

**LANCASTER**  
UNIVERSITY  
**ARCHAEOLOGICAL**  
UNIT



July 1994

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**GREENSIDE WINDFARM SITE**  
**Cumbria**

**Archaeological Assessment**

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The following project report is commissioned by Dulas Engineering  
Ltd.

# **GREENSIDE WINDFARM SITE**

**Cumbria**

**Archaeological Assessment**

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## 1. ACKNOWLEDGEMENTS

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## 2. EXECUTIVE SUMMARY

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- 2.1 The Lancaster University Archaeological Unit (LUAU) at the request of Dulas Engineering Ltd undertook a rapid identification archaeological assessment of two areas, in Bewcastle and Nether Denton parishes, between 20th June and 1st July 1994, in advance of Wind Farm developments.
- 2.2 The assessment comprised a desk top search of existing records of archaeological sites in the area, an appraisal of relevant published, manuscript and photographic documentation. It also comprised a rapid identification survey of the two study areas, Greycliff Common and Greenside, which in total comprise 13.2 sqkm of unimproved fell (Greycliff Common 12.10 sqkm, Greenside 1.1 sqkm). Satellite Global Positioning Survey (GPS) techniques were used to locate the monuments accurately and quickly. A summary gazetteer of archaeological sites was compiled, including assessments and recommendations for future strategies.
- 2.3 The conclusion of the report is that while the record search and rapid identification survey have revealed many sites of interest, most of them can be avoided by some relocation of the proposed turbines.
- 2.4 The most significant monuments identified during the survey of Greenside are two potential Bronze Age round cairns and extensive areas of opencast working. Watching briefs during the construction of the turbines will be necessary to identify any buried features or archaeological stratigraphy.

### 3. INTRODUCTION

The Lancaster University Archaeological Unit has carried out an initial investigation of the proposed wind farm sites of Greycliff Common and Greenside, at the request of, and to a brief supplied by, Dulas Engineering Ltd (Appendix 1).

The purpose of the investigation is to advise on the location and significance of archaeological sites within the extent of the proposed wind farm sites and to assess the impact of development. This report may then be used to make recommendations for the management of these sites.

The Greenside study area is 7km east of Brampton between the A689 and Denton Fell forestry plantation.

The initial assessment consisted of a search of existing records held by the Cumbria Sites and Monuments Record. An overall view of the area was gained from a survey of relevant published and unpublished sources. The examination of aerial photographs was found to be of lesser value because the available photography was taken from inappropriate altitudes. The results of the field reconnaissance was considered to be particularly important and the results were integrated with the sites already on record. Each site thus identified was assessed for archaeological potential, and recommendations for future management were based on this assessment.

Following a rapid documentary survey, fieldwork was carried out between 20th June and 1st July, results were then collated and a draft report was prepared in the week ending 15th July 1994.

