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BEACH ROAD TRANSFER MAIN

ARCHAEOLOGICAL RECORDING

AND WATCHING BRIEF

Report No. 244

Ymddiriedolaeth Archaeolegol Gwynedd

Gwynedd Archaeological Trust

BEACH ROAD TRANSFER MAIN

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AND WATCHING BRIEF (G1352)

prepared for Dwr Cymru - Welsh Water

February 1997

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ARCHAEOLOGICAL RECORDING AND WATCHING BRIEF OF BEACH ROAD TRANSFER MAIN (G1352)

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1.0 INTRODUCTION

As a part of the Treborth Sewage Treatment Works Disposal Scheme, Dwr Cymru/Welsh Water proposed to construct a rising main between Gorad-y-Gyt on the shore of the Menai Straits in Bangor and the Treborth Sewage Treatment Works. The pipeline affected a corridor approximately 35m wide and covered a distance of just under four kilometres.

Gwynedd Archaeological Planning Service identified the archaeological implications of the project, and prepared a brief specifying a programme of archaeological work. This included recording four archaeological sites prior to the start of construction, and a watching brief during construction. Gwynedd Archaeological Trust (Contracts Section), at the request of Welsh Water, provided a project design and costs to satisfy the project brief, and was subsequently commissioned (September, 1995) to carry out the work.

2.0 ARCHAEOLOGICAL AIMS

2.1 Recording

The aims of this stage of the work were to record the archaeological remains south of Treborth Uchaf Farm which included a brick built structure, probably an old filter bed, ridge and furrow, a robbed out field wall, and a small semi-circular sunken feature. It was recommended that a total station survey of the area of ridge and furrow (site 2) be undertaken to show the location, extent and alignment of the features, and that the four sites be recorded by photograph and written description.

2.2 Watching brief

This stage of the work was to involve a watching brief along the line of the pipeline where it ran through open fields, and the full recording of any sites identified.

3.0 METHODOLOGY

3.1 Survey

A photographic record was made of sites 1, 2, 3 and 4 using 35mm format in black and white negative and colour transparency film. A written record of the above sites was made, using standard GAT monument record forms. A detailed survey using a Geodimeter 400 Total Station survey instrument was undertaken at site 2 and the results processed using a digital ground modelling software package.

3.2 Watching brief

The identification of additional areas of archaeological interest was achieved by field walking the top-soil stripped corridor before the digging of the pipe trench and noting all potential sites, usually visible as areas of burning or stone spreads. These sites were then further examined to ascertain their archaeological potential, and more fully examined if deemed appropriate.

4.0 RESULTS

4.1 Survey results

Site 1 Old filter bed SH54977031C

This site comprised four small red brick-built structures, arranged roughly in a linear fashion at the northern side of a low lying waterlogged enclosure. The westernmost structure was a low, roughly square open topped tank, 2.93m x 2.92m, set slightly apart from and at an angle to the other structures, with an internal depth of 0.48m and an external height of 0.68m. The neighbouring structure was a rectangular building 1.91m x 1.75m x 2.35m in height, with a concrete slab roof and a

doorway 0.85m wide in the west end of the south-east elevation. A rectangular man-hole was set into the concrete floor of this otherwise empty building. Adjoining the east side was a smaller rectangular structure 1.45m x 1.75m. This structure was roofless, had a low opening 1.22m wide by 1.4m high in its south-east elevation and a small rectangular slot 18cm wide by 35cm high in the centre of the north-east elevation, overlooking the circular settling tank immediately to the east. The circular tank, also of brick, had an internal diameter of 7m and an internal depth of c. 0.7m (external diam. 7.46m, external height 1.75m). The base of this feature was filled with loose stone chippings and was probably the filter bed.

These structures formed the remains of a dis-used sewage treatment works, with filter bed, settling/containment tank and associated features, probably of mid-twentieth century date

Site 2 Area of ridge and furrow SH55057035C (see fig. 1)

This site consists of an area some 70m by 90m of derelict, low-lying land, gently sloping up to the south and bordered on the north by a slight bank with a wide drain beyond. The area contains numerous ridges and furrows, which are the vestigial remains of ploughing; the plough features run on a north-west - south-east alignment, are between 0.75m and 1.75m in width and remain up to 42m in length. They have a maximum depth of 5cm and their troughs are between 3.5m and 5.0m apart. The eastern extent of the ridge and furrow is delineated by a redundant field boundary: this is a slight bank between 2.5m and 3.0m wide and c. 0.5m in height, which leads south up slope to join and follow a deep drainage channel. The southern part of the area has been disturbed by recent drainage and scrub clearance.

Running diagonally across the south-east corner of the area is a grassed-over linear depression, probably the slight remains of an agricultural trackway. The trackway is c. 3.0m in width and less than 0.10m in depth.

Sites 3 and 4: Area of potential archaeological remains, Treborth Hall Farm SH56337042C

This is an area characterised by a gentle to moderate north facing slope, and comprises improved pasture land between an ornamental lake and woodland. The remains of an old field wall and an open ditch aligned NNE - SSW run almost parallel to one another between the lightly wooded slope to the south, and the lake to the north. The westernmost of these linear features, the robbed-out field wall, remains up to 0.4m high on its north-east side, but merges with the ground level on the south-west, making its exact width difficult to determine, but approximately 3.3m maximum.

