



January 2000

LOW PLAINS QUARRY
LAZONBY
CUMBRIA

Assessment Report

Low Plains Quarry, Lazonby
Cumbria

Archaeological Assessment Report

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SUMMARY

This report details the findings of an archaeological assessment at Low Plains Quarry, Lazonby, Cumbria, centred approximately on NY 4950 4150. The work was commissioned by Tarmac Quarry Products Ltd in advance of proposed sand and gravel extraction, and undertaken by Lancaster University Archaeological Unit (LUAU) in July and December. The assessment comprised a desk-based study and identification survey intended to inform the planning application.

The desk-based study involved a search of records held by the Cumbria Sites and Monuments Record, the Cumbria County Record Office in Carlisle, and also records held by LUAU of the results of a survey in advance of the Shell North West Ethylene Pipeline, which extended through the study area. The identification survey involved the systematic field walking of the study area, the identified sites being located using Global Positioning System (GPS) equipment.

The documentary study identified a series of crop mark sites (Site 02) revealed from air-photographs, principally in the eastern part of the study area. In addition, a small sub-circular crop mark (Site 16) was identified during the field survey which was adjacent to a low natural sand hill, and was also in the eastern part of the study area. Elsewhere the identified resource was of a lesser archaeological significance.

It was recommended that the crop mark sites be subject to geophysical survey, to identify their form, and extent, and then, subject to the results of the geophysical survey, the key sites should be explored by evaluatory trial trenching.

ACKNOWLEDGEMENTS

LUAU would like to thank Jonathon Garbutt of Tarmac Quarry Products Ltd for his assistance in the course of the commissioning and implementation of the assessment, and also we would like to thank Helena Smith of Cumbria County Council for her advice during the project.

LUAU extends its thanks to the staff of the Cumbria County Records Office, Carlisle and to Bette Hopkins of the Sites and Monuments Record at Kendal.

The documentary research was undertaken by Jo Bell, and the fieldwork by Chris Scurfield, Matt Town and Daniel Elsworth. The report was written by Jo Bell, Chris Scurfield and Matt Town, and was edited by Jamie Quartermaine and Rachel Newman. The project was managed by Jamie Quartermaine.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 In July and December 1999 Lancaster University Archaeological Unit (LUAU) undertook an archaeological assessment of a site at Low Plains Quarry, Lazonby, Cumbria, centred approximately on NY 4950 4150 (Fig 1). The work was requested by Tarmac Quarry Products Ltd in advance of proposed quarrying for sand and gravel.
- 1.1.2 The assessment was intended to appraise rapidly the likely archaeological value of a the given study area, and to locate and record archaeological sites in the landscape, whether or not they were visible as surface remains. To this end, available documentary and map sources were scanned, and a rapid inspection of the site was undertaken.
- 1.1.3 A large proportion of the study area was walked on the 12th July 1999, but two fields to the west and north of Little Low Plains farm (NY 503 415) were subject to access negotiations between Tarmac Quarry Products Ltd and the farmer. These were subsequently surveyed on the 10th of December 1999.
- 1.1.4 This report sets out the results of the work in the form of a short document which outlines the findings, followed by a statement of the archaeological potential of the area, and an evaluation of the impact of the proposed development. This is complemented by a bibliography and a gazetteer of sites (*Appendix 3*), including those both new to the record and previously known.

2. METHODOLOGY

2.1 PROJECT DESIGN

- 2.1.1 A project design (*Appendix 2*) was submitted in February 1999 by LUAU in response to a request from Tarmac Quarry Products Ltd, for an archaeological assessment in order to inform a planning application for expansion of an existing sand and gravel quarry. The work was in accordance with a project brief prepared by the County Archaeologist (*Appendix 1*).
- 2.1.2 The project design provided for an archaeological assessment involving a desk-based study, a rapid identification survey, and written reports, which would interpret the data discovered during the project and present management recommendations for the proposed development. The field survey was undertaken in two stages, as access to the eastern part of the study area was not initially available. In all other respects the assessment has been carried out in accordance with the project design.

2.2 DESK-BASED STUDY

- 2.2.1 Existing archaeological information was obtained from the County Sites and Monuments Record (SMR). The documentary research involved a visit to the Cumbria County Record office (CRO, Carlisle), during which historic maps (Ordnance Survey and tithe maps), unpublished theses, as well as published histories of the county and of the ward in which the study area lies were examined. Available maps and plans were restricted to the Ordnance Survey 6" and 25" to one mile, first edition maps of 1860 and second edition 25" to 1 mile maps (1900) and the tithe map for the area (CRO DRC/8/115).
- 2.2.2 The Cumbria Sites and Monuments Record (SMR) in Kendal was consulted, which aims to supply a brief record of all known archaeological sites in the county. In addition, LUAU's own archive of material relating to the study area and its vicinity was studied. In particular, use was made of the archive for the Shell North West Ethylene Pipeline (NWEP), which touches upon the study area in its western half. A programme of archaeological fieldwork was undertaken in the early 1990s in advance of pipe-laying (LUAU 1994), and its results have been incorporated in this report where relevant.
- 2.2.3 ***Aerial photographic study:*** oblique photographs held by the SMR were studied, which revealed details of crop mark sites within the study area. A cover search from the National Monuments Record (NMR) in Swindon was also requested, but this did not reveal significant new detail.

2.3 IDENTIFICATION SURVEY

- 2.3.1 A systematic surface inspection of the Low Plains study area was undertaken to ensure complete coverage of the ground. The majority of the study area was open pasture or under crop; the ground was therefore walked on 30m transects to identify earthworks and extant surface features. The archaeological detail, as well as significant topographic detail, was mapped to an accuracy of +/- 0.5m, using differential Global Positioning System (GPS) techniques, which use electronic distance measurements along radio frequencies to satellites to enable a fix in Latitude and Longitude, which were subsequently converted mathematically to Ordnance Survey National Grid.

2.4 GAZETTEER OF SITES

- 2.4.1 All of the information concerning archaeological sites in the affected area has been collated into a gazetteer (*Appendix 3*), which provides details of their location, origin, and character. Locations are given as eight-figure National Grid References where possible. A summary description of each site is provided in conjunction with a reference to the source of the information (SMR, cartographic, documentary, field inspection), with references as appropriate, and an assessment has been given of the interpretation and archaeological potential of each site. The sites have been marked onto a digital map showing their position (Fig 4). Other sites beyond the extent of the study area, which were considered to be of background relevance, are mentioned in the text with appropriate SMR references.

