PRN 42561

CAMBRIAN ARCHAEOLOGICAL PROJECTS LTD.

Blaencilgoed Quarry, Ludchurch, Pembs.

Archaeological Evaluation

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CAP Report No. 163

ARCHAEOLOGICAL EVALUATION

Blaencilgoed Quarry, Ludchurch, Pembs.

BY ***IAN HALFPENNEY, BA(Hons), AIFA***

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CAP Report No: **163**

Project No: **263**

ACAHM PRN: 42561

Date: **February 2001**

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THE INSTITUTE OF FIELD ARCHAEOLOGISTS (IFA)

Standard and Guidance for an archaeological field evaluation

The Standard

An archaeological field evaluation will determine,as far as it is reasonably possible, the nature of the archaeological resource within a specified area using appropriate methods and practices. These will satisfy the stated aims of the projects, and comply with the *Code of conduct, Code of approved practice for the regulation of contractual arrangements in field archaeology*, and other relevant by-laws of the IFA.

Definition of field evaluation

The definition of an archaeological field evaluation is a limited programme of non-intrusive and / or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evatuation defines their character, extent quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate.

Purpose of field evaluation

The purpose of field evaluation is to gain information about the archaeological resource within a given area or site (including presence or absence, character, extent, date, integrity, state of preservation and quality), in order to make an assessment of its merit in the appropriate context, leading to one or more of the following:

- the formulation of a strategy to ensure the recording, preservation or management of the resource.
- the formulation of a strategy to initiate a threat to the archaeological resource.
- the formulation of a proposal for further archaeological investigation within a programme of research.

The Standard and Guidance for an archaeological field evaluation was formally adopted as IFA approved practice at the Annual General Meeting of the Institute held on 14th October 1994.

NON TECHNICAL SUMMARY

The following report is the result of work undertaken by Cambrian Archaeological Projects Ltd. on behalf of Mr. I. Harries as part of a condition attached to a planning application submitted by Mr. Harries to Pembrokeshire County Council Planning Department. This report details the results of the field evaluation. The field evaluation was designed to determine whether any archaeological deposits were present on the site and to excavate and record their character and significance. The investigation did reveal a limited number of prehistoric archaeological features and also highlighted the potential impact of the development on three limekilns and associated features within the proposed Kilnpark Quarry workings.

1 INTRODUCTION (Fig.'s 1 & 2)

1.1 Mr. P.R. Deakin acting as agent for Mr. I. Harries, has submitted an application for planning permission (No. 99/0323/PA) to Pembrokeshire County Council Planning Department.

1.2 The site is located at NGR SN 1509011370, SN 1525010690, in the county of Pembrokeshire, approximately 1.5 Km. to the east of Ludchurch village (Fig. 1).

1.3 The proposed development involves the re-opening and reworking of a disused limestone quarry and the construction of an access road into the quarry workings (Fig. 2).

1.4 A Design Brief was prepared by Archaeolog Cambria Archaeology – Heritage management (ACA-HM). According to the Design Brief certain areas within the proposed development have a high archaeological potential. It is therefore assumed that any preserved and previously unrecorded archaeological deposits may be partially or wholly destroyed by the intended development.

1.5 As a consequence, ACA-HM recommended that a desk-based assessment (CAP Report No. 157) and archaeological evaluation should be undertaken in order to locate, excavate and record the archaeological resource prior to the development of the site.

1.6 Mr. P.R. Deakin, acting on behalf of Mr. Harries, invited Cambrian Archaeological Projects Ltd. to tender for the desk-based assessment and archaeological evaluation, in accordance with the prepared brief. The tender was successful and the work was carried out accordingly between December 2000 and February 2001.

1.7 All works were undertaken in accordance with the IFA's *Standards and guidance: desk-based assessment* and *Standards and guidance: field evaluation.*

1.8 The desk-based assessment component of this project has been produced separately as CAP Report No. 157 (PRN 42502).

Fig 01: Site Location Map

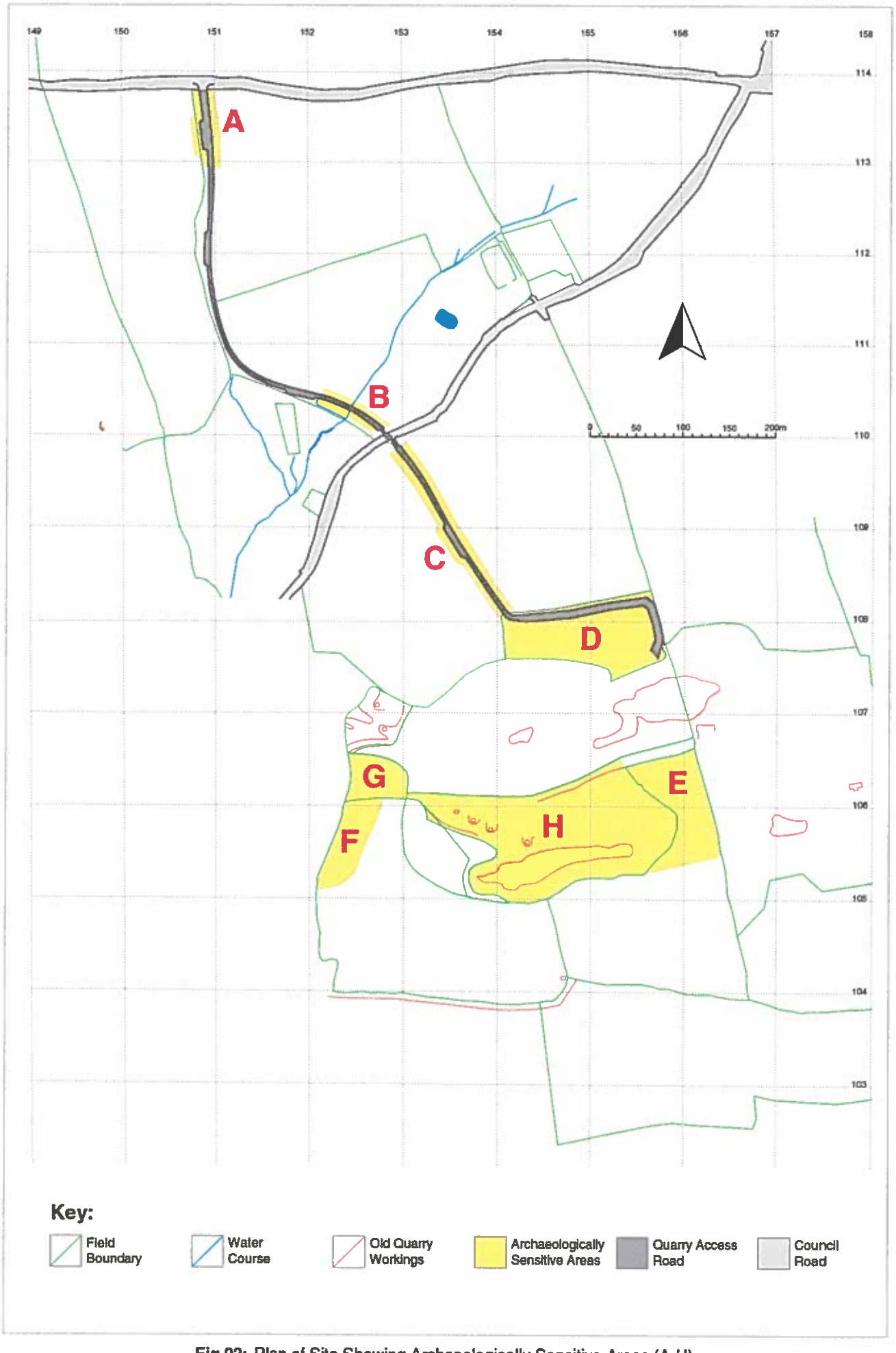


Fig 02: Plan of Site Showing Archaeologically Sensitive Areas (A-H)

2 AIMS & OBJECTIVES

2.1 The ACA-HM Design Brief stated that the primary objectives of this evaluation were:

2.1.1 To locate and mark the position of any archaeological features which were exposed within the archaeologically sensitive areas.

2.1.2 To then clearly define the location, extent, date, character, condition, significance and quality of any surviving archaeological remains, through the cleaning, excavation and recording of identifiable features.

2.1.3 To present the findings of the evaluation to ACA-HM, in order to ensure that any mitigation advice was made on a fully informed basis.

3 METHODOLOGY

3.1 Following agreement between ACA-HM and the developer, it was decided that the archaeologically sensitive areas should be machine stripped under archaeological supervision.

3.2 Topsoil and some subsoil were then removed with a mechanical excavator, a 20 ton tracked machine with a 10ft. ditching bucket.

3.3 In order to identify any archaeological features it was necessary to have archaeologists present on site for the duration of the machine stripping in these archaeologically sensitive areas.

3.4 As the machine removed the overburden down to the required depth the exposed surface was cleaned and visually assessed, in order to establish whether any archaeological features or deposits were present.

3.5 Any potential archaeological features were noted and tagged.

3.6 Upon completion of the machine stripping the exposed area was inspected for a second time.

3.7 Following agreement between the Landowner (Mr. Harries), the Contractor (CAP Ltd.) and the Curatorial Department (ACA-HM), contingency funds were released so that the excavation and evaluation of identified archaeological features could be undertaken.

3.8 The excavation of archaeological features was undertaken in order to elucidate the character, extent, quality, preservation and significance of the archaeological remains.

3.9 The deposits within the trenches were excavated using standard accepted archaeological techniques.

3.10 Each trench was cleaned and recorded. Recording of the trenches was in three formats:
i) Photographic record shots were taken in 35mm. colour slide, colour print and black and white formats.

ii) Drawn records, plans and sections, were produced at scales of 1:10, 1:20 or 1:50 on drafting film.

iii) Written records were produced using a continuous numbering sequence for all contexts.

3.11 The natural deposits underlying the archaeology were located in at least one part of each trench section.

3.12 An environmental sampling and processing strategy was in place should the archaeological deposits warrant it. However, in this instance it was not felt that the deposits encountered warranted or needed sampling.

3.13 All works were conducted whilst adhering to current Health and Safety Regulations.

4 RESULTS OF THE FIELD EVALUATION

4.1 Geology

4.1.1 The purpose of the quarry is to exploit the limestone seam which runs in a north-west/south-east direction across this part of southern Wales (BGS, 1990). In the north of the site the access road leading to the quarry crosses an area of Lower Devonian Sandstone before it crosses into the limestone area. Therefore, there is some variation in the underlying 'C' horizon which will inevitably give rise to some variability in the 'A' and 'B' soil horizons present across the site.

4.2 Soils

4.2.1 According to the Soil Survey of England and Wales the site of the proposed development runs across two different soil types. Both soil types are classed as being typical '*Brown Earth*' soils.

4.2.2 In the northern area the soils are mapped as belonging to the 'Milford' Soil Association. Milford soils are usually located over Devonian sandstone, siltstone, mudstone and slate. These soils tend to be well drained fine loamy reddish soils, often used for stock rearing.