Two roughly circular shallow depressions had previously been noted in the area, one within the field wall, and the other between the field wall and the ditch. The depressions were about 0.3m deep, and 3.5m and 4.6m in diameter. Although when first noted these were considered to be of potential archaeological interest, closer inspection suggests that the hollows result from the removal of tree stumps, or possibly boulders.

4.2 Results of the watching brief

A number of potential sites were examined following the removal of the topsoil. However, only one site was noted as being worthy of further investigation and recording. No further information was gained from the area containing sites 1 to 4 described above.

The site investigated was a previously unknown archaeological site revealed in the section of corridor adjacent to Nant Porth Farm. It consisted of a circular patch of burnt stone, fully defined within the width of the corridor. These areas of burnt stone are associated with the Bronze Age (c.2000-600 BC), several of which have been uncovered in Gwynedd recently. However little is as yet understood about their function, and it was therefore felt that further work should be carried out on the site. Dwr Cymru/ Welsh Water were informed of this new development and additional funding was granted for excavation.

5.0 THE BURNT MOUND EXCAVATION

5.1 The site topography

The burnt mound lies in a small narrow valley which runs parallel to the Menai Straits, and is separated from the straits by a low ridge of limestone. A small stream formerly ran down the valley, emerging from a spring below Nant Porth farm and flowing into the Straits at Gorad y Gyt. This stream now runs through an underground drain. The rock on the north side of the valley is a mixture of carboniferous limestone and sandstone conglomerates, which outcrops above the mound, and has been quarried, presumably for building stone for Nant Porth farm. South of the mound the ground slopes steeply up the Penrallt ridge formed of Pre-cambrian igneous rocks. The mound is situated on the valley bottom, on a relatively level shelf. The mound was not visible prior to the removal of the topsoil.

5.2 Excavation summary

The site became visible after the initial topsoil clearance as an area of burnt stone and charcoal some 12m in diameter. The first stage of the examination involved cleaning the remains of the mound by hoe and trowel to obtain an indication of the total extent of the remains. It was then decided to remove a portion of the mound by machine, in this case a Hi-Mac fitted with a wide smooth-edged bucket. This would establish the depth of deposits remaining, as well as any sequence of layers. Initially a strip approximately 2.5m wide on the east side of the mound was excavated. This revealed the remaining depth of the burnt stone to be 230mm, and that the stone lay on top of a clean, light yellow/grey sandy clay, with no remains of a buried ground surface between the burnt stone and the clay.

The machined strip was cleaned by hand, which revealed the top of a rectangular pit cut into the natural clay, a linear slot north of the pit, and a number of additional features to the east and south-east. The pit was excavated by partial section to ascertain its overall depth and profile, and to examine the fills contained within it. The section across the pit showed it reached a depth of 0.5m, at which point a well-preserved wooden base was encountered. This made the feature of sufficient interest to require fuller excavation. To facilitate a clearer picture of the extent of the pit and associated features, a machine was again used to clean a wider area, essentially half-sectioning the entire mound. This revealed that the south-east side of the mound had been badly disturbed by the digging of a sequence of post-medieval land-drains; these had not only cut visible features along one edge but also rendered the whole area waterlogged. The problem was exacerbated when an attempt to dig a sump by hand uncovered a deeper and more substantial drain. At this point it was decided to have one more attempt to clean back the site, again by machine as any attempt to clean the area by hand would have resulted in considerable disturbance to the archaeology. Two deep sumps were dug on either side of the burnt mound, and were regularly pumped dry. Unfortunately continuous rain, as well as seepage, continued to present a problem. In addition, the area available for examination was confined to that inside the deep tracks on either side of the mound caused by contractors vehicles.

The problems of poor weather and poor drainage meant that excavation had to be confined to the pit, with a brief look at the linear slot to the north of it. The fill of the pit was found to vary little, though a very minor change was apparent approximately mid-way along the pit's length. In addition, there was an area of silt where the linear channel cut into the north side of the pit. The wooden floor of the pit was found to consist of three lengths of wood, one in the western half of the pit, and two parallel pieces in the eastern half. The length of plank to the west was in much better condition than the other two lengths, and was removed substantially intact. However the eastern planks proved to be far more fragile, and could only be removed in large pieces. During excavation it was noted that clay had been used to seal the sides of the planks.

5.3 Detailed Findings

5.3.1 The Burnt Mound

The mound of burnt stone had a central core of black sandy silt (002), 8.08m in diameter and up to 0.3m deep, with a lighter, dark grey/black spread of silty sand (003) surrounding it, 10.41m in diameter, spread roughly evenly around the darker core except on the south-west edge, where it extended a further 2.5m, and was separated from the main mound by a 1.0m wide strip of dark brown silty sand (004). All these contexts were very stony, containing some 90% of angular, often fractured, small burnt stone up to 50mm in length. Where the mound material was removed it was found to lie on the natural sandy clay (005).

