

June 1998

# BENNETT BANK CUMBRIA

**Archaeological Watching Brief Report** 

# Bennett Bank Cumbria

Archaeological Watching Brief Report

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Checked by Project Manager.

Date

Passed for submission to client.

Date

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June 1998

# CONTENTS

Acknowledgements		2
		3
1.	Introduction	4
	1.1 Circumstances of Project	4
	1.2 Historical Background	4
2.	Methodology	6
	2.1 Project Design	6
	2.2 Watching Brief	6
	2.3 Archive	6
3.	Results	
	3.1 Introduction	
	3.2 General Feature Descriptions	8
4.	Discussion	9
5.	Bibliography	10
Aj	ppendix 1:	11
	Project Design	
Ill	lustrations	16
	Fig 1 Bennett Bank Location Plan	
	Fig 2 Site Plan	
	Fig 3 Feature plan of top-soil stripped area	
	Fig 4 Plan of Feature 7	

#### **ACKNOWLEDGEMENTS**

Thanks are due to Umo Antio and Chris Quirk of AIG Consultants for their invaluable assistance with the project.

The work was undertaken by Chris Wild and Ian Scott. The report was compiled by Chris Wild and edited by Jamie Quartermaine (Project Manager) and Rachel Newman (Deputy Director). The project was managed by Jamie Quartermaine.

#### **SUMMARY**

Lancaster University Archaeological Unit (LUAU) were requested by CAIRD environmental Ltd to undertake a watching brief during topsoil stripping at Bennett Bank, Barrow-in-Furness (NGR SD 2131 7488) in June/July 1997. An archaeological assessment had previously been undertaken by LUAU in July 1994, which established that there were considerable iron mining remains within the region but that there was no evidence of there having been any remains within the study area that were earlier than the nineteenth century. It demonstrated that there were no longer any surface remains of the iron industry within the development area, but that shafts, buildings and a railway were documented within the general locality. By virtue of the potential of identifying sub-surface remains relating to this industry a watching brief was recommended during the topsoil strip.

Prior to the watching brief the structural remains of three shafts had been removed. The watching brief revealed that the topsoil was very shallow, probably as a result of levelling of the area in recent years. The remains of four structures, as well as four areas of ash and clinker mining residues, up to  $c 50m \times 20m$  in extent, were recorded.

#### 1. INTRODUCTION

# 1.1 Circumstances of Project

- 1.1.1 In July 1994 the Lancaster University Archaeological Unit (LUAU) undertook an archaeological assessment at Bennett Bank, Barrow-in-Furness (Fig 1) in order to assess the impact of a proposed landfill development upon any archaeological resource within its extent. This established that there were considerable iron mining remains within the region but that there was no evidence of there having been any remains within the study area that were earlier than the nineteenth century. It demonstrated that there were no longer any surface remains of the iron industry within the development area, but that shafts, buildings and a railway were documented within the general locality. By virtue of the potential of identifying sub-surface remains relating to this industry a watching brief was recommended by the Cumbria County Archaeologist during the topsoil strip.
- 1.1.2 In accordance with a project design by LUAU (*Appendix 1*), an archaeological watching brief was carried out in June 1997, by LUAU, on behalf of CAIRD Environmental Ltd, to investigate and record the nature of the sub-surface archaeological resource within the extent of the proposed development. The work was undertaken as a condition of the planning consent and was in accordance with a verbal project brief by the Cumbria County Archaeologist.
- 1.1.3 This report sets out the results of the mitigation recording work of the sub-surface remains in conjunction with a method statement.

# 1.2 Historical Background (Fig 2)

- 1.2.1 Little of prehistoric or pre-Norman interest has been identified within the immediate vicinity of the site. The study area was situated within the Parish of Dalton which formed part of the Hundred of Lonsdale (Farrar and Brownbill 1914), which prior to 1974 was part of Lancashire. In the immediate post-Conquest period the parish was divided between Michael le Fleming of Aldingham and Furness Abbey, although the abbey soon after acquired all of it (Farrer and Brownbill 1914). The study area lies within the original bounds of Park farm, which may have derived its name from the abbey deer park in the vicinity, which was later converted into agricultural land.
- 1.2.2 In the medieval period iron was worked to answer the domestic needs of the region. The scale of medieval iron mining was small, sufficient to satisfy the steady demand for such necessities as ploughshares, nails, and horseshoes. Mining in this period was restricted to limestone outcrops where the richest haematite was easily identified and exploited.
- 1.2.3 The first recorded evidence of mining in the vicinity of Park farm is dated to 1724 (Fell 1968), when William Rawlinson and Company are documented as extracting ore from Thwaite Flat (LUAU 1994: Site 11). Around 1840 the astute business financier H W Schneider took out a lease on the Park area which was under the royalty of the Earl of Burlington. After ten years of prospecting ore was eventually discovered close to Park farm in October 1850 (Banks 1984) and this proved to be the second largest haematite deposit in British history. The Park Mine complex (LUAU 1994 Site 3 and 8) of which