2.5 ARCHIVE

- 2.5.1 A full archive of the desk-based study and the field inspection has been produced to a professional standard in accordance with current English Heritage guidelines (English Heritage 1991). The archive will be deposited in the Cumbria Record Office with a copy to the Cumbria Sites and Monuments Record and a copy will be available for deposition to the National Monuments Record.

3. BACKGROUND

3.1 TOPOGRAPHICAL BACKGROUND

- 3.1.1 The Low Plains study area is at the base of the south facing slopes of Balze Fell, on and is on low-lying land in the upper valley of the River Petteril, some c10kms north of Penrith. Historically it was in Cumberland, but the area has, since 1974, fallen within the county of Cumbria.
- 3.1.2 The study area lies in an area of Penrith and Brockram (New Red) Sandstone (Doubleday 1901, 8-9; Higham 1986, 6), but locally the underlying geology is sand and gravel. The 'hard' geology is overlain by well-drained loamy soils, and *'enjoys something of a rain-shadow status'* (Higham *op cit*, 8) which makes it attractive to arable cultivation. Currently, the land is principally used as arable (barley) with pasture on the steeper slopes to the north-west of Low Plains Farm. Woodland has been planted along the edge of Blackrack Beck.
- 3.1.3 The place name 'Low Plains' is applied to two separate farmsteads, one at NY 496 417 which is almost surrounded by the study area, and one at NY 503 415 which lies immediately to the east of the study area.

3.2 HISTORICAL BACKGROUND

- 3.2.1 **Prehistory:** the fertile Eden Valley catchment area, and nearby Lazonby Fell, attracted very early settlement. Higham 1986 identified the Eden valley, close to the study area, as one of the 'core areas' in which groupings of Neolithic settlement first appeared in the north of England. Lazonby Fell's survival as unploughed heathland has allowed good survival of Neolithic and Bronze Age monuments including cairns, and there have been antiquarian discoveries of artefacts such as vessels, flint arrowheads and 'sculptured stones' in particularly dense concentrations (LUAU 1993, 49). Jefferson was describing such prehistoric remains when he said that *'Some urns were found on the fell, about sixty years since, which contained bones and ashes.....there were then several cairns on the commons'* (Jefferson 1840, 462).
- 3.2.2 Remnant Iron Age field systems, trackways and other settlement remains suggest that in later prehistory, small-scale cultivation and livestock management took place in increasingly centralised communities. One settlement is known, dating from this period, about 0.6km south-east of the study area at around NY 5003 4042, with contemporary trackways and field boundaries (LUAU 1993, 53). The site is described as *'a small, circular or kidney-shaped enclosure with stone walls, and a large hut with stone walls, located on a rise and reminiscent of a small hillfort'*.
- 3.2.3 **Roman:** Roman occupation, from cAD 70, had less impact on Cumbria than on other parts of Britain. Nonetheless, the *'grand military way'* (Nicholson and Burn 1777, 420) now called the A6 was established and gave Cumbria a vital transport link which is still one of its major roads. The road was built in the first century (Margary 1957) and may have had an impact on and around the study area,

- immediately to its east. Temporary marching camps were constructed close to the road, for example at Petteiril Green c1km west of the study area, and there is a likelihood that further Roman sites exist in the vicinity (Lambert 1996, 15).
- 3.2.4 **Medieval:** throughout the early medieval period, there was no documented activity within the vicinity of the study area. However, there are numerous settlements in the Eden valley, whose names have Anglian origins (Rollinson 1996, 35). The place-name 'Elkington', seen in field names in the study area, includes elements often seen in Anglo-Saxon place names, but this is not sufficient evidence to be confident of settle
- 3.2.5 There is also no specific evidence for occupation or use of the study area in the medieval period; however, there is a reference in an antiquarian report of '*a place called Castle Rigg the ruins of a building appear, moated round*' (Hutchinson 1794, i, 289). This corresponds to the nearby Castlerigg Castle, but there are no longer any extant medieval remains at the site (Perriam and Robinson 1998, 210).
- 3.2.6 The study area is believed to have lain within the extensive estates of the Dacre family (Dilley 1972 264) and the parish of Lazonby, in which the study area falls, certainly remained a rural and agricultural region throughout the Middle Ages. By the late eighteenth century, the parish was home to '*about 115 families, four whereof are presbyterians*' according to Nicholson and Burn (1777, 416). It is not known if any of these families lived in the study area.
- 3.2.7 **Post-Medieval:** at the beginning of the nineteenth century, changes in land tenure and farming practice may have been partly responsible for a brief and rapid spate of population growth around the study area. An Act of Parliament enclosed the local commons in 1803; the population of Lazonby township at that time was around 320. In 1811 it was 384, but by 1821 had risen steeply to 533 (Whellan 1860, 575). Thereafter it grew more slowly. There is no record of how many of these people lived in the study area, but it is possible that the two Low Plains farms were established on newly enclosed ground in the early nineteenth century.
- 3.2.8 The economy of the study area reflected that of the parish at large, whose inhabitants were '*engaged in agricultural pursuits, and in quarrying, large quantities of red sandstone, etc, being sent from this parish*' (Whellan 1860, 575). At least one small quarry was being worked in the study area by 1845 (*Section 4.1.6*).
- 3.2.9 Ordnance Survey maps show that the study area itself has remained almost entirely unchanged since 1845, and that change has been limited even in the two farmsteads which border it. With the exception of small stone quarries, the study area has remained rural and agricultural in character throughout the twentieth century, until its recent appropriation for quarrying on a larger scale.