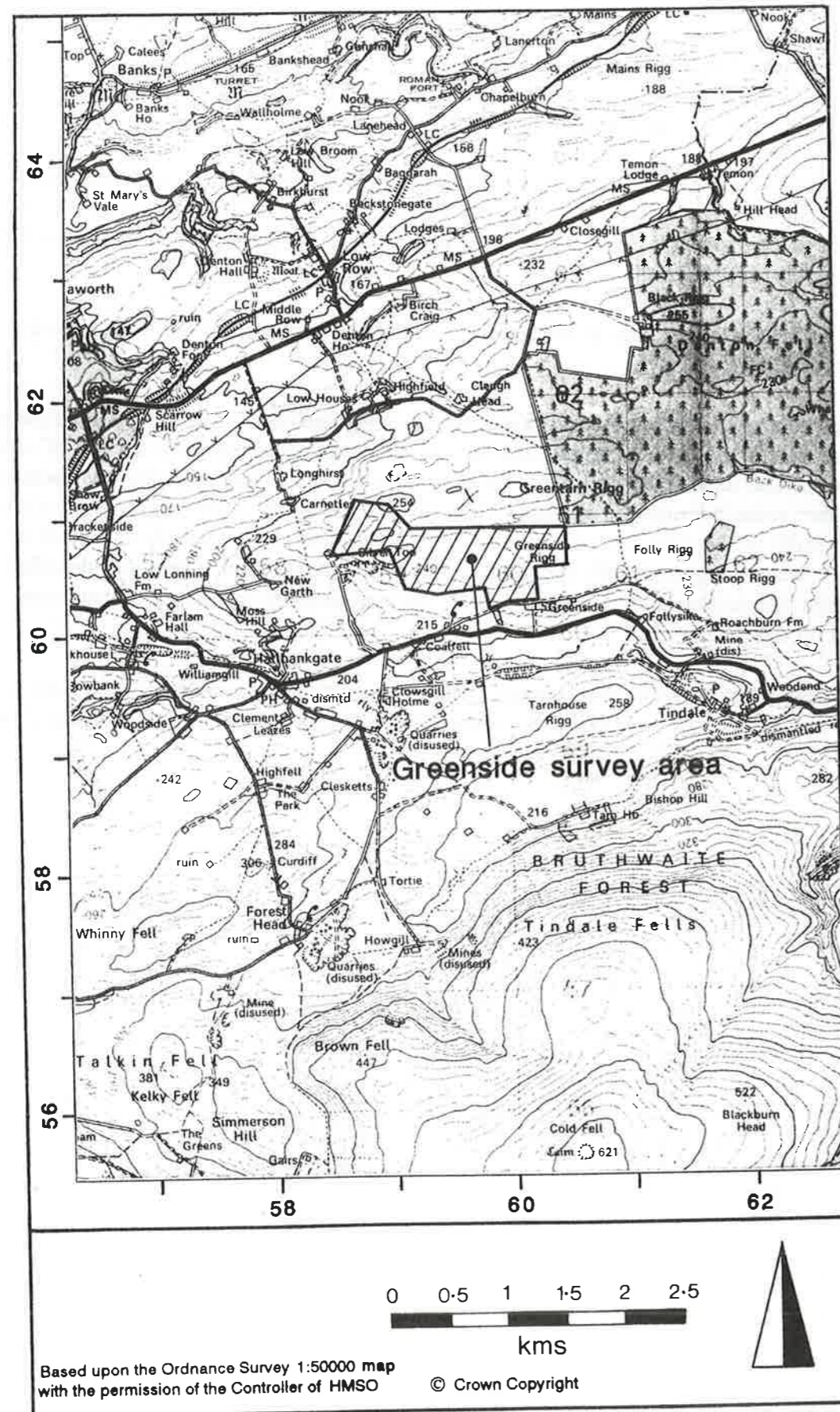


Fig 1 Location Map

## 4. METHODOLOGY

### 4.1 Project Design

The work has been carried out in accordance with the project design outlined in the proposals submitted by LUAU to Dulas Engineering Ltd on 9th May 1994 (Appendix 2), in response to a brief supplied by Dulas Engineering Ltd (Appendix 1).

The project design provided for a concise survey of recorded and published sources of information, preceding a rapid field scan. The collation of material gathered from all sources resulted in the compilation of a summary gazetteer of archaeological sites. The sites were evaluated in their historical and topographical context, and a strategy defined for each site on the basis of archaeological potential and anticipated disturbance by turbine construction.

Whilst the documentary research pertaining to the area was given a generous margin to allow for a greater understanding of the historical background, the field survey was limited to the study areas defined by Dulas Engineering Ltd. The full extent of both study areas was examined by ground reconnaissance.

### 4.2 Documentary Sources

The limits of the documentary research area, for the purpose of this report, are taken to be the parish Nether Denton for the Greenside study area.

The first stage in the investigation was to collate the list of sites from the Cumbria SMR, which provided a brief archaeological and historical profile of the area in question.

The basis of the survey was a survey of published works on county and local topography and history, together with maps ranging from the 1st editions of OS mapping (1865) through to modern editions. The maps demonstrate that for the most part the land use of the study areas has not changed significantly, since the mid nineteenth century. However, the adjacent land around Greenside has been affected by limestone quarrying. The sources used in this assessment are listed in the bibliography at the end of this report.

In addition to the published sources a number of pertinent unpublished sources were investigated, particularly the Katherine Hodgson archive held by Tullie House Museum, in Carlisle, and the PhD thesis (in preparation) of Rachel Newman (LUAU), although these were not particularly relevant to this study area.

Examination of other primary documentation is not considered appropriate to the scope of an initial investigation. However, examination at a later stage of tithe, and enclosure awards and parish records, held by the County Record Office, in Carlisle, may reveal additional sources that are pertinent to the study.

In conjunction with the documentary sources, the availability of aerial photographs was

assessed. Unfortunately both areas are within airspace hazard areas (D510/5.5) associated with the Spadeadam weapons range, which restricts civil low and medium altitude flying. There is therefore no availability of oblique photography. Vertical Air Photographic (VAP) coverage was unavailable at the time of the fieldwork due to the relocation of the Royal Commission on the Historical Monuments of England (RCHM(E)) photographic library and there were no pertinent VAP's within regional libraries. However a request for photographic cover has been submitted with the RCHM(E) and will be held on file for future reference.

A desk based compilation of geological (both solid and drift), pedological and topographical information was undertaken to provide contextual information pertinent to the archaeological study.

### 4.3 Field Survey

The fieldwork was limited to a rapid field scan, of two weeks duration, within the two study areas, which comprise 13.2 sqkm of unimproved fell (Greyfell Common 12.10 sqkm, Greenside 1.1 sqkm). Access arrangements were made by Dulas Engineering Ltd and landowners and tenants were approached by LUAU as a courtesy prior to fieldwork.

The rapid field scan involved a Level 1 survey defined by LUAU, but based on guidelines produced by the RCHM (E); this provides for the recording of a brief written description, including at least an eight figure National Grid Reference, which will be plotted onto a 1:10,000 based Ordnance Survey map. This involved the systematic surface examination of the study areas by field walking, the widths of the transects being varied to maximise surface examination in areas of greatest archaeological potential. In areas of streams gullies, peat exposures, and crags where there are minimal peat deposits, the transects were reduced to 20m width; across the areas of undisturbed deep peat the traverse widths were expanded to between 50m and 70m.

#### 4.3.1 Site Location

The sites were all located by satellite Global Positioning System (GPS) which enables accurate, fast location, particularly in areas remote from OS depicted topographic detail. The GPS system uses electronic distance measurement along radio frequencies to satellites to enable a positional fix in latitude and longitude which can then be converted mathematically to Ordnance Survey national grid. Because of programmed errors within the transmitted signals from the satellites the nominal accuracy at a single receiver is +/- 100m. However, by comparing the positional fix between GPS receivers at a known control station and a remote location it is possible to correct out the errors and obtain more acceptable accuracies of between +/- 0.5m and 2m at the remote location. The data from both GPS receivers was independently logged and then subsequently superimposed in a post-processing stage to adjust out the errors. The base station was at the headquarters of Optimal Solutions in Hyde, Cheshire, who provided the GPS equipment. The base station data was sent through the post to the survey site base for post-processing.