this deposit forms a part, was established shortly afterwards. In order to finance the venture Schneider went into partnership with the landed gentleman R Hannay of Kirkcudbright, forming the company Schneider, Hannay and Co. on the 1st January 1853 (Marshall 1958). The Park Mines under their new owners continued to produce huge quantities of iron ore up until 1921 (Banks 1984).

- 1.2.4 Two types of haematite deposit exist in the immediate vicinity of the landfill extension, an area which was once part of Park Mines. The California Vein runs immediately below the phase five extension area, orientated on a north/south alignment. However, today there are no features associated with this visible, within the development area. Several sops or pockets within the carboniferous limestone bedrock which contained iron ore deposits, were mined to the north and west of the landfill site, and are visible as subsidence ponds. Most appear to have been approached from tunnels extending from the California Vein. The ore-body discovered by Schneider in 1850 was the now famous Park Sop, sited north of the landfill site. Park Sop was the largest example of this type of ore-body, and measured 450m east/west, by 240m north/south. It is thought to have yielded between 12 and 17 million tonnes of very high quality ore (Postlethwaite 1913). Four smaller sops were mined to the south-west of Park Sop, which were orientated parallel to the California Vein, and were named from north to south: Garden Sop, California No. 1 Sop, Plewner Sop, and California No. 3 Sop.
- 1.2.5 Park Mines were exceedingly prosperous; in 1856 the complex produced 120,000 tons of ore, out of a total of 464,000 tons for the entire Dalton field (Marshall 1958) and in the 1880s around 1000 tons of ore was produced each day (Banks 1984). However, during a general slump in the industry, which preceded the First World War, men had to accept wage cuts to keep the remaining pits operating. Following a national coal strike, blast furnaces throughout the county closed down, and with no market for the ore, the 500 men employed by Park Mines were given their notice in March 1921 (Banks 1984). Banks documents that the old mine buildings at Park were demolished during the Second World War, which accords with the complete lack of structures identified within the landfill extension area.

#### 2. METHODOLOGY

# 2.1 Project Design

- 2.1.1 A project design (*Appendix 1*) was submitted by LUAU, in response to a request from CAIRD Environmental Ltd, for an archaeological watching brief during topsoil stripping at Bennett Bank Landfill Site, Barrow-in-Furness, Cumbria (centred NGR SD 2131 7488). This was designed to meet the recommendations of the Cumbria County Archaeologist to provide a suitable level of archaeological observation during the topsoil stripping for the landfill site.
- 2.1.2 The project design provided for the accurate recording of any surviving archaeological features or deposits by means of detailed observation and to record the presence of buried features by appropriate recovery techniques, where applicable. It stated that there should be a presence while former shafts were being exposed to record any associated archaeological remains; however, this work had been carried out prior to the initiation of the project. In all other respects the work has been carried out in accordance with the project design. The results of the watching brief are presented in this report.

# 2.2 Watching Brief

- 2.2.1 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* Survey Sheets for each of the features identified alongside accompanying hand drawn plans where appropriate. A photographic record was maintained and any finds recovered were bagged and recorded by context.
- 2.2.2 The position of each feature was located to an accuracy of +- 1m, using differential Global Positioning System (GPS) techniques, which uses electronic distance measurements along radio frequencies to satellites to enable a fix in Latitude and Longitude, which were subsequently converted to Ordnance Survey National Grid. The archaeological detail was then transferred into a Computer Aided Draughting (CAD) system for final editing

#### 2.3 Archive

2.3.1 A full archive of the watching brief has been produced to a professional standard in accordance with current English Heritage guidelines (English Heritage 1991). The archive will be deposited with the County Record Office (Kendal) and a copy of the report will be given to the County SMR. A summary copy of the archive will also be available for deposition with the National Monuments Record in Swindon.