4. ASSESSMENT RESULTS

4.1 DOCUMENTARY STUDY

- 4.1.1 **Maps:** the earliest available map or plan of the study area at the County Record Office (Carlisle) was the Tithe map of 1845 (CRO DRC/8/115). This shows a regular, almost chequerboard pattern of field boundaries, suggestive of an organised division of land. It is probable that these fields were formed during the private enclosure of formerly common land, undertaken by Act of Parliament in 1803 (Dilley 1972, 264). The 1845 field boundaries survive absolutely unaltered on current 1:25,000 mapping.
- 4.1.2 The tithe map (Fig 2) shows that the two farms known as Low Plains were already in existence by 1845, and that the western one in particular retains today elements of its 1845 layout. The tithe map and apportionment show that the eastern of the two Low Plains farms, and the three fields immediately north of it, belonged in 1845 to Eliza James and were used by Robert Murrow as arable land. The rest of the fields in the study area were owned and farmed by Joseph Dixon. Of 20 fields, 15 were under arable cultivation, two under pasture, and three small fields were 'meadow' (CRO DRC/8/115).
- 4.1.3 The Tithe map shows an irregular shape straddling the boundaries of fields 546 and 545. This is interpreted as a quarry, as one is shown on the 1900 Ordnance Survey map (*Section 4.1.6*) in approximately the same location. Since it crosses a field boundary it is assumed to predate the field division.
- 4.1.4 The First Edition Ordnance Survey (OS) map at a scale of 25" to 1 mile was the next available historic map, dating to 1860. Maps of this date were available for only the eastern part of the study area. The eastern farm is shown as an unnamed range of buildings around a quadrangle, with a small pond at the south-western external corner and a small semi-circular structure within the courtyard. A water leat runs to the farm from the west.
- 4.1.5 The Second Edition map at the same scale dates to 1900 and coverage of the whole study area was available in this edition. The pond at the south-west corner of the eastern farm was no longer shown. Ponds of this type often powered a small water wheel, and were allowed to dry up after the introduction of steam power for many farm processes such as threshing. To the east of the farm, a plantation of conifers appears for the first time on this map; this plantation no longer exists.
- 4.1.6 The same map shows two 'old quarries' south of Blackrack Beck (Site 07). These are still shown as 'Quarry (dis)' on current mapping but were presumably out of use before 1900. Small structures to the south-west of the larger farm are shown on the 1900 map and remain on the present one. Two further structures (Site 12), possibly gatehouses, are shown on the 1900 map on either side of a driveway to the west of the farm.
- 4.1.7 **Sites and Monuments Record (SMR):** the SMR provided details of several sites in and around the study area: SMR 3801 (Site 06) relates to crop marks of unknown

- date lying partly in the north-west portion of the study area. The SMR description suggests rather unclear marks, with 'few obvious man-made features other than a possible linear feature running east/west at c NY 486 423' (just within the study area) and further north, outside the study area, 'possible earthworks consisting of a sub-rectangular bank at NY 493 426' (SMR 3801). However, inspection by the SMR officer and later by LUAU staff, as part of the North West Ethylene Pipeline Survey (LUAU 1993, 51), which included field walking and topsoil removal, encountered no archaeological remains.
- 4.1.8 A further record of crop marks in the north-eastern part of the study area around NY 5020 4160 exists (Site 02), but the record notes that *'there were no traces of any archaeological features when visited in August 1998'* (SMR 5989). The crop marks comprise a series of curvilinear features defining part of a possible large irregular sub-elliptical enclosure. The features are cut by modern field boundaries, and they may be a residual indications of an earlier field-system in this area. A further series of linear features extends out from the sand hill (Site 15) and may reflect the former eastern extent of this mound prior to truncation.
- 4.1.9 Several further crop marks of unknown date were identified in the neighbourhood of the study area. One set (Site 08) lies in fields 0.3km south-west of the study area at NY 4890 4150, amongst which was a possible 'small sub-rectangular enclosure' (SMR 3805). At the same distance to the south-east of the study area, a dyke (Site 01) seen as both crop mark and earthwork, was identified by SMR 5988. Immediately north of the study area, at NY 4980 4200, further marks (Site 03) have been identified as possible linear features, mostly *'obscured by soil marks and difficult to interpret'* (SMR 5990) which may relate to former field boundaries. Finally, 0.3km north-east of the study area at NY 5040 4230, a crop mark (Site 04) identifies a possible *'pentagonal enclosure overlain by a modern field wall'*, but whose antiquity is *'in some doubt as one end appears to pass faintly through a gate'* (SMR 5993).
- 4.1.10 An important element of the landscape around the study area is the current A6, which runs immediately to its west on a rough north/south axis (Site 14). This is one of Cumbria's most important historic transport routes, originating as a Roman road. A Roman camp lies 0.5km west of the road, at NY 477 422 (not shown on assessment mapping). This demonstrates the road's sphere of influence and suggests that the study area, lying almost wholly within a similar distance of the road on the opposite side, could reasonably include evidence of Roman settlement or activity.

4.2 IDENTIFICATION SURVEY (FIG 3)

- 4.2.1 At the time of the first episode of survey (July 1999) much of the study area was under a barley crop which reflected changes in the subsoil by variations in the ripeness of the crop. Suitable vantage points were sought to assess this visual guide to the archaeology of the study area. The second phase of survey (December 1999) was in winter, when there were no standing crops, and thus concentrated on conventional fieldwalking.

- 4.2.2 The survey identified seven sites: a small sand quarry (Site 15), a circular crop mark site (Site 16), a linear crop mark (Site 17; probably of geological origin), a revetted stream (Site 18), a modern pheasantry (Site 19), a pond (Site 20) and a probable bridge (Site 21). The latter (21) would appear to be contemporary with the enclosure walls which are typical of northern enclosure walls of the late eighteenth century (Taylor 1983, 224).
- 4.2.3 The only site of any significance was the small sub-circular crop mark site (Site 16) which was located to the north of a prominent sand hill (Plates 1 and 2). The crop mark comprised three primary elements, a large circular area comprising restricted growth of crop, and within it a sub-circular band of high growing crop. Within the sub-circular feature were further straight-sided elements, again defined by dense, high growing crop. The area of subdued growth potentially reflects a raised or stony sub-surface element that has limited the amount of nutrients and water available for plant growth. By contrast the bands of high growing crop will reflect ditches, which will contain moist humic soil supportive of crop growth. This would therefore possibly comprise a large platform or area of stony ground which has a sub-circular ring feature set into it and within that are internal structural ditched elements.
- 4.2.4 The size of the sub-circular ring feature is only about 10-12m across, which is comparable to the dimensions for a hut-circle. However, it is impossible to confirm either the date of such a feature or even whether it was truly of archaeological origin on the present survey evidence.