5.3.2 The pit

The pit (006) was of an elongated rectangular shape in plan, and when full excavated measured 3.66m long by 1.35m wide at the top, 3.35m long by 0.90m wide at the base and 0.5m deep. The base of the pit was lined with three planks (010),(011),(012): two of these (011) and (012) lay adjacent to each other in the eastern side of the pit and the third piece occupied the western side. Pieces (010) and (011) were oak, and (012) was ash. The single piece situated on the west side was on a slightly different alignment to the two pieces to the east, which could suggest different phases of use.

The dimensions of each plank were: (010) 1.17m in length, 0.27m wide, and 0.05m thick (maximum); (011) 1.90m long, 0.34m wide, 0.05m thick; (012) 1.84m long, up to 0.36m wide, and 0.05m thick. Clay (013) had been used to seal the pit alongside the edges of the planks; this material was the same as the natural clay into which the pit had been dug. Lying on top of the planks was a thin layer of coarse sand (009), which had been stained variously brown from the planks and black from the burnt stone above. The sand (009) resembled the decaying pieces of stone which formed part of the fill of the pit, and is therefore assumed to be decayed stone which was washed to the bottom of the pit. The main fill of the pit was

identical to the burnt mound material, consisting of a dark grey/black clayey sandy silt with a 90% stone content of sub-angular/sub-rounded pieces not greater than 50mm in size generally, with a few larger pieces encountered. The only variation to this main fill was a small area made up of a mid-brown clayey silt (008), located in the main fill adjacent to where the channel (014) entered the pit. The pit was overlain by burnt mound material, but this may have been spread over when the mound was ploughed.

Down the side of the pit were a number of thin wooden stakes, 15 - 20mm in diameter, and buried within the clay sealant. Problems with flooding prevented the accurate recording of the stakes, but there were at least four down the west side, and three down the east side, each about 1.23m long, reaching from the top of the pit, down the side, and into the clay beneath. The depth to which they were driven implies that they may once have reached well above the ground surface, and thus have created a structure around and above the pit.

North-east of the pit was a meandering linear slot (014), referred to as a channel to differentiate it from the later drains. This had subsequently been filled by material from the mound. Within the fill of the channel was a circular feature (016) filled with mid-brown silt (017), matched by another similar feature (018) south-west of the pit. Furthermore this channel cut into the south-east end of the pit to a point mid-way down its depth. The furthest edges of this channel from the mound had been truncated by a series of drainage ditches and so its original width was impossible to ascertain. The larger of the two patches of silt (017), 0.75m diameter, formed a straight sided hole through the darker fill of the channel. The smaller patch (019), 0.7m diameter, was left unexcavated. Excavation of areas of the water channel revealed it had been dug some 0.2m into the natural sandy clay, though this had become stained a darker grey by the fill (015). The stratigraphic position of the channel shows that it predated the mound, and may therefore have been used to transport water into the pit (006).

5.4 Dating

A sample from each of the wood planks forming the base of the pit was sent for radiocarbon dating. The dates received were as follows:

Lab No. and Details	Radiocarbon Age BP	Age in Cal. BC (1 range) (2 ranges)
SWAN-139 Oak plank (010)	3310 +/- 60 BP	1600 (1680-1520) (1750-1450)
SWAN-140 Oak plank (011)	3290 +/- 60 BP	1590 (1670-1510) (1740-1440)
SWAN-141 Ash plank (012)	2960 +/- 60 BP	1200 (1310-1090) (1390-1010)

5.5 Discussion

The radiocarbon dates confirm that this site is a burnt mound of Early to Mid Bronze Age date. These sites are relatively numerous field monuments, typically identified by a low kidney shaped mound, with the indented side facing water.

The mound at Nant Porth has been regularly ploughed, and its original shape is therefore difficult to ascertain, however the distribution of the burnt stone indicates that the mound encircled the trough on the north, south and west sides, thus leaving the east side open to face the water supply. Several drains run down this side of the mound, although most of the water is presently channelled down the west side of the mound.

A number of burnt mounds have been excavated in Britain, and they are all substantially similar, consisting of a mound of burnt and fractured stone which makes up over 90% of their content, the remaining material being dark clay/silt with charcoal intrusions (Hedges, 1975). Although the function of burnt mounds is somewhat enigmatic, and indeed they may have served a number of functions, there is little doubt that the burnt stone is a result of heating stones in a fire, and then using the hot stone to heat water in an adjacent pit. The mound is formed by the disused stone, which can only be used three or four times before the fracturing and splitting of the stone caused by the sudden change in temperature reduces the effectiveness of the stone to transfer heat. The mounds are nearly always located adjacent to a water supply, usually a stream or a spring.