#### 3. RESULTS

#### 3.1 Introduction

3.1.1 Ten archaeological features were identified during the watching brief of the topsoil stripping (Fig 3). A general description of each feature is provided below (*Section 3.2*).

# 3.2 General Feature Descriptions (Fig 3)

- 3.2.1 *Feature 1:* this was a curvilinear feature approximately 9m long and 0.46m wide containing a tipped brick fill *c* 0.20m deep. It was almost impossible to distinguish a cut for this feature as the whole area appears to be redeposited clay. The feature was probably associated with Feature 6 to the south.
- 3.2.2 *Feature 2:* this was an area of mining residues (*c* 50m x 20m in extent) which became visible after removal of the topsoil. It comprised primarily clinker and ash, but also contained various fragments of metalwork including bolts and nails. Small-scale test pits around the edges of this feature revealed that the clay on either side overlay the ash/clinker.
- 3.2.3 *Feature 3:* this was a small area (*c* 1m diameter) of demolition brick and glass debris which contained many post 1921 (when the mine closed) artefacts, including plastic items. This would suggest either that the structure from which the material came had an agricultural use following the mine closure, that it was built after 1921, or that the demolition debris reflects dumping. Unfortunately this feature was in the path of the quarry truck run, and was quickly destroyed before any detailed investigation could be undertaken.
- 3.2.4 *Feature 4:* this was an area of mining residues, similar to, but darker than Feature 2, observed at the northern end of the site. It measured *c* 27m in length and was observed for the full width of the stripped area (*c* 11m). It contained a small area of demolition debris in the north-west corner (Feature 5).
- 3.2.5 *Feature 5:* this was an area of demolition brick debris (*c* 1m diameter) containing mortared bricks. It was located within the north-west corner of Feature 4.
- 3.2.6 *Feature 6:* this was a localised deposit containing a high proportion of brick fragments within the clay matrix. Sample excavations revealed no structural form for the bricks. It is probable that both this feature and Feature 1 are a result of the demolition of a structure that was situated in their immediate vicinity, of which there are no longer any structural remains.
- 3.2.7 *Feature 7 (Fig 4):* this was a sub-rectangular brick structure (*c* 4m x 1.5m in size) which was located on the southern edge of Feature 2. Some structural remains were observed *in-situ*, although the majority of the feature comprised demolished brickwork (Fig 4). A test area was excavated revealing a lower course (0.36m wide, comprising

- header and stretcher), which was wider than the surface course (0.23m; wide, header only)
- 3.2.8 *Feature 8:* this was an area of mining residues, similar to, but darker than Feature 2, which was observed in the southern part of the site. It measured c 15m in length and was observed to a maximum width of c 5m. As with Feature 2, this was overlain by clays.
- 3.2.9 *Feature 9:* this comprised two concrete foundation walls and a piece of concrete debris, situated on an artificial terrace. Each wall was 0.75m wide, aligned east/west and cut into the slope to the west. The northern wall was observed for a length of *c* 11m, whilst the southern wall only protruded for a length of *c* 5m. These appear to be part of a postmining structure and therefore agricultural function.
- 3.2.10 *Feature 10:* these formed an area of mining residues, similar to, but darker than Feature 2, which was observed in the south-eastern corner of the site. It measured *c* 7m in diameter and was observed running under the eastern section of the stripped area.

#### 4. DISCUSSION

- 4.1 Four areas of mining residues (Features 2, 4, 8 and 10) were observed across the stripped area and small-scale excavation of these features revealed them to be underlying the adjoining clay deposits. This suggests that the major parts of the site may have underlying mining residues of ash and clinker which were probably spread across a large area from a processing / burning process situated within or nearby the study area. These were subsequently overlain by the clays in the course of the subsequent landscaping of the site.
- 4.2 The badly truncated remains of two putative mining-related structures were observed (Features 1 and 7) and there may have been other associated structures under the clay to the east, west and south, and under the clinker to the north. However, it was not possible to remove these large areas of overburden.
- 4.3 The overall depth of the topsoil across the whole of the stripped area was very shallow (*c* 0.10m), and overlay a mixture of clays and mining residues. Although no evidence of any archaeological features predating the commencement of mining in 1849 were identified, there is the possibility that the ash / clinker sealed any earlier deposits and therefore were not disturbed by the topsoil stripping.

