of dark yellowish brown silty sand containing *c*20% small, medium and large rounded and sub-angular pebbles [110]. This deposit appeared to be of natural origin, but machine excavation was continued to a maximum depth of 1.42m to confirm its origin. Deposit [110] was found to be a maximum of 0.34m thick, which sealed a deposit of mid yellowish brown clayey silt with 5-10% small and medium sub-rounded pebbles [102]. Deposit [102] was present over the full extent of the trench, but became less thick from south to north, varying in depth from 0.44m to 0.23m. Below this was a deposit of gravel which was > 0.72m thick [103]. This was only partially excavated, and was present from a depth of *c*0.8-0.9m to the base of the trench. The coarse component consisted of *c*60% small and medium sub-rounded pebbles, but the deposit became cleaner and looser with depth, with coarse sand gradually replacing fine silty sand as the predominant fine component. No archaeological finds or features were recorded within deposits [110], [102], or [103] and all are thought to be of natural origin (*Section 6.18*).

6.3 Trench 2

6.3.1 Trench 2 was positioned to examine the eastern side of the elliptical geophysical anomaly, at a point roughly midway along its length. It was aligned east/west, and measured *c*7.60m long by 1.60m wide. It was excavated to a maximum depth of 1.30m.

6.3.2 A depth of *c*0.22m of topsoil [100] was removed by machine. Following cleaning no archaeological features were identified, and the machine was used again to excavate stratigraphically to the full depth of the trench. All the deposits removed would appear to have been formed by natural processes rather than human activity.

6.3.3 Deposit [101] lay immediately below the topsoil. It consisted of dark yellowish brown silty sand with *c*20% small, medium, and large sub-rounded pebbles, and was *c*0.18m deep. It appeared to have formed at the interface between the topsoil and the underlying strata, probably resulting from mixing of the topsoil and lower deposits. Its upper and lower interfaces were relatively diffuse.

6.3.4 A deposit of mid yellowish brown clayey silt with 5-10% small and medium sub-rounded pebbles [102] was recorded stratigraphically below [101]. This was essentially the same as the clayey silt deposit recorded in Trench 1, and the two were assigned the same context number. Within Trench 2, deposit [102] was a maximum of 0.48m thick, and was present over roughly the western half of the trench, lensing out to the east. The eastern edge of the deposit lay *c*0.37m beyond the eastern edge of the elliptical geophysical anomaly, suggesting that the geophysical response might be related to the presence of the deposit. The deposit was clean, homogeneous, and well sorted, and was thought to be of natural origin and perhaps water-laid.

6.3.5 Deposit [102] was stratified above a layer of slightly clayey sand with *c*20% small and medium sub-rounded pebbles [111] which was present predominantly towards the eastern end of the trench. Deposit [111] was *c*0.30m thick, and again appeared to be of natural origin.

6.3.6 Deposits [102] and [111] were both above a deposit of gravel [103] which extended across the whole of Trench 2, and was also recorded in Trenches 1, 3, and 4. Within Trench 2, the upper surface of the gravel [103] lay at a depth of *c*0.7m below the surface. The same deposit extended down to the limit of excavation at the base of the trench, at a maximum depth of 1.30m. The coarse component consisted of *c*60% of small and medium sub-rounded pebbles, but the surrounding matrix changed gradually with depth, from silty sand at the top of the deposit, to coarse sand and grit lower down. The lower part of the deposit was very free-draining. Deposit [103] covered the entire base of the trench, and no features were present within it; its appearance was entirely consistent with an origin as a naturally deposited layer of gravel.

6.4 Trench 3

6.4.1 Trench 3 was positioned to investigate the southern terminus of the elliptical survey anomaly. The trench measured *c*7.72m x 1.60m, and was excavated to a maximum depth of 1.18m. It was aligned north /south.

6.4.2 A depth of *c*0.25m of dark greyish brown clay silt topsoil [104] was removed by machine. Below this was the yellowish brown clayey silt deposit [102] which was also

present in Trenches 1, 2, and 4. It extended over the whole trench, and no archaeological features or finds were present. The trench was then excavated stratigraphically by machine to its full depth.

6.4.3 Deposit [102] was found to extend to a maximum depth of *c*0.50m at the northern end of the Trench. Its thickness decreased gradually towards the south, where it was a minimum of 0.34m thick. Below this was gravel layer [103] which was present from a depth of *c*0.70m to the maximum depth of the trench. It covered the entire base of the trench, and no archaeological features were observed within it.

6.5 Trench 4

6.5.1 Trench 4 was positioned to examine the western side of the elliptical geophysical survey anomaly, at a point roughly midway along its length. It was aligned east/west, measured *c*7.37m x 1.60m, and was excavated to a maximum depth of 1.20m.

6.5.2 A depth of *c*0.25m of topsoil [112] was removed by machine. No archaeological features were identified, and the machine was used again to excavate stratigraphically to the full depth of the trench. Deposits [101], [102], and [103] were again present (Trench 2, *Section 4.3*). Deposit [101] was *c*0.20m thick, and extended across the entire trench. Mid yellowish brown clayey silt deposit [102] was a maximum of 0.46m thick at the east end of the trench, and lensed out completely *c*1.7m from the western end. A gravel deposit [103] lay below, extending across the whole base of the trench. Again, these deposits appeared to be of natural rather than man-made origin, and no archaeological finds or features were identified. The western limit of deposit [102] lay *c*1.6m to the west of the edge of the elliptical geophysical anomaly.

6.6 Trench 5

6.6.1 Trench 5 was positioned to cross a negative geophysical anomaly thought probably to derive from natural variation in the drift geology. The trench measured *c*16.35m x 1.6m, and was excavated to a maximum depth of 0.43m. It was aligned roughly east/ west.

6.6.2 A typical *c*0.27m depth of topsoil was removed by machine and below this was a deposit of dark yellowish brown silty sand and gravel [117]. This deposit [117] was found below the topsoil in each of Trenches 5-13, albeit with some variation in gravel content, and was also closely comparable with deposit [110] in Trench 1 and deposit [101] in Trenches 2 and 4. Within Trench 5 the deposit contained up to 70% small and medium rounded pebbles. No archaeological features or finds were identified, and the appearance of the deposit suggested that it represented the upper stratum of the naturally deposited gravels which has been subject to limited mixing with the topsoil.

6.7 Trench 6

6.7.1 Trench 6 was positioned to cross a negative geophysical anomaly of probable natural origin, and was aligned south-west/north-east. The trench measured *c*17.50m x 1.60m, and was excavated to a maximum depth of 0.51m.

6.7.2 A depth of *c*0.23m of topsoil was removed by machine. A single linear feature was recorded towards the southern end of the trench. Cut [119] measured >1.6m long by 1.38m wide by 0.19m deep, with gently sloping convex sides and a near flat base. The single fill, [118], consisted of brown sandy silt with <10% small sub-rounded stones,

and contained several small sherds of modern pottery. The linear feature lay within *c*0.80m of the position of a geophysical anomaly thought to represent the line of a comparatively recent field boundary.

6.7.3 Elsewhere, the topsoil lay directly above deposit [117] (Trench 5: *Section 6.6*). Its gravel content was recorded as varying from *c* 70% in the north and centre of the trench, to *c*20% to the south.

6.8 Trench 7

6.8.1 Trench 7 was positioned to cross two negative geophysical anomalies thought to be of natural origin. It was aligned roughly west-south-west/east-north-east and measured *c*13.70m x 1.60m by a maximum of 0.63m deep.

6.8.2 A depth of *c*0.21m of topsoil was removed by machine. No archaeological features or finds were observed, and deposit [117] was revealed in the base of the trench, here recorded as having a gravel component of *c*60%. A small sondage was excavated through the deposit at the south-east end of the trench, demonstrating that it had a depth of at least 0.63m. The deposit became lighter in colour and less silty with increasing depth.

6.9 Trench 8

6.9.1 Trench 8 was positioned to cross a further negative geophysical anomaly, and was aligned roughly east/west. It measured *c*13.13m x 1.60m by a maximum of 0.30m deep.

6.9.2 A depth of *c*0.26m of topsoil was removed by machine to reveal deposit [117]. No archaeological features or finds were observed. The gravel content of deposit [117] was here recorded as 40-60%.

6.10 Trench 9

6.10.1 Trench 9 was excavated as a control, and avoided all geophysical anomalies. It lay *c*20m south-east of the main elliptical anomaly and *c*12m from the nearest cluster of silver find spots. It was aligned north/south, and measured 17.23m x 1.60m by a maximum of 0.34m deep.

6.10.2 A depth of *c*0.25m of topsoil was removed by machine, and deposit [117] was revealed below, here with a recorded gravel content of *c*60%. No archaeological finds of features were observed.

6.11 Trench 10

6.11.1 Trench 10 was excavated across the same geophysical anomaly as Trench 6, but was positioned further north-west. It was aligned south-west/north-east, and measured 9.51m x 1.60m by a maximum of 0.40m deep.

6.11.2 A depth of *c*0.22m of topsoil was removed by machine, to reveal deposit [117]. No archaeological features or finds were observed. Deposit [117] was here recorded with a gravel content of *c*40%.