A pit has not been identified with all mounds, although a substantial number do contain one. Typically, if a structure has been constructed within the pit (i.e. if the pit has stone or timber sides or base), then it is known as a trough. A number of burnt mounds contain troughs of stone or timber construction, and some of both materials. The purpose of the trough is most likely to act as a revetment to the sides of the pit to prevent collapsing of the sides, although in pervious soil it may also have acted as an impervious layer to help retain the water. The Nant Porth site was dug through impervious clay, and seemingly did not require timber or stone sides. The timber lining the base would facilitate the removal of burnt stone and other contents without disturbing the clay base. The clay lining around the timber may have been to prevent the timber baulks from floating to the surface. The pit at Nant Porth had a number of stakes around it. The function of these is not known, but they can be paralleled at a large number of other sites (e.g. Ballyvourne I (O'Kelly, 1954), Graianog (Kelly,

1992), Kilcor South (Cleary etc, 1987)). Suggestions for these include a temporary screen or canopy around the pit, as supports to timber sides, or as tenter hooks for fulling cloth. The Nant Porth stakes are not strong enough for the latter, and there is no evidence for timber sides. Some form of screen or shelter around the pit, however, is a reasonable hypothesis.

The calibrated radiocarbon dates suggest a period of use in the mid Bronze Age, about 1600 BC. The two oak planks are very close in date, and may well be part of the same tree. The ash plank is later in date, implying a period of use centred around 1250 BC, some 350 years later. However the two sigma date ranges are only 130 years apart. The dates provide a *terminus post quem* for the felling of the trees. The oak could be re-used, although would need to have been kept in water throughout to still be useful after several hundred years. It could, however, have been found as waterlogged wood and used at 1250 BC. The obvious conclusions are either a single period of use centred in the mid 13th century BC, or spasmodic periods of use between 1600 BC and 1250 BC. A high percentage of excavated mounds do exhibit several periods of use, and excavation here suggested that the pit at this site had been extended or re-dug during one phase of its life. It is therefore suggested that the latter option is that favoured given the present information.

The findings at this site have provided significant new evidence of Bronze Age activity in this area, for which there was previously no known information. Substantial parts of the site do still remain, and it may be possible to enhance the present evidence by further examination of the remains of the mound, and additional radiocarbon dates from the charcoal within the mound. In addition, the presence of the mound indicates a level of activity which suggests further remains are likely to exist in the vicinity.

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0 metres 500

Môn
Anglesey

MENAI STRAITS

MENAI BRIDGE
(PORTHAETHWY)