#### 5. BIBLIOGRAPHY

The references defined below include sources that were used as background information but have not been directly quoted in the text.

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### **APPENDIX 1**

#### PROJECT DESIGN

Lancaster University Archaeological Unit

**May 1997** 

# BENNETT BANK LANDFILL SITE BARROW IN FURNESS

#### **CUMBRIA**

#### ARCHAEOLOGICAL WATCHING BRIEF

#### **Proposals**

The following project design is submitted in response to a request from Mr Russ Sampson of Caird Environmental Ltd for an archaeological watching brief during top-soil stripping for the landfill site at Bennett Bank, Barrow in Furness, Cumbria.

#### 1. INTRODUCTION

- 1.1 Lancaster University Archaeological Unit (LUAU) have been requested by CAIRD environmental Ltd to undertake a watching brief during top-soil stripping at Bennett Bank, Barrow in Furness, which is a condition of the planning consent. An archaeological assessment was undertaken by LUAU in July 1994, which established that there were considerable iron mining remains within the region but that there was no evidence of there being any remains in the area prior to the nineteenth century. There are no longer any surface remains of the iron industry within the development area, although there were shafts, buildings and a railway documented within the area. By virtue of the potential of identifying sub-surface remains relating to this industry a watching brief was recommended during the top-soil strip.
- 1.2 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. Fieldwork has taken place within the planning process and construction programmes, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. Numerous watching briefs have been undertaken during initial site preparations for both landscape projects (eg the North West Ethylene Pipeline for Shell UK Limited etc) and construction (eg Lancaster Market Hall and numerous small developments in Ribchester). 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

2.1 The following programme has been designed, in consultation with Mr Mike Daniells, the Cumbria County Archaeologist, to provide a suitable level of archaeological observation, recording, and response during the top-soil stripping for the landfill site. The required stages to achieve these ends are as follows:

#### 2.2 Watching Brief

2.2.1 To record accurately any surviving archaeological features or deposits by means of detailed observation and recording. To record the presence of buried features by appropriate recovery techniques, where applicable. There should be a presence while former shafts are being exposed to record any associated archaeological remains.

#### 2.3 Archive/Report

2.3.1 A full written report will assess the significance of the data generated by the entire programme of work, in a local and regional context, and will be suitable for deposition as a permanent archive of the work undertaken.

#### 3. METHOD STATEMENT

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

#### 3.2 Watching Brief Methodology

- 3.2.1 A programme of field observation will accurately record the location, extent, and character of any surviving archaeological features exposed during the top-soil strip. This work will comprise the observation of the process of excavation for these works, the systematic examination of any subsoil horizons exposed during the course of works, and the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation. There will be a presence during the excavation of former shafts to record any associated archaeological remains.
- 3.2.2 During this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan and/or section, and as grid coordinates where appropriate). All archaeological information collected in the course of fieldwork will be recorded in standardised form, and will include accurate national grid references. Features will be planned accurately at appropriate scales and annotated on to a large scale plan provided by the Client. A photographic record will be undertaken simultaneously. The recording techniques and procedures employed by LUAU for such detailed recording represent current best practice.
- 3.2.3 It is assumed that LUAU will have the authority to stop works in any particular locality for up to one hour to enable the recording of important deposits. In normal circumstances, field recording will also include a continual process of analysis, evaluation, and interpretation of the data, in order to establish the necessity for any further more detailed recording that may prove essential.
- 3.2.4 Full regard will, of course, be given to all constraints (services etc), as well as to all Health and Safety regulations. 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 Unit Managers (1991) and risk assessments are now being implemented for all projects. All operatives would be fully aware of the particular needs of working in conjunction with plant.

#### 3.3 Archive/Report

- 3.3.1 *Archive:* The results of all archaeological work carried out during fieldwork will form the basis for 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 to the appropriate level. 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. This archive will be provided in the English Heritage Central Archaeology Service format and a synthesis will be submitted to the Cumbria Sites and Monuments Record (the index to the archive and a copy of the report). LUAU practice is to deposit appropriate elements of 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.
- 3.3.2 **Report:** One bound and one unbound copy of a written synthetic report will be submitted to the Client within four weeks of completion of fieldwork, and a further copy submitted to the Cumbria Sites and Monuments Record following any comments from 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.