The accuracy of the system was tested in the course of the survey by surveying Ordnance Survey Triangulation pillars and comparing the results with OS locational coordinates held by LUAU. The results were found to be +/- 1.8m, but some of this error may be attributable

to the original survey of the tertiary order triangulation pillars. A secondary test was to produce multiple GPS locations for individual control points within the survey area and to compare the multiple sets of coordinates; this revealed errors of between +/- 0.2m and 0.6m.

The sites were described onto a portable tape recorder for subsequent transcription onto a computer database in the office. The more significant sites were photographed, where conditions allowed, but there was no intention at this stage to record the sites in further detail.

### 4.4 Gazetteer of sites

A gazetteer of nine sites was compiled for the Greenside survey area. The sites in the gazetteer are identified by name, ascribed site number, and SMR reference where applicable. Locations are given as either ten or eight figure grid references for the centre of the monument, dependent on its size. A summary description of the site is derived from fieldwork and published sources. Each site has been assessed for its archaeological potential and recommendations are made for any further recording required.

Plots at 1:10,000 show the location of all sites in the gazetteer (figs XXXX).

Sites from Greenside are numbered with the prefix GS.



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## 5. TOPOGRAPHICAL AND HISTORICAL CONTEXTS

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### 5.1 Geology

The solid geology of the Greenside study area is uniform Carboniferous limestone, but is overlain by cambic stagnogleys.

### 5.2 Topography

The survey area was situated on the south facing slope of a ridge, which rose to a height of 254m at Hayhouse Rigg in the north. It occupies the land between the modern A69 to the north and the A689 to the south. The ridge gently terminated at the western end of the survey area in a gradual west facing slope. There is a central low lying area of mire and the area as a whole is poorly drained. The land is registered as grade five agricultural land and is put over to pasture. There are also areas of forestry both to the west and a small plantation located centrally within the study area.

### 5.3 Archaeological Background

There appears to have been little documented research into the area around the Greenside study area and although some archaeological activity has been undertaken, the evidence for this is exceptionally tentative. The reputed site of a Roman encampment was recorded immediately to the west of the survey area at Carnetly, however this has been reinterpreted as an area of disused quarries. Another site, a house to the south-east of the survey at Moss Hill, was recorded as containing, within a structural wall, two 'perfect sculptured stones of Silvanus and Janus', although their whereabouts is now unknown (Rome Hall 1883, 480).

Hadrian's Wall is situated to the north of the study area, with the pre-Hadrianic fort, associated with the Stanegate road below the church at Nether Denton. The close proximity of the Hadrianic frontier to the study area may indicate the potential for archaeological remains from the Roman period being present within it. The study area is within the medieval Barony of Gilsland, of which Denton is a manor. The estate descended to the earls of Carlisle, who are known to have been early exploiters of mineral resources.

Historically the surrounding area has been widely exploited and mined, with the farm to the west of Greenside Farm called Coalfell Farm on the first edition 1868 Ordnance Survey map. Further to the east of the study area, and recorded on the Ordnance Survey map, were a series of coal shafts and a large coal pit at Roachburn. Subsequently the area to the immediate south and east of the survey area has been quarried for limestone as at Silvertop Quarry and adjacent to Carnetley Farm.

## 6. ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL

### 6.1 Documentary Evidence

The documentary search has highlighted the archaeological potential of the area around the site, but has produced very little evidence of antiquity within the extent of the survey area. It, however, has identified, on place name evidence, the existence of coal exploitation.

The prime reason for the documentary shortfall in this area, is that relatively little archaeological investigation has been undertaken around Greenside, whereas the Greyfell Common area has been the subject of research by Kate Hodgson (1940 and 1943) and more recently, has been examined as part of a PhD thesis (R Newman forthcoming).

### 6.2 Field Survey

All of the sites were primarily identified as a result of the field survey.

The area has little peat overburden and it is at a considerably lower altitude than at Greyfell Common; the highest point of Greenside is only 254m AOD by comparison with 518m on the highest point of Greyfell Common. As a consequence there is a significantly greater density of archaeological sites visible on the surface, by comparison with Greyfell Common.

#### 6.2.1 Range of Site Types

| Site Type        | Site Numbers |
|------------------|--------------|
| Coal Extraction  | GS 1, 5, 6   |
| Small Cairn      | GS 2, 4      |
| Former Drains    | GS 3         |
| Field Boundaries | GS 7         |
| Large Cairn      | GS 8, 9      |

Possibly the most significant sites on Greenside are the two possible cairns, GS8 and GS9, which are prominent, large in diameter and located on high points. They are potentially Bronze Age funerary monuments, but their function and nature would have to be confirmed by further investigation.

Adjacent to one of the cairns are the banks of a relict field system, which is overlain by

modern field boundaries and may be medieval or post-medieval in date.

Cairns GS2 and GS4 are in areas of recently drained ground. One of them (GS4) is near to a modern drain and may be upcast; however, cairn GS2 is not immediately adjacent to any drains and may be of antiquity.

The most substantial features identified from within the study area are the extensive areas of mineral extractive workings (GS1, GS5 and GS6). The place name evidence would suggest the existence of exposed coal seams in this area and these workings are clearly elements of an open cast coal extraction landscape.

### 6.3 Archaeological Implications

With the present, proposed layout of turbines on the Greyfell there are only two conflicts between the construction programme and the visible archaeology. Turbine 1 and the possible Bronze Age round cairn GS 9 have both been deliberately located on the summit of the hill and hence there is a potential conflict. Turbine 8 is within the area of coal working and is only 30m away from a coal shaft.

