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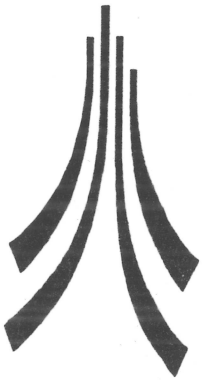

March 1996

A595 DALTON BYPASS TO ASKAM-IN-FURNESS IMPROVEMENT

Cumbria

Archaeological Evaluation

Commissioned and funded by:

Cumbria County Council

A595 Dalton Bypass to Askam-in-Furness
Cumbria

Archaeological Evaluation

L7549

Checked by Project Manager.

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CONTENTS

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Christopher Wild acted as the supervisor, in charge of survey, and produced Figures 2 and 3, Dick Danks produced Figures 1 and 4, and Mark Chesterman was the site assistant. Christine Howard-Davis wrote the finds report, Katharine Buxton directed the evaluations and wrote the report, and the project was managed by James Quartermaine.

EXECUTIVE SUMMARY

In January 1995, at the request of Cumbria County Council Highways, Lancaster University Archaeological Unit (LUAU) produced an Archaeological Assessment of the proposed route of the A595 Dalton Bypass to Askam-in-Furness. On the basis of the findings this recommended further evaluatory work. In November 1995 Cumbria County Council Highways commissioned LUAU to prepare a project design for this evaluation work on the route. The present report presents the results of this work, comprising landscape survey and trial trenching of both greenfield and targeted sites.

In the evaluation phase of work three sites: two areas of ridge and furrow (Sites 8 and 9), and a trackway (Site 11), were selected for detailed topographic survey in order to create a permanent record of features that will be adversely affected by the road construction. The survey was undertaken within a larger corridor than that for the actual road, in order to place the sites within their wider context. Forty-seven greenfield trenches were excavated in order to establish the presence or absence of any previously unsuspected archaeological deposits, and, if established, to define their character, date, and state of survival. In addition a single deliberately targeted trench was located in order to examine the trackway observed in the Assessment (Site 11).

Although both prehistoric and medieval activity are known in the area of the Dalton Bypass to Askam-in-Furness, and extensive mining operations were common in the vicinity, the actual route of the bypass itself showed little surface evidence of human activity, other than ridge and furrow ploughing. The results of the trenching indicate only limited archaeological activity in the area. Of the 48 trenches only five demonstrated evidence of archaeological activity, with two subsurface linear features perhaps of archaeological interest. Trenches 21, 22 and 24 contained a linear feature aligned east-west, which is assumed to be a relict field boundary. Trench 23 also contained a linear feature (3.5+m wide and 1.05m deep) aligned approximately north-south, which contained layers of dark brown, very humic, organic material. The date, and function of the feature were unclear from excavation, but the fill, and the poorly drained nature of the ground to the west, suggest that it was probably connected with drainage. The trackway (Trench 36) identified during the assessment and surveyed during this phase of work is apparently of relatively modern origin.

In this case, LUAU consider that no further work is necessary prior to the land being taken for road construction. We do however recommend that there is a permanent presence watching brief during the initial groundworks, which should have some allowance for minimal stoppage to allow for rapid archaeological excavation and recording, if any significant deposits are revealed. This watching brief should examine in particular detail the northern field in which the linear features (Trenches 21-24) were found.

1. INTRODUCTION

1.1 Project background

In January 1995, at the request of Cumbria County Council, Lancaster University Archaeological Unit produced an Archaeological Assessment of the proposed route of the A595 Dalton Bypass to Askam-in-Furness. This study revealed 16 sites of archaeological interest in the overall study area, the majority of which were not directly affected by the road scheme. It was, however, considered prudent to undertake a programme of trial trenching within the greenfield area, in order to identify any sites, which, by their nature often contain no upstanding surface remains, in conjunction with topographic survey and limited site specific trial trenching.

In November 1995 LUAU was commissioned by Cumbria County Council Highways to prepare a project design for evaluation work on this route. This report presents the results of this phase of evaluation work. Figure 1 shows the location of the proposed road at a scale of 1:50,000.

1.2 Historical background

The history and archaeology of the Dalton Bypass to Askam-in-Furness area were discussed in the Assessment report of the route (Hair 1995) but are reproduced briefly below.

The proposed road improvement to the north of Dalton, in the Furness peninsula, is situated close to the present A595, within the Parish of Dalton. The southern part of the route crosses an area of undulating land, known locally as Housesteads, before cutting the Goldmire valley near Greenscoe Quarry, and continuing north past the Askam brickworks.

The route comprises two distinct topographical types, the upland area around Green Haume in the south and a lowland marshy area in the north. The underlying solid geology along most of the route consists of carboniferous limestone, which was laid down *c* 250 million years ago. This limestone contained large pockets of haematite which were extensively mined during the later nineteenth century, and its margins define the area known as the Dalton Iron Field.

Evidence, in the form of midden sites and microliths, suggests that man first occupied the region during the Mesolithic period, between *c* 5000BC and 3500BC, although occupation at this time was probably transitory. Indications of occupation in the Neolithic period (*c* 3500BC and 2000BC) include stone axes, quern stones, hammers, adzes, pottery sherds, and bone fragments, the quern stones and animal bones of domestic species suggesting perhaps a more settled lifestyle. Bronze Age burial sites, mostly round cairns, are relatively common in the area, as are Romano-British settlement sites, although few artefacts of Roman date have been found in the region, and there is no evidence to suggest that the area was permanently garrisoned by the Romans.

Anglian place-names such as Dalton imply that the area became part of the Anglian

kingdom of Northumbria by the seventh century, while other names indicate Scandinavian colonisation in the ninth and tenth centuries: the name Barrow was almost certainly originally derived from the Scandinavian word *Barrai* (Barnes 1951).

Immediately prior to the Norman Conquest the vills of Dalton and Kirkby Ireleth were held by Earl Tostig, King Harold's younger brother. In the immediate post-conquest period Low Furness was divided between Michael le Fleming of Aldingham, and the Cistercian abbey at Furness (founded in 1127). However, the abbey soon acquired much of the peninsula which it controlled until its dissolution. The monastery set up farmsteads or granges, and is believed to have divided the parish of Dalton into four quarters or bierleys which continued to be used as administrative boundaries up until the turn of this century. Dalton acted as the chief secular centre for the abbey, and was the focus of trade and administration until 1537, when, following the dissolution of the monastery, the settlement declined and Ulverston became the major market centre of the peninsula.

It was, however, during the Industrial Revolution that the area around Dalton, Askam, and Barrow became of national importance as attention was focused on extracting its huge mineral reserves. Until the nineteenth century, iron mining was a low key affair in Furness, although a mine was recorded at Elliscales just south of the study area as early as 1271 (Hair 1995). However, the exploitation of iron changed the economy of the region dramatically. The mid nineteenth century was the busiest for the industry, with ironworks constructed at both Barrow and Askam. The demand for labour at these plants accounted for the rapid expansion of the local settlements during this period; the population of Dalton trippled between 1841 and 1871. Other extractive industries such as quarrying and copper mining, also took place during this period, the former continuing well into this century. However, during the last quarter of the nineteenth century the iron industry underwent a slow decline although it lingered on until the 1930s before ceasing entirely.