5. DISCUSSION

5.1 IDENTIFIED RESOURCE

- 5.1.1 The Eden valley and its environs are known to have attracted settlement from a very early date, and the study area may well have been settled, at least at intervals from the Mesolithic period onwards. The assessment has identified a potentially significant sub-surface resource on the eastern side of the study area, which comprises a series of curvilinear crop- marks across an extended area (Site 02), and also a localised sub-circular crop mark (Site 16) to the north of the sand hill (Site 15). The larger crop mark sites (02 and 06) suggest the existence of boundaries or enclosures, although field inspection and, in one case, previous topsoil removal (*Section 4.1.7*) have not encountered archaeological remains; there is a possibility that features may survive at a greater depth which would necessarily be destroyed by quarrying. Site 02 (Plate 1) comprised a series of extensive curvilinear features, which appear to be elements of a sub-elliptical field system. One of the boundaries is apparently an extension of one of the extant boundaries around the eastern Low Plains farm enclosure, and would appear to be a part of an earlier field system. There is no evidence, however, of these boundaries on the 1845 tithe map (CRO/DRC/8/115) and this then must pre-date the map, probably being a forerunner of the 1803 enclosure field system.
- 5.1.2 The small crop mark (Site 16) was seemingly a small enclosure and was very clear even from surface observation and comprised a series of concentric circles indicative of a small enclosure, which was no more than 12m across; this also contains some irregular internal features. The features were marked by high growth of crop, and therefore these are likely to reflect sub-surface ditches. Close examination of the site revealed no surface indications beyond those of the enhanced crops, reflecting the fact that the field has been subject to repeated ploughing.
- 5.1.3 The precise date of such features cannot be predicted on the basis of available information, but they have the potential to be of prehistoric or Roman origin. Certainly the study area has the potential for remains of the Iron Age and Roman periods. For both of these periods there is well-preserved evidence of settlement or occupation within a few hundred metres and previous archaeological work has identified the area as lying in a zone of 'high archaeological potential' (Lambert 1996, 15).

6. IMPACT AND RECOMMENDATIONS

6.1 IMPACT

- 6.1.1 The proposed sand and gravel extraction process will involve the complete destruction of any sites or monuments within the study area, and therefore any identified resource will need to be subject to mitigative recording in advance of the extraction.
- 6.1.2 The survey has identified only one site of confirmed archaeological significance (Site 16); this would require further investigation to establish its form, significance and period. The remaining sites are either of only limited archaeological value or are unconfirmed. The documentary study has also highlighted crop marks in this area (Sites 02 and 06), whilst the elements of Site 06 are believed to be of predominantly geological origin, a few elements may reflect former boundaries. The Site 02 crop marks also appear to reflect a former field system, but this is more clearly defined in relation to the little Lower Plains Farm. Although they do not survive on the surface, they potentially exist as sub-surface features.
- 6.1.3 The proposed quarrying has the potential to disrupt the remains of two small nineteenth century structures (Site 12), possibly gatehouses, which stood beside the drive of the larger Low Plains farm in 1900 (OS 2nd edition 25" to 1mile map, Cumbria 39.7). These are just outside the study area and are not considered to be archaeologically significant.

6.2 RECOMMENDATIONS

- 6.2.1 **Site 16:** it is recommended that the site, and a broad area around it, be subject to a geophysical survey following the removal of the crop. This should be by a combination of resistance and magnetometry survey techniques, which would have the aim of recording the extent of the identified features and any other associated elements. The results of geophysical survey will inform the County Archaeologist's decision on the placing of trial excavation trenches to determine the nature of any archaeological remains.
- 6.2.2 A programme of evaluation trial trenching should be undertaken to establish the sub-surface character of the circular ditched feature and internal elements. This evaluation trenching is intended to establish if there is a requirement for more extensive mitigation excavation recording; the scale of the evaluation trenching should be of only limited extent so as not to compromise the results of any subsequent mitigation recording.
- 6.2.3 **Site 02:** the documentary study identified crop marks, possibly relating to an early field system, which could not be confirmed in the course of the field survey; however, this to an extent reflects the site conditions at the time of the survey (December 1999), as there was no standing crop on the site at that time and by their very nature, crop mark sites are unlikely to show as surface earthworks. It is therefore recommended that a geophysical survey be undertaken across the area of

identified crop-marks. Subject to the results of the geophysical survey there may be a further requirement for evaluation trenching.

- 6.2.4 **Remaining Sites:** the remaining sites are either outside the study area, or of only local importance. Those of only local importance have been recorded at a basic level by the present survey and it is considered that this will provide an adequate mitigative record for their destruction by the proposed quarrying.

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APPENDIX 1
PROJECT BRIEF

APPENDIX 2
PROJECT DESIGN

February 1999

**Lancaster
University
Archaeological
Unit**

**LOW PLAINS QUARRY, LAZONBY
CUMBRIA
ARCHAEOLOGICAL ASSESSMENT**

Proposals

The following project design is offered in response to a request from Tarmac Quarry Products Ltd for an archaeological assessment at the Low Plains Quarry site.

1. INTRODUCTION

- 1.1 Lancaster University Archaeological Unit (LUAU) has been invited by Tarmac Quarry Products Ltd to submit a project design and costs for an archaeological assessment of an area of pasture land at Low Plains Quarry, Lazonby, Cumbria, in advance of a proposed sand and gravel extraction site. Although there is no planning requirement for the client to undertake the work, it has been agreed that the developer will undertake a programme of archaeological investigation. The project design is in accordance with a project brief prepared by the Cumbria County Archaeologist.
- 1.2 **Archaeological Background:** the general area of the site has much archaeological potential, particularly on the upland areas of Lazonby Fell and Blaze Fell, where prehistoric remains have been recovered. A recent in depth archaeological study has been undertaken by LUAU (Lambert et al 1996) in advance of the Shell North West Ethylene Pipeline, which extends around the western side of the present site. The study provides a valuable insight into the archaeology of the area. It identified a scattered but potentially significant archaeological resource on the edge of the study area, but no sites actually within the site boundary. A large crop mark site was identified immediately north of the study area at NY 4886 4254, and a possible prehistoric cairn was recorded at NY 4991 4060, just to the south of the study area.
- 1.3 **Lancaster University Archaeological Unit:** LUAU has considerable experience of the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 18 years. Evaluations and assessments have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. LUAU has undertaken the definitive archaeological study of the Shell pipeline, which examined a one kilometre wide corridor, as part of the first phase of the programme and this was then restricted to 250m during subsequent phases. Consequently much of the study area has already been subjected to a documentary and aerial photographic study and a much smaller proportion has been subject to detailed field walking. LUAU has also undertaken numerous assessment, landscape survey and evaluations on similar quarry or opencast extraction sites such as the nearby gravel extraction site at Kirkby Thore and also an open cast coal site at Kidburngill in West Cumbria (LUAU 1997). 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 accordance with a brief provided by Philip Holdsworth of Cumbria County Council to provide an accurate archaeological assessment of the designated area, within its broader context. The principal purpose of the assessment is to collate existing information about the archaeology of the site, to determine the significance of the identified archaeological resource and to provide recommendations for any further archaeological investigation. The required stages to achieve these ends are as follows:
- 2.2 **Desk Top Survey**
To accrue an organised body of data to inform the field inspection.
- 2.3 **Identification Survey**
An identification survey to record the character of the extant earthworks within the study area and provide an assessment of the archaeological significance of the earthwork remains.
- 2.4 **Assessment Report**
A written assessment report will assess the significance of the data generated by this programme within a local and regional context. It will advise on the requirements for further evaluation or recording measures as necessary.

