LANCASTER
UNIVERSITY
ARCHAEOLOGICAL
UNIT

March 1995

KIRKBY STEPHEN BYPASS, CUMBRIA

ARCHAEOLOGICAL EVALUATION

Cumbria County Council

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Proposals

The following project design is offered in response to a letter from Cumbria County Council, requesting an archaeological evaluation on the line of the proposed Kirkby Stephen Bypass, Cumbria.

1. INTRODUCTION

In June, 1993, at the request of Cumbria County Council, Lancaster University Archaeological Unit produced a phase 1 archaeological assessment of the three alternative routes of the A685 Kirkby Stephen Bypass. Following this, a further assessment report was commissioned on the Outer Western Route B, completed in August 1993. In March, 1995 LUAU was commissioned to prepare a project design for evaluation works on the line of the Outer Western Route B.

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. In addition, advice has been supplied to clients for the preparation of Environmental Statements. 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 Archaeological Curator, 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 Documentary research

Additional research should be undertaken with the aim of possibly elucidating the origin and function of those features now known to be directly affected by the proposed route of the road. This would also include aerial photograph analysis.

2.2 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 photograhic record would be utilised to complement this work.

2.3 Geophysical Survey

A limited amount of geophysical sample survey is proposed in those areas of river gravels/alluvial deposits, where buried features may survive, but cannot be detected by any surface expression.

2.4 Field Evaluation

Extensive trial excavations, as recommended by the County Archaeological

Curator, will be undertaken to establish the nature, extent, chronology, and preservation of any archaeological deposits encountered. This will record the sampled areas; suitable samples recovered will be assessed for their palaeoenvironmental potential.

2.5 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 the appropriate excavation, recovery, 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 Documentary research

This would concentrate upon those topics and sites now known to be affected by the proposed routeway, and identified as of significance within the earlier assessment reports. However, for the purposes of evaluation, the research would be more specific than that previously undertaken, to take in the field systems, manorial history, and patterns of communication. Obviously, cartographic sources would be heavily utilised during this work, and the readily available aerial photographic coverage for the area. The required primary sources to be consulted for this work are listed within the previous assessment reports. Sites suggested for additional documentary research are **93, 97, 103, 110, 140, 141, 177, 178, 183, 184,** and **185.**

3.2 Field Survey

Where earthwork features are clearly to be affected and/or destroyed by construction works, it is proposed to implement two levels of survey recording, as follows:

3.2.1 In instances where the road corridor would cut a swathe through earthwork/landscape features, it is proposed to undertake a RCHME Level II survey, whereby discernible features are topographically 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. This would ensure that such features are not merely recorded in isolation, and hence retain a meaningful context in plan. This work would be accomplished by Unit surveyors working with a Total Station instrument, to locate breaks of slope on earthwork features, and some spot-height information to determine contour locations at circa 1.0m vertical intervals.

3.2.2 Where mitigation measures are required in advance of direct destruction of areas of earthworks, a higher level of recording is proposed, outlined as Level III by the RCHME. In this case, detailed topographic survey would be undertaken by Total Station, to produce hachured plans of earthwork features, combined with enough spot height data to provide contours at smaller vertical intervals, ie 0.2m. The survey data would then be downloaded into a Datalogger, from which it would be processed by Intsurveyor package. The output field plots, comprising effectively an objective contoured plan, would be annotated with hachures, plus any other topographic detail in the field. These field edits would then be superimposed onto digital data on the Fastcad system, and then superimposed with the contour information, to generate a digital terrain

model. Sites proposed for field survey at levels II and II are **93, 97, 98, 102, 103, 110, 113, 118, 128, 129, 131, 133, 140, 177, 183, 184,** and **185.**

The digital level 3 survey provides an objective record of the surface form of the earthwork, as a precise analytical tool, and could be used to generate, for example, cross profiles on field lynchets. The hachure survey represents a subjective, additional tool.

Ideally, such level II and III survey work should be undertaken utilising available engineering survey points for control, preferably with National Grid co-ordinates and levels above OD.