6.12 Trench 11

6.12.1 Trench 11 was excavated towards the north of an area of metal-detected Roman finds, and *c*89m south of the cluster of Viking finds. It was aligned roughly north/ south, and

measured *c*8.38m x 1.60m by a maximum of 0.30m deep.

6.12.2 A depth of *c*0.28m of topsoil was removed by machine, revealing a silty sand and gravel deposit below [117] here with *c*40% small, medium, and large rounded and sub-angular pebbles. No archaeological features of finds were observed.

6.13 Trench 12

6.13.1 Trench 12 was positioned close to the southern boundary of the field, in order to cross the southern part of the area of metal-detected Roman finds. It was aligned south-east/north-west, and measured 9.15m x 1.60m by a maximum of 0.40m deep.

6.13.2 A depth of 0.28m of topsoil was removed, revealing silty sand and gravel [117] which contained *c*40% small, medium and large rounded and sub-angular pebbles. No archaeological features or finds were observed.

6.14 Trench 13

6.14.1 Trench 13 was positioned close to the western field boundary, at the western edge of the cluster of metal-detected Roman finds, and in an area where Bronze Age finds had also been reported. The trench was aligned roughly east/west, with an extension branching to the north. It measured 13.33m x 1.60m, with the extension 3.60m x 1.60m, and was a maximum of 0.30m deep.

6.14.2 A maximum depth of 0.30m of topsoil was removed by machine. Below this was a silty sand and gravel [117] which appeared identical to that in Trenches 11 and 12. No archaeological features or finds were observed.

6.15 Trench 14

6.15.1 Trench 14 was an open area which was partially stripped of topsoil to extend the range of metal detectors down to the interface between the topsoil and gravels below. It extended south from a line 4m north of Trench 4, and west from Trench 3, and measured *c*17m x 10m x 0.15m deep. It was positioned to cover the area of the western cluster of Viking silver find spots.

6.15.2 Trench 14 was not intended as an excavation trench, and was not cleaned down to the surface of the underlying gravel deposits. Instead it was intensively scanned by metal detectors. A number of iron and other base metal objects was recovered and plotted in three dimensions. However, no silver objects were located, and no indication was gained as to the origin of the silver finds originally recovered from the field.

6.16 Trench 15

6.16.1 Trench 15 was a second open area partially stripped of topsoil, and was positioned to the east of Trench 3, in the area of the south-eastern cluster of Viking silver find spots. It measured *c*10.75m x 10m x 0.15m deep.

6.16.2 Again, the area was not cleaned to the surface of the underlying gravels, but was subject to intensive metal detecting. Further iron and other base metal objects were recovered, but once more there was no further evidence relating to the origin of the Viking silver finds.

6.17 Finds Report

6.17.1 A small number of objects was recovered during the clearance of the site, and by controlled use of metal-detecting equipment. The majority were relatively small iron nails, which were for the most part of square section, suggesting that they were hand-forged. Their size makes it unlikely that they were used in any substantial structure of timber, including a boat. Other iron objects included a medieval or post-medieval horse-shoe.

6.17.2 One small copper alloy tack, and a copper alloy fitting resembling a furniture drawer knob, were recovered. Both are likely to be late in date, as are the two fragments of lead (one a stamped tag) and two ?lead-filled button caps. A small amount of glass and pottery was also recovered. None of the fragments were earlier than the late eighteenth century.

6.17.3 It would appear that the material recovered from these excavations was in no way associated with the hoard of silver reported from the site.

6.18 Discussion

6.18.1 ***Deposits in the area of the elliptical geophysical anomaly (Trenches 1-4):*** the eastern and western edges of the elliptical geophysical anomaly (anomaly A, *Appendix 3)* corresponded closely to the edges of a deposit of yellowish brown clay silt lying within a depression in the underlying gravel. To the east, the clay silt extended *c*0.37m beyond the position of the anomaly; and to the west it extended beyond by *c*1.6m. To the north and south, the clay silt deposit did not end within Trenches 1 and 3, but did decrease in depth away from the position of the anomaly. Overall the clay silt deposit proved to be *c*8.4m wide x 14.0m long, extending from *c*0.30m below the ground surface to a maximum depth of *c*0.90m.

6.18.2 This deposit of clay silt was clearly of natural rather than man-made origin. It was a clean, homogeneous and unmixed deposit recorded as being well sorted. It contrasted strongly with the underlying gravel, suggesting that it had been deposited over the gravel by a powerful natural process; it certainly could not be regarded as the backfill of any cut through the gravel. The deposit was aligned roughly parallel with the direction of slope of a gentle hill centred *c*1km to the north, and was probably the fill of a periglacial channel, cut into the gravel by water action at the end of the last glaciation.

6.18.3 The gravel underlying this feature was exposed in each of Trenches 1-4. The matrix surrounding the sub-rounded pebbles became progressively coarser with increased depth, from silty sand to coarse sand and grit, and this appeared to confirm that the gravel here had been deposited naturally. There was no indication of any cut or other feature within the exposed gravel.

6.18.4 If it is accepted that both the yellowish brown clayey silt and gravel were naturally laid deposits, deriving from at least the last glaciation, it follows that any geophysical anomaly at a greater depth cannot have an archaeological derivation. It is impossible that any cut through these deposits has gone undetected, because disturbance would have been particularly visible in section at the sharp interface between the yellowish brown clay silt, and darker, coarser gravels.

6.18.5 In the absence of other features, it is highly probable that the deposit of clayey silt [102] was responsible for the elliptical geophysical anomaly. As noted above, the eastern

and western edges of the anomaly and the deposit correspond relatively closely, while the deposit had a maximum depth of *c*0.90m, compared with the maximum depth for the anomaly of 0.8m-1.0m suggested by ground penetrating radar, and 1.2m-1.5m suggested by vertical electrical imaging of resistivity data (*Appendix 2*). The anomaly was detected most clearly as an area of low resistance, and it can be suggested that the difference between the water-holding properties of the clay silt and the extremely free draining gravels immediately below may be responsible for the resistivity survey result. It can also be noted that, when vertical electrical imaging profiles across the anomaly and across the supposed natural palaeochannel crossed by Trenches 6 and 10 are compared, there appears to be relatively little difference between the response at the centre of the anomaly and that generated by the palaeochannel (*Appendix 3,* Fig 6b).

6.18.6 The resistivity data also suggested the presence of a possible high resistance anomaly below the elliptical anomaly, and thus at a considerable depth. The evaluation demonstrates that any such response must have been generated from deep within the naturally laid gravels, and cannot be considered to be of archaeological significance. The resistivity survey also highlighted the presence of a small circular area of particularly low resistance towards the northern end of the elliptical anomaly. This might at first appear to have been generated by the modern cut feature [109] which was partly revealed within Trench 1. However, cut [109] appears to be located *c*4m too far north to account for this phenomenon, as well as being probably of insufficient size. In summary, the main elliptical anomaly and the underlying high resistance anomaly can both confidently be attributed to variations within naturally laid deposits; the area of particularly low resistance remains unexplained, but as it was roughly central to the larger ellipse, it is probable that this, also, was not generated by human activity.

6.18.7 ***Modern cut features (Trenches 1 and 6):*** the excellent preservation of both timbers within cut [109], in what appeared to be an acidic, free draining environment, suggested that this feature was of recent, probably of late twentieth century, origin. Post [108] was deeply buried and as such is unlikely to have been a fence post. Its rectangular section demonstrated that it was not a telegraph pole, although it may have been post-packing for a telegraph pole removed from beyond the limit of excavation. It is most probable that this feature was a post pit of some kind.

6.18.8 Linear cut [119], at the south-western end of Trench 6, corresponded to the position of a linear geophysical anomaly interpreted as representing a disused field boundary. On excavation, the feature proved to be only 0.19m deep. It was probably formed by root disturbance and subsequent grubbing out at the base of a former hedgerow.

6.18.9 ***Trenches 5-13:*** with the exception of the field boundary described above, no additional archaeological or geomorphological features were observed in Trenches 5-13. The lack of evidence for further palaeochannels is probably explained by the fact that these trenches were excavated to the surface of the naturally laid gravels, but were not dug through these strata as Trenches 1-4 had been. In Trenches 1-4, the probable palaeochannel, filled by deposit [102], was most clearly seen in section in the trench edges. In Trenches 1, 2, and 4 it was sealed beneath a later layer of gravel.

6.18.10 The absence of Roman features or finds in Trenches 11-13 at the southern edge of the field suggests that the metal-detected finds do not derive from any settlement or cemetery in this location. Instead they may reflect more transitory activity, or perhaps the presence of a nearby Roman routeway. Evidence of Bronze Age settlement might

be expected to be more difficult to locate, but funerary remains of this period would typically survive as surface features as represented by the nearby round/ring cairn at Manor Farm (Olivier 1987). But nevertheless the evaluation did not recover any evidence of Bronze Age activity. Despite the scanning by metal detector of both the trenches and the spoil derived from them, no further metal objects were recovered from this southern part of the field.

6.18.11 ***Trenches 14 and 15:*** these trenches were partially stripped of topsoil to enable deeper metal detecting, but were not intended to allow visual inspection for archaeological features. A range of iron and other base metal finds was recovered and located in three dimensions, but no concentrations of objects or further silver finds were found. The trenches were targeted on the two main clusters of Viking finds, as recalled by the metal detectorists. The absence of further finds demonstrates that, in these two areas, there is no remnant of a hoard close to the interface between plough soil and underlying gravel.