3. METHODS STATEMENT

- 3.1 The following work programme is submitted in line with the stages and objectives of the archaeological work summarised above.
- 3.2 **DESK TOP SURVEY**
- 3.2.1 The following will be undertaken as appropriate, depending on the availability of source material. The level of such work will be dictated by the timescale of the project.
- 3.2.2 **Documentary and cartographic material:** This work will rapidly address the full range of potential sources of information. It will include an appraisal of the Cumbria Sites and Monuments Record, as well as 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 field and 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 Offices will also be studied. Published documentary sources will also be examined and assessed. This work will involve visits to the County Record Office in Carlisle. The assessment will examine the archive of the recording programme undertaken along the line of the adjacent Shell North West Ethylene Pipeline, which is presently held at LUAU.
- 3.2.3 **Aerial photography:** a survey of the extant air photographic cover will be undertaken. This may indicate the range and survival of archaeological and structural features in the designated area, and if appropriate coverage is available, allow an assessment of the rate and progress of erosion of archaeological features. It will also facilitate the rapid recognition and plotting of archaeological features including those no longer visible at ground level. The Cumbria Sites and Monuments Record has a considerable aerial photographic collection and some photographic records are held by the Cumbria County Record Office. A programme of oblique air photography was undertaken as part of the Shell pipeline project and the photographic archive will be consulted as part of the present study. Aerial photographic work may entail liaison with the Royal Commission on the Historical Monuments (England), although, within the timescale available, it is unlikely that prints will be forthcoming from this body for inclusion in this report.
- 3.2.4 **Physical environment:** A rapid desk-based compilation of geological (both solid and drift), pedological, topographical and palaeoenvironmental information will be undertaken. This will not only set the archaeological features in context but also serves to provide predictive data, that will increase the efficiency of the field inspection.
- 3.3 **FIELD INSPECTION**
- 3.3.1 **Access:** Liaison for basic site access will be undertaken through Tarmac Quarry Products Ltd.
- 3.3.2 It is proposed to undertake a level 1 survey of the study area which extends over an area of 0.86sqkm. This is a rapid survey undertaken alongside a desk top study as part of a site assessment. It is an initial site inspection which helps the local planning authority to consider fully the archaeological implications of a development and also serves as the basis for undertaking and planning further archaeological work on the site. It represents the minimum standard of record and is appropriate to exploratory survey aimed at the discovery of previously unrecorded sites. Its aim is to record the existence, location and extent of any such site. The emphasis for the recording is on the written description which should record type and period and would not normally exceed c50 words. The extent of a site is defined for sites or features greater than 50m in size and smaller sites are shown with a cross.
- 3.3.3 The reconnaissance will be undertaken in a systematic fashion, walking on approximately 30m wide transects within the extent of the defined study area. It is proposed to use Global Positioning System (GPS) techniques to locate and record the features. GPS instrumentation uses electronic distance measurement along radio frequencies to satellites to enable a positional fix in latitude and longitude which can be converted mathematically to Ordnance Survey National Grid. The use of

GPS techniques has proved to be an essential and extremely cost effective means of locating monuments, which can achieve accuracy of better than +/- 1m.

- 3.3.5 A photographic record will be undertaken simultaneously. An early surface inspection such as this is highly recommended, as such work can frequently double the amount of archaeological information for an area. This fieldwork will result in the production of plans at a scale of 1:2,500 or any other scale required, recording the location of each of the sites listed in the gazetteer. All archaeological information collected in the course of field inspection will be recorded in standardised form, and will include accurate national grid references. This will form the basis of a gazetteer, to be submitted as part of the report.
- 3.3.6 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.

3.4 ASSESSMENT REPORT

- 3.4.1 **Archive:** The results of Stages 3.2-3.3 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 any features and finds 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.
- 3.4.2 This archive can be provided in the English Heritage Central Archaeology Service format, both as a printed document and on computer disks as ASCII files (as appropriate), and a synthesis (in the form of the index to the archive and the report) will be deposited with the Cumbria Sites and Monuments Record. A copy of the archive will also be available for deposition in 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, should any material be recovered, with the material archive (artefacts, ecofacts, and samples, at this stage from surface collections) with an appropriate museum.
- 3.4.3 **Collation of data:** The data generated by 3.2 and 3.3 (above) will be collated and analysed in order to provide an assessment of the nature and significance of the known surface and subsurface remains within the designated area. It will also serve as a guide to the archaeological potential of the area to be investigated, and the basis for the formulation of any detailed field programme and associated sampling strategy, should these be required in the future.
- 3.4.4 **Assessment Report:** One bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further copy submitted to the Cumbria County Archaeologist. The report will include a copy of the project brief, 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, together with appropriate illustrations, including a map and gazetteer of known or suspected sites identified within or immediately adjacent to the study area. It will also include a complete bibliography of sources from which the data has been derived, and a list of further sources identified during the programme of work, but not examined in detail. 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.
- 3.4.5 This report will identify areas of defined archaeology, an assessment and statement of the actual and potential archaeological significance of any features within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map, which 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).