2. METHODOLOGY

2.1 Project design

A project design was submitted by LUAU in response to a brief supplied by Cumbria County Council Highways for an archaeological evaluation of the proposed A595 Dalton Bypass to Askam in Furness. The project design was compiled in conjuction with the County Archaeologist, Mr Mike Daniells.

The project design (Appendix 2) provided for an evaluation involving a topographic survey of sites identified during the earlier Assessment and a trenching programme to examine a track and greenfield areas affected by the route. The work has been carried out in accordance with the project design.

2.2 Landscape survey

Although access had already been formally established by Cumbria County Council, all landowners/occupiers were contacted by LUAU prior to work on their land.

The initial assessment work (Hair 1995) had provided a rapid survey, of the sites affected by the route. In the present evaluation phase of work three of these sites were selected for detailed survey in order to create a permanent record of features that would be adversely affected by the road construction. The survey was undertaken within a larger corridor than that for the actual road, up to 160m wide, in order to place the sites within their wider topographical environs.

All sites were surveyed at LUAU Level 2 (Appendix 1), which involves the generation of complete hachured interpretative drawings of the earthworks. The instrument survey was accompanied by a written description of the surveyed features and a photographic record. The descriptions have been included, in full, in the landscape gazetteer (Section 7).

In addition to the topographic survey, the precise locations of the evaluation trenches were recorded by instrument survey, and these were tied to the height datum of the Cumbria County Highways control.

Survey control was established using permanent ground markers (established by Cumbria County Council Highways) by means of closed traverse. The detail survey was undertaken using a Carl Zeiss ELTA 3 total station with a Husky Rec 500 datalogger. The digital data was processed using Microsurveyor software, and working site plots were generated on industry standard Computer Aided Draughting system (CAD). All archaeological features were drawn up and checked in the field.

The hand survey amended data was transferred to a CAD system and all survey draughting was undertaken within this system. The data was edited and superimposed with digital topographic detail provided by Cumbria County Council Highways. The grid of the topographic data was adjusted to enable superimposition with the archaeological data that was located with respect to the OS simulated County highway control grid.

The survey plans were produced using a Hewlett Packard Draftmaster AO pen plotter.

2.3 Field evaluation

2.3.1 Greenfield trenches
The greenfield trenches were used as a sub-terranean survey technique to examine archaeological deposits not evident from the surface and were excavated in areas with no previously known archaeological features. Their aim was to establish the presence or absence of any previously unsuspected archaeological deposits, and, if established, to define their character, date, and state of survival. The trenches were required to explore the extent of a variable width corridor (average 55m width) in areas of archaeological potential as identified within the assessment.

The County Archaeologist requested that trenches should be excavated in a 30m grid pattern along the entire length of the road corridor, in order to examine 5% of the greenfield area identified in the assessment report, that will be affected by the proposed development. This would indicate that at least 47 trenches would be necessary to cover the area adequately; although a slightly larger number, 50 trenches, was indicated within the project design. In actuality 47 (excluding the targetted trench) were excavated, and the shortfall from the stated maximum was due to the presence of either unfavourable topography or the existence of services (water, electricity, telecommunications).

2.3.2 Targeted trenches
A single deliberately targeted trench (Trench 36) was located in order to examine the trackway (Site 11) identified during the Assessment. The objectives of the study was to detect any below ground archaeological elements, and to establish the chronology and archaeological significance of the feature.

2.3.3 Excavation methodology
All landowners and/or occupiers were contacted prior to trenching work, and should be thanked for their co-operation. A photographic record was taken both prior to, and during excavation.

All trenches were 30m long, unless otherwise stated (see Appendix 2), and 1.80m wide. The location of the trenches was based on an alternating grid pattern, with any variation to either the length or alignment of trenches undertaken in order incorporate topography, allow for services, and to obtain maximum coverage of the road corridor. The orientation of the trenches was varied to ensure identification of linear features.

Topsoil removal was undertaken using a mechanical wheeled excavator fitted with a toothless ditching bucket. All other excavation was undertaken by hand, in an archaeologically controlled and stratigraphic manner. All trenches were backfilled using the excavated material but it was not required that this be undertaken in a stratified manner as the evaluation immediately preceded the construction phase.

In line with current guidelines no significant archaeological deposits were entirely removed or underwent particularly intrusive inspection.

The recording methods employed by LUAU accord with those recommended by English Heritage's Central Archaeology Service (CAS). Recording was in the form of *pro forma* trench sheets, and where necessary individual context sheets. Accurate scale drawings were made where appropriate, and photographs were taken as necessary. On-site assessment of the deposits suggested that it was not necessary to take environmental samples. All finds were handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.

2.4 Health and safety

Both Lancaster University and LUAU maintain Safety Policies, the latter based on the SCAUM (Standing Conference of Unit Managers) Health and Safety Manual (1991). In keeping with current Health and Safety at Work Regulations, prior to commencing on-site work a risk assessment for each activity was completed. Before excavation commenced, information (supplied by Cumbria County Council) from the proper statutory bodies was consulted to obtain the location of all underground and overhead services. The position of all trenches was also scanned for underground cables using a U-scan cable detection device.

3. LANDSCAPE SURVEY RESULTS

The topographic survey of the field systems identified in the assessments (sites 8, 9 and 11) has enabled the earthworks to be typologically studied through non-intrusive methods. The Level 2 survey provided a basic interpretative record for evaluation purposes, which was sufficiently detailed to act as mitigation for monuments of reduced archaeological significance. The landscape survey recorded a total of three archaeological sites.

It was in the upland area that evidence of agriculture was noted, in the form of ridge and furrow field systems. The two sites recorded (Sites 8 and 9 in the Assessment) are both badly eroded, their minimal survival probably due to the unfavourable aspect and slope of the area. Survival of both sites was best in the higher part of the field. The two areas of ridge and furrow are spatially associated, with a relatively small gap in between and it is likely that they were originally part of the same field system, although the ridge and furrow in the central part of the field was too degraded to detect.

The third site was a short section of trackway on the northern edge of the upland area. It was composed of a flat corridor of land running north/south, parallel to the present field boundary. It could be seen for a distance of *c* 20m, and was approximately 4m wide. On the eastern side there was a bank *c* 0.60m in height, whilst to the west a similar bank reached a maximum height of 0.15m at the northern end. It did not cut the bank of the extant field boundary at the southern end but is thought to be of a late date. A trench aligned east/west through the feature revealed a narrow cobbled surface and a modern ceramic pipe (see Trench 36 below).

4. FIELD EVALUATION RESULTS

Forty-eight trial trenches (47 greenfield and 1 targeted) were excavated during this phase of archaeological evaluation.

4.1 The southern section: Trenches 1-17 and 39-48

The trenches in the southern section of the route (fig 2) were mostly aligned north-west/south-east, parallel with the road, although some trenches were orientated at right-angles, to check for linear features; a single trench (Trench 17) was excavated east/west across a dip in the topography. Trenches 1-3 and 39-48 were situated on a gentle south-west facing slope with Trenches 4-17 on a steeper north-west facing slope.