7. STATEMENT OF POTENTIAL

7.1 The Potential of the Evaluation Archive

7.1.1 In accordance with the guideline document *Management of Archaeological Projects* 2nd edition (English Heritage, 1991), this section presents the findings of the assessment procedure detailed at Section 4.4 above.

7.1.2 The evaluation and the interim interpretation of its results are considered already to have resolved most of the questions posed in the project design:

- the elliptical geophysical anomaly appears to be part of a palaeo-channel formed in periglacial conditions at the end of the last glaciation;
- the large north-west/south-east geophysical anomaly appears to be a similar palaeo-channel. It was not visible in the two trenches excavated across it, but its geophysical profile closely resembled that generated by the palaeochannel believed to have caused the elliptical anomaly;
- there is no evidence for any archaeological deposits in the area of the reported silver object findspots which were recovered by metal detecting.
- the area of the reported metal-detected Bronze Age and Roman findspots has been evaluated, but no archaeological features were observed, nor were further finds recovered by metal detecting;
- it would appear that the artefactual material recovered from this evaluation was in no way associated with the putative hoard of silver reported from the site. None of the finds were of relevance to the further study of the site and none showed any potential for further analysis. No further work is recommended, and with the consent of the owners, the material from the evaluation can be discarded;
- the data collected has contributed to a better understanding of the significance and provenance of the silver find by demonstrating that it does not derive from a boat burial, nor probably from a settlement site. However, the exact provenance remains problematic.

7.1.3 It is not thought that further analysis of the evaluation records or finds could make any additional contribution to satisfying the project objectives.

7.1.4 The deposit descriptions and section drawings relating to Trenches 1, 2, and 4 may be of value to staff of the English Heritage Ancient Monuments Laboratory in assessing the results of the geophysical survey programme .

7.2 The Potential for Further Fieldwork

7.2.1 Any further attempt to pinpoint the source of the Viking silverwork within the field by excavation ought to involve the stripping of a large open area measuring at least 60m x 60m. Any smaller area would leave the possibility that the source lay beyond the limit of excavation. The topsoil would need to be stripped in thin spits, with gridded metal detecting employed in between the excavation of the spits. Excavation would need to continue down into the interface between the topsoil and gravel, and the gravel could then be manually cleaned if thought appropriate, and examined visually for

archaeological features.

7.2.2 However, this would be an expensive procedure applied to a site where there was no evidence for the presence of further Viking artefacts and it may be more appropriate to leave further investigation of the site to the amateur metal detectorist who found it, and who will continue to examine the field after the next plough.

7.3 Conclusions

7.3.1 The evaluation has demonstrated conclusively that the anomalies found by earlier geophysical survey are of natural, geological origin. The Viking silverwork was clearly not associated with a major feature such as a boat burial, not is it likely that it derived from a settlement site or cemetery. The discovery of the silverwork probably arose as a result of plough disturbance of an isolated archaeological feature. No significant archaeological features or finds were revealed by the evaluation, and no further fieldwork or post-excavation analysis on this evaluation has been recommended

7.3.2 The provenance of the Tewitfield Viking silver remains uncertain given the lack of further finds during the evaluation. All the silver objects in the field may have been found prior to the evaluation, or they may be derived from a hoard beyond the limits of the investigation. There is a broad, slightly linear spread of the material over a distance of *c* 25m, which is likely to be a result of plough action. The good condition of the silver objects would suggest that they have not been subject to intensive ploughing.

7.3.3 The Viking silver objects were found in the same area as a considerable volume of ironwork, varying from hand-forged nails to tractor parts (Howard-Davis pers comm), despite the fact that there is no evidence for settlement in the field. The possibility that the silver had become incorporated within a larger collection of metalwork which was then dumped during the twentieth century needs to be considered. The silver objects were so clean and free of patina that it seems impossible that they could have been buried in a free draining acidic environment for a thousand years (Howard-Davis pers comm). Nevertheless, deposition in the recent past appears to remain a relatively unlikely explanation, and other possibilities are preferred. It is suggested that the silver was found either as a result of casual loss in antiquity, or of deliberate burial in antiquity for later repossession. The silver might have been afforded a measure of protection from corrosion if it had been contained either by a purse, or by a leather bag or wooden box.

7.3.4 Whether deposited in antiquity or more recently, the similarity of the objects to those within the Cuerdale Hoard remains remarkable (Howard-Davis and Newman pers comm). Kufic coins within the Cuerdale Hoard allowed it to be attributed to a specific time period within the early tenth century (*c*AD 905), and silverwork from Tewitfield included three very similar Kufic dirhems. It seems likely that the Tewitfield silver was actually one fragment of the Cuerdale Hoard, separated when the latter was dispersed, or that it represented one cut of the treasure of which the Cuerdale Hoard was also a part.

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APPENDIX 1
PROJECT DESIGN

Lancaster University Archaeological Unit

Revised June 1998

VIKING TREASURE FIND

TEWITFIELD

LANCASHIRE

ARCHAEOLOGICAL EVALUATION

PROJECT DESIGN

This project design is presented in accordance with current English Heritage guidelines, as specified in Management of Archaeological Projects*, 2nd edition, 1991*

Proposals

The following project design is offered in response to a verbal brief by the Lancashire County Council Archaeological Service for an archaeological evaluation of the site of a Viking Treasure Find and an associated geophysical anomaly.

1. BACKGROUND

1.1 Site Description

1.1.1 A find of silver metalwork of Viking-age date has been recovered by metal detecting enthusiasts from a field near Tewitfield, North Lancashire (SD 5173) and is now subject to the Treasure Act. The silver artefacts were recovered from a localised area and associated with them was a substantial amount of ironwork; however, much of this has been interpreted as being modern by Dr Andrew White of Lancaster City Museum and Chris Howard-Davis (LUAU). The silver metalwork has been identified as being of Scandinavian date and is considered by Andrew White, Chris Howard Davis, Ben Edwards (former County Archaeologist) and Rachel Newman to be very similar in character to the material recovered from the Cuerdale Hoard. This hoard was found in 1840 on the bank of the River Ribble, near Preston, and contained some 40kg of silver; as such it is the largest Scandinavian hoard from North West Europe. The Cuerdale Hoard has been dated to the early part of the tenth century and has been interpreted as the pay chest of a war band or even a political payment (Graham-Campbell 1992; Newman 1996); although there are numerous hoards of silver recovered from Britain, it is relatively rare to find silver metalwork as grave goods, except in association with the richest of burials which include ship burials (Graham-Campbell 1982).

1.1.2 A find of Bronze Age metalwork has also been made in the same field. The precise find spot for this material is uncertain but is believed to have been near the southern boundary of the field, indicating a spatial separation from the Scandinavian material of *c* 100m (Lancashire Sites and Monument Record).

1.2 Topographical and Geological Context

1.2.1 The site is situated within the large flat bottomed glacially-cut valley between Endmoor and Carnforth; the northern head of the valley (Endmoor) is characterised by an area of substantial drumlins deposited at the end of the last glaciation. The valley is edged to the west by the Arnside/Silverdale limestone uplands and to the east by the Hutton Roof/Farleton limestone hills. The solid geology of the valley floor is Dinatian Carboniferous Limestone (Inst Geol Sci 1971) overlain by grey or reddish brown stony, clayey silt and gravels (Lawes Agric Trust 1983); the site is within 500m of modern gravel pits.

1.2.2 There is presently no river or stream extending along the length of the valley; indeed the nearest river is the Keer, which is 1.5km to the south and at an altitude of 20m below that of the site. The ground surface is well-drained, and there are some wetlands fairly close to the site, notably the Hilderstone Mosses, 2.5km to the north, and also near Warton, 1.5km to the south-west (Middleton *et al* 1995). However, the nearest known site with organic deposits suitable for palynological studies is some 10km south of Tewitfield at Thwaite House Moss, but even here the waterlogged deposits have been truncated through peat cutting and the early medieval deposits may have gone. The site is situated immediately adjacent to a presently dry valley that led between a glacially-cut pond, Holmer Tarn, and the River Keer; the base of this dry valley is presently occupied by the cutting of a railway line and the embankment of the A6 road. The site lies part-way up a gently sloped glacial hill, centred 1km to the north. On the evidence of the topographical and geological character the site has only a low potential for underlying waterlogged deposits, although there is the possibility of localised pockets of wetter ground.

2. PREVIOUS WORK

2.1 Assessment of Site

2.1.1 Following the recovery of the artefacts a programme of geophysical survey was undertaken by the Ancient Monuments Laboratory of English Heritage, at the request of Lancashire County Archaeological Service, in conjunction with a locational survey by the Lancaster University Archaeological Unit. The magnetometry survey identified a former field boundary, but otherwise very little was identified. However, this was followed by a resistivity survey which identified the same field boundary but also an oval shaped low resistance anomaly which was 20m by 6m in size and orientated north/south, located in the immediate vicinity of the reported find spots of the silver (Fig 2). The anomaly was situated within a more amorphous, less pronounced, but larger, low resistance anomaly which has been interpreted as being a geomorphological feature.