4.2.3 The soil present on the rest of the site conforms to the East Keswick 3 Soil Association. These tend to be well drained fine loamy soils given over to stock rearing and dairying.

4.3 Topography and Landuse

4.3.1 At present the access road runs across fields which are given over to livestock rearing, predominantly dairy cattle and sheep but also some horses.

4.3.2 The quarry area is composed predominantly of abandoned and heavily overgrown quarry pits. Those areas which have not been quarried are maintained as improved pasture.

4.3.3 The fields within the development have clearly been extensively ploughed with regular episodes pasture improvement. There is considerable localised variation in the topography, with the fields undulating. These undulations do not appear to be well defined and without further investigation it is not possible to ascertain whether these anomolies have a natural or an anthropogenic origin. However, given the lack of definition to these features they appear more likely to be of natural origin. The fields all have a southerly aspect, sloping down from the north.

4.4 Fieldwork Background

4.4.1 Numbers in brackets within the following section relate to context numbers assigned by CAP Ltd. staff during the fieldwork phase of this project.

4.4.2 Due to the extensive area covered by this development the archaeologically sensitive areas are identified in this report by a series of letters beginning with area A (Fig. 2).

4.4.3 Areas A – D relate to Phase I of the archaeological work covering the quarry access road.

4.4.4 Areas E – H relate to Phase II of the archaeological evaluation undertaken within the quarry area.

4.4.5 Within this report each area is dealt with in alphabetical order.

4.4.6 The location and route of the access road had been agreed, prior to the commencement of work. The width of the access route varied between 4 and 6m. A total length of 800m. of the access road was considered to be running through areas with a high archaeological potential.

4.4.7 The topsoil (1) present across the site was relatively consistent, in terms of its constituent parts, being a well drained humic loam with a well developed crumb structure. It contained very few inclusions. Depth 0.2m.

4.4.8 The subsoil (2) showed more variation, although it tended to be a fairly organic silty loam that merged gradually with the topsoil to produce an indistinct boundary between these two soil horizons. The subsoil appears to be fairly well drained with little evidence of seasonal waterlogging episodes. Again this was a relatively clean deposit with few stone inclusions, although the stone inclusions increased with depth, as did the clay content of the soil. Depth 0.25m.

4.4.9 Archaeological features were only discernible following the removal of these 'A' and 'B' horizons.

4.4.10 The underlying 'C' horizon did show considerable variation which meant that there were initial problems in distinguishing between features with an archaeological origin and those formed by natural processes.

4.4.11 The machine excavation of the development area began at the northern limit of the access road and continued south into the Quarry.

PHASE I:
Quarry Access Road

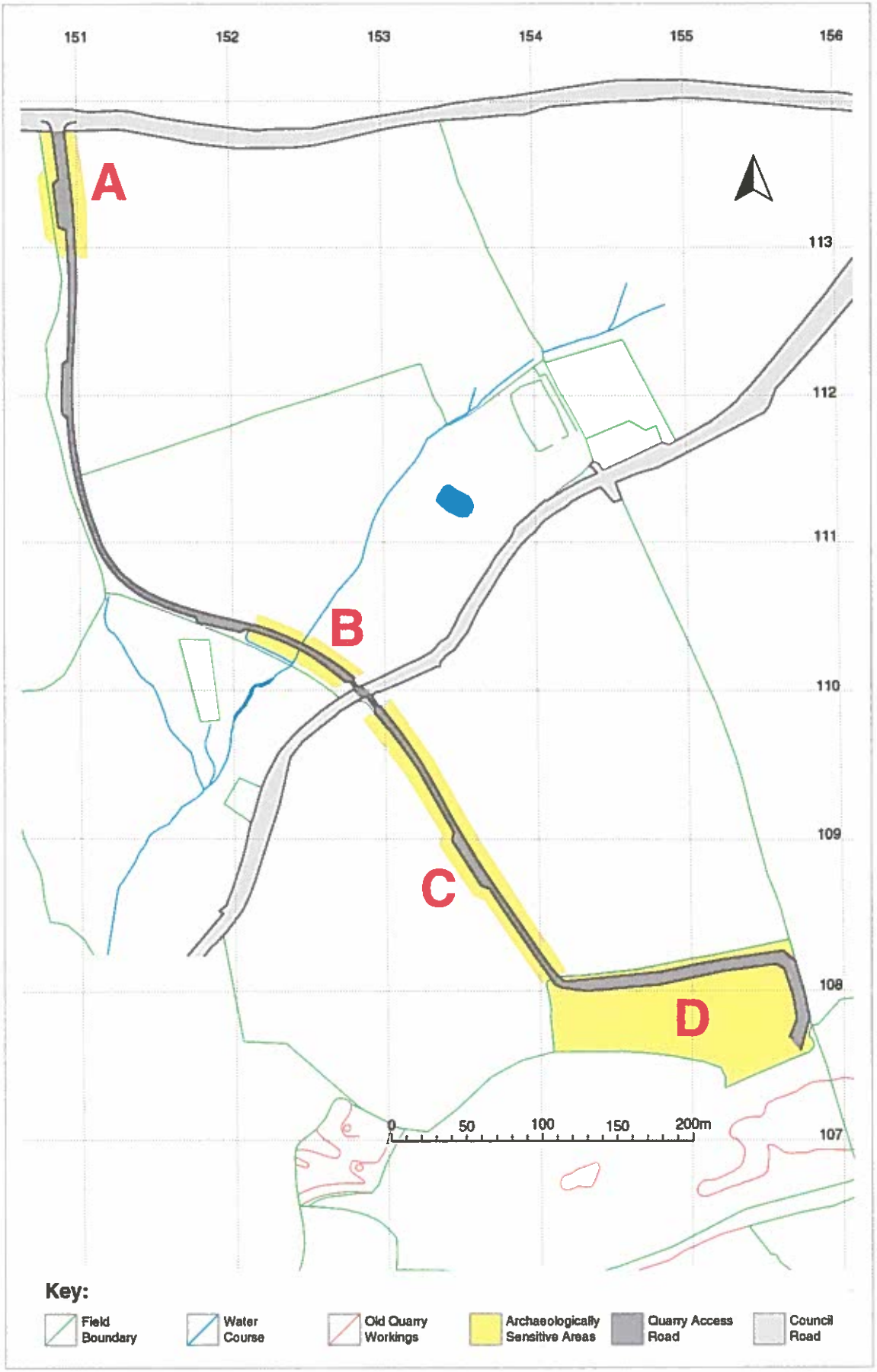


Fig 03: Plan Showing Quarry Access Road, Areas A-D

PHASE I – THE QUARRY ACCESS ROAD (FIG. 3)

4.5 **Area A** (Fig. 3)

4.5.1 Area A was located at the northern edge of the site where the access road meets the 'B' road. The overall length of this area was approximately 80m. with a width of approximately 4m. The machine removed between 0.3 & 0.4m. of topsoil and subsoil. The reddish hue of the subsoil indicated that sandstone geology was present below the topsoil and subsoil. The depth of the subsoil in the north of this area was such that not all of it needed to be removed. Therefore, there were no archaeological features discernible within the northern section of this trench. As the stripping moved to the south of this area the subsoil became shallower and the underlying decayed sandstone deposits were exposed. However, no archaeological features were cutting into this sandstone.

4.5.2 Area A was considered to have a high archaeological potential due to the fact that it lay on a direct line between a cluster of Bronze Age barrows and another outlying barrow, possibly indicating the presence of a linear barrow cemetery. There are also a number of other important prehistoric monuments within the immediate environs, including standing stones, enclosures and hillforts.

4.6 **Area B** (Fig. 3)

4.6.1 Area B was located in the field to the south of Area A, in the south-eastern corner and measured approximately 80m. in length and 4m. in width. The Area B trench was bisected by a deeply cut fluvial channel that had clearly been established for some time. Following the stripping of the topsoil in this area it was clear that this western part of the trench had been deliberately built up, probably in order to contain the aforementioned fluvial channel, as it drains into the field below. Where the channel approached the southern edge of the field the west bank of the channel had been built up and reinforced with dumped clay deposits and a rudimentary stone block revetment. This clay subsoil, whilst containing the water channel, had prevented surface water from draining out of this area hence the marshy/boggy nature of this part of the field. The clay was left *in situ* and no archaeological features were evident cutting into the clay.

4.6.2 On the eastern side of the channel the western bank also showed evidence of having been deliberately built up with a large dump deposit of coal and ash waste. On the level area to the east of the channel bank the machine came down onto a small upraised shelf of solid geology. Three possible features were investigated in this area but were found to be of natural origin.

4.6.3 Area B was considered to have a high archaeological potential due to the fact that there were documentary references to a Medieval Water Mill having been present in this area. No above ground evidence survives which would indicate the precise location of this feature and it was therefore important to ascertain that any possible surviving sub-surface remains of the mill were not inadvertently destroyed during the machine work on the access road. No archaeological deposits relating to the mill were located during the machine stripping of this area.