As with the Greyfell Common, the excavation of trenches for power cables may have a direct impact upon the archaeological monuments and the correlation between proposed power lines and the archaeology should be investigated.

## 7. RECOMMENDATIONS

It is strongly recommended that, as the first option, the monuments identified by the present rapid identification survey should be preserved *in-situ*. The code of conduct for the Institute of Field Archaeologists states that members should seek to achieve as the first option, the preservation of archaeology *in situ*, and only if this is neither possible or practical then is it appropriate in some cases to undertake further work to mitigate the effect of development.

The various management prescriptions are outlined below.

### 7.1 Avoidance

The size of the area, coupled with a relatively low density turbine distribution provides for a considerable latitude in the siting of individual turbines and roads. It is therefore considered that the most expedient and economic conservation option for the archaeology of the area is avoidance. For the most part the sites are individual entities and are not elements within an integral agricultural complex, therefore avoidance of the individual monument is an adequate solution. In these instances turbine and road construction should be at least 50m away from the centre of an identified monument to ensure that both the monument and its topographic context are undisturbed; exclusion zones are shown on the attached mapping. With settlement groups or archaeological landscapes each individual monument is only one element of an interrelated complex, and any construction within the group will damage the contextual and topographic relationships that define the broad archaeological landscape. It is therefore necessary that each monument group is treated as a whole rather than a collection of independent entities; an exclusion area around each complex is shown on the attached site mapping (fig XXX).

### 7.2 Evaluation

For some sites avoidance can be the only option. At Greenside, however, if it proves impossible to avoid other archaeological features adequately, it may be necessary to undertake further evaluation works to establish the need for mitigation recording. If further evaluation is required this should be conducted in sufficient time to allow for final recording of the sites of particular significance prior to construction.

A second stage of evaluation should include the work outlined below.

#### 7.2.1 Topographical Survey

Certain sites, if affected by construction, should be surveyed in detail, to create a record of their current extent and features. Such survey aids the interpretation of sites, and also the location of any trial trenches that may be deemed advisable as a result of this stage of evaluation.

#### 7.2.2 Photographic Record

A detailed photographic survey is an economic means of providing a permanent record of an

extensive and apparently homogenous archaeological feature.

### 7.2.3 Trial Excavation

Where the results of field validation and topographical survey warrant further investigation, then a programme of trial excavation may be necessary to establish the nature, extent, date and detailed character of the sites in question. It is possible that this work may demonstrate the need for further recording and should be discussed with the county archaeological curator.

### 7.3 Watching Brief

As a general policy, all earth moving operations in areas of archaeological potential should be monitored by an archaeologist conducting a watching brief. It is therefore recommended that the wind farm construction contractors should include in their provisions for an archaeological inspector to be present during the construction of the turbines, roads and power cable trenches.

### 7.5 Specific Recommendations

The most significant conflict between the archaeology and the proposed turbine locations is that between the possible Bronze Age large round cairn GS9 and turbine 1. Without further intrusive evaluation it is not possible to confirm that the monument is a funerary round cairn; however, the surface evidence would suggest that the monument has sufficient archaeological potential to warrant the relocation of the turbine.

Proposed turbine 8 is within the extent of a coal extraction industrial landscape and its construction is likely to disturb the archaeological context of the overall landscape. It is therefore recommended that the turbine be relocated at least 20m towards the north-east.

## 8. GAZETTEER OF SITES

**Site No:** GS1  
**Site Name:** Greenside Rigg, Denton  
**NGR:** NY 60076037, 59666013, 59456040, 56996055  
**Site Type:** Open Cast Coal Extraction Complex  
**Source:** Surface Survey  
**Period:** Post Medieval  
**Date:** 6/1994  
**Dimensions:** 450m x 370m

#### Description:

An area of extensive open cast quarrying, typified by large hollows or shafts c 8.00m in diameter and 1.50 - 2.00m in depth. Around the hollows are semi-circular mounds, which skirt one side of the rim of the hollow, and are the remains of upcast. Towards the modern track there is a series of gullies or trackways which both descended and crossed the slope and were probably associated with the removal of materials from the shafts. The larger shafts were located to the bottom of the slope, adjacent to the track, and were very deep, up to 4.00m in some cases. At the top of the slope there are a number of large areas of intercutting, superimposed shafts which result in large, deep, irregular depressions, the largest of which was approximately 75m in diameter. At the eastern end of the site, a large quarry, 50m in diameter, was seen to post-date a large shaft, suggesting an intensification of extraction on the site. These extraction sites coincide with areas of sink holes, notably to the north, which may indicate the use of some of these geological features as extraction sites.

Cartographic evidence for the area shows that there was a coal mine to the south-east of the survey area and that the farm to the south-west was called Coalfell farm; it is probable therefore that this extraction site is a relict opencast coal mining landscape.

**Site No:** GS2  
**Site Name:** Greenside Rigg, Denton  
**NGR:** NY 60248, 60574  
**Site Type:** Clearance Cairn  
**Source:** Surface Survey  
**Period:** Unknown  
**Date:** 6/1994  
**Dimensions:** 5.00 x 5.00 x 0.40m

#### Description:

An ill-defined stone constructed mound situated in an area of marshy ground. The stones are unworked, medium sized blocks, approximately 0.40m in diameter. It had an irregular profile and was slightly prominent. It is possibly a product of stone clearance.