2.1.2 To the north-east of the small anomaly is a broad (14m wide) low-resistance linear anomaly which is

orientated north-west/south-east, running across the slope of the field. As the feature extends across the middle of a slope and is not in any obvious topographic dip, it is unlikely to be a drainage feature. It could, however, be a glacially cut scar as this area has sustained considerable glacial movement and there are many morainal mounds in this area, particularly to the north.

2.1.3 A ground probing radar survey was undertaken as part of a further programme of geophysical investigation. A profile has been extended through the elliptical anomaly and it is understood that this demonstrated that the feature was relatively shallow.

2.2 Archaeological Background

2.2.1 The hoard was found by a metal detecting enthusiast (Matt Hepworth) within a field which has been subject to intensive cultivation. The artefacts have been brought up by the plough and were all found within the top eight centimetres of topsoil. There is no record, however, of the site having been subjected to deep ploughing and there is the probability that the underlying subsoils are relatively undisturbed.

2.2.2 The hoard of silver work comprises two silver ingots, which are up to 32.5g in weight and have been deliberately clipped in antiquity. They also have marker lines along the length of the ingots reflecting denominations of value. There are two fragments of bracelet (*c*20.5g weight) which have again been deliberately cut, removing both terminals; the implication is that the bracelet was at the time of loss serving as an item of currency rather than as jewellery. The assemblage includes three Kufic dirhems, which are extremely thin, being only *c*3.2g, in weight and consequently have a relatively low base metal value. There are also four pieces of hack-silver.

2.2.3 The silver work has a remarkable similarity to the component pieces of the Cuerdale Hoard, though the Tewitfield pieces are typically less complete and reflect a lower base metal value than those of the Cuerdale Hoard. The close similarity to the Cuerdale Hoard would suggest a date for deposition in the early tenth century; the Cuerdale Hoard was dated to AD 905 principally on the basis of the component Kufic coins (Archibald 1992).

2.2.4 Also reported from the same locality were two blue beads, one of which has been dated to the fourth century, and there was also a fourth century coin (Shotter D pers comm).

2.2.5 In addition to the silver work there was a considerable amount of ironwork, some of which is of very modern origin, including tractor parts. Many of the iron fragments are hand forged nails, but are not the sort of clenched nails that would be typically associated with a boat (Howard-Davis pers comm). It has not been possible to ascribe even a broad date to the nail assemblage.

2.2.6 The silver assemblage displays all the characteristics of working currency, rather than ornate or exotic pieces. As such they are more likely to reflect a lost purse than the assemblage associated with a wealthy burial. The majority of Norse silver finds in Britain have been from isolated hoards rather than from funerary contexts and this is also the most probable explanation for the Tewitfield assemblage.

2.2.7 However, the small oval-shaped anomaly is very well defined and is potentially an archaeological feature. Its shape and size are not inconsistent with previously recorded Viking ship burials or ships (eg. the eleventh century Knarr-type boat Skudelev 1 (16m x 4.5m) which was deliberately sunk in the Roskilde Fjord (Olsen and Crumlin-Pederson 1978)) and as it is spatially associated with the reported find spots of the silver artefacts (Fig 3) there is a slight possibility that this anomaly relates to a burial feature. Such a feature would be of national importance, and therefore an evaluation of it is an essential pre-requisite for the development of an appropriate management strategy.

2.3 Environmental Potential

2.3.1 With some base-rich influence in the sediments bone has the potential to survive and Bronze Age bone has been recovered from the nearby Manor Farm cairn (Olivier 1987); however, the relatively free-draining nature of the deposits suggests that conditions may not be excellent. Likewise, periodic wetting/draining/drying suggests that organic material will only have been exceptionally preserved - wood more so than more delicate plant tissues or textiles. Charred material is certainly a possibility whereas shells and insects are a limited possibility and pollen is unlikely in the more gravelly soils. Given the quantity of nails recovered, and hence high levels of iron in the deposits, there is some potential for preservation of mineral-replaced material.

3. CIRCUMSTANCES OF PROJECT

3.1 Legal Status and Context of Project

3.1.1 The assemblage was recovered using a metal detector by Matt Hepworth who, in accordance with the Treasure Act, reported it to the Coroner and the Lancaster City Museum; the assemblage was then made available for inspection by specialists (Ben Edwards, Chris Howard Davis, Dr Andrew White and Rachel Newman). The find is subject to the Treasure Act and it was agreed that the nature of the original deposition should be investigated to inform an inquest by the Lancashire County Coroner, and thereby establish the legal status of the material. The Lancashire County Archaeologist approached English Heritage to undertake a geophysical survey of the site, and this survey revealed potentially significant geophysical anomalies associated with the reported find spots. On the basis of these positive results it was decided by the County Archaeologist and the Inspector of Ancient Monuments that these anomalies should be investigated further to enable the establishment of a management strategy for the site and to inform the inquest.

3.1.2 The site is not a scheduled monument and is outside the nearby Arnside Silverdale Area of Outstanding Natural Beauty.

3.2 Threat

3.2.1 To date the knowledge of the site and its location has been kept secret in order to prevent its disturbance and possible destruction by treasure-hunting enthusiasts. It is anticipated that if the site became known within the treasure hunting fraternity, there would be substantial opportunistic investigation. Although the range of metal detectors is typically limited to the topsoil, there are reported instances where mechanical excavators have been illegally used at night to extract large volumes of subsoil for later sieving and metal detecting. There is therefore the potential for extensive damage to the site by such treasure hunting activities. It is also anticipated that it will not be possible to keep the site secret indefinitely and there is a considerable urgency for the implementation of an evaluation programme to establish the significance and character of the site. This would firstly inform the inquest, which is awaiting the results of such an evaluation before making judgement, but would also enable the implementation of management proposals either to protect the site or mitigate its anticipated damage before the knowledge of the find becomes more widespread.

3.2.2 Despite the considerable urgency to undertake evaluation work before the existence of the site becomes more generally known, it will not be possible to gain access until early August 1998, when the present crop will be removed. In the interim all persons involved in processing the grant application are required by the Lancashire County Coroner to maintain the secrecy of the sites position and not to disseminate this information outside English Heritage.

3.3 Access and Reinstatement

3.3.1 The site is in private ownership and in agricultural use. The owner and tenant have agreed to allow the evaluation of the site, but not until a grass crop has been removed; it is anticipated that the crop will be off in early August. Access will be arranged by Lancashire County Archaeological Service.

3.3.2 Following evaluation the site will need to be reinstated in order to enable the continued cultivation of the site. It is therefore required that topsoil and subsoil be stored separately and that the backfilling by machine involves the replacement of material stratigraphically.

3.4 Archive and Deposition

3.4.1 The results of the evaluation will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*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 processing and analysis of any features and finds recovered during fieldwork, as appropriate to their archaeological significance, in accordance with UKIC

guidelines.

3.4.2 Arrangements will be made for the deposition of the archive with the Lancashire Museums Service along with the excavated material, as recommended by the Museum and Galleries Commission. A copy of report the report will be deposited with LCAS, for inclusion, as appropriate, in the county SMR.

3.4.3 All finds will be treated in accordance with LUAU standard practice which follows current IFA guidelines. Except for items subject to the Treasure Act, all artefacts found during the course of the project will remain the property of the landowner but he will be encouraged to donate them to the Lancashire Museums Service. A discard policy for the finds at the completion of the project will be subject to discussions with the County Archaeologist and the Lancashire Museums Service.

4. AIMS AND OBJECTIVES

4.1 The Tewitfield Viking find site has provided a significant artefactual assemblage, which is directly relatable to that of the internationally important Cuerdale Hoard. The majority of hoards have been chance finds with no opportunity to investigate their context by scientific techniques; the circumstances within which they were deposited have therefore rarely been established. There is consequently a considerable case for the implementation of a programme of archaeological evaluation to provide an appropriate context for this material. At Tewitfield the possibility has been raised that the finds may be associated with a burial feature and the potential significance of the site is consequently of at least national importance.

4.2 It has been recommended by the Lancashire County Archaeological Service (LCAS) and the Inspector of Ancient Monuments of English Heritage that an archaeological sub-surface evaluation be undertaken following on from the earlier programme of geophysical survey work (undertaken by English Heritage Ancient Monuments Laboratory) to establish the archaeological sensitivity, survival and date of any sub-surface remains.

4.3 The specification outlined below follows on from extensive discussions with LCAS and is in accordance with a verbal brief from them. The evaluation is intended to identify the existence and character of any archaeological features or stratigraphy which would enable a suitable management plan to be enacted. This may require the implementation of a more comprehensive and systematic mitigation recording programme, and therefore these evaluation proposals are limited to the provision of sufficient archaeological information in order to establish the character and context of these deposits, but do not recommend the large-scale sampling of the geophysical anomaly as this would risk compromising the integrity of the site.