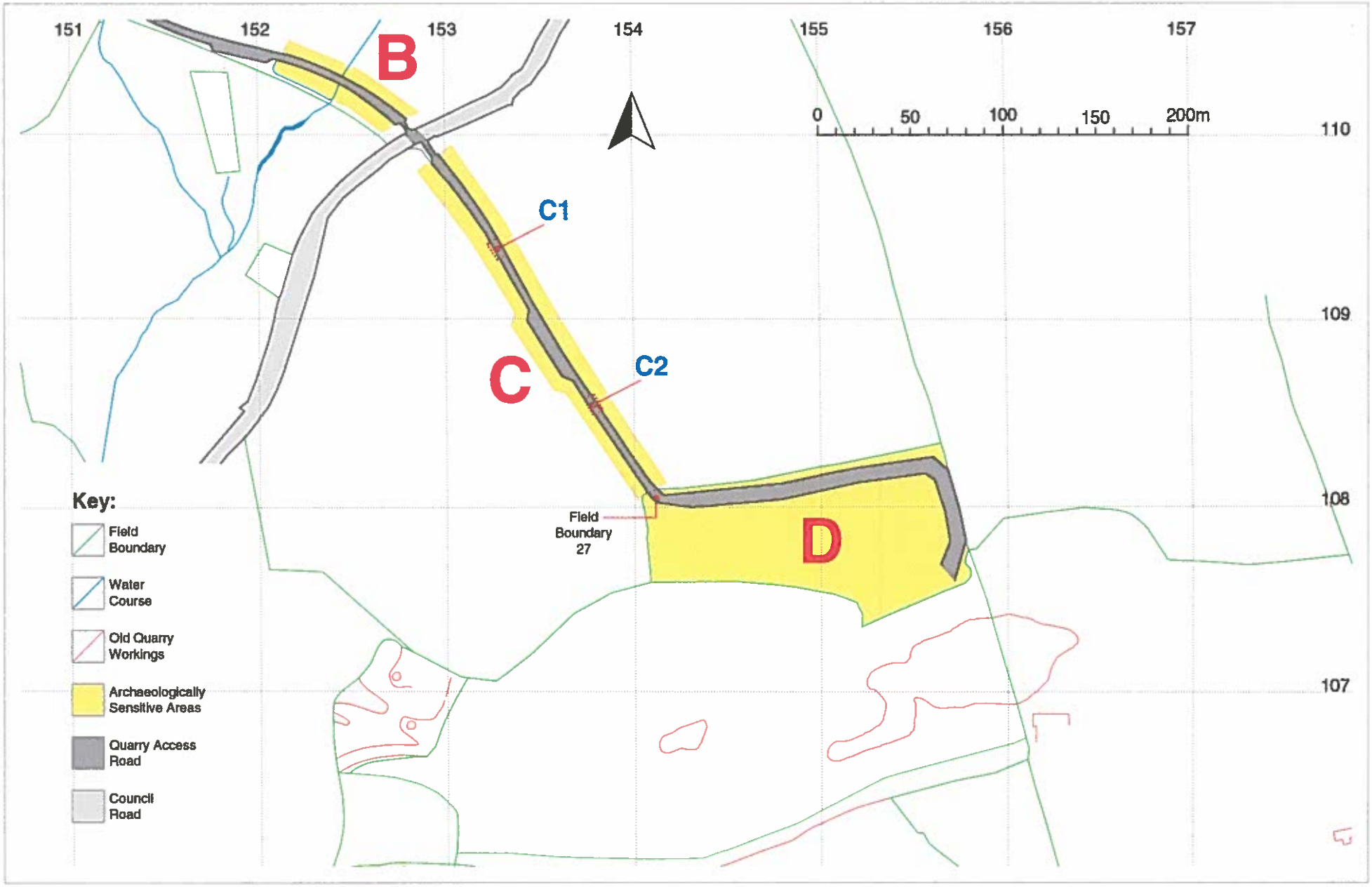


Fig 04: Plan of Access Road, Areas C & D

4.7 **Area C** (Fig. 4)

4.7.1 Area C covered the longest archaeologically sensitive area along the access road route. This area was approximately 230m. in length with a width of 4m. The topography of the field is essentially a small terrace/plateau in the north of the field, with the field then sloping down to a gate in the south-east corner. This is a large field covering an area of approximately 20 acres. The access road avoids the top of the field and runs across the slope of the field in a north-west/south-east direction. The road exits the field through a substantial earthen field boundary (27) marking the dividing line between Areas C and D.

4.7.2 A number of features were investigated along the length of Area C and considerable variability was evident within the 'C' horizon of this trench. Patches of decaying and broken sandstone and limestone gave way to more solid geology and some deep deposits of subsoil were evident, where hollows or fissures in the geology had occurred. Linear features containing pea grit deposits also indicated fluvial deposition processes.

4.7.3 A number of less substantial linear features were also evident within Area C and probably relate to plough scarring. These plough scars appear to have been responsible for truncating a number of archaeological features within the trench.

4.7.4 Cleaning of the Area C trench revealed two discrete areas containing archaeological deposits C1 & C2 (Fig. 4). The first area C1 (Fig. 5) contained two postholes (9 & 13) and a curvilinear gully/ditch (11):

4.7.4.1 *Cut 9* (Fig. 6) - This feature was located in the centre of the trench. Excavation revealed cut 9 to be the remains of a posthole, measuring 0.7m. in diameter and 0.4m. deep. The posthole had steep sloping sides and a regular slightly concave base. In profile the cut of this posthole had a steeply sloping southern side with a pronounced step on the northern side. There was only one deposit (8) infilling this posthole which was a mid brown silty clay with frequent large stone inclusions. The large pieces of stone within this fill (8) may represent the remnants of the post-packing. The fill also contained a considerable amount of charcoal and one piece of datable material - a flint flake. Initial analysis of the flake indicates that it is probably Bronze Age in date. This artefact will be sent to a flint specialist and the subsequent report will be included in the final archive for this site.

4.7.4.2 *Cut 11* (Fig. 7) - Cut 11 was evident in plan as what appeared to be a curvilinear/semi-circular ditch or gully. The concentration of stones within the fill (10) was what defined the shape of this feature in plan. Sample excavation of this feature was undertaken and this revealed the cut to be slightly wider than the stoney fill had initially suggested. The sides of this feature were steeply sloping and the base had a rounded/concave profile which was cut into the underlying fragmented geology. No datable material was recovered from the fill of this gully and up to half of this feature lay outside the area of excavation and was not therefore exposed during these ground disturbance works. The stoney fill of this gully appeared to be confined to the centre with the sides of the fill becoming less stoney as the deposit spread out toward the sides of the cut.

4.7.4.3 *Cut 13* - Cut 13 was located immediately to the south of cut 9. In plan cut 13 appeared to be very similar to cut 9. However, sample excavation of this feature revealed that it was not as well defined as cut 9 with much less regular/uniform sides and base. No datable material was recovered from the fill (12) of this cut. Despite the comparative irregularity of this feature, it is believed to be the remains of a posthole and not a natural feature. This is due largely to the frequent charcoal inclusions present within the fill.

4.7.5 Area C contained one other area of archaeological features C2 (Fig. 8), which consisted of three possible postholes (21, 23 & 26):

4.7.5.1 *Cut 21* (Fig. 9) - This was a circular/posthole feature with a diameter of 0.6m. and a depth of 0.3m. The sides of this feature sloped steeply down to a rounded base which was cut into a natural gravel deposit. No datable material was recovered from the fill (20) of this posthole which contained a large amount of charcoal flecks but no evidence for any post-packing.

4.7.5.2 *Cut 23* (Fig. 10) - Cut 23 was located immediately to the south of cut 21. As with 21 cut 23 also appeared to be a posthole although it had a less rounded shape being more oval in plan. Excavation of this feature revealed that the southern section had been truncated, probably as a result of deep ploughing. No datable material was recovered from the fill of this cut which was 0.8m. in length and 0.2m. deep.

4.7.5.3 *Cut 26* - Cut 26 was a less convincing feature than cuts 21 & 23 and may represent the basal remains of a posthole. All that remained was a very shallow concave depression approximately 0.05m. deep which was filled with a dark grey silty clay (25) containing a frequent amount of charcoal inclusions. Unfortunately no datable material was recovered from this feature which appears to have been seriously truncated by ploughing, leaving only the very base of the cut and fill *in situ*.

4.7.6 In addition to the archaeological features a number of other anomalies within Area C were sample excavated to ensure that these were not archaeological features. The results of this evaluation work indicated that these anomalies related to natural depositional processes and had no archaeological significance.

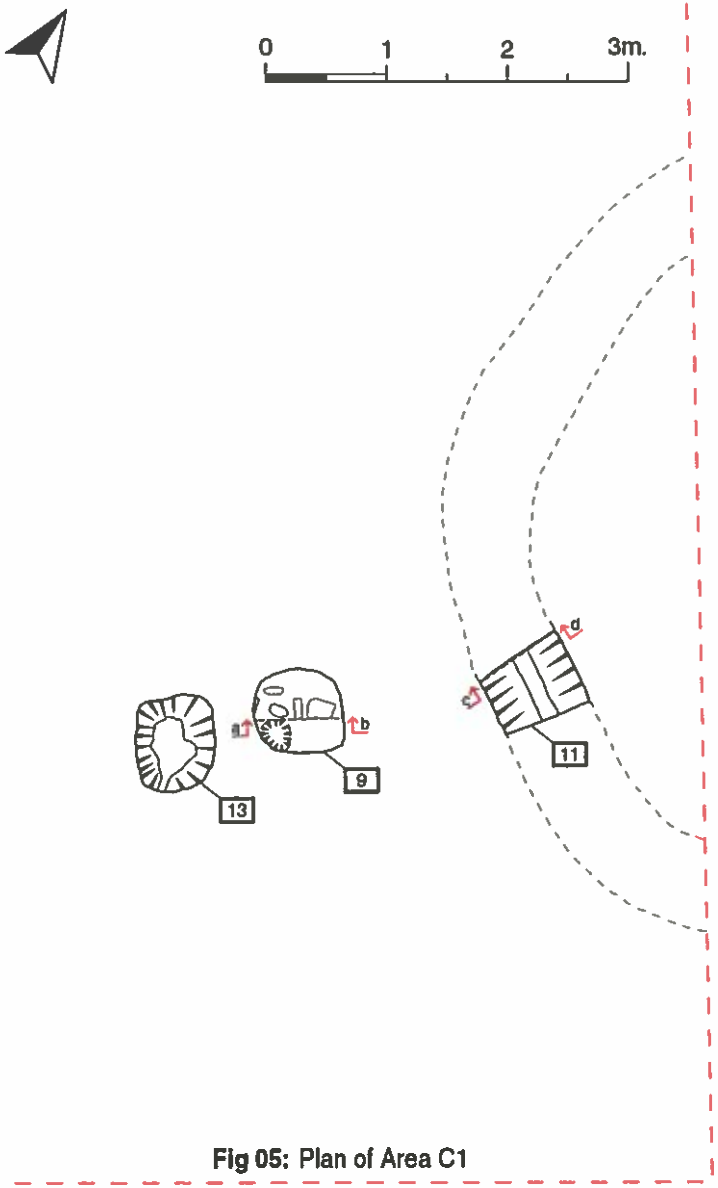
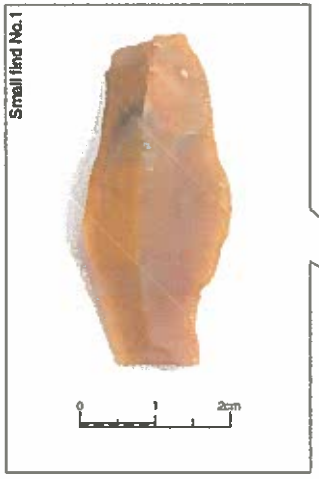