In general the trenches in this area were excavated to between 0.35m and 0.45m deep. The typical soil profile recorded in the majority of the trenches comprised mid brown clay loam topsoil (*c* 0.20m to 0.30m deep), above a shallow interface (0.10m to 0.15m deep) of mid buff yellow silty clay loam. In some cases, however (eg Trench 13), usually on the higher slopes, topsoil lay directly above the natural subsoil. Natural subsoil consisted of buff/yellow slightly silty clay containing between 0.5% and 5% pebbles and occasional cobbles. In some areas patches of dense reddish orange stone-free clay or slightly gritty grey clay were seen within this material. Occasional land drains were seen cutting the natural, but, other than in Trench 16 (see below), no significant variations to the general soil profile were observed.

Trenches 1, 5-10, 12-15, 17, and 39-48 contained the soil profile noted above, but in Trench 2 the natural subsoil contained occasional large cobbles (up to 0.20m diameter), and in Trench 11 two large boulders (*c* 0.60m diameter) were observed.

Faint traces of ridge and furrow cultivation (Site 9) could be seen in Trench 4, the furrows only being visible as slight channels/cuts in the natural subsoil.

Trench 16 was excavated across a slight topographical rise at the extreme northern end of the southern part of the route, some 20m south of Greenscoe Quarry. The trench was excavated to a maximum depth of 0.67m at its northern end. The southern 24m of the trench contained stratigraphy very similar to that of the general sequence described above, although the northern 6m of the trench contained a deposit of loose, angular stones between 0.05m and 0.11m diameter. These were not bonded, and did not appear to form any type of structure; it is assumed the layer was associated with the quarry workings. Although the drop of the land at the northern end of the trench made the stone deposit emerge as a slight bank, this drop appeared to be coincident with the edge of the quarry workings.

Sections of Trenches 3, 13, and 14, were dug to depths of 0.60m, 0.68m, and 0.72m respectively, in order to examine the deeper stratigraphy, but revealed nothing other than continuing depths of natural deposits.

4.2 The northern section: Trenches 18-35, 37-38

The northern section of the route (Fig. 3) lies in an area of lower marshy land, east and

north-east of Askam brickworks. Trenches 18-35, 37-38 were located in two fields, both of which contained a number of services. Just over half the trenches in this area were aligned roughly north/south, parallel with the road corridor, with the remaining trenches orientated east/west.

The majority of trenches were excavated to a depth of between 0.35m and 0.60m, the greater depth of trench usually corresponding with the lower areas, where there was a greater depth of topsoil. In general the stratigraphy in this area was not dissimilar to that described above (in the higher, southerly part of the route). Topsoil was, on average between 29m and 0.35m deep, and comprised yellowish brown clay loam, similar, although slightly lighter (yellower) to that seen in the southern section of the route. Again, this usually lay above an interface layer of mixed material, which was, in turn, above yellowish ochre natural, silty clay, and on occasions, contained patches of reddish stone-free clay or gritty grey clay. Twelve trenches (18, 19, 20, 25-32, and 38) conformed to this general stratigraphic pattern, with nine trenches (21-24, 33-35 and 37) showing some limited variation.

Although Trench 21 contained the customary soil profile of the area, it also contained four linear features, which all appeared to be of relatively modern origin. At the southern end of the trench, three features, two aligned roughly east/west, and one aligned north/south, were observed, and investigated by both hand and machine. All three features contained dark brownish grey organic silt, modern brick and wood, and, at their base modern drainage pipes. A fourth feature aligned east/west was observed approximately 8m from the northern end of the trench. This feature corresponded with a fairly marked dip in the topography; it was 2.10m wide and 0.54m deep, and contained greyish brown non-organic silty loam with a *c* 15% stone content (0.01-0.03m diameter) and modern pottery. This feature was also seen in Trench 24, where the fill was identical to that seen in Trench 21, and Trench 22, where it contained almost black silty loam and *c* 25% sub-angular stones and brick fragments. It is assumed that this feature is a relict field boundary, which had no connection with the features seen at the opposite end of the trench.

Trench 23, aligned east/west, contained similar stratigraphy to that seen elsewhere in the area. However, a linear feature (Fig 4) aligned approximately north-south, and 3.5m+ wide was seen at the extreme eastern end of the trench (it was not possible to extend this trench and find the exact width of the feature due to the presence of services). This feature was 1.05m deep and contained three, almost horizontal layers of fill. The earliest, 0.35m of dark brown, very humic, almost peaty organic material containing roots, lay below 0.23m of greyish brown, slightly clayey organic material containing what appeared to be reeds,. This in turn, lay below very compact, dark brown organic material, similar to the earliest fill. The date, and function of the feature were unclear from excavation, but the fill, and the nature of the ground to the west, which was very wet with surface water and reedy grass, suggest it was probably connected with drainage.

Trenches 33, 34, and 35 were both located almost opposite the entrance to Askam brickworks. In both trenches, although the stratigraphy was generally similar to that seen elsewhere, the topsoil was considerably darker (greyish black) and contained bricks, fragments of brick, modern glass, and industrial residues, presumably material

derived from the factory.

4.3 Targeted Trench (Trench 36)

Trench 36 was a targeted trench which examined a trackway (Site 11) identified during the initial assessment, and surveyed during this phase of work (see above and gazetteer), and also identified in Trench 37. On the surface the track, was roughly 4m wide and could be seen for a distance of approximately *c* 20m. Removal of the topsoil revealed, at a depth of 0.57m, a surface 1.09m wide, comprising a single layer of closely packed pebbles and cobbles between 0.03m and 0.08m in diameter. A modern ceramic pipe lay directly adjacent to the eastern edge of the surface. Examination of the section showed that this pipe was not laid in a trench cut through the topsoil, which would imply the pipe was either contemporary with the cobbled track, or that the track which may have been earlier than the pipe, was at least visible when the pipe was positioned. Either situation would indicate that the track was not of great antiquity.

4.4 The finds

Despite a policy of total collection very few finds were recovered. All were late in date (late nineteenth and early twentieth century), and add little to an interpretation of the area, except to note that all were of domestic origin. The lack of even fragmentary earlier finds suggests the area was unlikely to have been intensively occupied before the late nineteenth century.

5. DISCUSSION

Although both prehistoric and medieval activity are known in the area of the Dalton Bypass to Askam improvements, and extensive mining operations were common in the vicinity, the actual route of the bypass showed little surface evidence of human activity, other than ridge and furrow ploughing. The landscape survey thus proved invaluable in recording these upstanding earthworks.

The greenfield excavations allowed the opportunity to sample systematically an area where, other than for the arable activity and a single trackway, there were no other surface indications of archaeological activity. The use of the grid pattern to position trenches provides optimum coverage.

The results of the trenching provided evidence of limited archaeological activity in the northern lowland area, the vast majority of the trenches produced nothing of archaeological significance. Two subsurface linear features (Trench 23 and Trenches 21, 22, and 24) were of possible archaeological interest were identified, and only one of them, which was filled with humified material (Trench 23), and possibly a drainage ditch, may have been of ancient origin. The trackway identified during the assessment and surveyed during this phase of work is apparently of relatively modern origin.