4.4 The primary pragmatic objectives of the excavation programme are driven by the verbal brief and the needs of preserving and managing any archaeological resource. The objectives are:

- the evaluation by trial trenching of the small elliptical geophysical anomaly with the aim of establishing, if possible, the function, date and significance of those remains. However, the evaluation trenching should not cause unnecessary disturbance to the site; no more than 20% of the anomaly should be investigated by this method. Excavation down to natural deposits should be undertaken in those parts of the trenches that extend beyond the anomaly or within the base of the anomaly if it has been established that the feature is of natural origin, or that such action would not compromise the integrity of the site. The remaining parts of the trenches within the extent of the anomaly will be excavated only down to the top of any identified archaeological deposits, but evaluation will involve the characterisation of any exposed features by half sectioning.
- to establish the character and origin of the large north-west/south-east negative resistance anomaly by means of a series of machine-cut trenches excavated across it. The precise number of trenches is to be determined by the preliminary results of the evaluation;
- to define the extent, size, character and condition of the archaeological deposits in this area by excavation of machine-cut control trenches around the locality of the silver find site;
- to undertake an evaluation in the area of the field where Bronze Age artefacts have been recovered to establish the stratigraphic context of these reported finds. The precise position of these trenches will be established as a result of discussions with Matt Hepworth, the finder of the artefacts;
- to inform the coroners' inquest into the significance and provenance of the material.

4.5 The programme will investigate and record artefacts from all periods revealed during the works programme. It will examine the range and character of the artefactual evidence within a regional context.

4.6 An archive for the project to the specification provided in *Appendix* 3 of MAP2 will be prepared during the evaluation programme to professional standards.

4.7 The assessment of the results of the trial trenching programme will be prepared in accordance with MAP2 and will address the potential for further fieldwork and/or analysis.

5. METHODS STATEMENT

5.1 Programme

5.1.1 The following programme has been designed, in conjunction with a verbal brief provided by Lancashire County Archaeological Service, to provide a suitable level of archaeological observation, evaluation and recording of the site. It has been based largely of the results of the resistivity survey undertaken by the English Heritage Ancient Monuments Laboratory (Fig 2).

5.2 Evaluation Trenching

5.2.1 This programme of trenching will establish the presence or absence of any archaeological deposits and, if a presence is established, will briefly investigate the character and condition of these deposits.

5.2.2 ***Elliptical Geophysical Anomaly:*** the geophysical anomaly is *c* 240m^2 in extent and it is proposed to excavate four trenches (of average 6m in length and 1.5m in width) through the feature. This will involve 36m^2 of trenching and will evaluate 15% of the feature. The excavation will involve only limited investigation into identified archaeological deposits in order to establish their character, without compromising the integrity of the site.

5.2.3 It is proposed to excavate the following trenches (see Fig 2):

- Two 7m x 1m trench to be excavated, one through each end of the elliptical geophysical anomaly, in order to explore the broad northern and southern limits of the anomaly, but not directly over any putative 'prow' or 'stern', where fragile archaeological deposits may exist close to the plough-soil.
- Two 10m x 1.5m trenches will be excavated, one across each side of the elliptical anomaly; they will be offset in order to preserve continuous stratigraphy both across and along the feature.

5.2.4 ***North-west/south-east Geophysical Anomaly:*** this broad anomaly extends in a north-west/south-east orientation across the study area and is probably a natural feature. It is proposed to excavate the following trenches to investigate its character and depth (see Fig 2):

- Two 20m x 2m trenches will be excavated across the north-west/south-east geophysical anomaly; these may be varied in position and number subject to the initial results of the trenching across this anomaly.

5.2.5 ***Control Trenching:*** it is proposed to excavate a series of trenches on either side of the small elliptical anomaly to provide not only a control, but also to examine the stratigraphic context of the site and seemingly natural geophysical anomalies. It is proposed that the following trenches be excavated to investigate the character and depth of the outlying stratigraphy (see Fig 2):

- Four 10m x 2m machine-excavated trenches will be cut in areas between the linear geophysical anomalies and on either side of the elliptical anomaly. A further trench will examine the north/south geophysical anomaly which is parallel and adjacent to the modern field boundary.

5.2.6 ***Bronze Age Site:*** it is proposed to excavate a series of trenches on the site of the reported Bronze Age finds:

- Three 4m x 2m trenches will be excavated in the area of the reported Bronze Age finds. The precise positions of these trenches will be subject to discussions with Matt Hepworth, the

finder of the artefacts.

5.3 Methodology

5.3.1 ***Elliptical Geophysical Anomaly:*** It is proposed that the trenches across the small elliptical geophysical anomaly be excavated by a combination of mechanical and manual techniques. The topsoil will be removed by a 10 ton wheeled excavator using a 1.5m toothless ditching bucket, under careful archaeological supervision; however, it will not be used to excavate into any potential archaeological stratigraphy. Deposits below topsoil will be excavated by manual techniques, although any clearly disturbed material will be excavated by machine. The two trenches across the large north-west/south-east linear geophysical anomaly will be excavated mainly by machine, although the base of the trench will be subject to manual cleaning.

5.3.2 Following removal of topsoil, manual excavation will be used to evaluate any sensitive deposits, and will enable an assessment of the nature, date and survival of deposits. The two trenches across the elliptical anomaly will be excavated down on to the top of archaeology and exposed features will be explored by half sectioning sufficiently to establish only their character and context. Natural deposits will be examined in those parts of the trenches that extend beyond the elliptical anomaly or within them if it can be established that the anomaly has a natural origin, or this can be achieved without disturbing archaeological deposits. This will minimise the disturbance to potentially significant archaeological deposits thus maintaining the integrity of the site, but at the same time investigating the feature sufficiently to establish its character and date. All trenches will be excavated in a stratigraphical manner, whether by machine or by hand.

5.3.3 ***Machine Evaluation:*** to maximise the speed and efficiency of the evaluation of the areas away from the elliptical anomaly the removal of overburden will be undertaken by machine (with a standard five or six foot toothless ditching bucket), although if ephemeral remains are encountered these will be hand dug. The floor of the trenches will be manually cleaned to enable the identification of archaeological features. All trenches will be excavated in a stratigraphical manner, whether by machine or by hand.

5.3.4 ***Environmental Strategy:*** it is intended that the design and any implementation of an appropriate environmental strategy be undertaken by J P Huntley of the University of Durham, through a visit to the site early on in the field work programme, as it is not realistic to produce a detailed strategy for environmental work at this stage. In general, it seems that most effort should be concentrated upon the site itself - to determine whether it is indeed a ship burial or, perhaps more likely, a hollow in natural bumpy morainal deposits. Investigation of the landscape, through palynological studies, is not relevant at this stage.

5.3.5 Bone will be collected routinely during any trial excavations and bulk samples of 20-40 litres will be taken from all stratified contexts for investigation of the potential for other biota - charred plant remains, insects, molluscs and so on. These will be subject to wet sieving off site. Sediment, preferably clay-rich, adhering to any structural remains should be sampled for investigation of pollen potential. For example, there is the possibility that pollen may demonstrate the presence of floral tributes in burial deposits. At this stage a 50ml sample of such deposits will be more than adequate.

5.3.6 ***Finds Strategy:*** with the exception of obviously modern or post-medieval artefacts all finds will be contextually recorded and will be individually located in 3-dimensions using a total station. There will be a policy of total retention for the assemblage. Subject to the recovery of further metal artefacts it is recommended that advice be provided from a conservator for the long-term stabilisation of the assemblage.

5.3.7 Finds recovery and sampling programmes will be in accordance with best practice (current IFA guidelines). All artefacts and ecofacts will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.

5.3.8 As there is a possibility of recovering further silver artefacts or nails the area of each trench will be examined with a metal detector prior to excavation. It is proposed to undertake this element in collaboration with the discoverer of the finds, which will enable the constructive application of his enthusiasm. The trenches will be excavated in shallow spits and the metal detector will be used to investigate the trench floor at significant stages. Similarly the excavated spoil will be examined by metal detector. Potential finds identified in the ground by the metal detector will initially be marked, surveyed and then will be examined during the course of the excavation.

5.3.9 Finds storage during fieldwork and any post-excavation assessment and analysis (if appropriate) will follow professional guidelines (UKIC). Emergency access to conservation facilities (AMC contract worker at Durham University) is maintained by LUAU.

5.3.10 ***Recording:*** all elements of the work will be recorded using a system adapted from that used by Central Archaeology Service of English Heritage, based on *pro forma* contexts, object records, and survey sheets. 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) Trenches will be accurately located by use of total station equipment with respect to the Ordnance Survey grid previously established by LUAU.

5.4 Assessment

5.4.1 **AN ASSESSMENT OF THE POTENTIAL OF THE FINDINGS WILL BE COMPILED IN ACCORDANCE WITH APPENDIX 4 OF** *Management of Archaeological Projects* (2nd edition 1991). This report will examine and describe the archaeology and palaeoenvironment of the site. The report will also seek to establish the significance of the results.

5.4.2 Subject to the results of the evaluation an updated project design will be prepared in accordance with Appendix 5 of *Management of Archaeological Projects* (2nd edition 1991). This will seek to design the programme of further recording work or post-excavation work as required.

5.5 Contingency

5.5.1 If the evaluation trenching reveals complex stratigraphy, then there is provision for a limited contingency to cover its recording; the contingency costs are defined in *Section 8* and provide for an additional days field work. It is anticipated, however, that the revealing of very significant archaeological results will warrant an assessment of the results and the updating of the project design in accordance with the principles of *Management of Archaeological Projects* (2nd edition 1991).