3.2.3 In parallel with the topographical 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. It is also proposed to fly the route in order to record by conventional aerial photography, but this work would be undertaken as part of another LUAU project, and hence the cost of this element would be minimal.

3.3 Geophysical Survey

On those areas of the bypass where deposits of river alluvium may mask features of archaeological significance, it is proposed to adopt a strategy of geophysical sampling. This would include the area of the roundabout terminal to the west of New Bridge, in the Eden valley, and also the minor valley to the north-west of Greenriggs Farm. This work would entail laying out baselines following the road centrelines, along which alternating sections of ground were sampled, measuring 40m long, by 20m in width. This work would be undertaken by a specialist contractor, who has recommended the use of a fluxgate gradiometer as the most cost-effective and quickest method for determining location of buried features. The instrument detects any variation in the earth's ambient magnetic field as a result of early disturbance, and provides a plan print-out for easy location of such anomalies.

3.4 Field Evaluation

3.4.1 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.

3.4.2 Green field evaluation

An extensive programme of trial excavation (190 trenches in total) will be undertaken, as recommended by the County Archaeological Curator, in order to partially fulfil the objectives of the evaluation. This 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 as essential in order to complete the full evaluation. This element of the trial trenching is invaluable in order to assess the whole of the affected bypass route in terms of any previously unsuspected archaeology, the potential for which in the Kirkby Stephen area could be quite high. This also reduces the possibility of the discovery of any important archaeological features during groundworks, so as to minimize the possibility of any disruption at that late stage. These trenches would be excavated in a 30m interrupted grid pattern, with trenches measuring 30m in length, by 2m in width. It is anticipated that up to 20 such trenches could be excavated, recorded, and backfilled each day.

3.4.3 Targetted evaluation

An additional series of trenches (circa 20 in total) would be excavated in order to deliberately target those features or areas of suspected archaeology. These would obviously include lynchets and other earthwork features, linear features identified from cartographic sources and aerial photographs, and any buried features delineated by geophysical survey. The precise location and size of these trenches would depend upon the results of steps 3.1-3.3 above. Sites proposed for such targetted evaluation are **103, 110, 113, 118, 128, 129, 131, 133, 140, 177, 181, 183, 184** and **185.**

3.4.4 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 will 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. The same instrument would be utilised for recording of co-ordinates and levels on all site drawings.

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. Additionally, this project design assumes that the survey and excavation works could be progressed along the line of the proposed road in either direction, with no

interruption to a rolling programme of survey, trench digging, recording, and backfilling. This would also assume that the section of easement occupied by archaeological works at any point in time was fenced off to exclude livestock or any other farming activities. In addition, any deep sections of open trench would be fenced off to prevent any accidents occuring to LUAU/client staff.

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

3.4.6 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 Archaeological Services 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 progress 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 Newcastle 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.

3.5 Evaluation Report

3.5.1 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 Archaeological Services 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 Cumbrian Sites and Monuments Record. A copy of the archive will also be 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, 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.

3.5.2 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 Cumbrian Sites and Monuments Record. 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).

3.5.3 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 conservation is neither possible, nor practical, it may be appropriate to suggest a further stage of more intensive archaeological work, ie full excavation, in order to mitigate the effects of development. In this case, a project design for such mitigation measures will be submitted. In addition, it is quite likely that a recommendation for a full-time one person watching brief will be proposed, during all groundworks affecting greenfield areas.

3.5.4 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.

3.6 Project Monitoring

3.6.1 Cumbria Sites and Monuments Record

Whilst the work is undertaken for the Cumbria County Council Highways Department, the Cumbria County Archaeological Curator should be kept fully informed of the work and its results. Any proposed changes to the project design should be agreed with him in coordination with the Client. LUAU will arrange a preliminary meeting, if requested, and the Cumbria Sites and Monuments Record will be informed in writing at the commencement of the project.

4. WORK TIMETABLE

The phases of work would comprise:

4.1 Documentary research
To be undertaken during a five day period.

4.2 Field Evaluation & Survey
To be undertaken during a five week period.

4.3 Prepare Evaluation Report
To be completed within a three week period.

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 nine 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.