Fig 05: Plan of Area C1



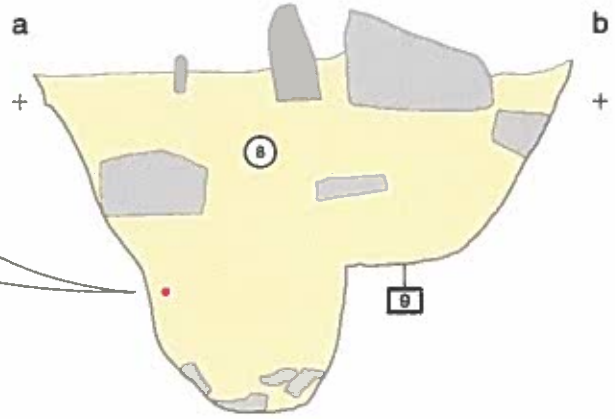


FIG 06: SE. facing section - Cut 9

FIG 07: SE. facing section - Cut 11

AREA C1

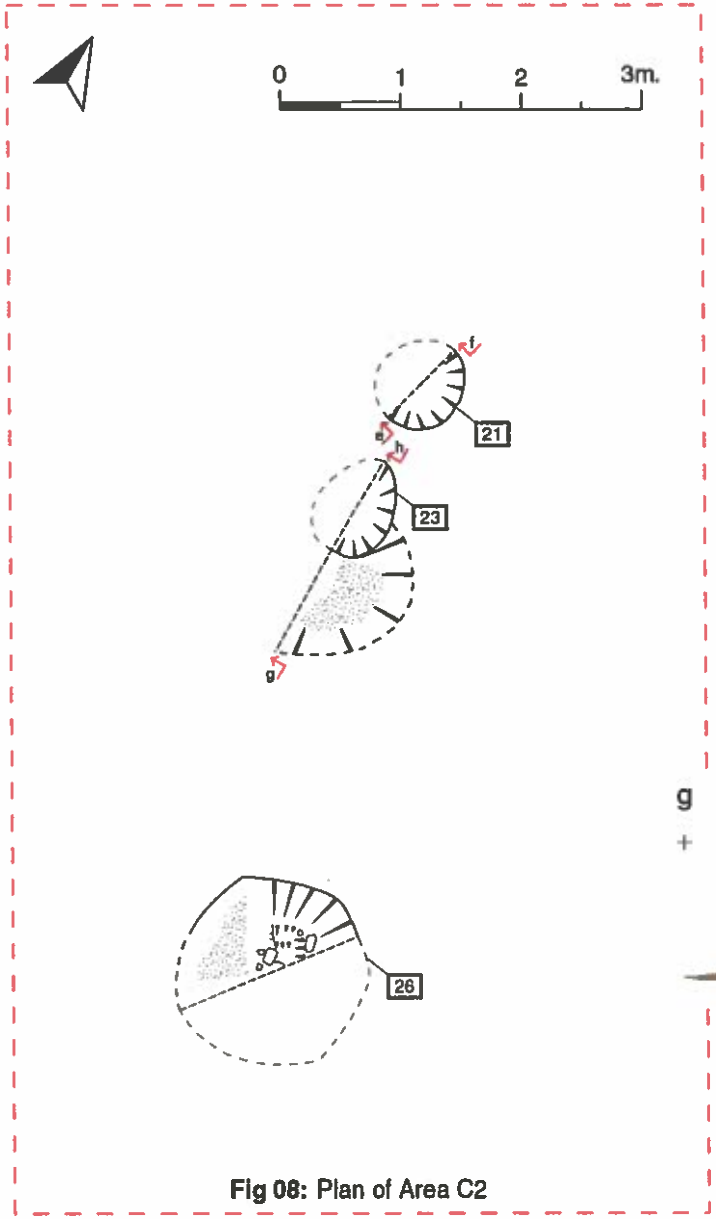


Fig 08: Plan of Area C2

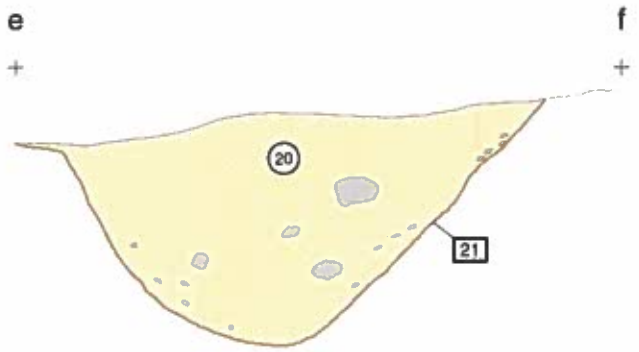
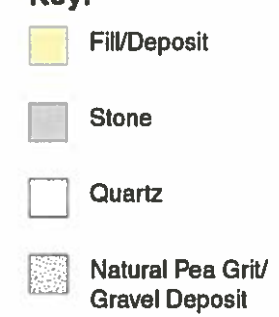


FIG 09: SE. facing section - Cut 21



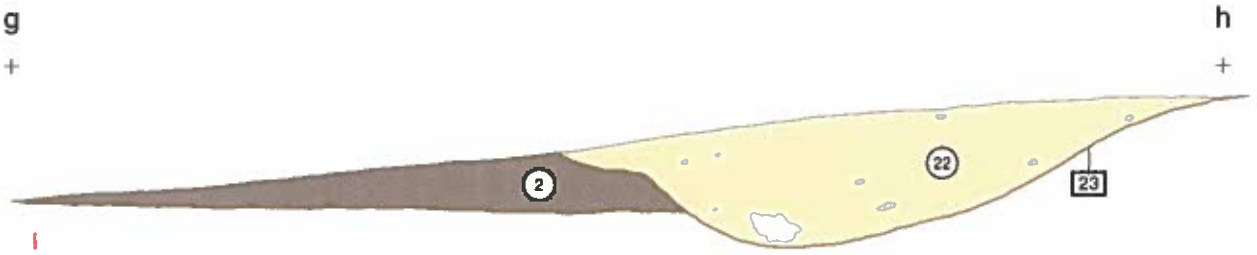


FIG 10: SE. Facing Section - Cut 23

AREA C2

4.8 **Area D** (FIG. 4)

4.8.4 Area D is essentially a continuation of Area C with their boundary being denoted by a well established field boundary (27), which defines the end of one field (C) and the start of the other (D). As with area C the variability within the 'C' horizon continued into area D.

4.8.5 The construction of the quarry road necessitated the cutting of a section through this large field boundary (27). This provided an opportunity to record the boundary profile and the deposits that made up this feature (Fig. 11). The field boundary bank was composed entirely of mounded earth which had been stabilized due to the vegetation cover on the bank. Very few inclusions were evident within the bank deposit (15), apart from occasional limestone fragments. The bank stood at a height of 1.2m. above the surrounding ground level with a width of 3.5m. Immediately to the west of the bank were the remains of a shallow ditch (18) which was 0.35m. deep and approximately 1.3m. wide. This ditch does appear to be contemporary with the field bank, probably carrying water out of the field to the south. One piece of datable material was recovered from the silty infilling (17) of this ditch/gully, a copper alloy shoe buckle. Preliminary analysis indicates that this buckle is post-medieval in date. This artefact buckle will be sent to a specialist for dating and the subsequent results will be included in the final site archive.

4.8.6 This field boundary is evident on the earliest 18th century maps for the Blaencilgoed estate and the size of the bank and extent of the vegetation cover suggest that it could be considerably older. The quarry environs contains a number of field boundaries of this type, which appear to be peculiar to this area. They are unusual in that the banks are composed entirely of earth, with no stone component to them.

4.8.7 A number of large poorly defined features were evident within the Area C trench. It was felt that it would be advisable to sample excavate the most well defined of these features, in order to ascertain whether they were of archaeological or natural origin.

4.8.8 This area of Wales marks the south-western limit of the British Isles Devensian ice-sheets (Bell & Walker, 1992). The profile of the surrounding hills with their typical smoothed and rounded features are strongly indicative of glacial scouring and it is along this coastline that the glacier snouts would have run over the hills and into the ocean. As this area would have been located on the very edge of the glacial extent there would be a susceptibility to the seasonal outflow of glacial meltwaters and glacio-fluvial deposition. Also being on the edge of the glacier would have meant that the immediate environment would have been periglacial. Periglacial environments produce a range of geomorphological features such as ice wedge casts, involution hollows and congeliturbation deposits which need to be identified in order to separate them from the archaeological record.

4.8.9 Sample excavation of these anomalous features revealed that they were composed of poorly defined interleaved deposits and were unlikely to have an archaeological origin. It is now believed that the larger features are more likely to relate to the aforementioned glacio-fluvial or periglacial geomorphological processes.

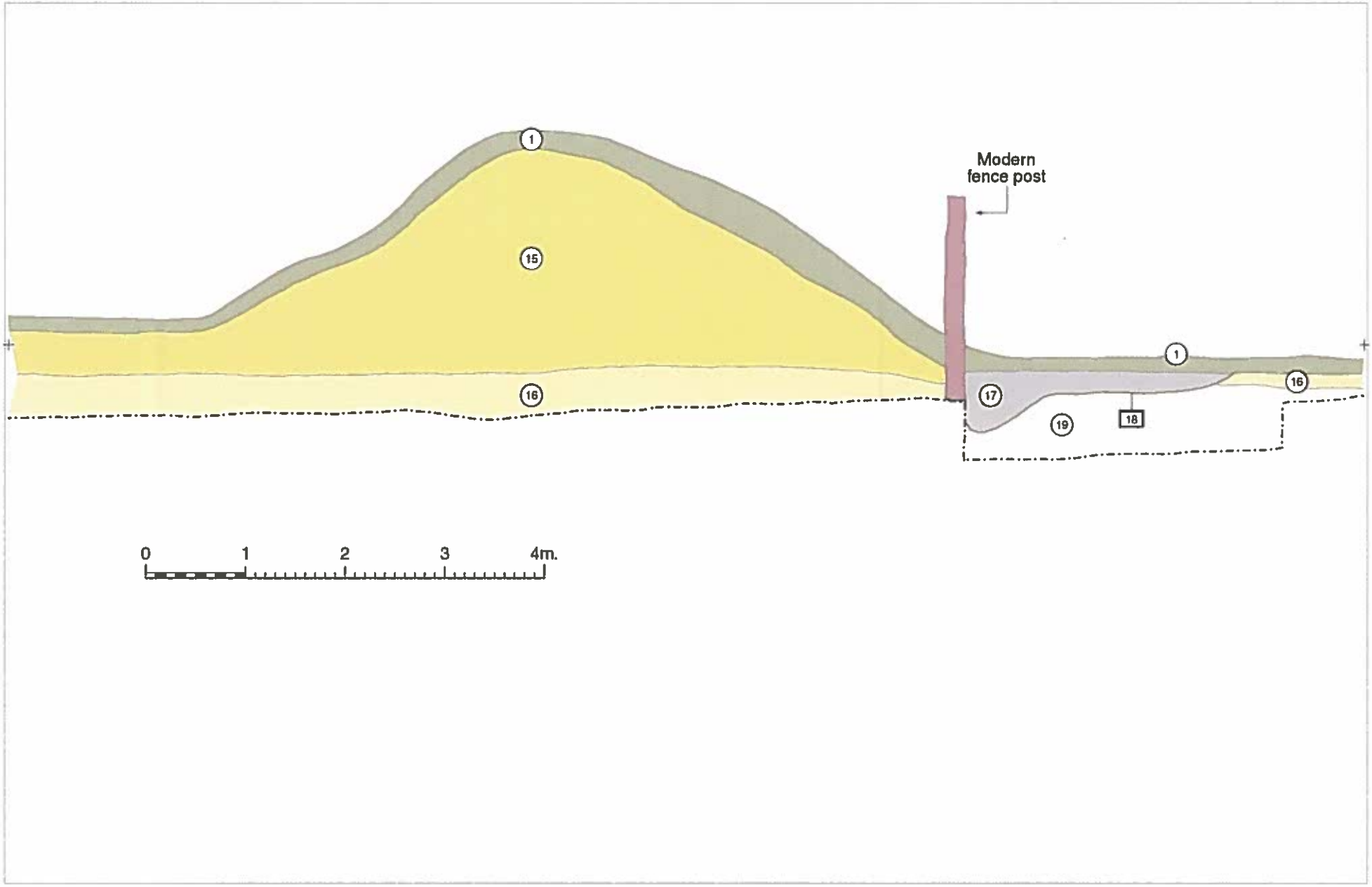


Fig 11: Profile Through Field Boundary 27, north facing section.