3.4.6 **Proposals:** The report will make a clear statement of the likely archaeological implications of the intended development. It will also make recommendations for any further evaluation of the identified archaeological potential deemed necessary or desirable for individual sites. It will seek to achieve, as a first option, the preservation *in situ* of all significant archaeological features, and possible strategies for the mitigation of the development, including design modifications, will be considered. Where conservation is neither possible, nor practical, it may be appropriate to recommend a further stage of more intensive archaeological work in order to mitigate the effects of development.

3.4.7 **Confidentiality:** The assessment report is designed as a document for the specific use of the client, for the particular purpose as defined in the project brief and this 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.

3.5 PROJECT MONITORING

3.5.1 **Tarmac Quarry Products Ltd:** LUAU will consult with the Client regarding access to land within the study area. This consultation will include, if required, the attendance of the Cumbria County Archaeologist.

3.5.2 **Cumbria County Council:** Any proposed changes to the project brief or the project design will be agreed with the County Archaeologist, Cumbria County Council, in conjunction with the client.

4. WORK TIMETABLE

4.1 The work can be undertaken within eight days and LUAU can execute projects at very short notice once an agreement has been signed with the client. The phases of work will comprise:

4.2 The project will be under the management of **Jamie Quartermaine, BA, Surv Dip, MIFA** (Unit Project Manager) to whom all correspondence should be addressed. All Unit staff are experienced, qualified archaeologists, each with several years professional expertise. Project Officers in Unit terminology are senior field archaeologists, capable of organising and running complex projects and undertaking less complex work quickly and efficiently to a high standard.

APPENDIX 3 SITE GAZETTEER

Site number 01
Site name Castlerigg (*sic*)
NGR NY 50300 41000
SMR no. 5988
Site type Crop mark/earthwork
Period Unknown
Source SMR
Description A dyke, showing as both crop mark and earthwork. It was identified from air photographs but was 'not immediately obvious' when visited in 1998 (SMR).
Assessment The site lies *c* 0.3km south-east of the study area and will be unaffected by development.

Site number 02
Site name Low Plains, Lazonby
NGR NY 50200 41600
SMR no. 5989
Site type Crop marks (unclassified)
Period Unknown
Source SMR
Description: A series of unclassified crop marks identified from the air photographs, which were neither visible on the ground when visited in August 1998 nor during the present assessment (December 1999).
Assessment: The site identified by the SMR lies mostly within the study area at its eastern extremity and may be affected by the development.

Site number 03
Site name Lazonby
NGR NY 49800 42000
SMR no. 5990
Site type Crop marks (Unclassified)
Period Unknown
Source SMR
Description: A series of unclassified linear crop marks, one running across a field on a north-east/south-west alignment. The marks were identified from air photographs, but were not visible on the ground in January 1998.
Assessment: The site adjoins the study area to the north, but is just outside.

Site number 04
Site name Lazonby
NGR NY 50400 42300
SMR no. 5993
Site type Enclosure
Period Unknown
Source SMR
Description: An enclosure identified from air photographs, whose antiquity *'is in some doubt as one end appears to pass faintly through a gate'* (SMR).

Assessment: The site lies c 0.3km north-east of the study area and will not be affected by development.

Site number 05
Site name Low Plains
NGR NY 49370 41800
SMR no. 10427
Site type Quarry
Period Unknown
Source SMR; OS First edition map (1860)
Description: A quarry identified from the first edition OS map 39.
Assessment: The site is within the study area and may be affected by the development.

Site number 06
Site name Lazonby
NGR NY 49100 42300
SMR no. 3801
Site type Crop mark
Period Unknown
Source SMR
Description: A large crop mark identified from air photographs with *'few obvious man-made features other than a possible linear feature running east/west at c NY 486 423. One field near the summit appears to contain possible earthworks consisting of a sub-rectangular bank at NY 493 426' (SMR).* The site was not identified by the present field survey.
Assessment: The site extends into the north-western part of the study area and may be affected by quarrying.

Site number 07
Site name Blackrack Beck
NGR NY 48950 41950
SMR no. 10456
Site type Quarry
Period Post-Medieval
Source SMR; Identification Survey
Description: A disused quarry identified from OS sheet NY 44 SE. The quarry was shown as 'disused' on an OS map of 1900. The identification survey revealed an ill-defined hollow, with exposed crags. The feature is relatively shallow, and represents a low level of extraction.
Assessment: The site is within the study area and may be affected by development.

Site number 08
Site name Thiefside Hill
NGR NY 48900 41500
SMR no. 3805
Site type Crop marks/enclosure
Period Unknown
Source SMR
Description: A series of unclassified crop marks identified from air photographs, which were not visible during a site visit of 1998 (SMR). It was possibly identified with the quarry seen on early OS maps (*Section 4.1.8*).

Assessment: The site lies *c* 0.2km south-west of the study area and will not be affected by the development.

Site number 09

Site name Blaze Fell

NGR NY 49720 42830

SMR no. 728

Site type Settlement

Period Prehistoric/Roman

Source SMR

Description: A sub-circular enclosure discovered in 1972, surviving as a low earthwork with an external ditch and remnants of a bank, as well as possible hut sites. Air photographs show a bank running north from the feature, and ridge and furrow respects it.

Assessment: The site lies *c* 0.75km north of the study area and will not be affected by the proposed development. It is beyond the limits of the study area mapping (Fig 4).

Site number 10

Site name Low Plains Farm (west)

NGR NY 49500 41650

Site type Settlement

Period Post Medieval

Source Tithe map: OS First Edition

Description: The westerly of two farms called Low Plains, it was in existence by 1845 and retains elements of its 1845 plan (*Section 4.1.5*).

Assessment: The site is outside the study area, between the two main sections, and will not be directly affected by the development.

Site number 11

Site name Low Plains Farm (east)

NGR NY 50300 41500

Site type Settlement

Period Post Medieval

Source Tithe map; OS First edition map

Description: The farm existed by 1845 and retains elements of its nineteenth-century plan. On the OS map of 1860 it is shown as an unnamed range of buildings around a quadrangle, with a small pond at the south-western external corner and a small semi-circular structure within the courtyard. A leat runs to the farm from the west. By the time of the 1900 map the pond had dried up or been filled in.

Assessment: The site lies immediately east of the study area and is not thought to be threatened by the development.

Site number 12

Site name Low Plains Farm (gatehouses)

NGR NY 48700 41700

Site type Settlement

Period Post-Medieval

Source Second Edition OS map (1900)

Description: Two small structures, probably gatehouses, were shown on the 1900 map on either side of a driveway leading to the westerly of the two Low Plains Farms.