The total cost quoted on the accompanying sheet is a fixed price, inclusive of all management, overheads, and other disbursement costs (travel and expenses), to undertake the programme of work as defined in the project brief and this project design. Any other variations from this programme of work at the clients' direction will require recosting.

5.1 Documentary research
5 man-days Project Officer

5.2 Field Survey
15 man-days Project Supervisor
15 man days Project Assistant

5.3 Field Evaluation
23 man-days Project Officer
20 man-days Project Supervisor
20 man-days Project Assistant (x 4)

5.4 Evaluation Report
14 man-days Project Officer
24 man-days Project Supervisor
2 man-days Finds Assistant

The project will be under the direct line management of **Mark Fletcher, BSc, MAAIS,** (Unit Project Manager) to whom all correspondence should be addressed.

The fieldwork would be managed by **Denise Drury, BA** (Unit Project Officer), who has directed similar projects, including the Stainmore A66 excavation in Cumbria and the Norcross assessment in Lancashire, and was seconded to Shell as archaeological inspector for their North West Ethylene Pipeline.

APPENDIX - GAZETTEER OF SITES AFFECTED BY OUTER WESTERN ROUTE

Site name High Intake
Site number 93
Site type Track
NGR NY 75850664
Source Fieldwork
Description
Intersecting hollow ways running parallel to the present road
Archaeological potential Moderate
Recommendations Documentary research
Topographical survey

Site name Wiseber
Site number 97
Site type Track
NGR NY 75880678
Source Fieldwork
Description
Intersection of numerous tracks comprising banks and linear hollows
Archaeological potential Moderate
Recommendations Documentary research
Topographical survey

Site name Wiseber
Site number 98
Site type Trough
NGR NY 75950686
Source Fieldwork
Description
One of several, disused, stone built troughs located along a spring-line
Archaeological potential Moderate
Recommendations Topographical survey
Photographic record

Site name Wiseber
Site number 102
Site type Hollow way
NGR NY 76050737
Source Fieldwork

Description
Intersection of several hollow ways
Archaeological potential Moderate
Recommendations Topographical survey

Site name Kirkby Stephen Intake
Site number 103
Site type Platform
NGR NY 76070744
Source Fieldwork
Description
Rectangular platform with associated construction debris
Archaeological potential Moderate
Recommendations Documentary research
Topographical survey
Evaluation

Site name Kirkby Stephen Intake
Site number 110
Site type Platform
NGR NY 76070754
Source Fieldwork
Description
Square, horizontal platform
Archaeological potential Moderate
Recommendations Documentary research
Topographical survey
Evaluation

Site name Kirkby Stephen Intake
Site number 113
Site type Enclosure
NGR NY 76140775
Source Fieldwork
Description
Two sub-rectangular, banked enclosures with associated earthworks
Archaeological potential Moderate
Recommendations Topographical survey
Evaluation

Site name North Eastern Railway
Site number 117 SMR number 14910
Site type Railway
NGR NY 76270800

Source	Cumbria Sites and Monuments Record Fieldwork

Description
Disused railway and underpasses
Archaeological potential Moderate
Recommendations Photographic record

Site name Green Riggs
Site number 118
Site type Quarry
NGR NY 76270805
Source Fieldwork
Description
Shallow quarry scoops and truncated linear banks in an area of limestone outcropping
Archaeological potential Low
Recommendations Topographical survey
Evaluation

Site name Eskew Lane
Site number 128
Site type Field boundary
NGR NY 76420822
Source Fieldwork
Description Relic field boundaries with possible associated earthworks
Archaeological potential Moderate
Recommendations Topographical survey
Evaluation

Site name Eskew Lane
Site number 129
Site type Field system
NGR NY 76400835
Source Fieldwork
Description Relic field boundaries and earthworks in a good state of preservation
Archaeological potential High
Recommendations Topographical survey
Evaluation

Site name Eskew Lane
Site number 131
Site type Field boundary
NGR NY 76510847
Source Fieldwork
Description
A relic field boundary aligned north-south.
Archaeological potential Moderate

Recommendations	Topographical survey Evaluation

Site name	Stobars Lane
Site number	133
Site type	Field boundary
NGR	NY 76620870
Source	Fieldwork
Description	

A field boundary aligned east-west, parallel to Stobars Lane. This is probably part of the strip field system (Site 184).