PHASE II:
The Quarry

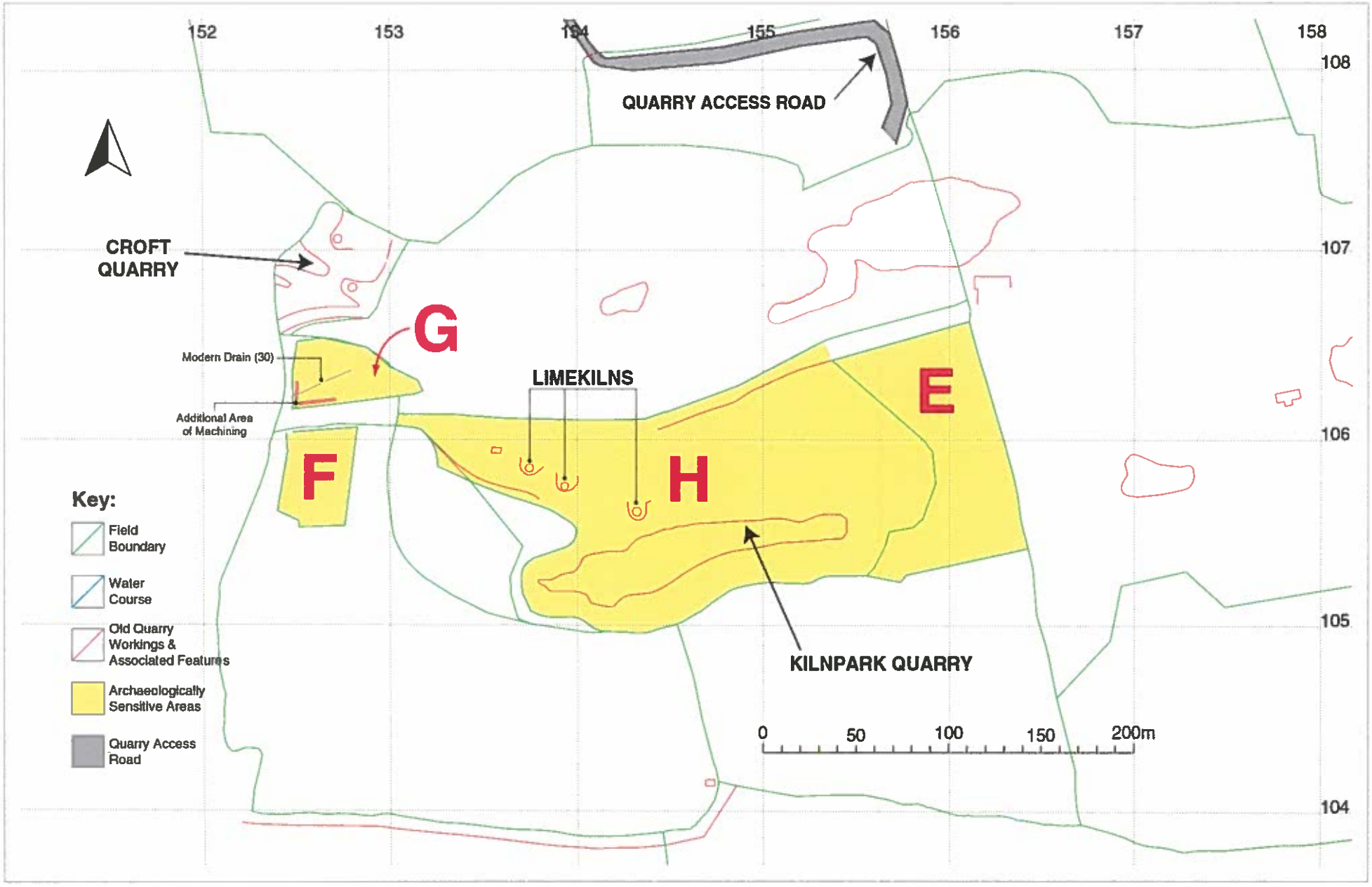


Fig 12: Plan of Quarry, Areas E to H

PHASE II – THE QUARRY (FIG. 12)

4.9 **Area E** (Fig. 12)

4.9.1 Area E was located immediately to the east of Kilnpark Quarry. The area to be stripped measured approximately 120m. north-south and 80m. east-west.

4.9.2 This area was topsoil stripped in order to provide an area in which stone extraction operations could begin. Archaeologists were present during the removal of this topsoil material.

4.9.3 One archaeological feature was located on the northern limit of this area adjacent to the hedgerow which marks the boundary of the public footpath which runs east-west across the quarry site:

4.9.3.1 *Cut (29)* – Cut 29 was circular in plan and probably represents the basal remains of a posthole. Overall this circular feature had a diameter of 0.36m. and excavation revealed it to have a depth of 0.12m. One sherd of post-medieval pottery was recovered from the fill (28), which was a friable dark brown silty clay. This sherd of pottery is known as slipware and dates mainly to the early 18th century.

4.9.4 Extensive 'hand cleaning' of the area surrounding the posthole was undertaken in order to ascertain whether there were any associated features. No other archaeological features were located apart from some evidence of plough scarring.

4.9.5 Cut 29 was the only archaeological feature detected within Area E. A limited amount of datable material was recovered from the topsoil during the stripping of this area. This consisted predominantly of post-medieval pottery sherds, mainly 18th century in date. In addition to the pottery one waste flint flake was recovered. This piece of translucent black flint was unstratified and the damaged condition of this artefact indicates that it had been subjected to post-depositional disturbance and was not in its original position, probably having been moved and damaged by the ploughing of this field.

4.10 **Area F** (Fig. 12)

4.10.1 Area F was located immediately to the west of Kilnpark Quarry. This area was machine stripped in order to provide an area for the stockpiling of subsoil which was being stripped from other areas within the quarry.

4.10.2 This area was relatively level, rising slightly to the south. Overall an area of topsoil covering approximately 51m. north-south by 38m. east-west was removed.

4.10.3 The topsoiling of this area did expose a fragmented stretch of the underlying limestone geology.

4.10.4 No archaeological features or deposits were located during the machining and subsequent archaeological cleaning of this area.

4.11 **Area G** (Fig. 12)

4.11.1 Area G was located on the western edge of the quarry site immediately to the north of the holloway/trackway which runs east-west across the quarry site.

4.11.2 This area, which measured 70m. east-west by 35m. north-south, was topsoil stripped so that the area could be used as a subsoil storage area.

4.11.3 The southern part of Area G was relatively level, with the land then sloping down to the south. This slope is likely to be the result of previous quarrying activity in this area. Therefore, the archaeological potential of the southern portion of Area G is considerably reduced.

4.11.4 One feature (30) was identified during the evaluation of Area G. Excavation of this linear feature revealed it to be a modern drainage channel.

4.11.5 Given the proximity of this soil stripping area to the location of the cist, which was uncovered in 1903, it was felt that some additional deeper machine work should be undertaken in this area. This was done in order to ensure that significant archaeological features or deposits were not being masked by subsoil or colluvial build-up.

4.11.6 The extra machine work was done in an L shape in the south-west corner of Area G. Approximately 0.15m. of subsoil material was removed along the length of this L shaped area. This revealed a series of interleaved natural clays and gravels, probably of glacio-fluvial origin.

4.11.7 No features or deposits of archaeological significance were located or identified within this area.

4.12 **Area H** (Fig. 12 & 13)

4.12.1 Area H covered an area of the abandoned quarry workings known as 'Kilnpark Quarry'. Kilnpark Quarry derived its name from the fact that three limekilns are present in the north-west corner of this abandoned quarry working. Two of these limekilns are grade II listed buildings (Listed Building no's: 18992 & 18993), probably of 19th century origin. Following the abandonment of the quarry, the limekilns and surrounding workings became heavily overgrown. As part of the quarry redevelopment Kilnpark Quarry is to be re-opened. This will involve the construction of a road into the quarry which will necessitate the removal of the undergrowth.

4.12.2 A preliminary assessment was undertaken on 14th February 2001, by staff from CAP Ltd. in conjunction with ACA-HM staff. The two key issues were: to assess the condition of the limekilns and secondly to investigate whether there are any features associated with the limekilns which had not been previously

identified.

4.12.3 The cartographic evidence indicates that Kilnpark Quarry is a relatively recent addition to the overall quarry complex. Kilnpark Quarry is not evident on the 1850 Estate map and is first mapped on the Ordnance Survey First Edition 1891 Map (CAP Report 157). Therefore the quarry and any associated features within the quarry are unlikely to be older than the mid 19th century. Typically features associated with 19th century draw kilns such as these would be fairly limited. The limestone would be extracted from the quarry, brought to the kiln where it would be loaded into the top of the kilns combustion chamber, which was known as a 'crucible', 'bowl' or 'pot'. Alternate layers of coal and limestone would be loaded into the top of the kiln at a ratio of 3-5 parts limestone to 1 part coal. The thick stone walls of the kiln meant a high constant temperature could be maintained. Draw holes at the base of the structure allowed the ash and lime to be removed, loaded onto barrows or wagons and taken from site. Therefore, this relatively straightforward process required only a few ancillary structures or features. The most obviously necessary features were access ramps and trackways to transport the stone from the quarry face and up to the top of the combustion chamber with a trackway to remove the lime from the site. Some of the larger kiln sites would operate horse-gins and steam engines to load limestone into the kilns. Inclines, narrow gauge railways, waterwheels, cranes and ropeways were also used to bring the limestone to the charging platform and the mouth of the combustion chamber. Contemporary 18th and 19th century illustrations occasionally depict small lean-to shelters and sheds next to the limekiln structures. There would also be dumps of waste material from the kilns which may be located in the immediate vicinity.

4.12.4 Within the overall quarry complex there are three other limekilns (Listed building no's 18994-18996), located within Croft Quarry. As part of the field assessment a visit was also made to Croft Quarry. The limekilns within Croft Quarry should be unaffected by the proposed development. However, it was useful to view the kilns within Croft Quarry in order to be able to contrast them with the limekilns in Kilnpark Quarry.