Assessment: The structures are just to the east of the study area.

Site number 13

Site name Iron Age Settlement

NGR NY 5003 4042

SMR no. 765: Cu194

Site type Settlement

Period Prehistoric

Source North-Western Ethylene Pipeline Survey (Lambert 1996)

Description: A Scheduled Monument which includes an Iron Age settlement with contemporary trackways and field boundaries. The site is described as '*a small, circular or kidney shaped enclosure with stone walls, and a large hut with stone walls, located on a rise and reminiscent of a small hillfort*' with '*several traces of boundaries or dykes outside the scheduled area*' (SMR 765), some of which were surveyed and excavated by LUAU in 1990 (LUAU 1994).

Assessment: The monument is *c* 0.6km south-east of the study area and outside the survey mapping (Fig 4). It is an archaeologically important monument which lies close enough to the study area to have implications for it.

Site number 14

Site name A6 Roman Road

NGR NY 4887 4060 - 4835 4261

Site type Roman Road

Period Roman

Source OS 1st edition map (1860)

Description: The line of the north/south Roman road between Carlisle and Brougham has been adopted by the modern A6 road which extends to the immediate west of the study area. There are no surviving elements of early road visible on the surface.

Assessment: The road extends to the west of the study area and will not be directly affected by the development; however, the north-western extent of the study area extends to within 10m of the road and may potentially affect any associated features.

Site number 15

Site name Low Plains, Lazonby

NGR NY 56040 41586

Site type Sand quarry

Period Modern

Source Identification Survey 1999

Description This quarry has a diameter of *c*20m and has recently been used for the extraction of sand, as evidenced by the lack of vegetational cover and tyre tracks leading down (4.5m) to the quarries working faces. The site is located on a south-east-facing slope of a prominent hill which is in turn to the south-east of Low Plains farm, close to a field boundary and gateway which accesses the hill from the south. This hill is approximately 10m high and was probably derived from fluvio-glacial activity. It consisted of a red sand with 7% rounded stones which were up to 0.4m in size. No archaeological features were observed due to the lightness of the sand-derived soils; the hill is prone to extensive faunal disturbance (rabbit). A scatter of animal bones was observed across the quarry. A quantity of bone was also found to the south-west, 0.1m below the present ground surface. This 'bone bed' appears to be

relatively recent since bone does not survive well in sandy acidic soils, and was perhaps the result of farm disposal?

Assessment: The site lies within the boundary of the proposed development area, but is of low archaeological importance.

Site number 16

Site name Low Plains, Lazonby

NGR NY 49971 41662

Site type Crop mark

Period Prehistoric

Source Identification Survey 1999

Description The site was identified in ripening barley, which resulted in possible ditches being represented in the crop as greener unripened bands which formed an apparent series of concentric circles. The site was located to the north of the large sand hill (Site 15). It was estimated that the feature was oval, c12m across, and contained two pit-like features and further ditch-like features occurring as arcs within the oval-shaped feature. Outside the oval was a further zone represented by ripened barley which could extend the oval feature by another 20m all round.

Assessment: The site is within the study area and will be threatened by development.

Site number 17

Site name Low Plains, Lazonby

NGR NY 49961 41763

Site type Crop mark

Period Unknown

Source Identification Survey 1999

Description: This crop mark appeared as a linear feature 35m long x 10m across, oriented north-west to south-east, and was again identified from ripening barley. No trace of the feature was found to the north of the field boundary. It represents a hollow-way or, more likely, the underlying geology.

Assessment: The site is within the study area and will be affected by the development.

Site number 18

Site name Low Plains, Lazonby

NGR NY 48947 42049

Site type Revetted stream

Period Modern

Source Identification Survey 1999

Description A revetted stream on the line of both the Gas and Ethylene pipelines. Use has been made of glacial erratic boulders 1m x 2m in both tabular and imbricate arrangements along the stream banks.

Assessment It is of low archaeological importance.

Site number 19

Site name Low Plains, Lazonby

NGR NY 48901 42090

Site type Pheasant run

Period Modern

Source Identification Survey 1999

Description A rectangular wooden structure (6m x 5m) located in woodland to the north-east of Blackrack Beck. It consisted of a wooden frame up to 4m high with netted, and corrugated iron, panels to the base, the doorway being sited at the eastern corner. It has served as a modern pheasant run.

Assessment: The site is of low archaeological significance.

Site number 20

Site name Low Plains, Lazonby

NGR NY 4907 41948

Site type Pond

Period Modern

Source Identification Survey 1999

Description A small pond, c 5m diameter, was found cut into the flat flood plain to the west of Blackrack Beck. The upcast was situated to the west of the pond. This may represent a geological test pit, probably in connection with the proposed quarrying.

Assessment: The site is of low archaeological significance.