Archaeological potential	Moderate
Recommendations	Topographical survey Evaluation

Site name	Middlegate Lane
Site number	140
Site type	Field system
NGR	NY 77340942
Source	Fieldwork
Description	

Relic, parallel field boundaries, oriented east-west. The low banks, some with ditches, some with lynchet formation to the west, are parallel to the existing field boundaries, but probably represent the strip fields of an earlier field system. A broader bank, with ditches either side, is aligned east-west, possibly a continuation of the similar feature in the field to the south (Site 177).

Archaeological potential	Moderate
Recommendations	Topographical survey Documentary research Evaluation

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Site name	Middlegate Lane
Site number	141
Site type	Lane
NGR	NY 77240934
Source	Fieldwork
Description	

The lane is in places a hollow way, defined by hedges with high banks. There is a stone-lined culvert between the brockram gateposts and the field to the south.

Archaeological potential	Moderate
Recommendations	Documentary research Photographic record

Site name	Greensike Lane

Site number 177
Site type Field system
NGR NY 77070940
Source Fieldwork

Description
A broad bank with ditches either side is aligned east-west, possibly a continuation of the similar feature in the field to the north (Site 140). Three parallel lynchets are aligned north-south across the field.

Archaeological potential	Moderate
Recommendations	Topographical survey
	Documentary research
	Evaluation

Site name	Hobson Lane
Site number	178
Site type	Hollow way
NGR	NY 76970929
Source	Fieldwork

Description
Although Hobson Lane is now a metalled road, it is a deeply incised hollow way, and part of the network of ancient lanes radiating westwards from Kirkby Stephen.

Archaeological potential	Moderate
Recommendations	Documentary research
	Photographic record

Site name	Mellgates
Site number	181
Site type	Field boundary
NGR	NY 76850920
Source	Fieldwork

Description
A surviving field boundary, shown on current Ordnance Survey maps, consisting of an overgrown hawthorn hedge on a narrow bank, is aligned north-east to south-west.

Archaeological potential	Moderate
Recommendations	Photographic record
	Evaluation

Site name	Stobars
Site number	183
Site type	Field boundary
NGR	NY 76610881
Source	Fieldwork

Description
A broad, shallow ditch, probably marking the line of a former field boundary shown on the Ordnance Survey first edition 6" map, is aligned east-west, and lies parallel to the surviving field boundary to the north.

Archaeological potential	Moderate
Recommendations	Topographical survey
	Documentary research

Evaluation

Site name Stobars Lane
Site number 184
Site type Field system
NGR NY 76590869
Source Fieldwork
Description

A relic strip field system is visible in the field immediately to the south of Stobars Lane, on the west-facing slope. It comprises ten parallel banks, each with lynchet formation on the north side, aligned east-west. The field system probably continues to the east, encompassing lynchets on the east-facing slope (Sites 134, 135).

Archaeological potential High
Recommendations Topographical survey
Documentary research
Photographic record
Evaluation

Site name Stobars Lane
Site number 185
Site type Field boundary
NGR NY 76550860
Source Fieldwork
Description