**Site No:** GS3  
**Site Name:** Greenside Rigg, Denton  
**NGR:** NY 6028, 6061  
**Site Type:** Linear features

**Source:** Surface Survey  
**Period:** Post medieval  
**Date:** 6/1994  
**Dimensions:** 100m x 1.25m x 0.25m

**Description:**

A series of linear features, aligned north-south, which measured 1.25m in width and extended from the modern fence line in the south, down slope to the low lying marshy ground. They are they were spaced regularly 10-15m apart, and would appear to be the banks of drainage ditches.

**Site No:** GS4  
**Site Name:** Greenside Rigg, Denton  
**NGR:** NY 60730, 60764  
**Site Type:** Clearance Cairn  
**Source:** Surface Survey  
**Period:** Unknown  
**Date:** 6/1994  
**Dimensions:** 5.00m x 4.00m x 0.30m

**Description:**

A stone constructed mound of medium to large sized, worn, unworked stones. It was irregular, slightly trapezoidal in plan and resembled site 36. It is situated in a low lying area of mire, and is possibly upcast from a drainage ditch.

**Site No:** GS5  
**Site Type:** Opencast Coal Workings  
**NGR:** NY 5937, 6047  
**Site Name:** Greenside Rigg, Denton  
**Source:** Surface Survey  
**Period:** Post medieval  
**Date:** 6/1994  
**Dimensions:** 330m x 120 m

**Description:**

An area of large gullies with amassed spoil on either side, which converges on certain drainage areas. It is unlikely that these are natural or formal drainage channels and are possibly the remains of "hushing". This is in keeping with the mining activity in the area.

**Site No:** GS6  
**Site Name:** Greenside Rigg, Denton  
**NGR:** NY 5916,6054  
**Site Type:** Extraction Site  
**Source:** Surface Survey  
**Period:** Post medieval  
**Date:** 6/1994  
**Dimensions:** 170m x 90m

**Description:**

An area of extraction shafts which appear to exploit a natural sink hole. There appears to be little spoil associated with the feature, as it is only present on its northern side, suggesting an exploited sink hole. Further to the west, there appears to be a more conventional area of

extraction represented by a number of shafts, approximately 8m in diameter and 3m in depth served by an entrance on its southern side. To the north, extraction in the area appears to be linear as opposed to shaft working, possibly following seams of minerals. The linear extraction sites may possibly exploit an alignment of sink holes. The spoil for the linear extraction site was heaped on its northern side and was served from the south. This area of extraction extended down slope to the south and comprised several shafts and seam workings on a north-west to south-east alignment, with also a possibly contemporary hollow way.

**Site No:** GS7  
**Site Name:** Greenside Rigg, Denton  
**NGR:** NY 5876, 6110 - 5879,6097  
**Site Type:** Field Boundaries  
**Source:** Surface Survey  
**Period:** Unknown  
**Date:** 6/1994  
**Dimensions:** 140m x 2.50m x 1.00m

**Description:**

A pair of substantial banks constructed from orange colluvial silt. The north-south aligned bank is joined half way along its length on its eastern side by the east-west aligned bank, forming a T junction. The east-west bank pre-dates the existing north-east - south-west aligned field wall. The northern extent of the north-south field boundary underlies the later field wall, which changes its alignment to a north-south axis. At its southern extent, the north-south boundary turned westwards and terminated after 10m into an area of mire. Both banks were breached by modern hollow ways. It is likely that these features are the relict remains of former field boundaries.

**Site No:** GS8  
**Site Name:** Hayhouse Rigg, Denton  
**NGR:** NY 58777, 61105  
**Site Type:** Round Cairn ?  
**Source:** Surface Survey  
**Period:** Bronze Age ?  
**Date:** 6/1994  
**Dimensions:** 13.00m x 13.00m x 0.45m

**Description:**

A flat topped circular mound which appeared to be constructed from blocks of stone. It was situated on a flat area of ground on a gentle west facing slope and to the immediate west of the summit of Hayhouse Rigg. It underlies the modern east-west field boundary and was to the east of site 40. Inspection of the mound revealed that it was constructed from upstanding stones within an earth matrix, indicating that it was an archaeological, as opposed to a natural, feature. This feature is possibly a prehistoric round cairn or filled in ring cairn.

**Site No:** GS9  
**Site Name:** Hayhouse Rigg, Denton  
**NGR:** NY 58885, 61086  
**Site Type:** Round Cairn ?  
**Source:** Surface survey

**Period:** Bronze Age ?

**Date:** 6/1994

**Dimensions:** height 0.75m

**Description:**

A large, flat topped, circular feature at the summit of Hayhouse Rigg, and underlying in part an anemometer and the modern field boundary. The mound is completely turf covered, with no construction material visible within it. The profile and the regularity of plan indicate this as an archaeological feature. It was very similar to site 40 to the east, although much more prominent, with the mound standing to a height of c 1.00m on the north-western side. It was much affected by burrowing and further disturbance. It is threatened by the construction of Turbine 1 to the south.