Site number 21

Site name Low Plains, Lazonby

NGR NY 49262 41752

Site type Bridge

Period Late eighteenth/nineteenth century

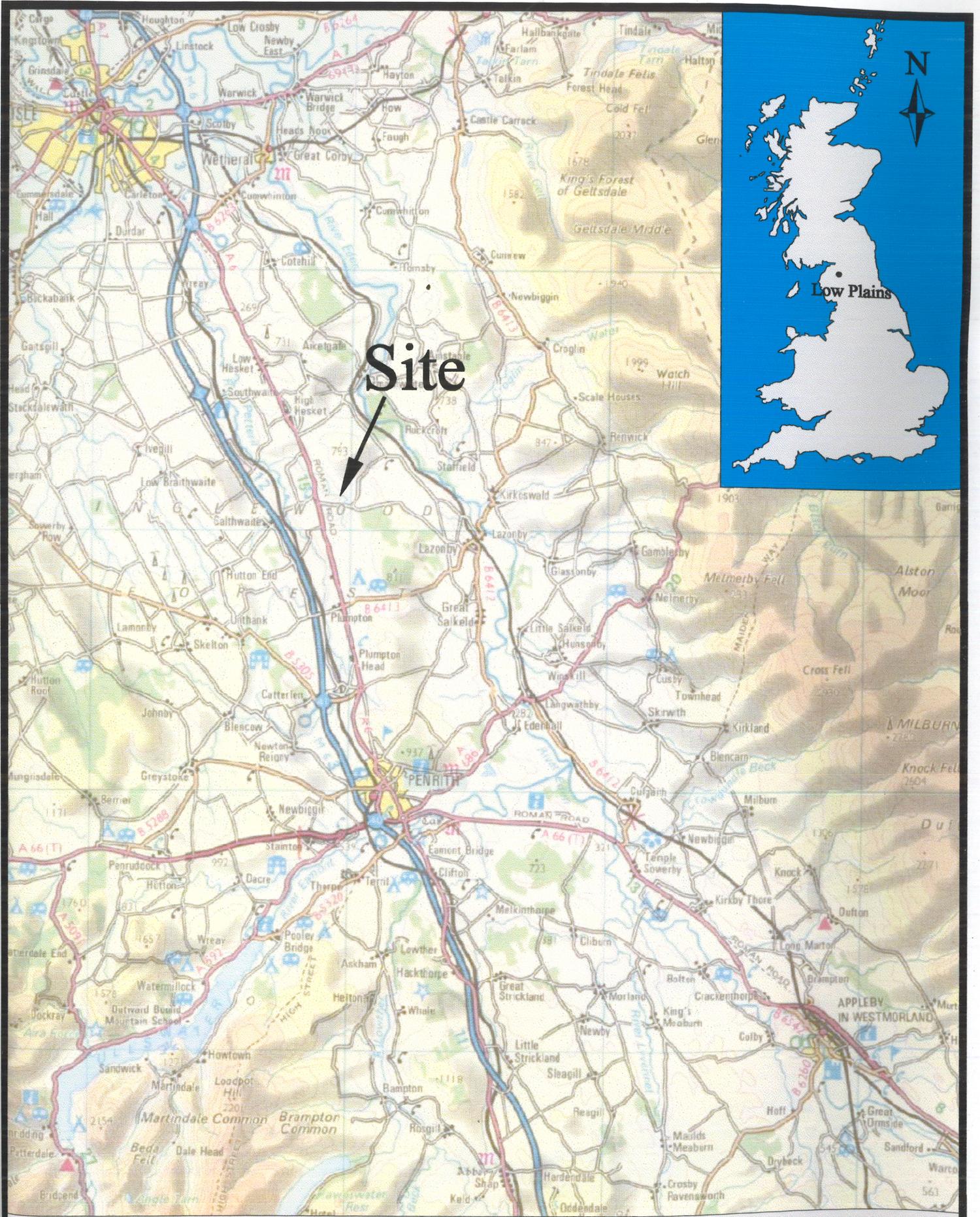
Source Identification Survey 1999

Description This bridge has now largely collapsed and has been replaced by a concrete pipe. Cobbles and ashlar masonry blocks now form a causeway across fields to the north-west of Low Plains farm, through a gateway just to the west of the site. A collapsed stone gate-post was also noted falling into the beck.

Assessment: The site is of low archaeological importance.

ILLUSTRATIONS

- Fig 1 Site location map
- Fig 2 Tithe Map (1845; CRO DRC/8/115)
- Fig 3 OS First Edition (1860) 6" to 1 mile
- Fig 4 Assessment Site Map



Site



based upon the Ordnance Survey 1:250000
with the permission of the controller of HMSO
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0 5km
metres

Fig 1: Low Plains Location Map

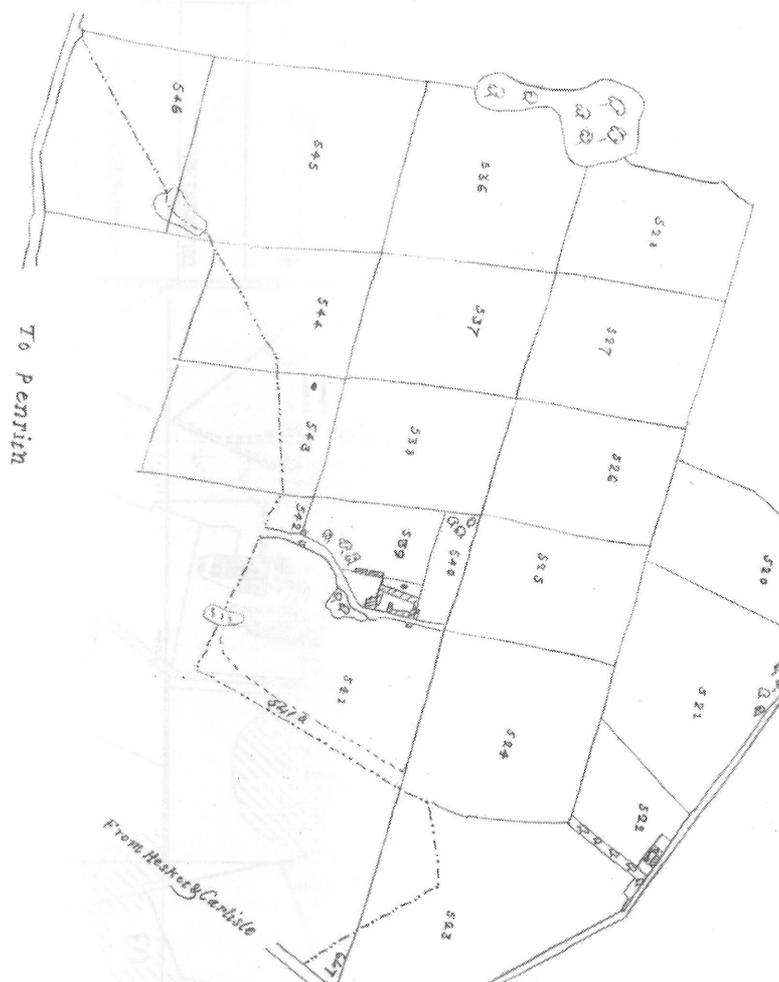


Fig 2 Tithe map (1845; CRO DRC/8/115)



Fig 3 OS First edition (1860) 6'' to 1 mile

PLATES

Plate 1 Aerial photograph looking east towards Low Plains Farm showing Sites 02 and 16

Plate 2 Oblique Aerial photograph of Site 02 and 16 looking south

Plate 3 Site 16 crop marks looking north



Plate 1 Aerial Photograph looking east towards Low Plains Farm; Site 16 is in the foreground and Site 02 beyond



Plate 2 Oblique Aerial Photograph: Site 16 is in the centre of the photograph and Site 02 is on the left side



Plate 3 Site 16 cropmarks in the foreground - looking north