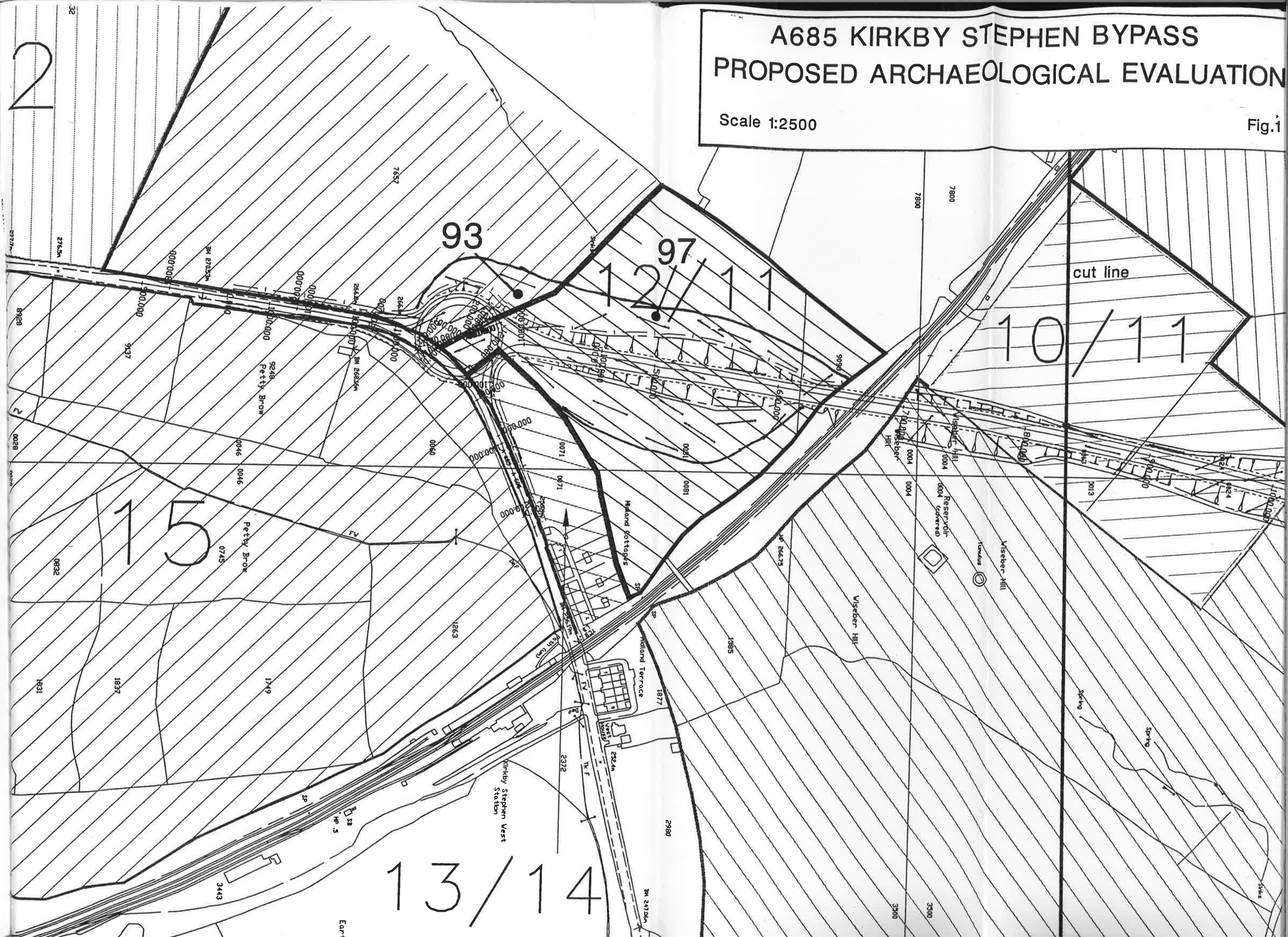
A bank, aligned east-west, with lynchet formation to the north, is parallel to the existing field boundaries. Other similar banks may survive in this field, but as a result of ploughing have a very low profile. These banks are probably part of the relic strip field system visible in the field to the north (Site 184).