## 9. BIBLIOGRAPHY

Austen, PS. 1991 *Bewcastle and Old Penrith: A Roman Outpost Fort and a Frontier Vicus. Excavations, 1977-78*, Kendal

Bruce, JC. 1867 *The Roman Wall; a description of the mural barrier of the North of England* 3rd edition, Newcastle

Collingwood, WG. 1923 *An Inventory of Ancient Monuments of Cumberland Trans Cumb and Westmoreland Antiq and Archaeol Soc NS 33* 163-201

Ferguson, RS and Cowper, HS 1893 *An archaeological survey of Cumberland and Westmorland and of Lancashire North of the Sands, Archaeologia, 53*

Geological Survey of Great Britain, 1969 *Bewcastle* Sheet 12, one inch to one mile, Southampton

Geological Survey of Great Britain, 1969 *Bewcastle* NY57, 1:25,000, Southampton

Hodgson, KS. 1940 *Some Excavations in the Bewcastle District Trans Cumb and Westmoreland Antiq and Archaeol Soc NS 40* 154-166

Hodgson, KS. 1943 *Some Notes on the Prehistoric Remains of the Border District Trans Cumb and Westmoreland Antiq and Archaeol Soc NS 43* 167-174

Jackson MJ. 1990 *Castles of Cumbria*, Carlisle

Logan Mack, J. 1926 *The Border Line - Solway Firth to the North Sea*

Maughan, J. 1857 *A memoir on the Roman Station and Runic Cross at Bewcastle.*

Newman, R. (in prep) *Continuity and Change: an archaeological survey of the Barony of Gilsland* PhD thesis, Durham

Ordnance Survey, 1865 first edition, *Cumberland* sheet IV, six inch to mile, Southampton

Ordnance Survey, 1865 first edition, *Cumberland* sheet XIV, six inch to mile, Southampton

Ramm, HG, McDowall, RW and Mercer E, 1970 *Shielings and Bastles* RCHM, London

Rome Hall, G. 1883 *On ancient remains, chiefly prehistoric, in Geltsdale, Cumberland, Trans Cumb and Westmoreland Antiq and Archaeol Soc VI*, 456 - 480.

Shotter, D. 1993 *Romans and Britons in North-West England*, Centre for North West Regional Studies, University of Lancaster

Taylor, BJ. *et al* 1971 *British Regional Geology: Northern England*, HMSO, London

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**APPENDIX 1**  
**Project Brief**

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## BRIEF FOR ARCHAEOLOGICAL ASSESSMENT - WINDFARMS

Dulas Engineering are acting as the primary consultant for a major windfarm developer. We are undertaking all the preliminary work relating to the development of approximately 5 windfarms throughout the UK. The scope of our work covers landowner negotiations, site assessments, wind monitoring and analysis, site design, consultations, preparation of planning applications and environmental statements (see company literature).

We are currently undertaking a number of environmental assessments and require specialist input for the archaeological assessments.

### **Aim:**

To provide an objective assessment of the impact of the proposed windfarm and to develop a "best design" for the project.

### **Brief:**

Carry out archaeological assessment including the following:

#### **Phase I**

A desk based assessment of currently available information about the archaeology of the area will be undertaken. This will include consultation of the regional SMR, aerial photographs, documentary and cartographic sources etc. and must comply with the appropriate IFA Standard.

#### **Phase II**

Areas of more or less archaeological sensitivity will be mapped within the application area. This will involve field survey (approx. 30m wide transects).

#### **Phase III - Production of Draft Report**

A draft report will be produced including a summary analysis of all field data, incorporated with the results of the desk top study. Report also to include an assessment of the total archaeological resources of the site and the overall implications of the scheme. Suggested mitigating measures, such as appropriate re-siting of turbines, or suggested watching briefs to be identified. The report will be proof read by the Project Managers and any changes agreed with the Consultants.

#### **Phase IV - Production of Final Report**

Incorporating changes agreed with project managers, including residing impacts after mitigating measures have been agreed.



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## APPENDIX 2

### PROJECT DESIGN

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#### Phase V

The assessment will be part of an overall environmental assessment and as a result of other surveys, turbine positions may be changed. Please allow for a further look at the final plan, which may not be available for a couple of months after the archaeological assessment has been produced. This stage should not involve further field work, but would require a letter indicating any revisions to the archaeological assessment as a result of these changes.

#### Additional Explanatory Note

- 1) Photocopies of 1:50 000, 1:25 000, and 1:10 000 site plans will be provided by Dulas engineering.
- 2) A colour photocopy of an aerial photograph of the site will be provided by Dulas Engineering.
- 3) A list of OS references for each turbine position, together with their base height above sea level, will be provided by Dulas Engineering.
- 4) The project Manager from Dulas Engineering will attend any necessary meetings with the local authority.

Lancaster  
University  
Archaeological  
Unit

May 1994

**PROPOSED WINDFARMS**

**CUMBRIA**

**ARCHAEOLOGICAL ASSESSMENT**

***Proposals***

*The following project design is offered in response to a letter dated 26th April 1994 from Ruth Stevenson of Dulas Engineering Limited, enclosing an archaeological brief for an archaeological assessment in advance of the submission of an environmental assessment for proposed windfarms in northern Cumbria.*

## PROPOSALS

The proposed windfarms in the vicinity of Brampton and Bewcastle, northern Cumbria, will affect a landscape of considerable potential for prehistoric activity, particularly from the Bronze Age. In addition, the area to the east of Christianbury Crag in Bewcastle has traditionally been thought to have provided the stone for the Anglo-Saxon Bewcastle Cross, and indeed, a roughed out cross is reputed to remain in the area.

The work proposed for the environmental assessment should potentially be regarded as the first of several elements to ensure a proper response to the archaeology of the designated areas. A desk based assessment and an initial identification survey, comprising a rapid field validation should evaluate the potential for any archaeological deposits within the study area. This work should be followed by a review of the material, to agree the extent of any further work required. This should form the basis of the environmental statement.

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. The Unit employs a qualified surveyor (James Quartermaine, BA, DipSurv, MIFA) who has many years experience of the identification and survey of upland landscapes, having worked closely with the Royal Commission on the Historical Monuments of England and the Lake District National Park on a number of projects. In addition, Rachel Newman undertook Post-Graduate research in the Bewcastle area.