6. RECOMMENDATIONS

LUAU conducts evaluations in accordance with the Institute of Field Archaeologists' Code of Conduct and best practices, and also in the light of *The management of archaeological projects* (English Heritage 2nd edition 1991). Our concern must be to protect and preserve archaeological sites wherever possible, and only where this is not feasible are destructive techniques advocated. Our aim is to recommend the appropriate action which will achieve recording objectively, without any waste of resources.

In this case, LUAU consider that no further work is necessary prior to the land being taken for road construction. We do however recommend that there is a permanent presence watching brief during the initial groundworks, which should have some allowance for minimal stoppage to enable rapid archaeological excavation and recording, if any significant deposits are revealed. This watching brief should examine in particular detail the northern field in which the linear features (Trenches 21-24) were found.

7. LANDSCAPE SURVEY GAZETTEER

The surveyed sites were numbered in relation to those sites identified during the initial assessment.

Site number 8
Trench number 10-14
Site type Field system
NGR SD 2200 7540
Figure number 2

Description

An area of ridge and furrow between 4m and 6m wide, aligned east/west parallel to the present field boundaries. No headland was visible. It was most pronounced in the northern part with the ridges being approximately 0.15m high. There was occasional surface evidence indicating that this site may be part of a system comprising both Sites 8 and 9. The ridge and furrow appears to relate to the existing field system, and may be of post-medieval rather than medieval date.

Site number 9
Trench number 4-9
Site type Field system
NGR SD 2210 7530
Figure number 2

Description

An area of ridge and furrow to the south and east of Site 8 and on the same alignment. It was between 4m and 6m wide and was badly worn with the exception of one good furrow in the eastern part of the field with ridges *c* 0.2m high. As with Site 8 no headlands were visible, although the system may have originally run up to the lynchetted field boundary to the north.

Site number 11
Trench number 36
Site type Track
NGR SD 2190 7610
Figure number 3

Description

Traces of a north-south aligned trackway west of the unimproved A595. The trackway measured approximately 4m in width, and was visible for a distance of *c* 20m, north of the present field boundary. Although excavation revealed a cobbled surface, the topographical features may also relate to a modern ceramic pipe running along the same alignment through the centre of the feature.

8. BIBLIOGRAPHY

Baines, E, 1870, *A History of the County Palatine and Duchy of Lancaster*, **2**, London

Barnes, F, 1951, *Barrow and District*, Barrow

Close, W, 1813, *Itinerary of Furness and its Environs*, Ulverston

English Heritage, 1991, *Management of archaeological projects* (2nd edition), London

Fell, A, 1968, *Early Iron Industry of Furness and District*, Ulverston

Hair, N, 1995, *A595 Dalton Bypass to Askam Road Improvement*, LUAU Unpublished Rep, submitted to client

Marshall, J D, 1958, *Furness and the Industrial Revolution*, Barrow

Postlethwaite, J, 1889 *Mines and Mining in the English Lake District*, Whitehaven