Archaeological potential Moderate
Recommendations Topographical survey
Documentary research
Evaluation

A685 KIRKBY STEPHEN BYPASS
PROPOSED ARCHAEOLOGICAL EVALUATION

Scale 1:2500

Fig.1



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PROPOSED ARCHAEOLOGICAL EVALUATI

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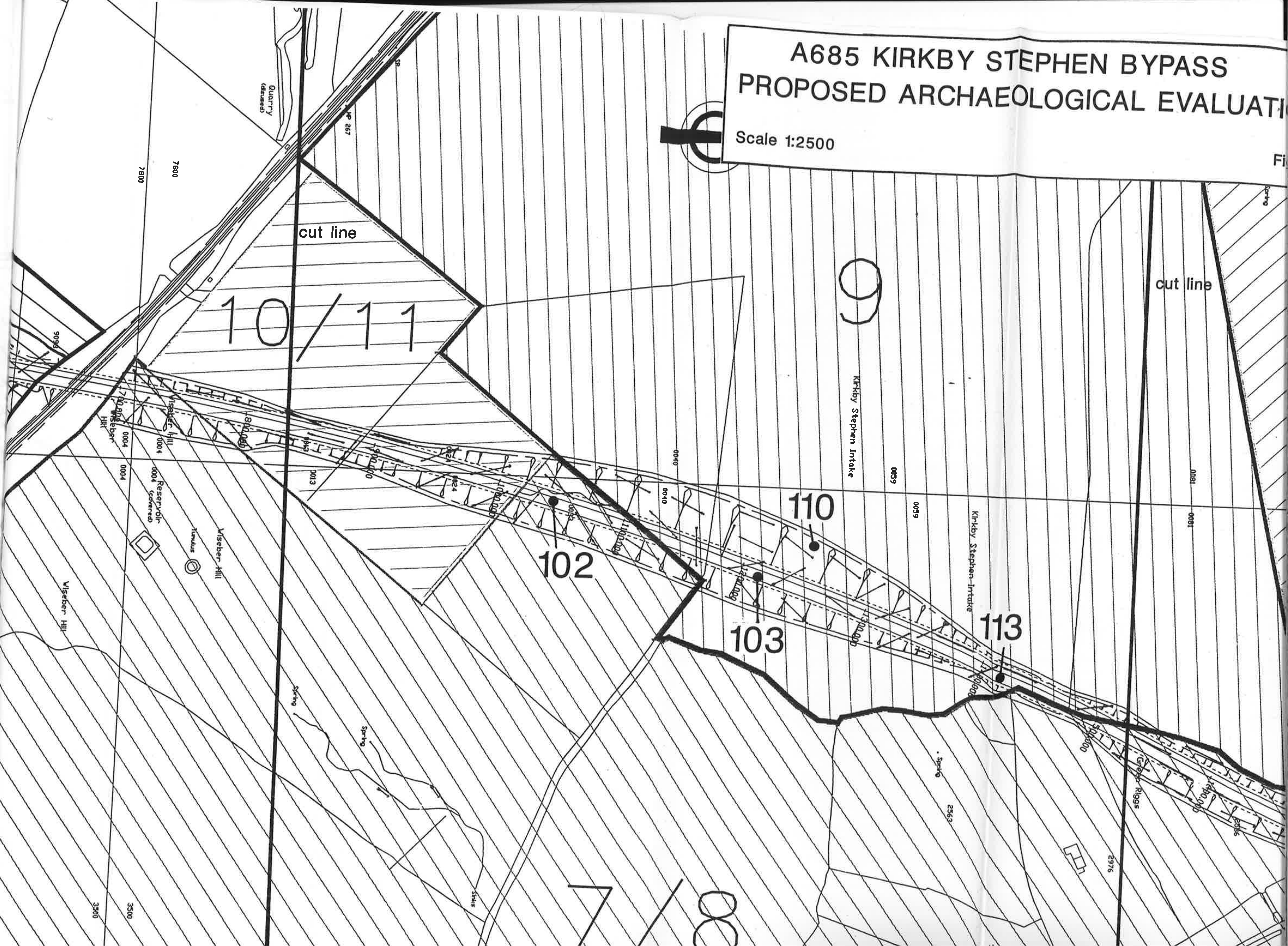