- 3.3.3 This report will identify areas of defined archaeology. 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. This 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), if required.
- 3.3.4 *Confidentiality:* All internal reports to the client are designed as documents 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. With the agreement of the Client, reports may be circulated to the County Archaeological Curator for discussion and approval as necessary, but are not suitable for publication as academic documents 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:* Any proposed changes to the project design will be agreed with the Cumbria County Archaeologist in coordination with the Client. The Cumbria Sites and Monuments Record will be informed in writing at the commencement of the project and LUAU will arrange a preliminary meeting with them at the outset of the project, if required.
- 3.4.2 *Caird Environment Ltd:* An initial meeting of all parties will be arranged at the commencement of the project, if the Client so desires. LUAU will consult regularly with the Client during fieldwork, and this will include the attendance of a representative of the Client, if required, at any meetings convened with the County Archaeologist, to discuss the report or any other matter.

#### 4. WORK TIMETABLE

4.1 The various stages of the project outlined above will fall into two distinct phases, which would follow on consecutively, where appropriate. The phases of work would comprise:

#### 4.2 Watching Brief

Monitoring of excavation of trenches, and observation and recording of any archaeological features and materials revealed. The timescale of this phase will be dictated by the construction programme.

#### 4.3 Archive/Report

LUAU generally calculates a 1:0.25 ratio of fieldwork : post-fieldwork (archive, analysis, and report preparation).

4.4 LUAU can execute projects at very short notice once an agreement has been signed with the client. The date for completion of the works would be dictated by the site construction programme. The report will be submitted to the Client within six weeks of the completion of field work.

#### 5. OUTLINE RESOURCES

5.1 The following resource base will be necessary to achieve the proposals detailed above. The costs assume that there will be a watching brief presence for four days during the period of top-soil stripping and will include the stripping in areas of former shafts. The costs allow for report production and management costs as well as all disbursement costs (travel and expenses), to undertake the programme of work as defined in this project design. A day rate is also quoted if additional on-site days are required by the client and County Archaeologist; the day-rate provides for post-fieldwork analysis and reporting.