Walton, J E, 1984, *A History of Dalton in Furness*, Chichester

Winchester, A J L, 1987, *Landscape and society in medieval Cumbria*, Edinburgh

ILLUSTRATIONS

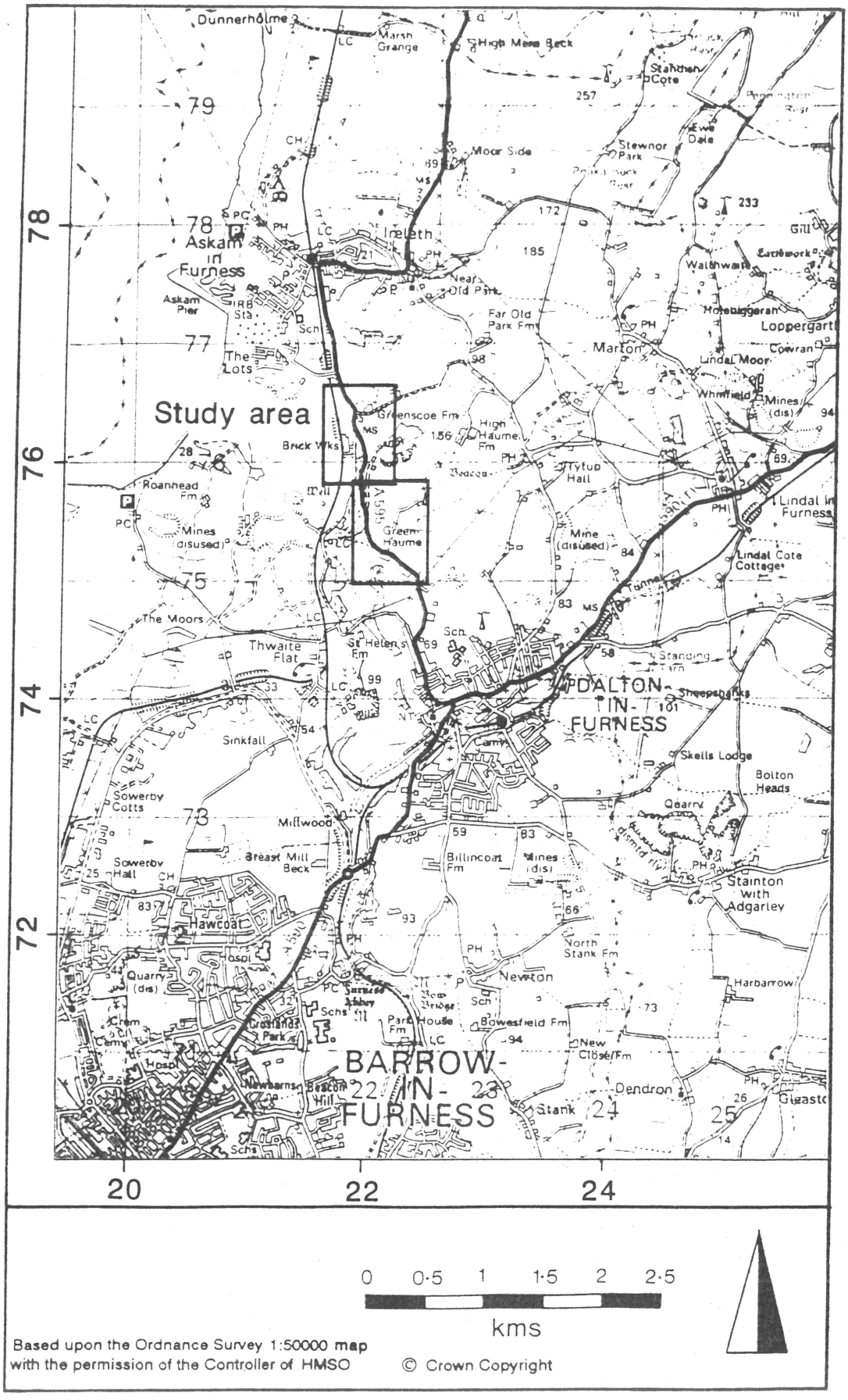
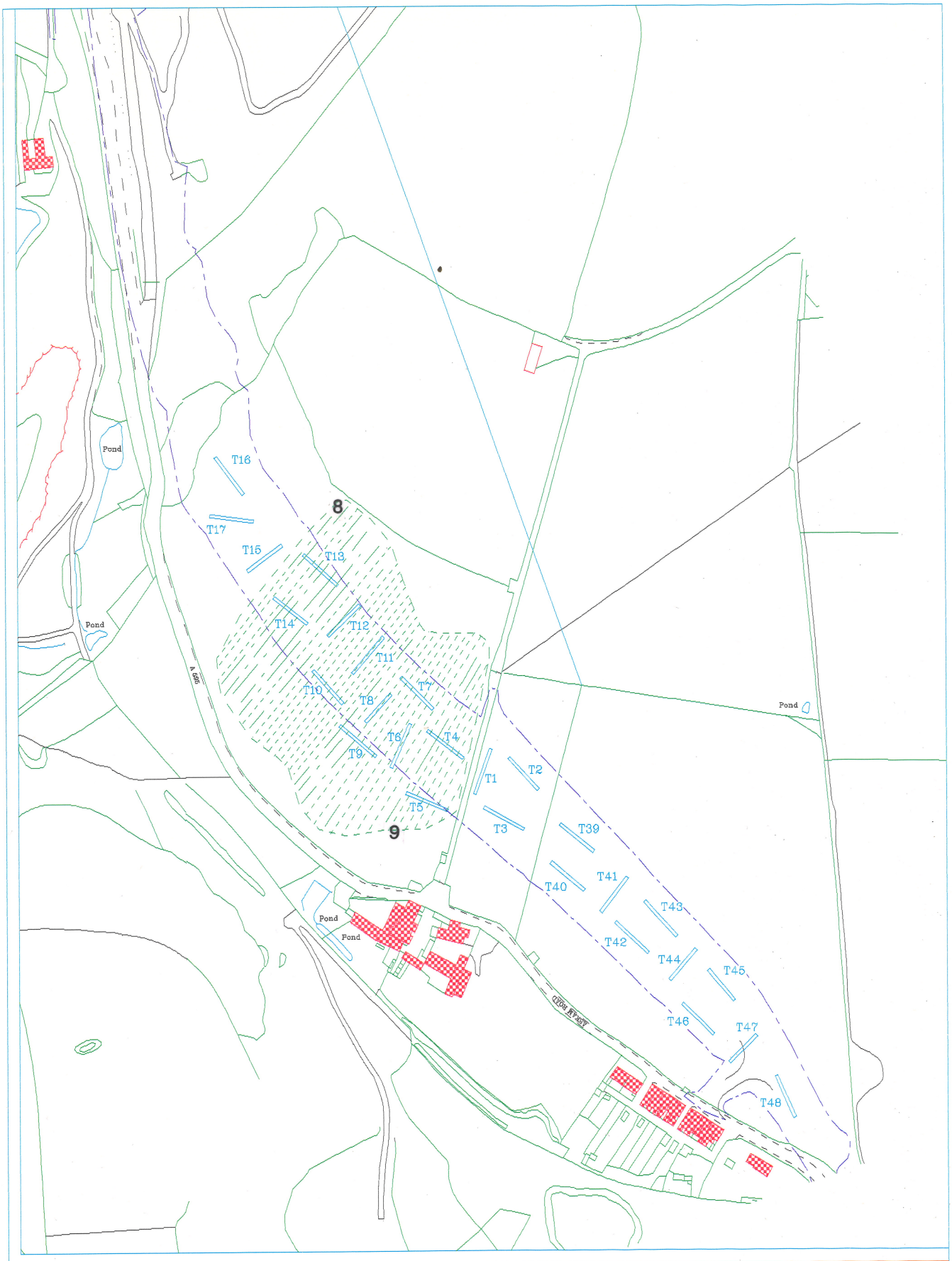
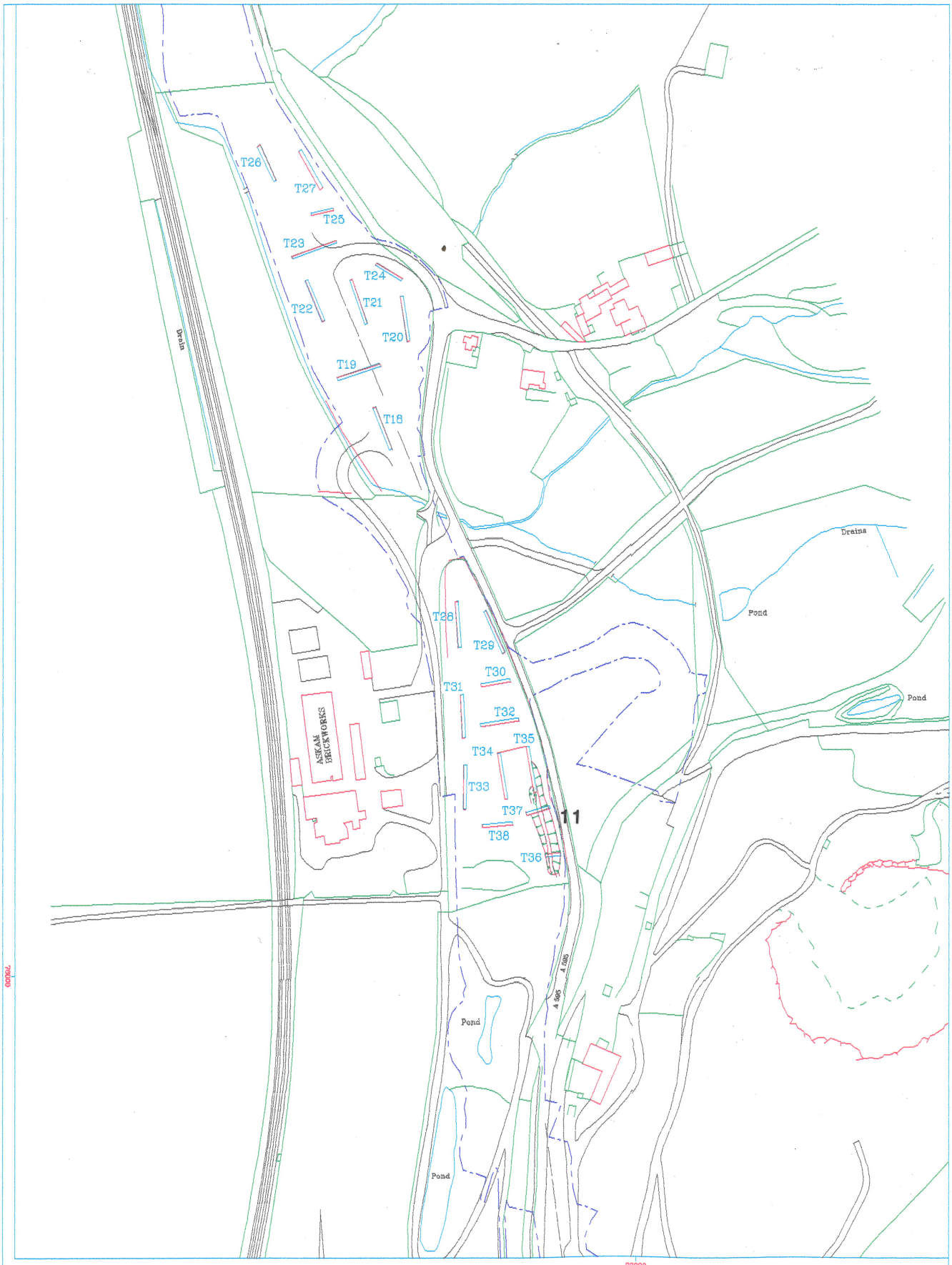