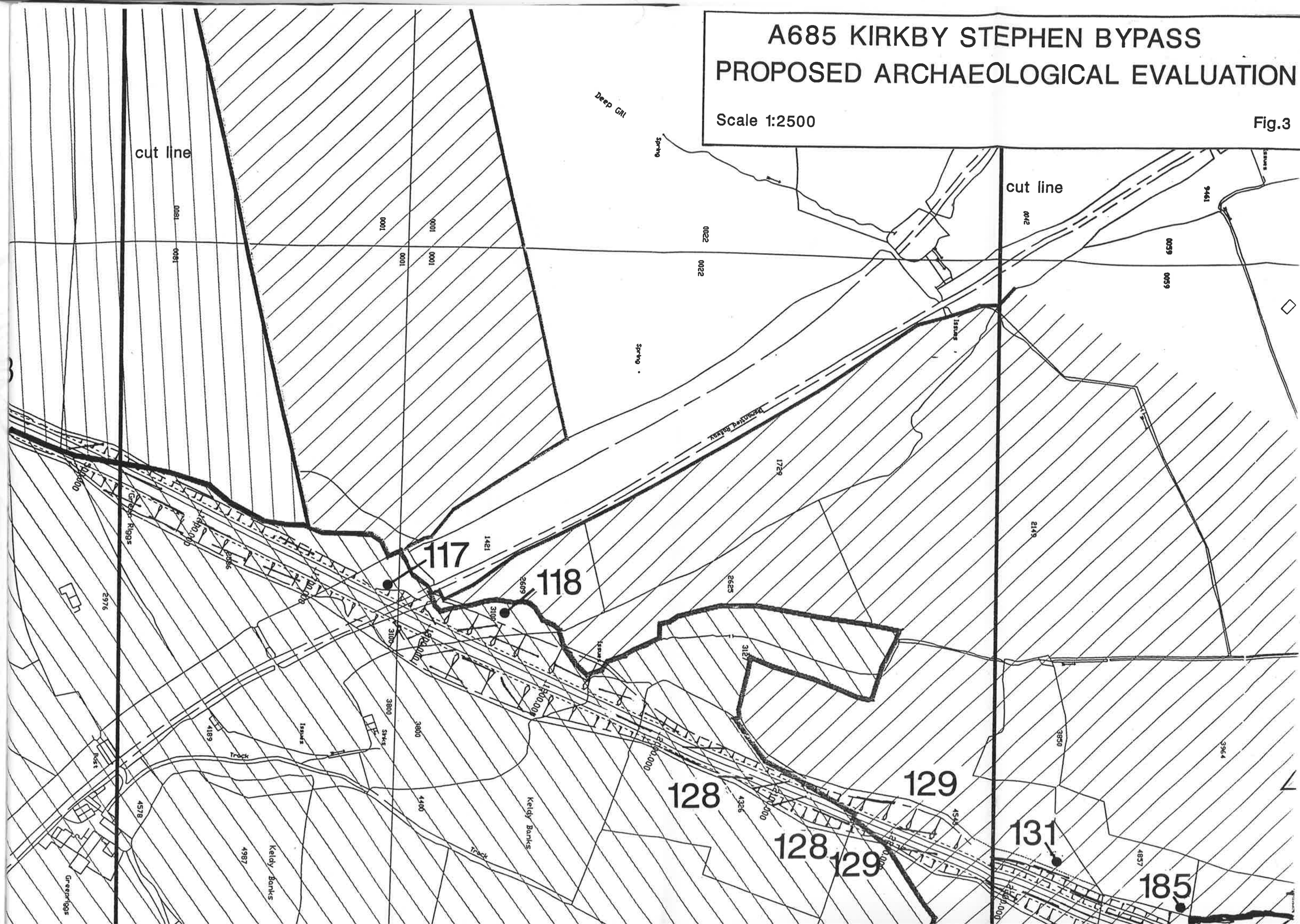
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PROPOSED ARCHAEOLOGICAL EVALUATION
Scale 1:2500
Fig.3
cut line
cut line
Deep Gill
Spring
Spring
Issues
Issues
Issues
Issues
Dismantled Railway
Green Riggs
Greenriggs
Keldy Banks
Keldy Banks
Track
Track
Post
Sinks
117
118
128
128
129
129
131
185
1421
2609
3100
2625
3121
1729
2149
3850
3964
4857
4326
2976
4189
4578
4987
3800
4400
2686
9461