The following programme has been designed to provide an accurate archaeological assessment and evaluation of the designated area, within its broader context. It is recommended, however, that the Cumbria County Archaeologist, Mr M Daniells, should be consulted, and his agreement sought, for the proposed programme of work before it is enacted. The required stages to achieve these ends are as follows:

### **1. Desk Top Survey**

A limited programme to accrue an organised body of data.

### **2. Field Validation**

The designated areas should be visited to identify the existence, extent, and, if possible, quality of any surviving archaeological features from a detailed visual inspection.

### **3. Draft Report**

An archive of a professional standard will be collated and deposited in an approved repository. A draft written report will document the significance of the data generated by this programme within a local and regional context and will make recommendation of measures that may be considered to mitigate the impact of the development on the archaeological resource.

### **4. Final Report**

Following comments from the Client, agreed changes will be incorporated into a final report.

### **5. Environmental Assessment**

Comment will be submitted on the final plan of the site to be submitted as part of the Environmental Assessment as to the impact of any revision to the siting of turbines etc.

## WORK PROGRAMME

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

### STAGE 1

#### 1. Desk Top Survey

The following will be undertaken as appropriate, depending on the availability of material. The level of such work will be dictated by the timescale of the project. The method statement is based on the *Standard and Guidance for Archaeological Desk-based Assessments* compiled by the IFA.

##### *i Documentary and cartographic material*

This work should address the full range of potential sources of information, although it will concentrate on information contained in the County Sites and Monuments Record, where, even if no sites are recorded within the designated areas, it is important to establish the density of archaeological sites in the immediate vicinity, to aid prediction of potential material within the study area. This search will also make particular reference to appropriate sections of County histories, early maps, and such primary documentation (tithe and estate plans etc) as may be reasonably available. Particular attention will be paid to place-names recorded on early cartographic sources as these often provide important evidence of archaeological activity. Any photographic material lodged in either the County Sites and Monuments Record or the County Record Office will also be studied. Published documentary sources will be examined and assessed.

##### *ii Aerial photography*

A survey of the extant air photographic cover will be undertaken. This will aid the identification of surviving archaeological and structural features in the designated area, and, if appropriate coverage is available, allow the assessment of the rate and erosion of archaeological features. It will also facilitate the rapid recognition and plotting of archaeological features including those no longer visible at ground level. Aerial photographic work may entail liaison with the Royal Commission on the Historical Monuments (England) and their list of photographs will be consulted.

##### *iii Artefact evidence*

Local and County museum catalogues will be consulted to produce a gazetteer of artefactual evidence from the study area. In addition, where available, oral evidence for the presence of archaeological deposits in the study area will be collected.

##### *iv Physical environment*

A rapid desk based compilation of geological (both solid and drift), pedological, topographical, and palaeoenvironmental information, including any available engineering and borehole data, will be undertaken. This will not only set any archaeological features in context but also serves to provide predictive data, that will increase the efficiency of the field investigation.

##### *v Access*

Liaison for basic site access will be undertaken with the Client, although it is expected that the Client will provide as much information as practicable, including first contact, if possible. The precise location of any services or pipelines within the study area will also be established and any other relevant designations.

##### *vi Collation of data*

The data generated by i-v above, will be collated and analysed in order to provide an assessment of the nature and significance of the known surface and subsurface remains. It will also serve as a guide to the archaeological potential of the area to be investigated.

#### 2. Field Validation

Systematic surface inspection (in approximately 30m wide transects) will record the location, extent, and nature of any visible surviving archaeological remains within the designated area. This conforms to the Level 1 survey defined by LUAU, based on guidelines produced by the Royal Commission for the Historical Monuments of England. When a site is identified, a written description, including an accurate eight figure National Grid Reference, will be given and it will be mapped on to a 1:2500 or 1:10,000 scale Ordnance Survey base, as appropriate. Because of the remote nature of the study areas, the sites will need to be located by Global Positioning System (GPS), which locates survey points to an accuracy of +/- 1m by ground reception of satellite signals. Two GPS receivers are used, one, a relatively static receiver on a relatively accurate known point, and the other mobile to enable a reliable locational fix. This method of recording is the most accurate and economic survey technique available for this basic level of mapping. A photographic record will be undertaken simultaneously. It should be noted that the recovery level from such a survey will be affected by the time of the year that this work is undertaken.

The results will be translated into a CAD system to facilitate the generation of overlay plots. This dispenses with the manual production of drawings and considerably increases the efficiency of the preparation of completed overlays, as well as enhancing the flexibility of map output.

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 now being implemented for all projects.

### 3. Draft Report

This work should be undertaken at the end of the fieldwork. The content of the environmental statement would follow closely the material and format listed within the report section (ii below), although instruction would be taken from the Client to ensure internal consistency.

#### *i 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 will be provided in the English Heritage Central Archaeological Services format, both as a printed document and on computer disks as ASCII files, if appropriate, and a synthesis (normally the index to the archive and the evaluation report) should be placed in the Cumbria Sites and Monuments Record. A copy of the archive will be available for deposition with the National Archaeological Record in London. 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/m<sup>3</sup> to the receiving museum as a one-off contribution towards the cost of long term storage and curation.

#### *ii Report*

One bound and one unbound copy of a written synthetic report will be submitted to the Client. The report will include a copy of the agreed 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. An assessment and statement of the actual and potential archaeological significance of the material within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map and plans; it can be tailored to the specific requests of the client (eg particular scales etc), subject to discussion.