FIGURE 1: SITE LOCATION PLAN



Dalton Bypass to Askham Cumbria	PLAN NAME: Southern Section	Reproduced from, or based on, Ordnance Survey map material with the permission of the Controller of Her Majesty's Stationery Office. Crown Copyright. Licence LA 076040 - Cumbria County Council. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.	30m	DRAWN BY CW DATE 02-1996 LANCASTER UNIVERSITY ARCHAEOLOGICAL UNIT	SCALE 1:2500 SHEET NO. 2

FIGURE 2 THE SOUTHERN SECTION OF THE ROUTE



Dalton Bypass to Askham
Cumbria

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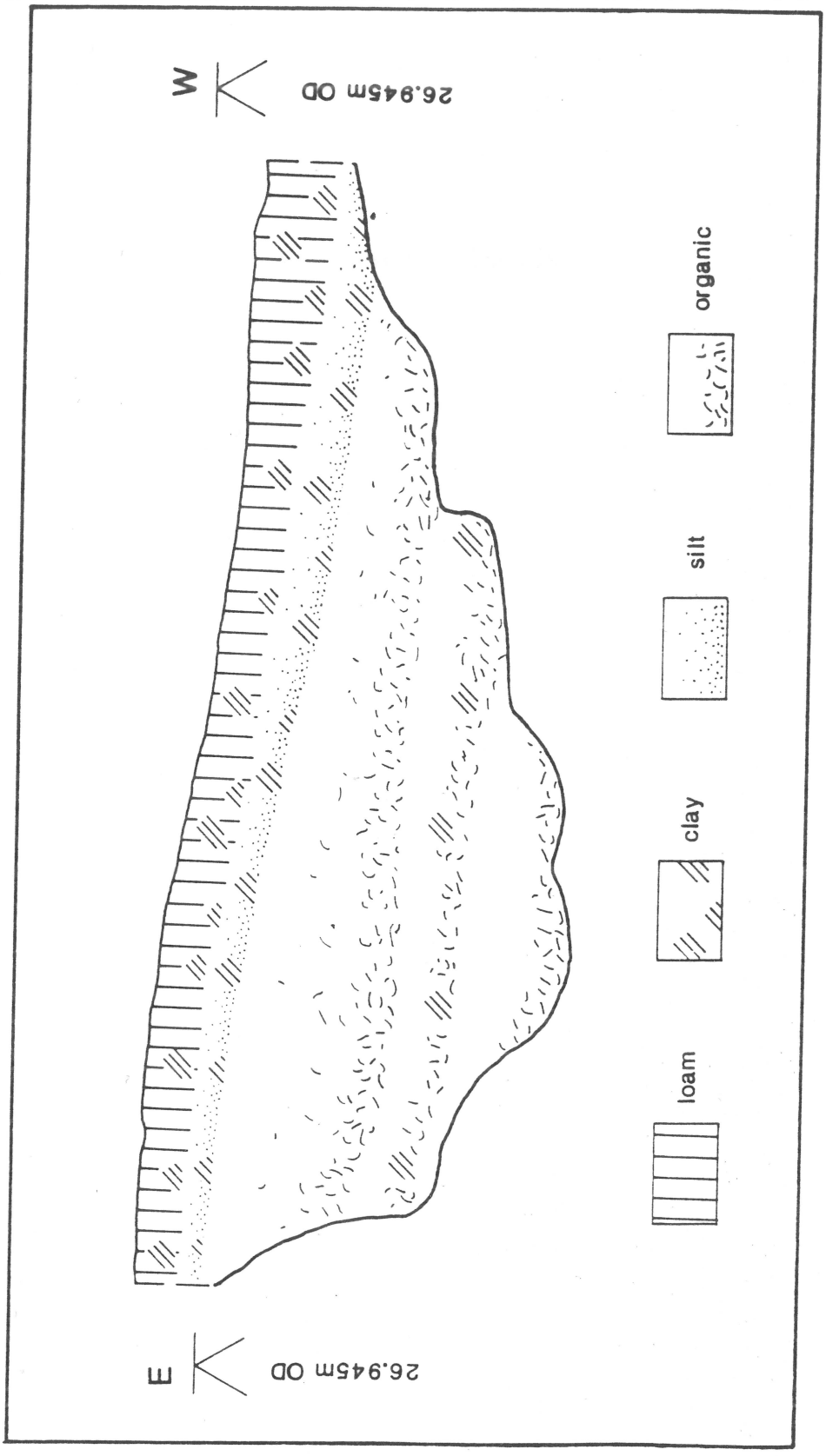

FIGURE 4: TRENCH 23 NORTH FACING SECTION OF DITCH

FIGURE 1: SITE LOCATION PLAN

FIGURE 4: TRENCH 23 NORTH FACING SECTION OF DITCH

APPENDIX 1

Survey Levels

LUAU LEVELS OF ARCHAEOLOGICAL SURVEY RECORDING

This describes the types of survey appropriate for the various stages of archaeological evaluation undertaken in advance of development as practised by the Lancaster University Archaeological Unit. They are based on survey levels defined by the Royal Commission on the Historical Monuments of England (RCHM(E)) and are in accordance with stages of evaluation defined by the Association of County Archaeological Curators (ACAO 1993). Attached is the example of an archaeological site (Stainmore site 23) recorded at all three levels.

Level 1 Survey (Assessment)

Level 1 represents the minimum standard of record and is appropriate to exploratory survey aimed at the discovery of previously unrecorded sites. Its aim is to record the existence, location and extent of an archaeological site. The emphasis for the recording is on the written description which should record type and period and would not normally exceed *c* 50 words.

The location and extent of the sites is typically shown on 1:2,500 or 1:10,000 OS maps as requested by the client. The extent of a site is only defined for sites greater than 50m in size and smaller sites are shown with a cross. The accuracy of survey is +- 10m (8 figure grid ref.) and is undertaken without the use of survey instruments.

This is a rapid level of survey (Site Inspection in project design) undertaken alongside a desk top study as part of the site assessment (ACAO 1993, 14). It is an initial site inspection which helps the local planning authority to consider fully the archaeological implications of a planning proposal and also serves as the basis for undertaking and planning further archaeological work on the site.

Level 2 Survey (Evaluation)

Level 2 survey defines the extent of all surface archaeological features on site in relation to the main topographic elements (e.g. field walls) and accurately defines the extent of the overall archaeological site. It is produced in conjunction with a full objective and interpretative description of the features.