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PROPOSED ARCHAEOLOGICAL EVALUATION

Scale 1:2500

Fig.4

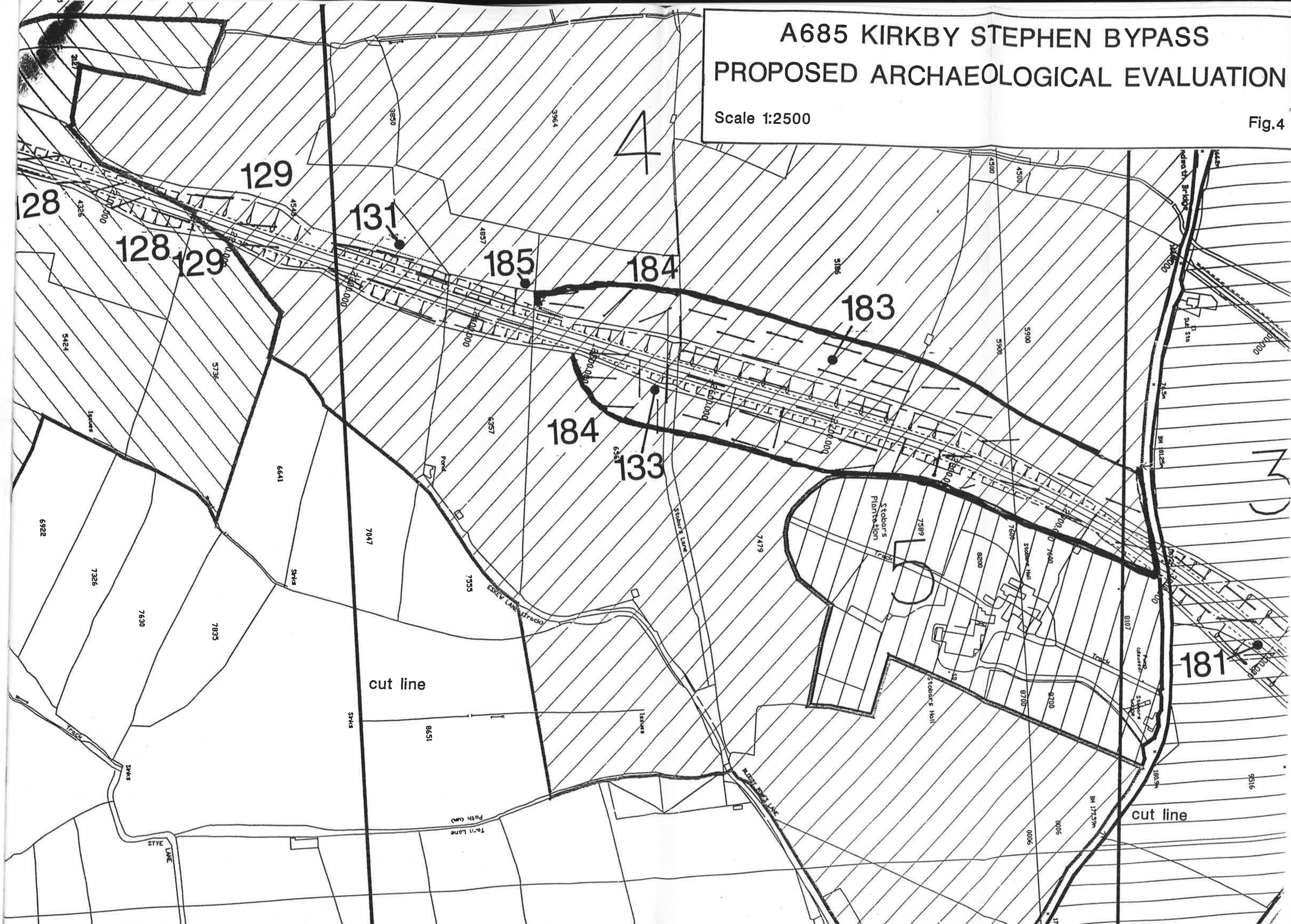

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Fig.