#### 5.2 Watching Brief

4 man-days Project Supervisor

#### 5.3 Archive/Report

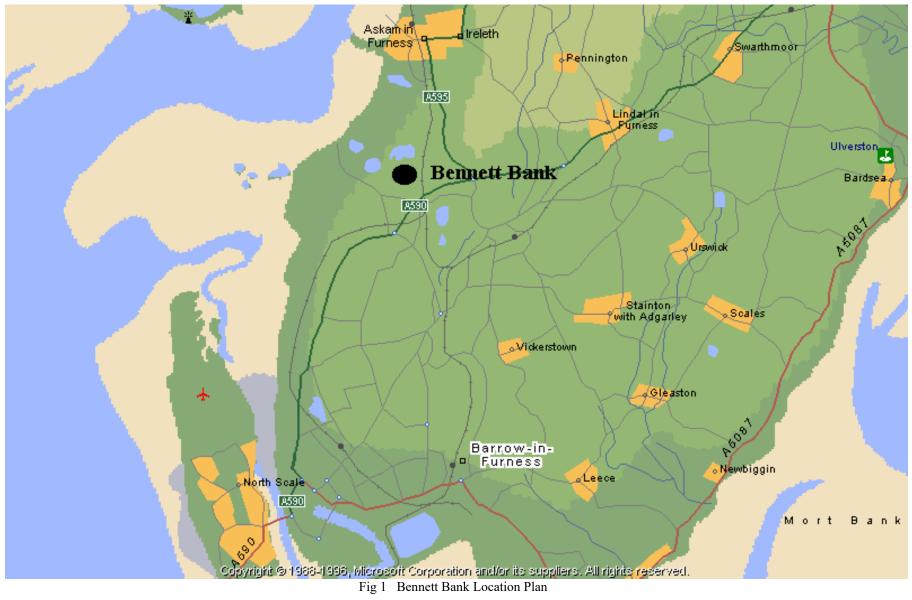
2 man-days Project Supervisor

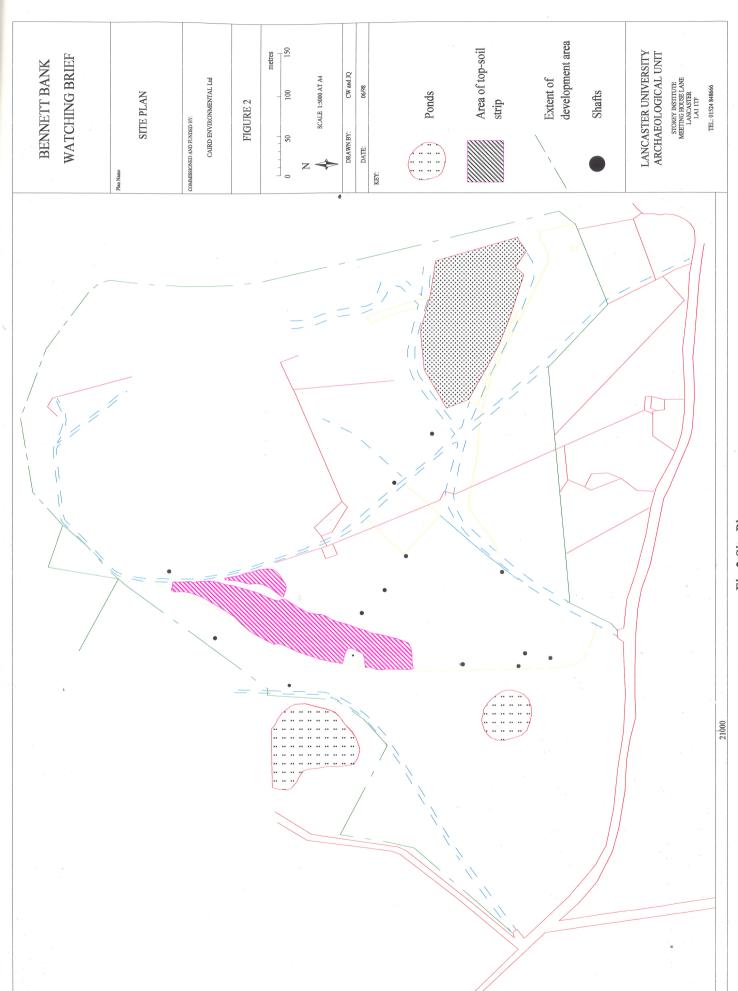
5.4 The project will be managed by **Jamie Quartermaine**, **BA** (Unit Project Manager), to whom all correspondence should be addressed. All Unit staff are experienced, qualified archaeologists, each with

several years professional expertise.

# **ILLUSTRATIONS**

- Fig 1 Bennett Bank Location Plan
- Fig 2 Site Plan
- Fig 3 Feature plan of top-soil stripped area
- Fig 4 Plan of Feature 7





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Fig 2 Site Plan

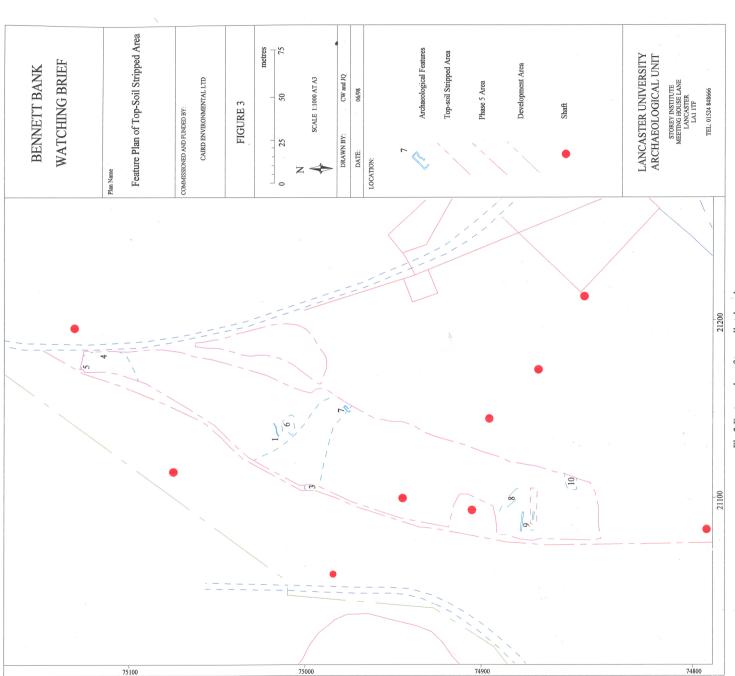


Fig 3 Feature plan of top-soil stripped area



Fig 4 Plan OF Feature 7