It is undertaken using Total Station survey equipment and is located usually using Global Positioning Survey (GPS) techniques. The internal accuracy is typically +- 0.05m but is located with respect to the OS National Grid to an accuracy of +- 1.0m. The survey methodology is designed to facilitate the production of any subsequent Level 3 survey by reusing the Level 2 survey data along with additional contour data. For reasons of economy and overall flexibility the survey is generated using a Computer Aided Design (CAD) system and output on the Unit's A0 plotter.

This is a basic level of survey undertaken alongside trial excavation work as part of the field evaluation (ACAO 1993). It can serve as a mitigation measure for smaller sites with poor surface survival and should be applied to sites of some significance threatened by the development. More complex and archaeologically important sites

require a Level 3 survey as mitigation for their destruction. The Level 2 survey defines an archaeological context for any trial excavations and shows the location of the trenches in relation to the surface features. This level is used to assess the archaeological significance of the site and serves as the basis, along with other evaluation techniques, for the submission of recommendations to the District or County Planning Officer.

Level 3 Survey (Mitigation)

Level 3 survey is a comprehensive record of the archaeological features in relation to the surface topography. It incorporates an interpretative hachure survey alongside a full computer generated model of the ground surface enacted when a full survey is needed in conjunction with excavations or in cases where detailed survey of fragile upstanding earthworks is the only appropriate mitigative measure.

The Level 3 mitigation survey is designed to record the archaeological site as fully as current technology will allow in advance of its destruction. It is applied selectively to sites of particular importance and which have a good survival of surface features.

It is generated by the provision of additional survey data to the Level 2 survey and is of an equivalent level of accuracy (+- 0.05m). In many cases only a relatively limited amount of additional data is required to upgrade the Level 2 survey to the full surface modelled Level 3 and therefore this can be an economic recording option.

It is generated on CAD which maintains the original accuracy of the survey data and allows flexibility of drawing output at any scale. The drawing file will record the contour detail at different height separations and the final survey drawings can therefore be tailored to meet any requirements of the client.

Bibliography

Association of County Archaeological Officers (ACAO) 1993. *Model briefs and specifications for Archaeological Assessments and Field Evaluations*, Bedford.

APPENDIX 2

Archaeological Evaluation Project Design

Lancaster
University
Archaeological
Unit

November 1995

A595 DALTON BYPASS TO ASKAM-IN-FURNESS IMPROVEMENT

CUMBRIA

ARCHAEOLOGICAL EVALUATION

Proposals

The following project design is offered in response to a letter from Cumbria County Council requesting an archaeological evaluation in advance of road improvements between Dalton and Askam-in-Furness, Cumbria.

1. INTRODUCTION

The proposed road improvement to the north of Dalton, in the Furness peninsula, will affect an area within which are known industrial remains of some possible significance. In addition, the area, on a west-facing slope overlooking the sea, has the potential to contain sites of all periods.

In January 1995 at the request of Cumbria County Council, Lancaster University Archaeological Unit produced an archaeological assessment of the proposed Dalton/Askam bypass route. Following on from this assessment the County Archaeologist has requested an archaeological evaluation to examine selected sites highlighted by the earlier assessment and also for 'greenfield' evaluation of the pastoral fields along the route. This evaluation is aimed at assessing the quantity, period and quality of such sites in the context of the surrounding landscape and also evaluating sub-surface remains.

The Lancaster University Archaeological Unit 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 15 years. Evaluations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. The archaeological work associated with a number of road schemes throughout the north of England has been undertaken recently, both for Cumbria County Council Highways and Engineering and for the government's Highways Department. LUAU has the professional expertise and resource to undertake the project detailed below to a high level of quality and efficiency. LUAU and all its members of staff operate subject to the Institute of Field Archaeologists (IFA) Code of Conduct.

2. OBJECTIVES

The following programme has been designed, in consultation with the County Archaeologist, to provide an accurate archaeological evaluation of the designated area, within its broader context. The required stages to achieve these ends are as follows:

2.1 Field Survey

A programme of field survey of visible earthwork features would be undertaken along the proposed bypass route, to produce a detailed plan of those features to be affected by the works. A photographic record would be utilised to complement this work.

2.2 Field Evaluation

A limited programme of trial excavations, as recommended by the County Archaeologist will be undertaken to establish the nature, extent, chronology, and preservation of any archaeological deposits encountered. This will examine Site 11 and also those parts of the route where archaeological deposits may survive with no surface trace. Suitable samples recovered will be assessed for their palaeoenvironmental potential.

2.3 Evaluation Report

A written evaluation report will assess the significance of the data generated by this programme within a local and regional context. It will advise on the mitigation measures necessary to protect and/or record (to appropriate levels) identified archaeological features and deposits, including any appropriate further evaluation, excavation, and recording strategies.

3. METHOD STATEMENT

The following work programme is submitted in line with the stages and objectives of the archaeological work summarised above.

3.1 Field Survey

Where earthwork features are clearly to be affected and/or destroyed by construction works, it is proposed to implement a Level 2 survey (Appendix 1), whereby discernible features are surveyed to include both those parts directly affected by the works, and those elements extending beyond the limits of any proposed groundworks for some short distance in relation to the local topography. The sites proposed for topographic survey are areas of ridge and furrow (8 and 9) and a trackway (11). The Level 2 survey can provide a mitigation level of recording on surface features of a low archaeological significance. All three sites are of local significance and the level 2 survey could potentially provide an adequate mitigation record.

3.1.1 Survey methods

The detailed topographic survey would be undertaken using total station equipment, to produce hachured plans of earthwork features. The survey would be undertaken with respect to a survey control established by the County Highways and Engineering Department.

The digital survey data would be stored within a portable logger for subsequent transference into a commercial survey processing package (Intsurveyor). The output field plots would be annotated with hachures, plus any other topographic detail in the field. These field edits would then be superimposed onto digital data within an industry standard CAD system (FastCAD). The archaeological detail can then be digitally superimposed with a topographic ground model provided by the County Highways and Engineering Department.

3.1.4 Photographic recording

In parallel with the topographic survey work, a photographic survey would be undertaken to record, in both monochrome and colour slide formats, all of the visible topographic features affected by the proposed road.

3.2 Field Evaluation

3.2.1 Access

Liaison for basic site access will be undertaken with the Client. The precise location of any services within the study area will also be established.

3.2.2 Greenfield evaluation

This programme of trenching will establish the presence or absence of any previously unsuspected archaeological deposits and, if established, will then briefly test their date, nature, and quality of preservation. Excavation will normally be limited to the upper surface of significant archaeological deposits, unless further work is regarded by ourselves and the county archaeologist as essential in order to complete the full evaluation. This element of the trial trenching is invaluable in order to assess those accessible plots within the affected bypass route where there is a potential for archaeological deposits to survive which are not visible on the surface. This also reduces the possibility of the discovery of any important archaeological features within those designated plots during groundworks, so as to minimise the possibility of any disruption at that late stage.