4.12.5 The limekilns within Croft Quarry appear to be in relatively good condition with the stonework largely intact and original features being readily identifiable. However, there is the potential risk of the kilns being damaged or undermined due to the large volume of water run-off which empties into the abandoned quarry from the adjacent fields. There was only one feature evident within the quarry which appears to be associated with the limekilns and this was a trackway leading out of the quarry to the north of the kilns. This trackway was probably the route taken by the carts when removing stone from the quarry face and carrying the stone up behind the kilns to be deposited into the top of the kiln crucibles.

4.12.6 The limekilns within Kilnpark Quarry are not in as good condition as those of Croft Quarry. Within Kilnpark Quarry the southernmost limekiln (Fig. 13: Kiln 1) is relatively intact, although overgrown, whilst the other two are in fairly

serious disrepair. The two northern kilns (Fig. 13: Kilns 2 & 3) do still retain recognisable original features, but have suffered episodes of partial structural collapse. This is particularly evident in the northernmost limekiln (Kiln 3) where most of the northern half of the kiln has collapsed exposing the large fire bricks of the draw kiln pot.

4.12.7 During the site assessment visit it was concluded that a number of original elements relating to the limekilns in Kilnpark Quarry are still preserved *in situ*. To the south-west of the kilns a series of irregular mounds indicates the possible location of waste material from the kilns. This was confirmed by evidence from an adjacent section which exposed a large amount of lime waste debris. This exposed section was evident as vegetation clearance work was being undertaken in order to provide an access road into the quarry. The route of the access road will run immediately adjacent to the limekilns within Kilnpark Quarry. Cartographic evidence from the desk-based assessment (CAP Report no. 157) suggests that this route is probably along the line of the original quarry road. Again this was confirmed during the road clearance work where the ground disturbance revealed the remains of a hard standing trackway surface. The southernmost limekiln (18993) also appears to have two walls projecting from its south-eastern edge, which have been interpreted as being the remnants of a hut built into the revetment wall (ACA-HM: SMR). The hill above the limekilns is still heavily overgrown, yet even in this state there were elements of trackways (Plate 6) and a possible charging platform (plate 9) which were still traceable.

4.12.8 During the walkover of Kilnpark Quarry two sections of what appear to be discarded tramway rails (Plates 7 & 8) were located adjacent to the trackway which runs east-west across the quarry site between Blaencilgoed and Gelli-Halog. However, cartographic analysis undertaken as part of the desk-based assessment did not show any evidence for a tramway. It may be therefore, that this track was used only briefly as a tramway.

4.12.9 Overall, the Kilnpark Quarry limekilns whilst not being so well preserved as those in Croft Quarry do appear to retain more elements associated with their original context.

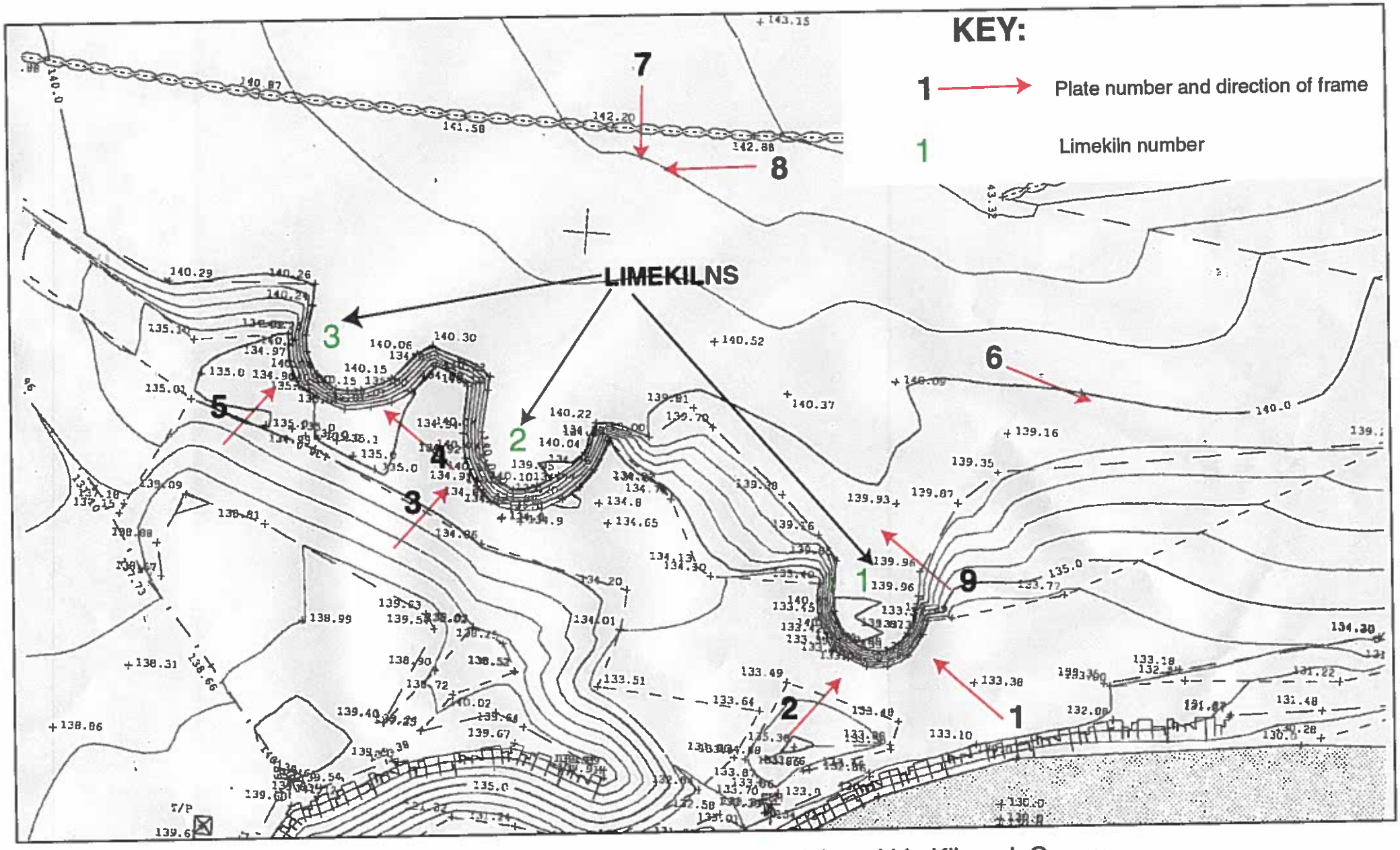


Fig 13: Survey data showing location of Limekilns within Kilnpark Quarry

Plate 01: View of Limekiln 1, looking north-west.

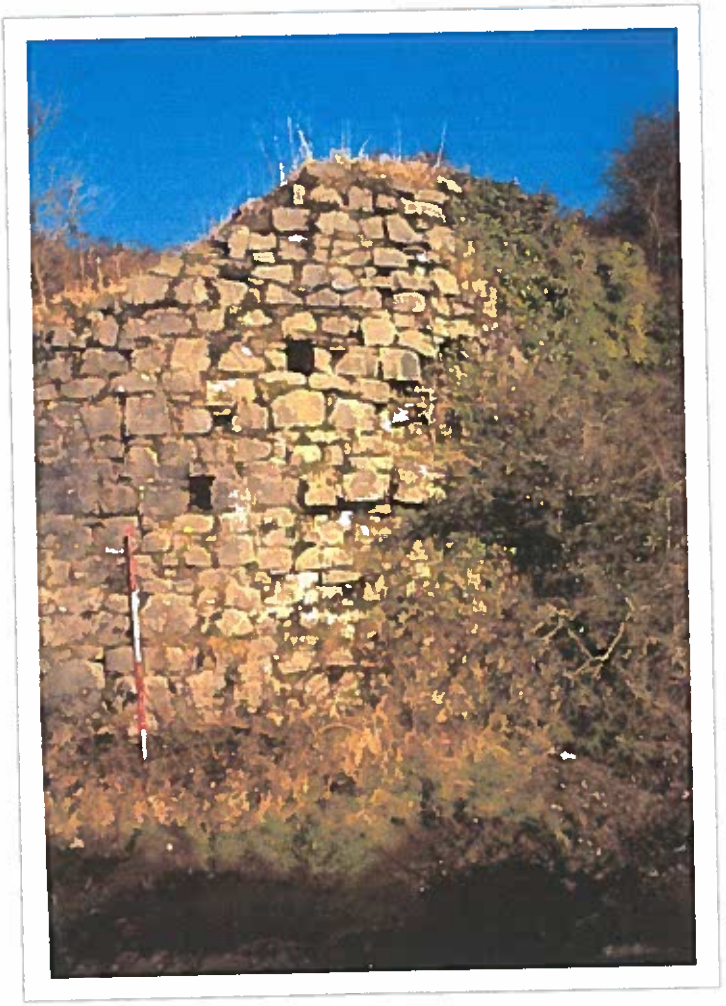


Plate 02: View of Limekiln 1, looking north-east.

Plate 03: View of Limekiln 2, looking north-east.

Plate 04: View of Limekiln 3, looking north-west.

Plate 05: View of Limekiln 3, looking north-east

Plate 06: View along Trackway north of Limekiln 1, looking south-east.

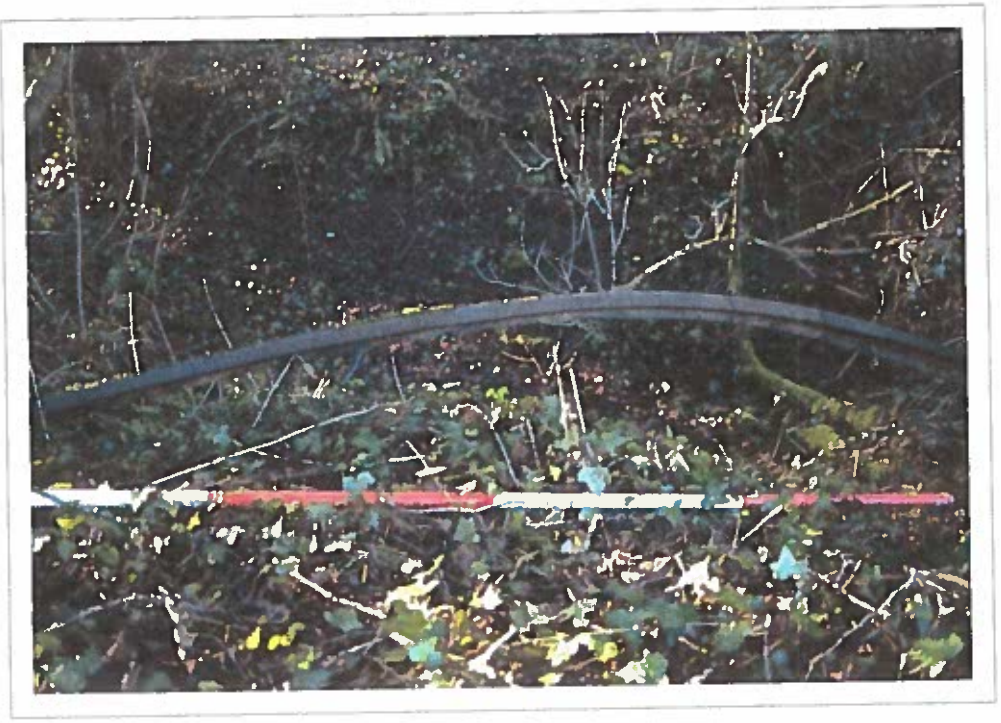


Plate 07: View of discarded tramrail, looking south.