5.5.2 If the site does indeed prove to be a ship burial then a rapid response will be necessary to prevent damage by metal detectorists and also the natural deterioration of the deposits. In particular, wood and textiles would need rapid appraisal by conservators. Sampling will need discussing with the environmentalists but the general recommendation of bulk samples should provide adequate material whether charred or waterlogged deposits are encountered. In addition the site visit will allow for further discussion when the nature of the deposits is understood better.

5.5.3 Provision is made within the attached costings for contingency conservation or evaluation works. If there is a requirement for further recording this will need to be subject to discussions with English Heritage and LCAS.

5.6 Confidentiality

5.6.1 All internal reports to the client are designed as documents for the specific use of the Lancashire County Archaeological Service and English Heritage, for the particular purpose as defined in the project brief and project design, and should be treated as such. The report will not be disseminated beyond these organisations and thereby the spread of the discovery will be limited. LUAU undertakes not to discuss the evaluation results with any individual or organisation apart from those already informed about the site.

5.7 Other Matters

5.7.1 ***Health and safety:*** full regard will, of course, be given to all constraints (services) during the excavation, as well as to all Health and Safety considerations. The Unit Health and Safety Statement (which has been provided to English Heritage) conforms to all the provisions of the SCAUM (Standing Conference of Unit Managers) Health and Safety manual, as well as the Lancaster University Health and Safety Statement. Risk assessments are undertaken as a matter of course for all projects, and will anticipate the potential hazards arising from the excavation. The location of services will be investigated from the

statutory services and, as a matter of course, a U-Scan device will be used prior to the commencement of excavation.

5.7.2 ***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 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 LUAU in respect of personal injury or damage to property by negligence of LUAU or any of its employees there applies the insurance cover of £1m for any one occurrence or series of occurrences arising out of one event.

5.7.3 ***Working Hours:*** excavation will be undertaken on the basis of a five day week, within daylight hours only.

5.7.4 ***Project Monitoring:*** monitoring meetings will be established with the Lancashire County Archaeological Service and English Heritage at the outset of the project. It is anticipated that these will involve a preliminary meeting at the commencement of the project and possibly progress meetings during fieldwork.

5.7.5 LUAU will inform the Lancashire County Archaeological Service and English Heritage of all significant developments and any potential departures from the agreed programme will be discussed and agreed with them prior to implementation.

5.7.6 ***Site Accommodation***: provision is incorporated within the project costings for site accommodation to be established in the course of the evaluation, which will provide appropriate facilities for site recording.

6. RESOURCES AND PROGRAMMING

6.1 Lancaster University Archaeological Unit

6.1.1 The Lancaster University Archaeological Unit (LUAU) has considerable experience of the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 17 years. LUAU has the professional expertise and resource to undertake the project detailed below to a high level of quality and efficiency. LUAU has two early medieval specialists (Rachel Newman and Richard Heawood) both of whom will be involved with this project. Other early medieval sites have included the monastic site at Dacre and the rural settlement site at Fremington. LUAU has undertaken considerable work in the locale, including Manor Farm Bronze Age cairn and surveys for English Heritage's North West Wetlands Survey, the Arnside Silverdale AONB for the Royal Commission on the Historical Monuments (England) and the North West Ethylene Pipeline project for Shell UK ltd. LUAU and all its members of staff operate subject to the Institute of Field Archaeologists' (IFA) *Code of Conduct*.

6.2 Staffing

6.2.1 The project will be under the management of **Jamie Quartermaine BA surv dip** (Unit Project Manager) to whom all correspondence should be addressed. All Unit staff are experienced, qualified archaeologists, each with several years professional expertise. Project Officers in Unit terminology are senior supervisors, capable of organising and running complex area excavations as well as short-term evaluations to rigorous timetables. The excavation and evaluation will be undertaken by **Richard Heawood MA.** Richard has considerable experience of the early medieval period .

6.2.2 **Christine Howard-Davis** would undertake the necessary finds analysis. She has many years' experience of material from sites of all periods in the north of England.

6.2.3 Environmental Samples (if necessary)

Elizabeth Huckerby or

Jacqui Huntley, University of Durham.

6.2.4 Conservation (if necessary)

Jenny Jones, University of Durham.

6.3 Timetable

6.3.1 The programme will need to follow the removal of the crop on the site which is anticipated will be at the beginning of August.

Project Preparation

Project Manager 0.5 man-days
Project Officer 1 man-day

Evaluation Trenching

Project Manger 1 man-day
Project Officer 8 man-days
Project Assistant 16 man-days

Archive/Assessment

Project Manger 1 man-day
Project Officer 1.5 man-days
Finds Officer 0.75 man-days
Draughtsman 3 man-days
Project Assistant 1 man-days

APPENDIX 2
CONTEXT INDEX

The following contexts were recorded.

Context	**Trench No.**	**Brief Description**
100	2	topsoil: dark greyish brown sandy clay silt, frequent small, medium, and large rounded and sub-angular pebbles
101	2	deposit: dark yellowish brown silty sand, *c*20% small, medium, and large sub-rounded pebbles
102	1,2,3,4	deposit: mid yellowish brown clayey silt, 5-10% small and medium sub-rounded pebbles
103	2,2,3,4	gravel deposit: *c*60% small and medium sub-rounded pebbles. The deposit became cleaner and looser with depth, with coarse sand gradually replacing fine silty sand as the predominant fine component
104	1	topsoil: dark greyish brown clay silt, occasional small and medium sub-rounded stones
105	1	fill of [109]: light grey sand and gravel, frequent small and medium sub-rounded stones
106	1	fill of [109]: dark greyish brown clay silt, occasional small pebbles, frequent sub-rounded cobbles
107	1	modern post
108	1	modern post
109	1	cut of ?pit. Extended beyond Trench 1. Near vertical sides, base not reached
110	1	deposit: dark yellowish brown silty sand, *c*20% small, medium and large sub-rounded pebbles
111	2	deposit: greyish brown slightly clayey sand, *c*20% small and medium sub-rounded pebbles
112	4	topsoil: dark greyish brown sandy clay silt, frequent small, medium, and large rounded and sub-angular pebbles
113	7	topsoil: dark greyish brown sandy clay silt, frequent small, medium, and large rounded and sub-angular pebbles
114	3	topsoil: dark greyish brown sandy clay silt, frequent small, medium, and large rounded and sub-angular pebbles
115	5,8,9,10,11,12,13	topsoil: dark greyish brown sandy clay silt, frequent small, medium, and large rounded and sub-angular pebbles
116	6	topsoil: dark greyish brown sandy clay silt, frequent small, medium, and large rounded and sub-angular pebbles
117	5-13	gravel deposit: dark yellowish brown silty sand, variable

		20-70% small, medium, and large rounded and sub-angular pebbles
118	6	fill of [119]: brown sandy silt, <10% small sub-rounded stones, several small sherds of modern pottery
119	6	'cut' of former field boundary (?hedgerow). Shallow linear feature
120	1	fill of [109]: redeposited yellowish brown clay silt