PIPELINE ROUTE

Upper
Bangor

BANGOR

Coed
Mawr

Treborth

1

2

3

4

Site 2

BANK

TRACK

RIDGE & FURROW

30 metres

NANT-
PORTH

spring

MOUND

FFORDD CAERGYBI / HOLYHEAD ROAD

Fig.1 Location Plan

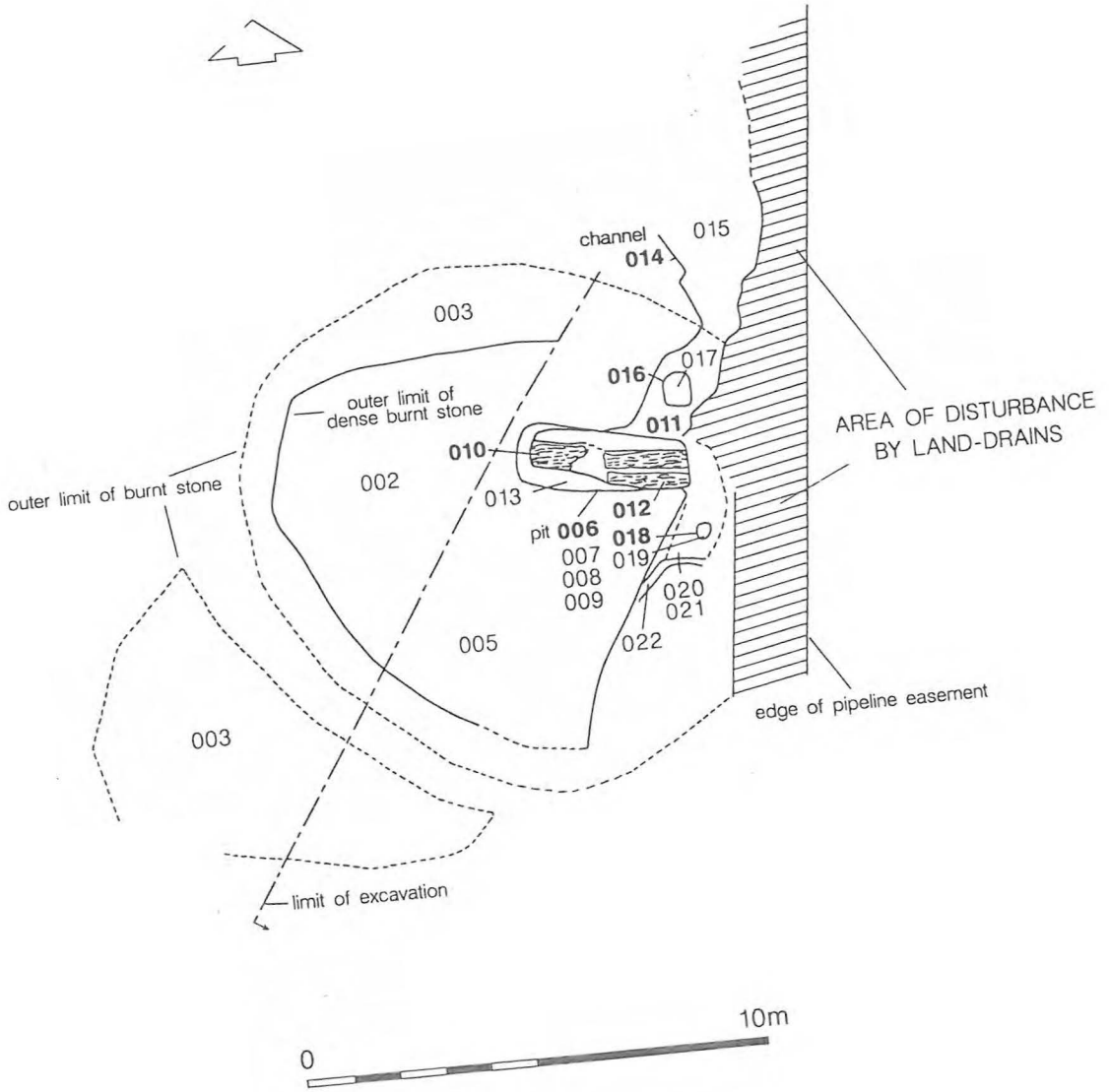


Fig. 2. Details of Burnt Mound

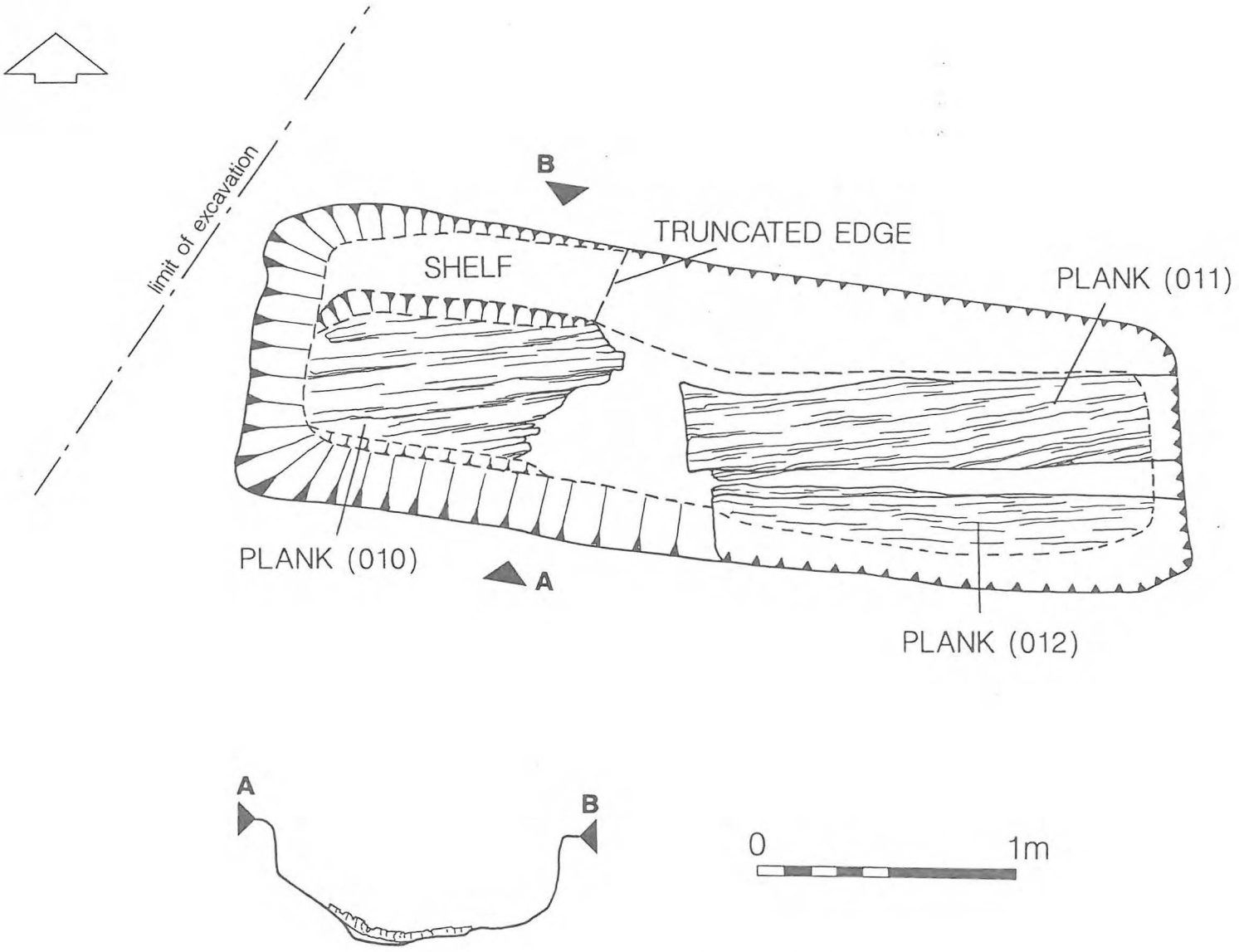