Plate 08: View of discarded tramrail, looking west.

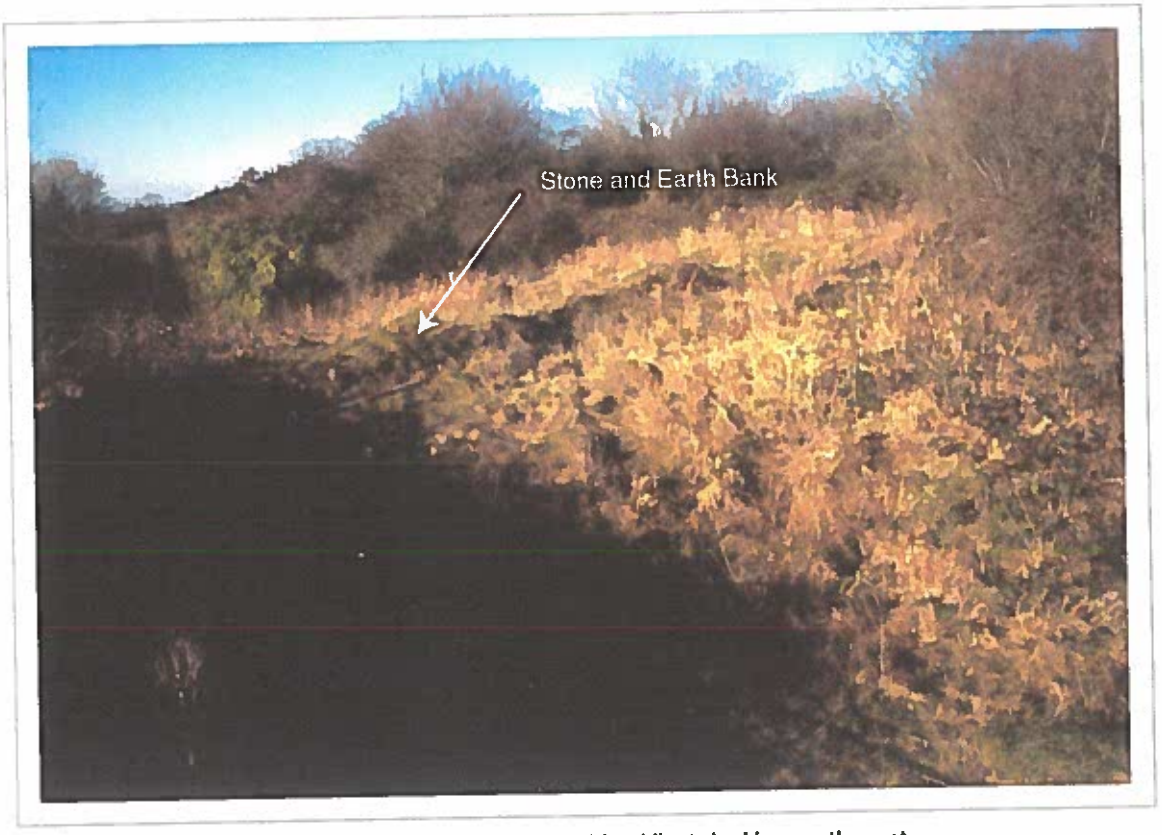


Plate 09: View of possible charging platform above Limekiln 1, looking north-west.

5 CONCLUSIONS

5.1 The high archaeological potential of the quarry access road route produced remarkably few archaeological features, with archaeological features and deposits only being identified in a small number of areas. However, it seems probable that at least part of the route of the quarry access road (Area C) lies on the southern boundary of a concentration of prehistoric archaeological features and deposits.

5.2 Therefore, any works involving ground disturbance in the area immediately to the north of the road in Area C would need to have some form of archaeological assessment, prior to the works being undertaken.

5.3 The potential archaeologically sensitive areas within the quarry produced almost no archaeological features or deposits. This may lessen the archaeological potential of the future proposed quarry areas to the south of Kilnpark Quarry. However, the general aspect, topography and location of these future quarry workings are still considered to have a reasonable archaeological potential.

5.4 Within Kilnpark Quarry the close proximity of the new quarry access road to the limekilns clearly has implications for the integrity of these features. Given the kilns poor condition, particularly the upper courses of stonework which are loose and largely devoid of mortar, due care will need to be taken in the design and layout of the quarry access road and blasting activities in order to protect the kilns.

5.5 There also appear to be a number of features associated with the limekilns which may relate and be integral to the original operational activities of the kilns. Again, care will need to be taken when planning any future quarrying activities likely to impact upon these features.

5.6 Clearly a management strategy needs to be formulated which will facilitate vehicular access into the quarry whilst seeking to maintain the integrity of the limekilns and their associated features.

5.7 Further detailed recording of the limekilns within Kilnpark Quarry may be necessary. Some previous non-archaeological photographic and survey recording of these features has been undertaken. It is proposed that any further recording of the kilns would use this previous work as the basis for a more detailed investigation. This investigation would focus on an enhanced photographic survey of the kilns, with a more detailed EDM survey aimed at locating associated features, thereby placing the kilns within their original context. Any unique architectural features identified would be recorded as drawn records, in accordance with the I.F.A's Standard and Guidance: *building, investigation and recording.*

5.8 No well preserved environmental deposits were located during the archaeological investigation, therefore no environmental samples were taken.

6 ACKNOWLEDGMENTS

Thanks to; Kevin Blockley for his help and advice during the compilation of this report; Phil Evans, Jason Frankland & Greg Price for their assistance with the fieldwork; and respect to Attila 'Gangsta' Csaba for undertaking the Illustration and Survey work.

Also thanks: to the Curatorial staff at ACA-HM; and the staff at G.D. Harries.

7 REFERENCES and SOURCES

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APPENDIX I:
Archive Cover Sheet

ARCHIVE COVER SHEET

BLAENCILGOED QUARRY (BCG/01/EVA)

Site Name:	**Blaencilgoed Quarry, Pembrokeshire.**
Site Code:	**BCG/01/EVA**
PRN:	**42561**
NPRN :	**N/A**
SAM:	**N/A**
Other Ref No:	**CAP Report No. 163**
NGR:	**SN1509011370, SN 1525010690**
Site Type:	**Possible: Bronze Age Inhumations, Medieval Water Mill & Post-medieval Limekilns.**
Project Type:	**Archaeological Evaluation**
Project Officer:	**Ian Halfpenney**
Project Dates:	**January/February 2001**
Categories Present:	**N/A**
Location of Original Archive:	**Scolton Museum (delivery to be arranged)**
Location of duplicate Archives:	**N/A**
Number of Finds Boxes:	**1**
Location of Finds:	**Scolton Museum**
Museum Reference	**Not assigned**
Copyright:	**CAP Ltd.**
Restrictions to access:	**None**

APPENDIX II:
Context Register

CONTEXT REGISTER

1	Topsoil
2	Subsoil
3	Natural
4	Fill of 6
5	Fill of 6
6	Cut of natural gully
7	Natural sandy deposit
8	Fill of 9
9	Cut of posthole
10	Fill of 11
11	Cut of gully/ditch
12	Fill of 13
13	Cut of posthole
14	Fill of 14
15	Redeposited subsoil
16	Subsoil (below field boundary)
17	Fill of 18
18	Cut of boundary ditch
19	Natural peagrit deposit
20	Fill of 21
21	Cut of posthole
22	Fill of 23
23	Cut of posthole
24	Subsoil/colluvial deposit
25	Fill of 26
26	Cut of posthole
27	Overall number for field boundary
28	Fill of 29
29	Cut of posthole
30	Modern field drain

APPENDIX III:
Finds Catalogue

FINDS REGISTER

Key to Pottery Fabric Abbreviations:

BSW – Brown Stoneware
BSS – Bristol/Staffordshire Slipware
BSM – Bristol/Staffordshire Mottled
BW – Blackware
BC – Bone China
CB – Coalmeasures Buff
CMB – Coalmeasures Black
CMR – Coalmeasures Red
CW – Cream Ware
DW – Delft Ware
DWW – Industrially produced Developed White Wares
ESW – English Stone Ware
FP – Flower Pot
GRE – Lead-Glazed Red Earthenware
ISW – Industrial Stone Ware
IYW - Industrially produced Yellow ware
LRE – Local Red Earthenware.
LRE (LG) – Local Red Earthenware Lead Glazed
MP – Midland Purple
ND – North Devon Gravel Tempered Ware
PW - Pearlware
SGW – South Glamorgan Ware
SW – Slipware
SWW – Surrey Whiteware (Tudor Green)
SRS – Staffs Red Stoneware
TG – Tudor Green
ESG – English Salt Glazed Stoneware
WdSW – Westerwald German Stoneware
YSW- Bristol or Staffs Buff Coalmeasures

BLAENCILGOED FINDS 2001

Area C1

Context 8
Small Find No. 1:- 1 Flint Flake

Area D

Context 17
Small Find No. 2:- 1 Shoe Buckle – Post-med. Cu alloy.

Area E

Context 28
1x Slipware (18th century)

Unstratified
Small Find No. 3:- 1 Flint Flake (damaged)

General Unstratified Pottery

ND x 6 (100gm.)
BC x 2 (10gm.)
CW x 1 (5 gm.)
FP x 1 (5gm.)

Small Finds 1-3 will be sent to specialists in order to gain more information regarding these artefacts. Copies of the specialist reports will be deposited with the final archive for this site.

CAMBRIAN ARCHAEOLOGICAL PROJECTS Ltd.

SPECIFICATION FOR THE SECOND PHASE OF AN ARCHAEOLOGICAL EVALUATION AT: BLAENCILGOED QUARRY, LUDCHURCH, PEMBROKESHIRE

Prepared For:
Gerald D Harris & Sons
Rowlands View
Narberth
Pembrokeshire
SA67 8RG

Date: 1st February 2001

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3. Methods statement

Archaeological Evaluation
After discussion with Louise Austin (ACAHM) the following methodology for the evaluation has been agreed:

The archaeological evaluation will be undertaken by Cambrian Archaeological Projects Ltd staff using standard accepted archaeological techniques.

All archaeologically sensitive areas will be stripped using a 20 ton mechanical excavator fitted with a 10 foot ditching bucket. These areas will be reduced by approximately 9 inches, or the depth of the topsoil.