#### *iii Proposals*

The report will make a clear statement of the likely archaeological implications of the intended development. It will also assess the impact of the proposed development on the wider historic landscape and topography of the settlement. It will highlight where, 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. In some instances, depending on the significance of the results of the evaluation, it may be necessary to advocate that development should not take place, if no other mitigating course of action is possible. In other cases, when conservation is neither possible, nor practical, it may be appropriate to suggest a further stage of more intensive archaeological work in order to mitigate the effects of development.

#### *iv Confidentiality*

The report is designed as a document for the specific use of the Client, for the particular purpose as defined in the project brief and 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.

#### 4. Final Report

The draft report will be commented on by the Client, and agreed changes, including stylistic, will be incorporated into the text. This will include a discussion of any impacts residing even after mitigation measures that have been agreed have been put in place. The report will then be formatted and final submission will be made to the Client. It 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). It is recommended that a copy of the report should be deposited in the Cumbria Sites and Monuments Record.

#### 5. Environmental Assessment

When the environmental assessment has been completed by the Client, comment will be given on the final plan and any revisions to the archaeological assessment, as a result of changes to the positions of turbines etc, will be submitted. This submission will be in the form of a letter to the Client, which may act as an addendum to the original report.

#### 6. Project Monitoring

##### *i Carlisle City Council*

Whilst the work is undertaken for the Client, nevertheless, the Carlisle City Council Archaeologist and the County Archaeologist for Cumbria would be kept fully informed of the work and its results. Any proposed changes to the project design would be agreed with these in coordination with the Client. LUAU will arrange a preliminary meeting with the both, if requested, and the both Carlisle Archaeological Unit and the Cumbria Sites and Monuments Record will be informed in writing at the commencement of the project.

##### *ii Dulas Engineering Limited*

LUAU will consult closely with the Client about the archaeological work required and will consult over the contents of the draft report. This consultation will include the attendance of a representative of the Client at any meetings convened with the City and County Archaeologists to discuss the work programme.

#### WORK TIMETABLE

The various stages of the project would comprise:

##### *i Desk Top Survey*

Three days are required to collate the data.

##### *ii Field Validation*

*i* Eight days would be required to inspect in detail the designated area in Bewcastle (D7 in tender document);

*ii* One day would be required to assess the smaller area on Denton Fell (D6)

##### *iii Draft Report*

Six days would be required to produce the draft report.

##### *iv Final Report*

One to two days would probably be required to incorporate comments from the client.

##### *v Environmental Assessment*

A single day should suffice to provide comment.

LUAU can execute projects at very short notice once an agreement has been signed with the client. The project is scheduled for completion to draft submission within a maximum of five weeks from its commencement.

## 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 project costing form.

The total cost quoted on the accompanying sheet is a fixed price, with the exception of the day rate quoted for adjustment of the draft report and comment on the Environmental Statement, 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.

Work of this nature is generally regarded as academic research, and is therefore usually VAT exempt.

### *i Desk Top Survey*

3 man-days Project Officer

### *ii Field Validation*

*i* 8 man-days Surveyor (Team Leader)

8 man-days Assistant

*ii* 1 man-days Surveyor (Team Leader)

1 man-days Assistant

### *iii Draft Report*

6 man-days Team Leader

2 man-days Assistant (Gazetteer)

### *iv Final Report*

1-2 man-days Team Leader

0.5 man-days DTP Assistant

### *v Environmental Assessment*

1 man-day Team Leader

The project will be under the direct line management of **Rachel Newman, BA** (Unit Assistant Director) to whom all correspondence should be addressed. James Quartermaine (BA, DipSurv, MIFA) would lead the project (CV's enclosed). 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.

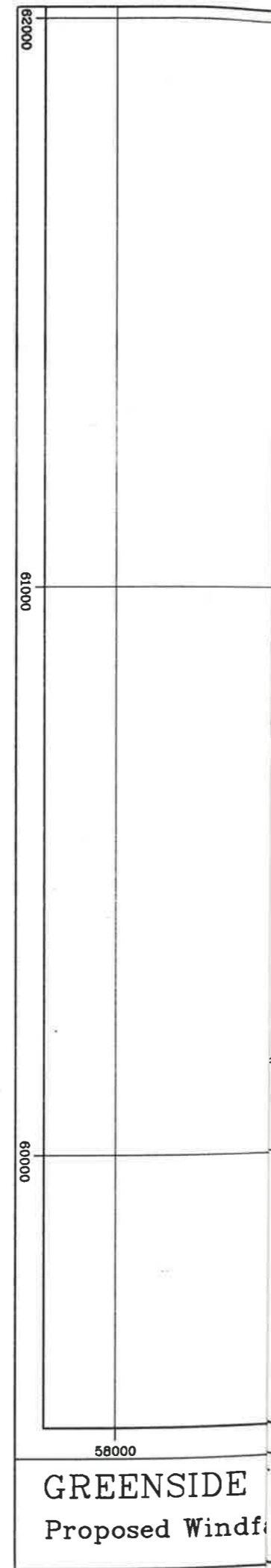
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## ILLUSTRATIONS

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Fig 2 General plan of Greenside survey area





62000

61000

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
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# GREENSIDE Proposed Windfarm Site

- Key**
-  Proposed Turbine Location
  -  Exclusion Area
  -  Archaeological Monument

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DRAWN BY JQ  
DATE 7-1994

SCALE 1:10,000

SHEET NO. 2

LANCASTER UNIVERSITY ARCHAEOLOGICAL UNIT

