

*A Pre-construction  
Archaeological Survey  
on the route of the Humberside  
to Buncefield Pipeline.*

*King's Walden, Hertfordshire.*



H-B 41-02



PETROFINA (UK) LTD.

HB/41-02

HUMBERSIDE TO BUNCEFIELD PIPELINE

PRECONSTRUCTION ARCHAEOLOGICAL SURVEY REPORT

WINCH HILL FARM/DARLEYHALL, HERTFORDSHIRE

by

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PETROFINA: HUMBERSIDE TO BUNCEFIELD PIPELINE  
PRECONSTRUCTION SURVEY REPORT  
WINCH HILL FARM/DARLEYHALL, HERTS.

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**Abstract**

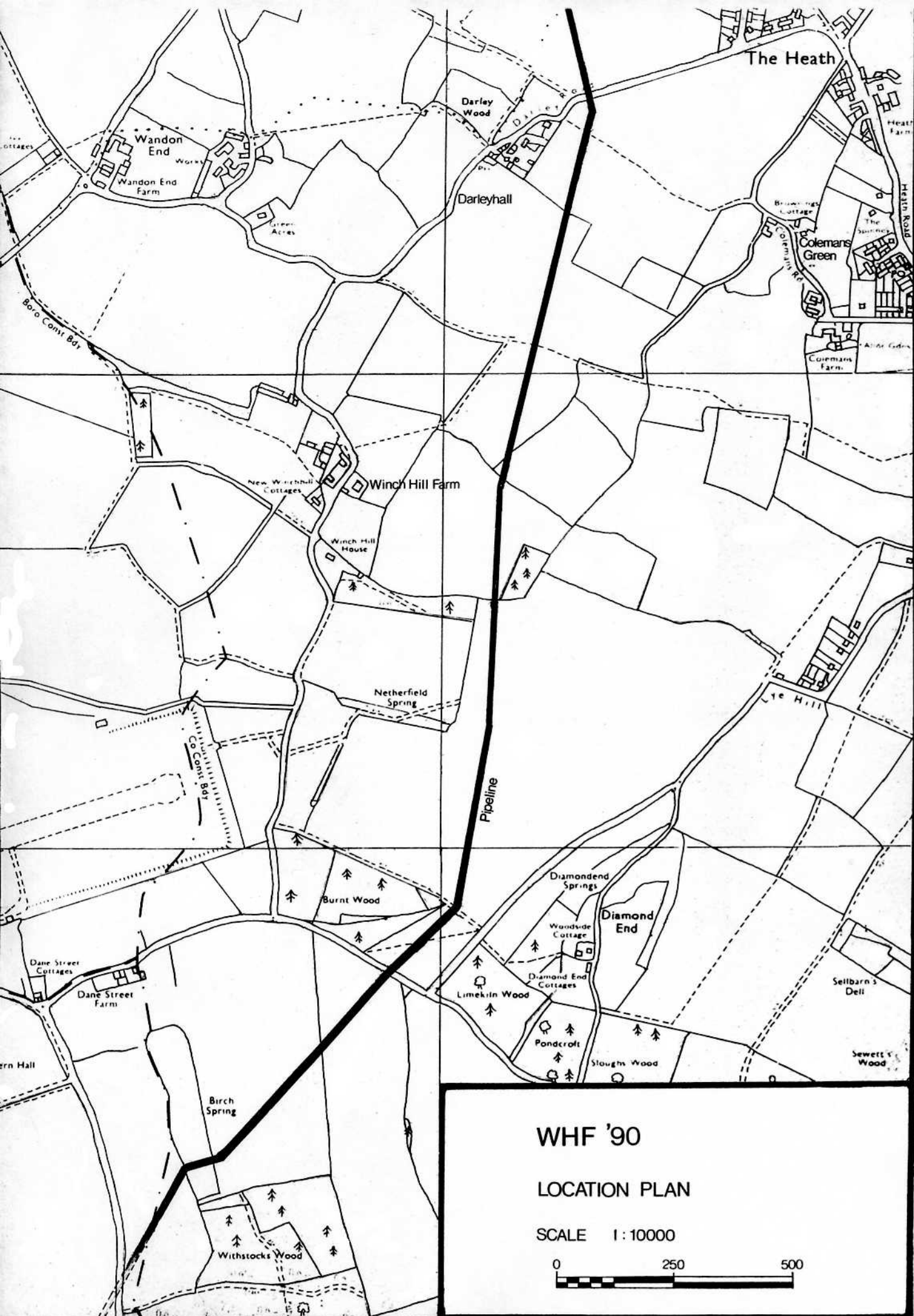
A survey of the route of a proposed oil pipeline in the vicinity of Darleyhall was carried out in order to ascertain whether or not there was an Anglo-Saxon cemetery situated on the route, since a single burial of the period had been found in the locality c1913. The survey located no such cemetery, but a Romano-British site was found and investigated in a limited way.