The machine stripping will be undertaken under archaeological supervision by two staff from CAP Ltd.

Following the machine stripping the exposed areas will be manually cleaned in order to locate and define archaeological features and deposits.

Sample excavation of selected features will be undertaken in order to establish the condition and extent of the archaeology.

Should significant and extensive archaeological deposits be uncovered and following agreement between the Landowner (Mr. Harries), the Contractor (CAP Ltd.) and the Curatorial Department (ACA-HM), contingency funds will be released so that the full excavation of identified archaeological features can be undertaken.

The Archaeologically Sensitive Areas (see enclosed Map)

Six areas have been identified within the quarry as being archaeologically sensitive and these are the areas which will be covered by the Phase II evaluation work. The title of each area has been copied from the proposed development plans as submitted by Mr. P. Deakin acting as agent on behalf of Mr. I. Harries, the owner.

Areas: **2, 4, SS 1** and **OB 1** will all be topsoil stripped under archaeological supervision and further work will be undertaken, where necessary, as detailed in the above methodology.

Area **3** and the **proposed access route(s) into the quarry** will be visually assessed in conjunction with ACAHM staff, in order to establish whether any features associated with the limekilns are still evident within the Quarry. The kilns and any identifiable features associated with the limekilns will be photographed and surveyed to an appropriate scale. This survey will aim to establish the potential impact the quarry development will have on the kilns or associated features and whether further work will be needed.

It is envisaged that the machine stripping of the archaeologically sensitive areas will take no more than two days, with two people. Following this a further three days, for two people, will be needed to evaluate the archaeology present on the site. Depending on the results of this evaluation and following consultation with the ACA-HM and Mr. Harries (the owner)

contingency funds may need to be released to fully excavate any archaeological significant remains.

Therefore, the total number of people days on site for the Phase II evaluation stage should be 10 (+ 1 additional day to cover the Surveyor (see below)).

It is important to note that should the evaluation expose significant archaeological deposits then this time scale will need to be revised.

Recording

Each archaeologically sensitive area will be cleaned and recorded. Recording of the trenches will be in three formats:

i)Photographic record shots will be taken in 35mm. colour slide, colour print and black and white formats.

ii) Drawn records, plans and sections, will be produced at scales of 1:10, 1:20 or 1:50 on drafting film.

iii) Written records will be produced using a continuous numbering sequence for all contexts

A Total Station survey of the archaeologically sensitive areas will be undertaken with an EDM. This will involve the cost of one extra person day, to cover the employment of the CAP Ltd. Surveyor.

Artifacts
Archaeological artifacts recovered during the course of the excavation will be cleaned and labeled using an accession number which will be obtained from the local museum. A single number sequence will be allocated to all finds. The artifacts will be stored appropriately until they are deposited with the museum.

Any finds which are considered to be in need of immediate conservation will be referred to a UKIC qualified conservator.

Report preparation
Immediately following completion of the evaluation the requirements of further excavation, recording and report production will be agreed with Louise Austin.

A catalogue of all artifactual material found will be quantified and significant finds illustrated. Pottery will be analysed to the standard outlined in Draft *Guidelines for the Preparation of Pottery Archives* as prepared by the Study Group for Roman Pottery in consultation with the IFA. All other material will be analysed following the advice given in the IFA *Guidelines for Finds Work.*

An archive and report will be prepared to the specifications detailed below and copies of the report submitted to the client (2 copies), and ACAHM (2 copies).

The results will be submitted in an illustrated and bound report, which will include the following material: i) A written assessment of the specific objectives defined in the brief. ii)

NON TECHNICAL SUMMARY

This specification details the proposals for the second phase of archaeological evaluation work which will be undertaken at Blaencilgoed Quarry. The work will be undertaken by staff from Cambrian Archaeological Projects Ltd., on behalf of the site owner Mr. I. Harries.

1. Introduction

Matthews & Son have submitted a planning application (No. 99/0323/PA) to reopen the previous quarry workings at Blaencilgoed Quarry, Ludchurch. The site is located at NGR SN 1509011370, SN 1525010690.

Cambrian Archaeological Projects Ltd have undertaken an Archaeological Desk-based Assessment in December 2000 (CAP Report 157). This identified a number of important prehistoric sites within the immediate vicinity of the quarry. The quarry area also contains 6 lime kilns (Grade II listed) which may have associated features.

Following the results of the desk-based assessment Archaeoleg Cambria Archaeology Heritage Management (ACAHM) have recommended that archaeological evaluations be conducted in a number of archaeologically sensitive areas.

This Specification sets out the methodology for the archaeological evaluation of several areas within the Quarry. This work will form Phase II of the evaluation work being conducted at Blaencilgoed. Phase I related to the quarry access road.

The highest potential for archaeological remains included sections of the quarry access road (CAP Report 163 – Phase I) and the proposed extraction and storage areas to the west and east area of Kilnpark Quarry (CAP Report 163 – Phase II).

The Phase I stage of the evaluation was agreed for the access road and this was undertaken in January 2001. The present Specification is for Phase II of the evaluation which will be undertaken in six areas (see enclosed plan) within the Quarry.

All works will be undertaken in accordance with the IFA's *Standards and guidance: field evaluation* and within current Health and Safety Guidelines.

2. Aims and objectives

To locate and mark the position of any archaeological features which were exposed within the archaeologically sensitive areas.

To then clearly define the location, extent, date, character, condition, significance and quality of any surviving archaeological remains, through the cleaning, excavation and recording of identifiable features. ~~This would effectively 'empty' the area of any archaeological features or deposits.~~

The findings of the evaluation will be presented to ACA-HM in a report format, in order to ensure that any decisions regarding mitigation advice or future development are made on a fully informed basis.

A full written description and interpretation of the results. iii) It will be fully illustrated with drawings to an appropriate scale.

Archive
The site archive will be prepared in accordance with MAP 2, Appendix 3 (English Heritage 1991). It will comprise all the data recovered during the fieldwork and shall be quantified, ordered and indexed and will be internally consistent. The archive will be deposited at a recognised local museum.

4. Resources and programming
Two archaeologists will be present during the Phase II of the evaluation machine stripping. A further two archaeologists may be called in should significant archaeological features be uncovered.

It is intended that the stripping and cleaning will be undertaken in early February. An on-site meeting with Ian Halfpenney (CAP) and Louise Austin (ACAHM) during the course of the work will be arranged to assess the need for any further excavation work.

Equipment
The project will use existing Cambrian Archaeological Projects Ltd. equipment.

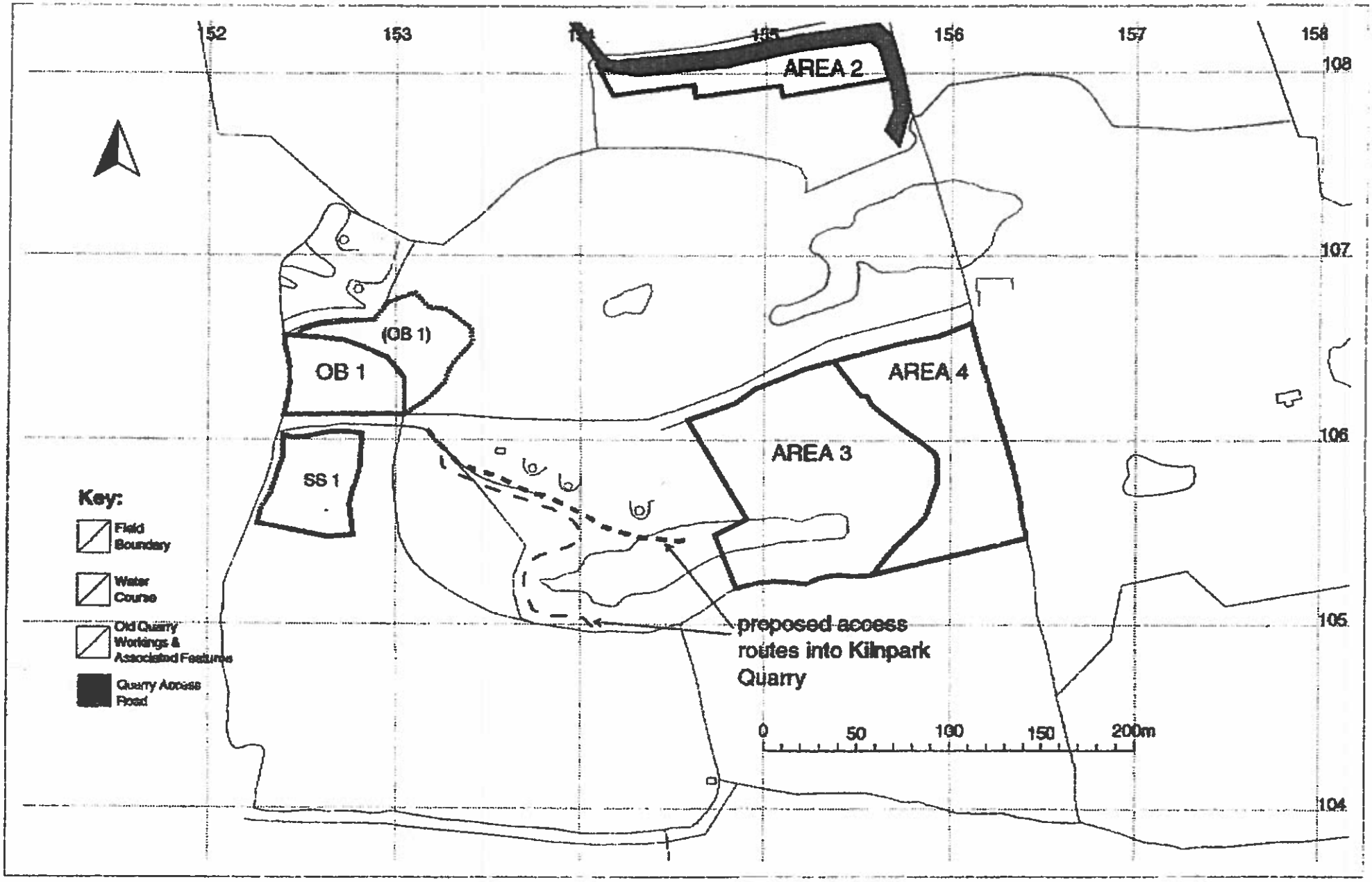
Programming
The archaeological presence on site will conform with the development requirements of the client.

Insurance
Cambrian Archaeological Projects is an affiliated member of the CBA, and holds Insurance through the CBA insurance service.

Health and safety
All members of staff will adhere to the requirements of the *Health & Safety at Work Act*, 1974, and the Health and Safety Policy Statement of Cambrian Archaeological Projects.

Timetable of archaeological works
The evaluation will be undertaken at the convenience of the client. It is understood that work will start in early February.

Kevin Blockley
Cambrian Archaeological Projects
1st February 2001



BLAENCILGOED QUARRY: ARCHAEOLOGICAL EVALUATION, PHASE II