Fig. 3. Details of Pit

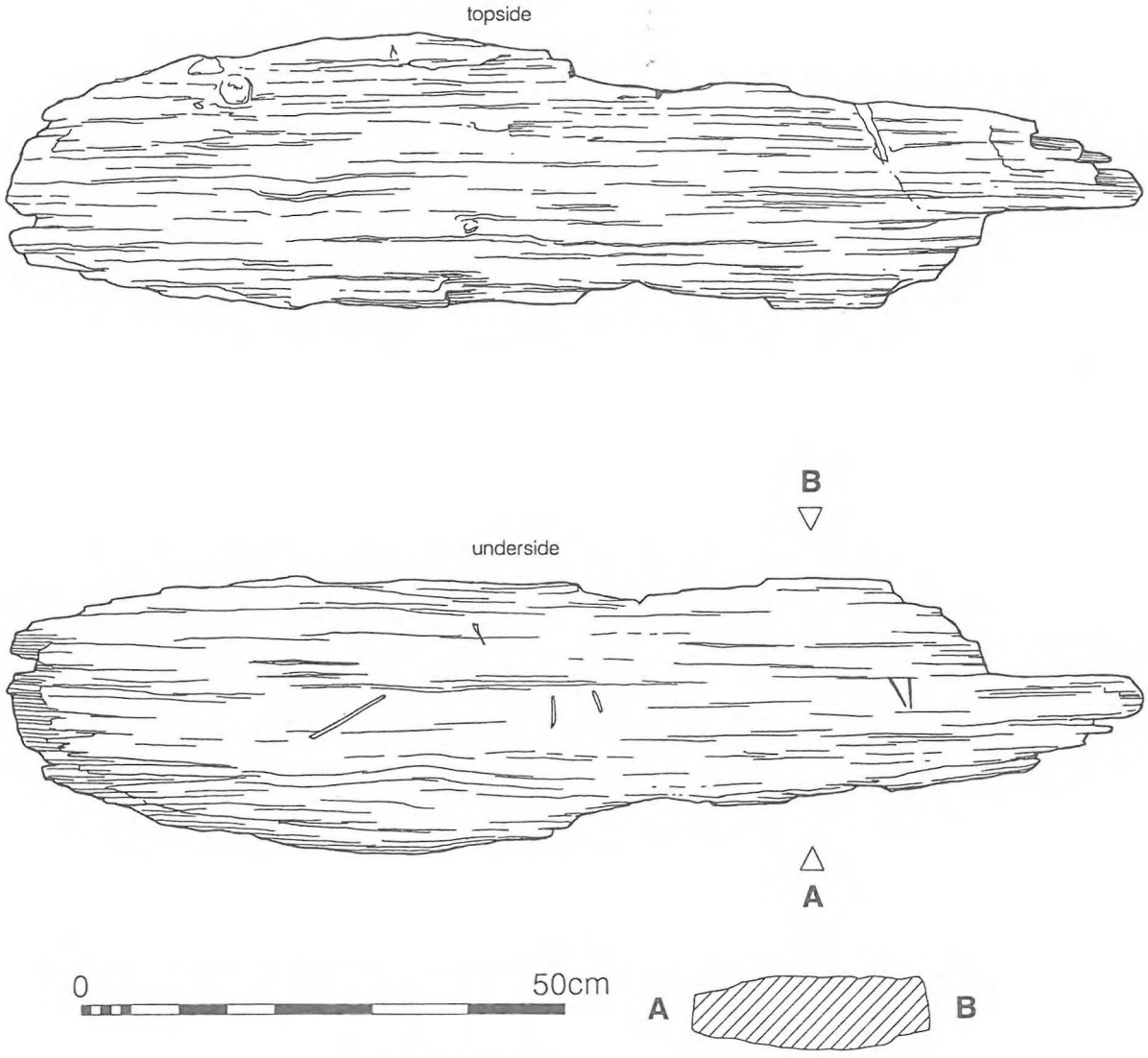
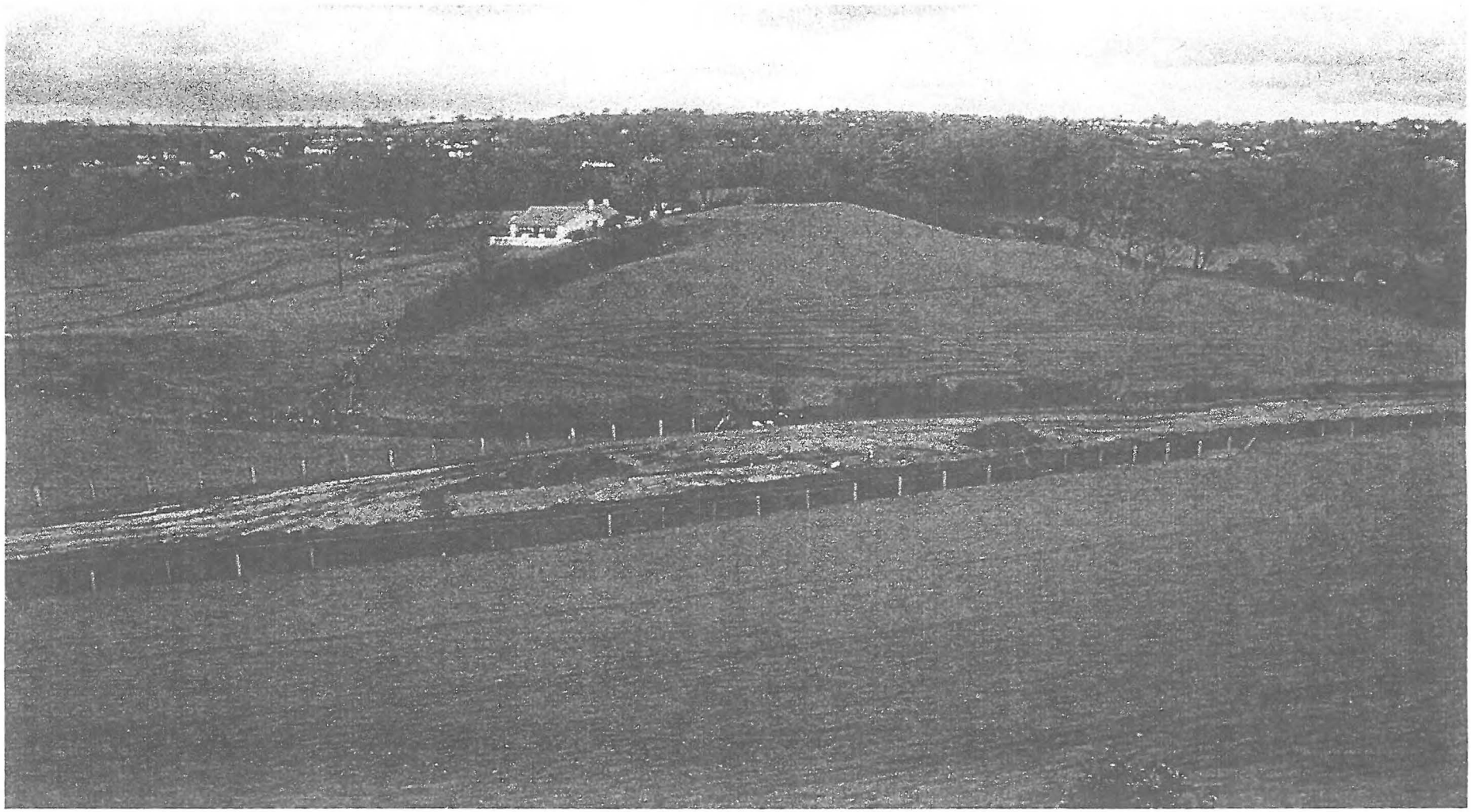
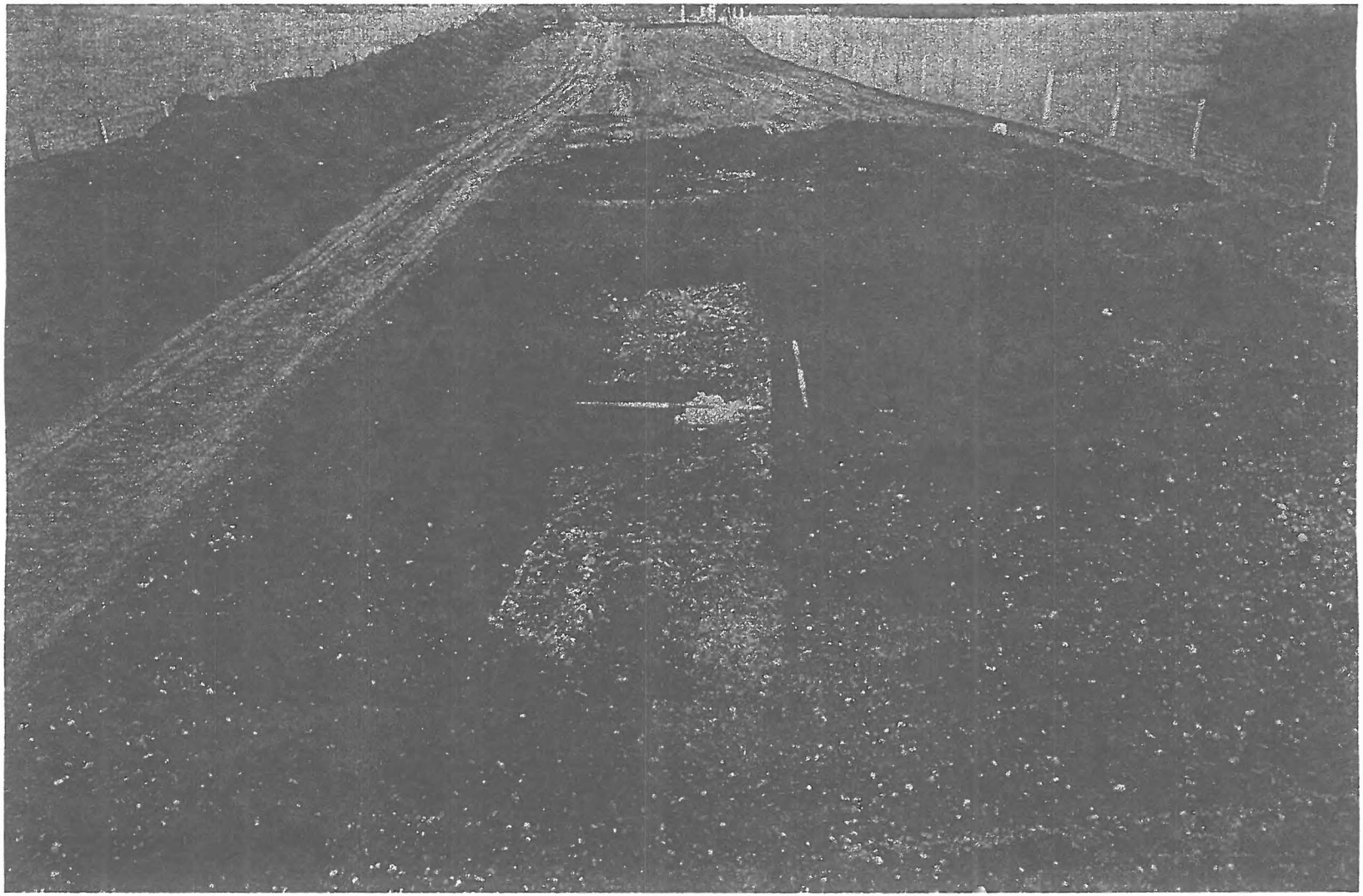