The 'greenfield' trenching would be undertaken using a conventional 30m alternate trench configuration, which provides a 5% coverage of the investigated area. This would involve the excavation of trenches measuring 30m in length, by 2m in width. The assessment report (LUAU 1995) defines the broad areas that would warrant further investigation by 'greenfield' trenching; however, within these broad areas trenching will only be necessary on land that will be directly impacted by the proposed road development. The area of road corridor so affected comprises 5.28 hectares, and will warrant the excavation of 51 trenches. Precise locations would be determined during the pre-evaluation survey work, and would be confirmed with the tenant/landowner, client, and county archaeologist, prior to trial trenching.

3.2.3 Targeted evaluation

Trial trenching will also be required to target features of suspected archaeological significance which are visible as earthworks or linear features identified from the assessment. Site 11, a trackway, will require the excavation of a single trench across it to establish any chronological evidence or any relationship with the nearby brick works. The precise location and extent of this trench would be determined during the survey work, and as for 3.2.2, would be agreed with all relevant parties prior to trial trenching.

3.2.4 Methodology

To maximise the speed and efficiency of the operation the removal of overburden will be undertaken by machine (with a standard six foot toothless ditching bucket), although in areas where ephemeral remains are encountered elements may be hand dug. All trenches will be excavated in a stratigraphical manner, whether by machine or by hand. Trenches will be accurately located with regard to surrounding features, by use of a Total Station.

Full regard will, of course, be given to all constraints (services etc) during the excavation of the trenches, as well as to all Health and Safety considerations. LUAU provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1991) and risk assessments are implemented for all projects. As a matter of course the Unit uses a U-Scan device prior to any excavation to test for services.

Land disturbed as a result of this work will be reinstated to the Client's satisfaction, although LUAU as a matter of course replaces material in a stratigraphic manner and relays the surface, if possible. It is presumed that the Client will have responsibility for site security. LUAU would take responsibility for temporary fencing arrangements to exclude livestock or any other farming activities. In addition, any deep sections of open trench would be fenced off to prevent any accidents occurring to LUAU/client staff.

3.2.5 Timetable

All excavation will be undertaken within constraints agreed with the client.

3.2.6 Recording

All information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.

Results of the field investigation will be recorded using a system, adapted from that used by Central Archaeology Service of English Heritage. The archive will include both a photographic record and accurate large scale plans and sections at an appropriate scale (1:50, 1:20, and 1:10). All artefacts and ecofacts will be recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration. Samples will be collected for technological, pedological, palaeoenvironmental and chronological analysis as appropriate, but it is only intended to process such material for assessment at this stage. If necessary, access to conservation advice and facilities can be made available. LUAU maintains close relationships with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs artefact and palaeoecology specialists with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation.

3.3 Evaluation Report

3.3.1 Archive

The results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management*

of Archaeological Projects, 2nd edition, 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. It will include summary processing and analysis of all features, finds, or palaeoenvironmental data recovered during fieldwork. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct. LUAU conforms to best practice in the preparation of project archives for long-term storage. The expense of preparing such an archive is part of the project cost, but only represents a very small proportion of the total. This archive can be provided in the English Heritage Central Archaeology Service format, both as a printed document and on computer disks as ASCII files, and a synthesis (in the form of the index to the archive and the report) will be included in the Cumbria Sites and Monuments Record. A copy of the archive can also be made available for deposition with the National Archaeological Record in Southampton. LUAU practice is to deposit the original record archive of projects (paper, magnetic and plastic media) with the appropriate County Record Office (Barrow), and a full copy of the record archive (microform or microfiche) together with the material archive (artefacts, ecofacts, and samples) with an appropriate museum. The actual details of the arrangements for the deposition/loan and long term storage of this material will be agreed with the landowner and the receiving institution. Wherever possible, LUAU recommends the deposition of such material in a local museum approved by the Museums and Galleries Commission, and would make appropriate arrangements with the designated museum at the outset of the project for the proper labelling, packaging, and accessioning of all material recovered. The archive costs include a single payment of £11/m3 to the receiving museum as a one-off contribution towards the cost of long term storage and curation.

3.3.2 Evaluation report

One bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further copy submitted to the Cumbria County Archaeologist. The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and will include a full index of archaeological features identified in the course of the project, with an assessment of the overall stratigraphy, together with appropriate illustrations, including detailed plans and sections indicating the locations of archaeological features. Any finds recovered from the excavations will be assessed with reference to other local material and any particular or unusual features of the assemblage will be highlighted and the potential of the site for palaeoenvironmental analysis will be considered. The report will also include a complete bibliography of sources from which data has been derived, and a list of further sources identified during the programme of work, but not examined in detail.

This report will identify areas of defined archaeology, the location of trenches, and whether the results of the sampling were positive or negative. An assessment and statement of the actual and potential archaeological significance of the site within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map, section drawings, and plans if appropriate; it can be tailored to the specific requests of the client (eg particular scales

etc), subject to discussion. The report will be in the same basic format as this project design; a copy of the report can be provided on 3.5" disk (IBM compatible format).

3.3.3 Proposals

The report will make a clear statement of the likely archaeological implications of the intended road development. It will highlight whether, as a first option, the preservation *in situ* of significant archaeological features should take place and possible strategies for the mitigation of the impact of the development, including design modification, will be considered. When preservation is neither possible, nor practical, a further stage of archaeological work may be required. In this case, recommendations for such mitigation measures will be submitted. In addition, it is quite likely that a recommendation for a full-time watching brief will be proposed, during all groundworks. It should also be made clear that the results of this stage 2 archaeological evaluation should only be considered as representative of the below ground archaeological potential of those areas presently accessible for trial trenching. The potential for the remainder of the bypass line would remain an unknown quantity at this stage.

3.3.4 Confidentiality

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

3.4 Project Monitoring

3.4.1 Cumbria County Council

Whilst the work is undertaken for the Cumbria County Council Highways and Engineering Department, the Cumbria County Archaeologist will be kept fully informed of the work and its results. Any proposed changes to the project design will be agreed with him in co-ordination with the Client. LUAU will arrange a preliminary meeting, if requested, and the Cumbria County Archaeologist will be informed in writing at the commencement of the project.

4. WORK TIMETABLE

The phases of work would comprise:

4.1 Field Survey

To be undertaken during a three day period

4.2 Field Evaluation

To be undertaken during a one and half week period.

4.2 Prepare Evaluation Report

The work would be undertaken during a three week period following completion of the field work.

LUAU can execute projects at very short notice once an agreement has been signed with the client. The project (fieldwork, report and archive) is scheduled for completion within eight weeks from its commencement.

5. OUTLINE RESOURCES

The following resource base will be necessary to achieve the proposals detailed above. The breakdown of the total cost of the project is provided on the accompanying covering letter.

5.1 Management

3 man-days Project Manager

5.2 Field Survey

2.5 man-days Project Officer
2 man-days Project Supervisor

5.3 Field Evaluation

7 man-days Project Officer
6 man-days Project Assistant

5.4 Evaluation Report

3 man-days Project Officer (Evaluation)

1 man-days Project Officer (Surveyor)
3 man-days Supervisor (CAD)
1 man-days Supervisor (draughting)

The project will be under the project management of **James Quartermaine BA Surv Dip MIFA** to whom all correspondence should be addressed.

All Unit staff are experienced, each with several years appropriate 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.