APPENDIX 3
REPORT ON GEOPHYSICAL SURVEY
ENGLISH HERITAGE ANCIENT MONUMENTS LABORATORY

ILLUSTRATIONS

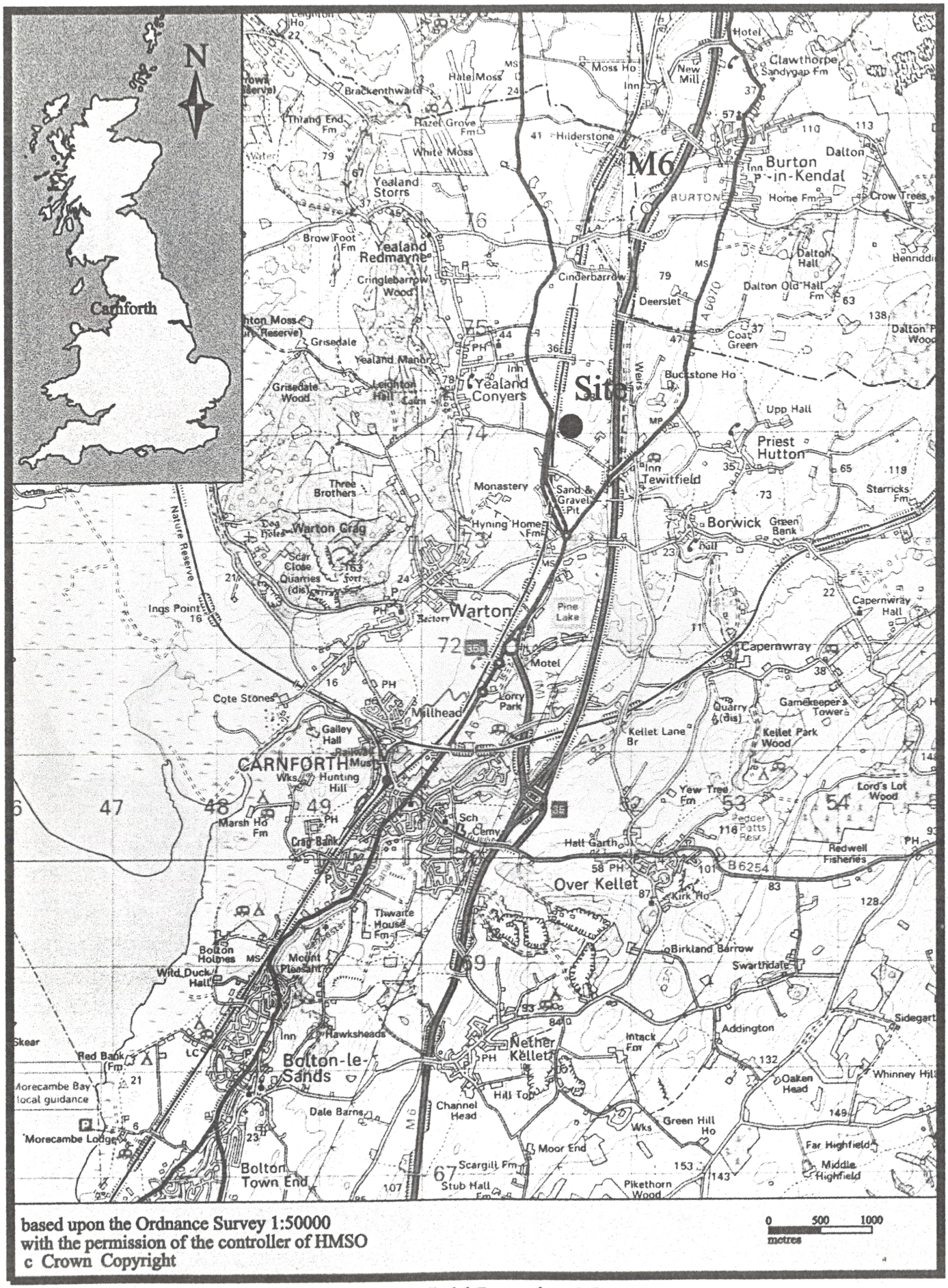


Fig 1 : Tewitfield Location Map

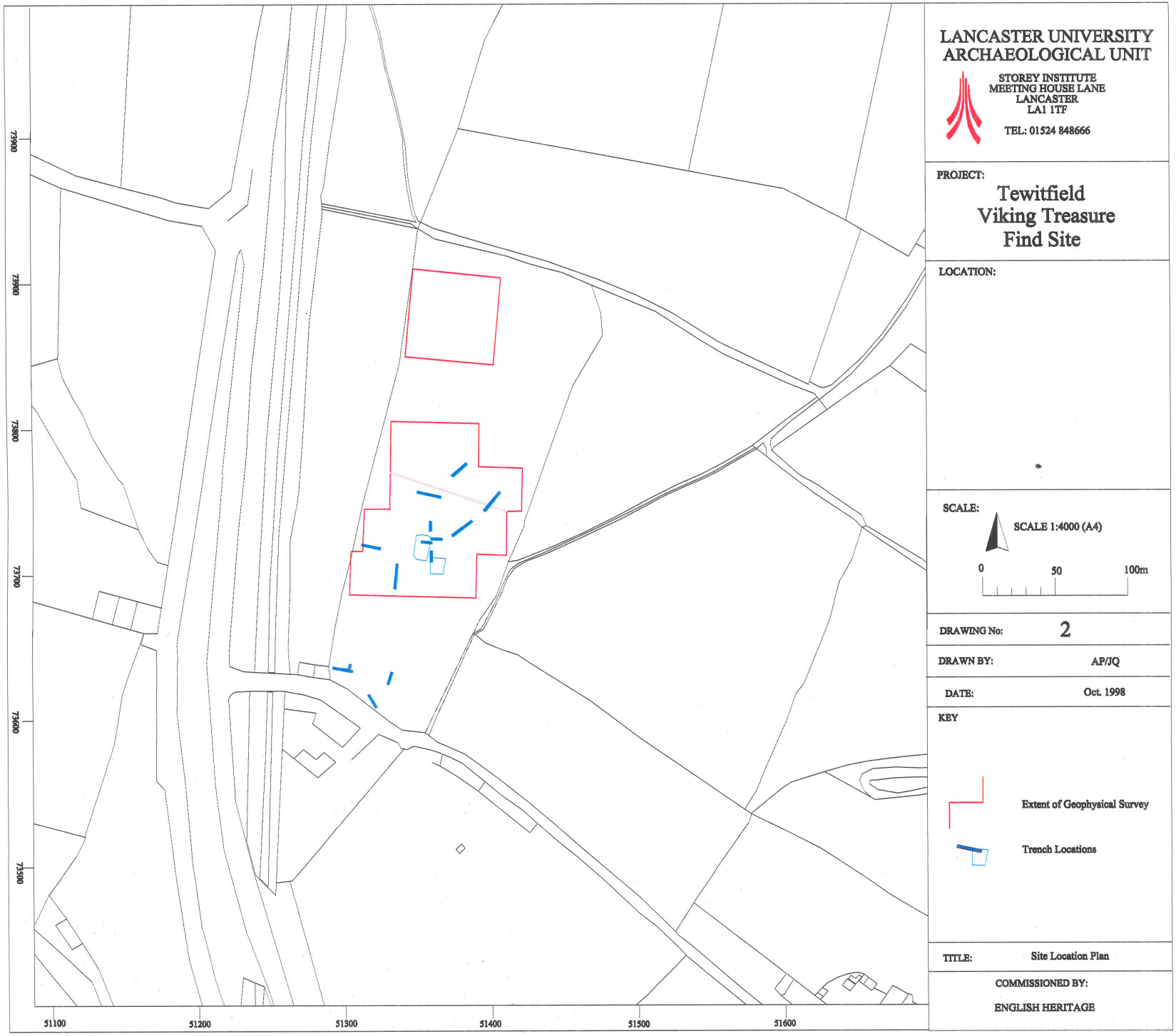


Fig 2 Site Location Plan

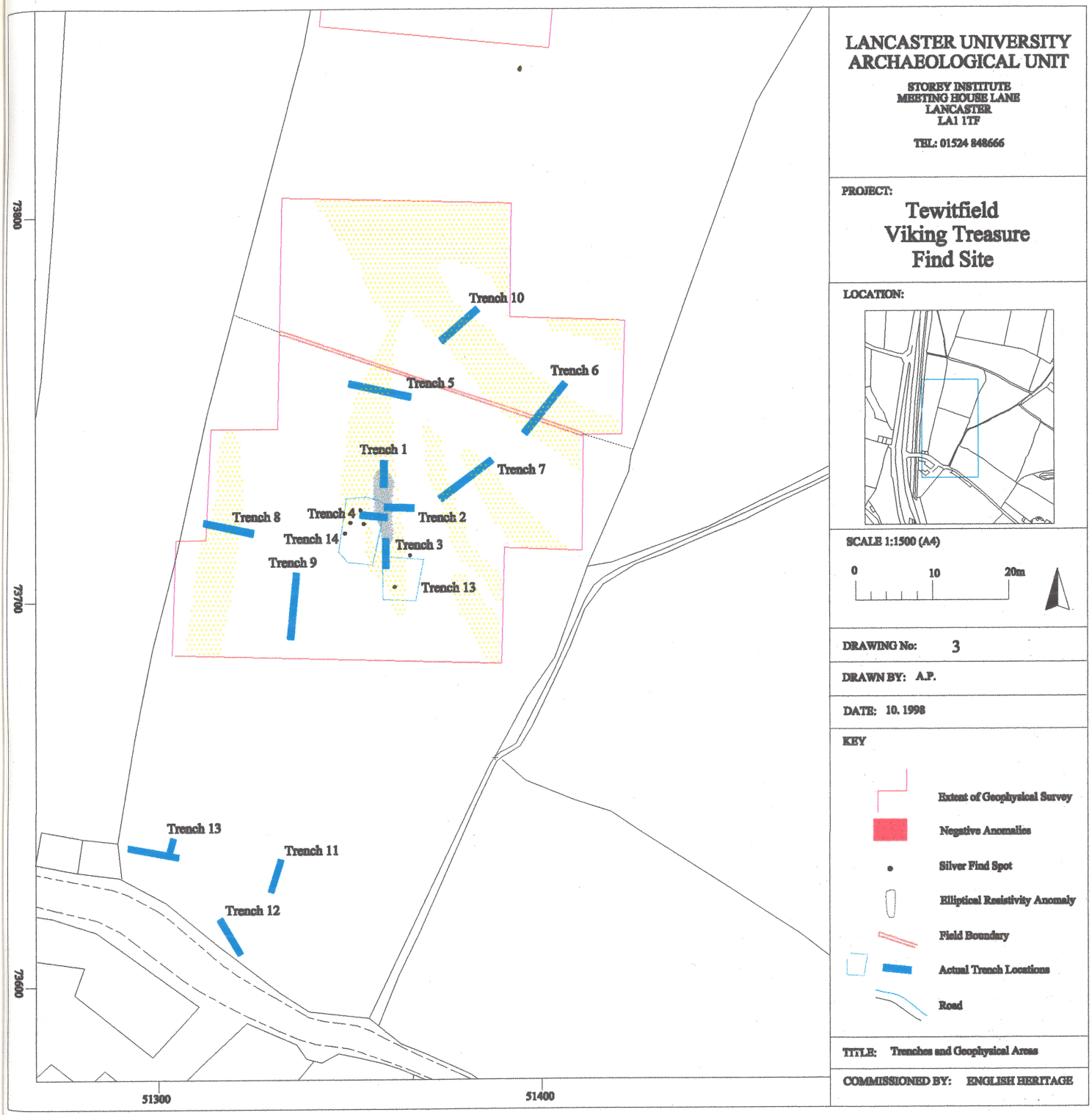


Fig 3 Trenches and Geophysical Areas

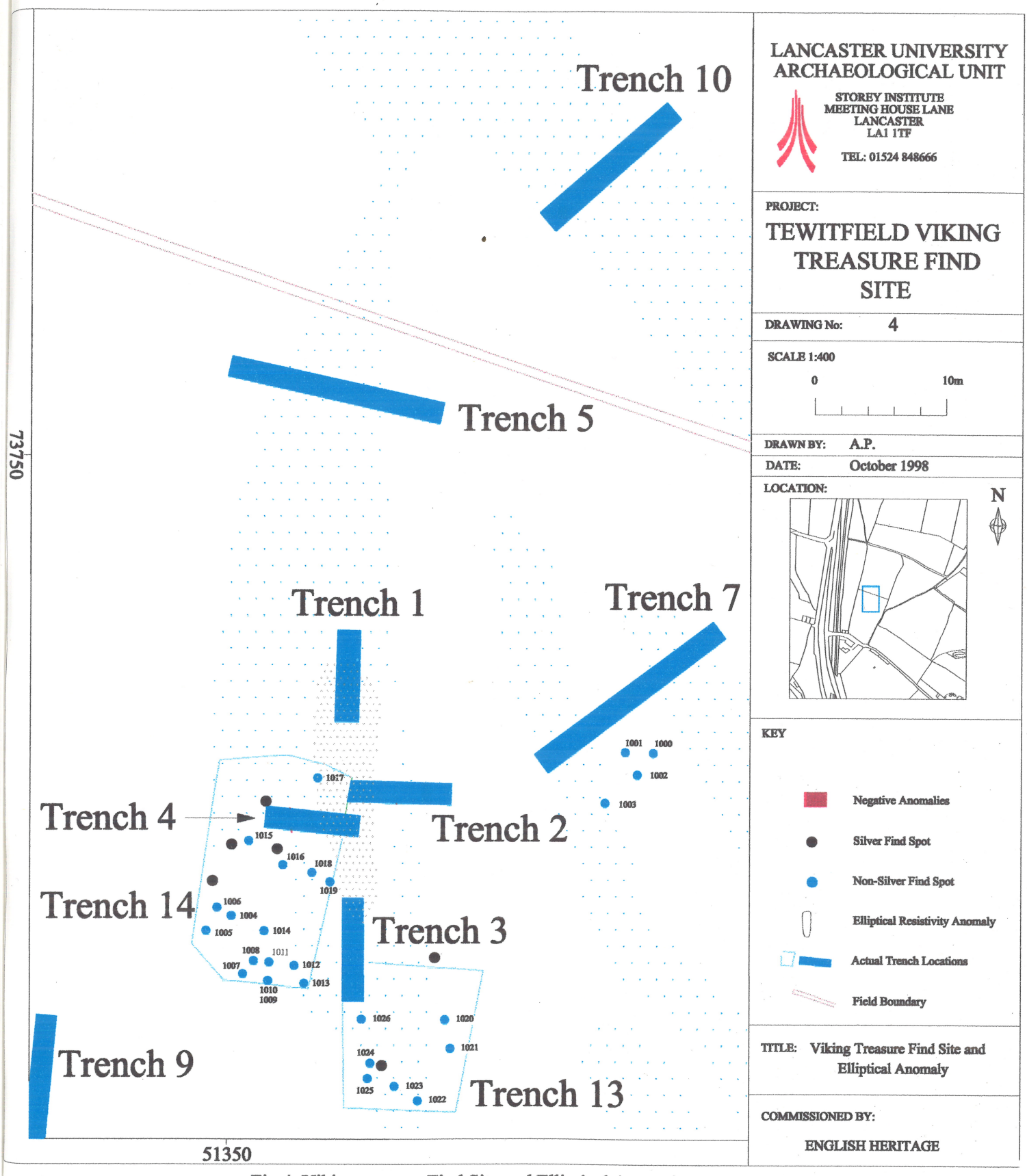
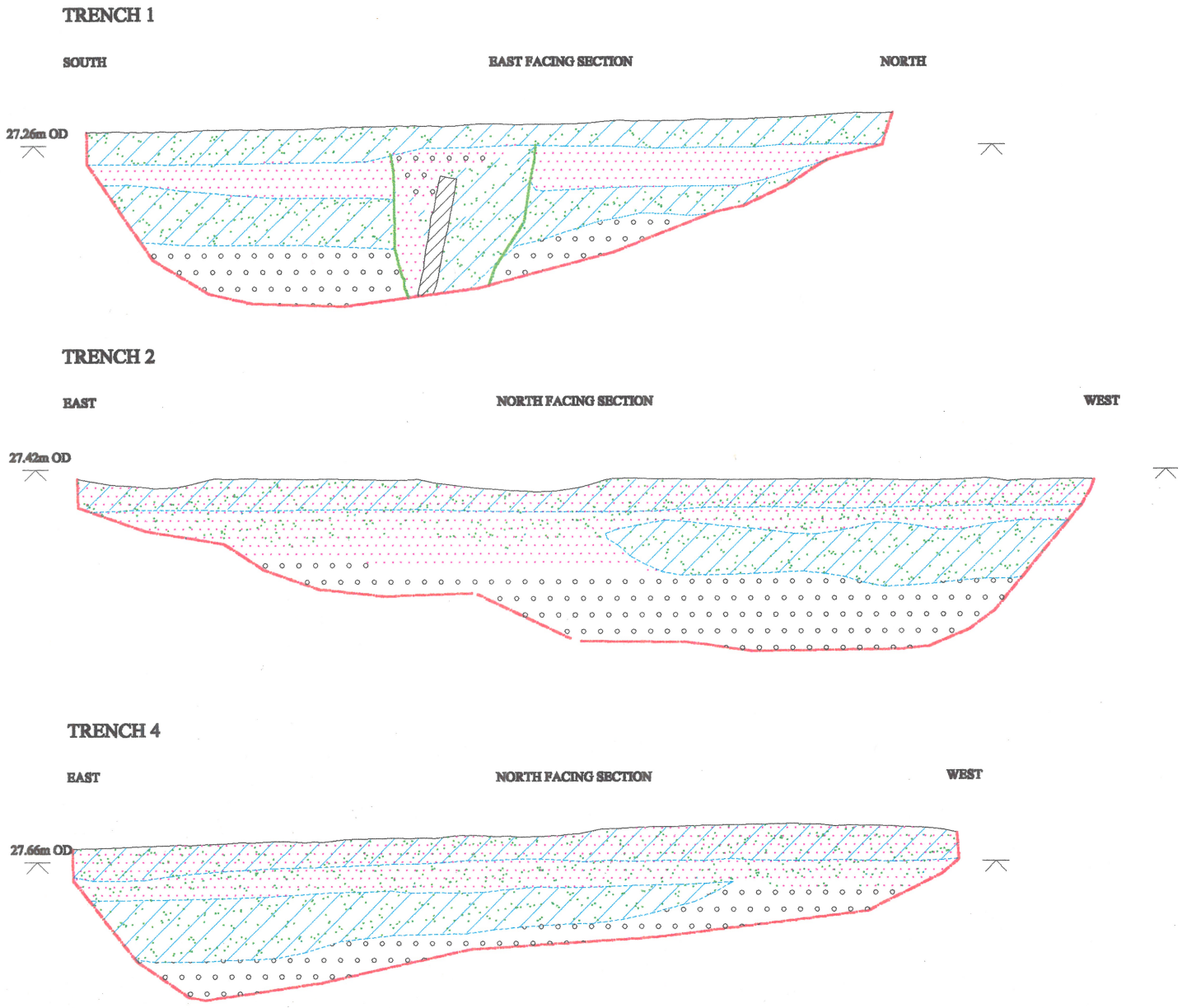


Fig 4 Viking treasure Find Site and Elliptical Anomaly



LANCASTER UNIVERSITY ARCHAEOLOGICAL UNIT
STOREY INSTITUTE
MEETING HOUSE LANE
LANCASTER
LA1 1TF
TEL: 01524 848666

PROJECT:
TEWITFIELD VIKING TREASURE FIND SITE

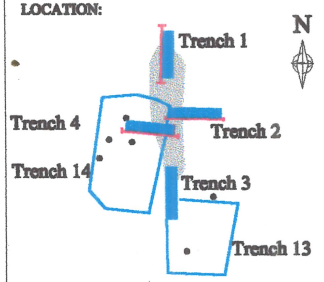
DRAWING No: 5

0 0.5 metres

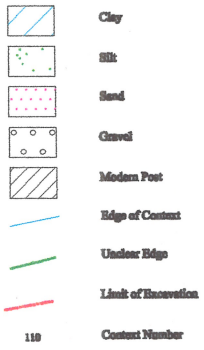
DRAWN BY: A.P.

DATE: October 1998

LOCATION:



KEY



TITLE:
TRENCH SECTIONS

COMMISSIONED BY:
ENGLISH HERITAGE

Fig 5 Trench Sections