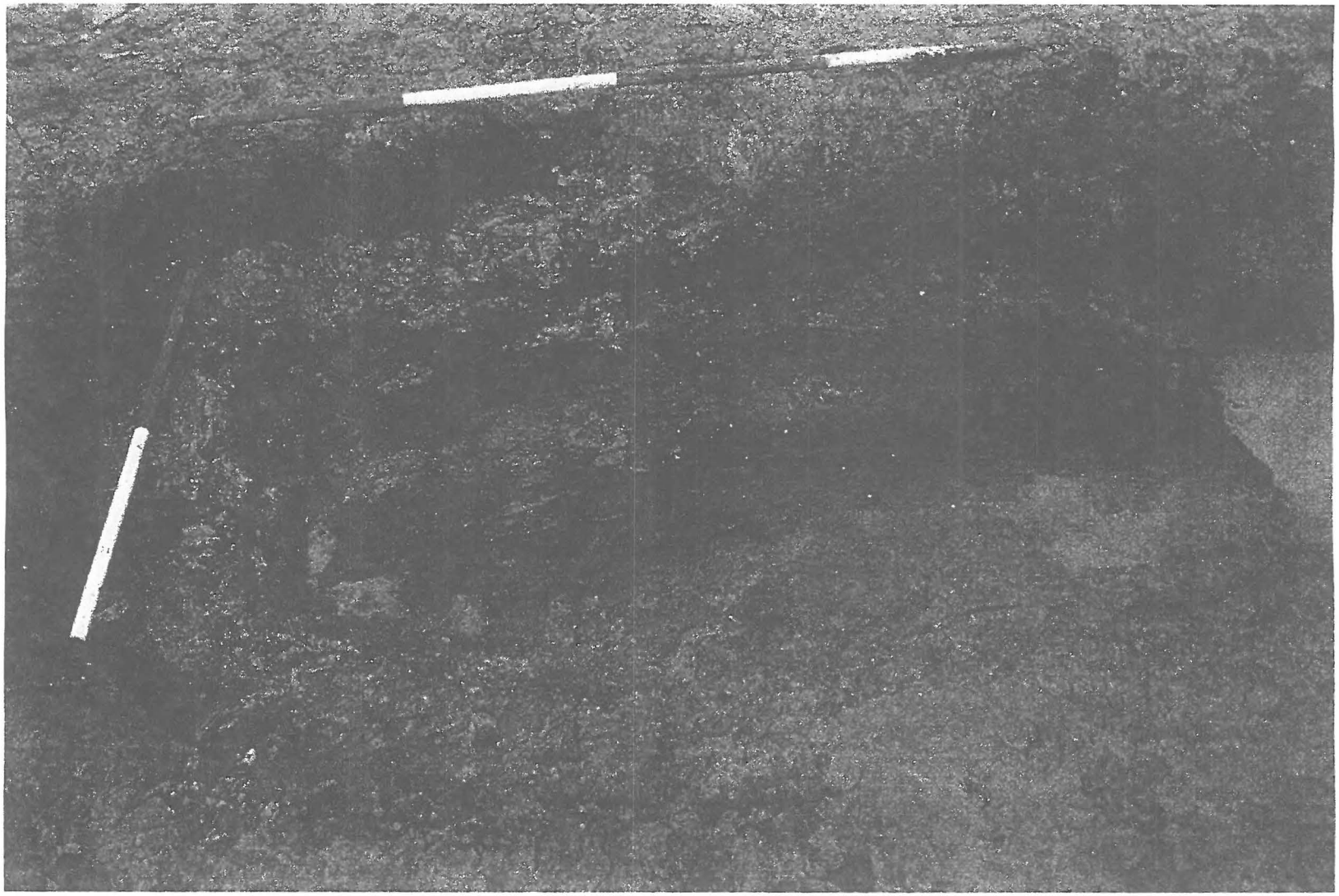
Fig. 4. Details of Plank (010)



General Location of Mound



Pit before excavation



Pit during excavation

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