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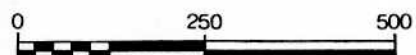
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WHF '90

LOCATION PLAN

SCALE 1:10000





## 1 Introduction and Archaeological Background

1.1 Where the pipeline route crosses the fields between Darleyhall and Winch Hill Farm in the parish of King's Walden, Hertfordshire, it traverses the possible location of a poorly-recorded Anglo-Saxon burial (HCC SMR no.1248; A Meany *A Gazetteer of Early Anglo-Saxon Burial Sites*, 1964, 104; *Proceedings of the Society of Antiquaries* 2nd series (1912-13) 25: 185). See figure 1.

The burial (dated to the sixth century AD) was of a woman accompanied by three brooches, a pair of tweezers and a latch-lifter. The burial is unlikely to be isolated, and a burial ground is suspected. An associated settlement is likely to be in the vicinity too. Although there is no supporting evidence from aerial photography or documents, such as Domesday Book, for a settlement of the period, the evidence indicated the need for further investigation.

Unfortunately, the discovery by workmen c1912-13 was poorly recorded and the exact location is unknown, only that it was 'near Darleyhall'. It was therefore decided that there should be a pre-construction archaeological survey in advance of the pipeline (marked in red on figure 1).

An initial geophysical (magnetometer) survey by Geophysical Surveys Ltd (Bradford) failed to discover any anomalies indicating a cemetery on the line surveyed; however, archaeological anomalies were recorded in Field 0070 to the east of Winch Hill Farm. When, therefore, the archaeological team from North Herts District Council Museums Service (Letchworth Museum) came to do their survey by trial pit, six pits were dug on the geophysical anomalies in field 0070 and four elsewhere on the survey line.

1.2 The length of pipeline under scrutiny runs northwards for 830m across three fields from Winch Hill Common to Darleyhall Common. A fourth field (2681) shown on the 1:2500 map (figure 2) has subsequently been amalgamated into the central field (1400) in order to improve general drainage.

1.3 Both Darleyhall and Winch Hill farm are situated on the high ground either side of a deep dry valley which descends to the east. From the middle of field 0070 (Winch Hill Common) the land slopes away to the north, the gradual increase in gradient accentuated by a two-metre drop at the boundary into the next field (1400); after a slight natural terrace the slope increases once again after reaching a lowest point on the broad valley floor at 114m OD, in approximately the middle of field 1400. From here the land rises gently to the footpath which forms the boundary with field 0021; a 1.5m high terrace edge separates the two fields after which the gradient increases sharply for approximately 180m before gradually levelling out to form a plateau at 144m OD which extends towards Darleyhall.

1.4 The subsoil in this area is a heavy, reddish brown, flint-bearing clay. In numerous places on both sides of the valley, in particular on the upper slopes where the topsoil is thin, various sized circular depressions probably indicate the extraction of clay for local brickworks (Breachwood Green?) (see locations of trial pits 9 and 10).

## 2 Survey Methodology

2.1 The purpose of the survey was to use one metre square trial pits to assess the nature of various anomalies recorded during the magnetometer survey, and to sample other areas along this section of the pipeline in order to establish the presence or otherwise of archaeological features.

In January 1990, a team of four field archaeologists from NHDC Museums Service undertook the work, identifying the pipeline route, marking out the geophysical survey area and locating the required positions for the trial pits.

A limit of ten pits was arranged for this section; of these six were allocated to anomalies indicated on the geophysical survey readout, and the remaining four were placed at intervals along the pipeline route at points considered to merit investigation (see figure 2).

2.2 The geophysical survey indicated a wide spread of anomalies across field 0070, near Winch Hill Farm. Yellow plastic pegs had been left to mark the corners of a one hundred by twenty metre rectangle containing some of the most intense activity. Using these markers and a copy of the readout, pits 1 to 6 were located centrally on some of the most distinct features, to an accuracy of approximately  $\pm 0.5\text{m}$  (see figure 3).

2.3 Four more pits were sited according to the geography of the fields and in order to sample the length of the pipeline. The steep gradients and the poorly-drained valley floor were rejected as suitable locations, as were the areas close to the field boundaries and on the southern slope of Darleyhall Common where plough and vehicle erosion had exposed the subsoil and, in some cases, the underlying chalk. All these areas were unlikely to produce useful information.

Pit 7 was positioned on the pipeline thirty metres north of the boundary between field 0070 and 1400 on the edge of a slight escarpment which might define the limit of activity seen in the geophysical survey further up the slope.

On the opposing hillside, Pit 8 was dug forty metres south of the southern boundary of field 0021, on a marginal terrace which appeared worthy of investigation as the only section of moderately level, well-drained terrain in between the two upper commons.

2.3 Pit 9 and Pit 10 were both located on the upper slope of field 0021 in the vicinity of the eastern edge of a large circular depression approximately sixty metres in diameter. This part of Darleyhall Common may well have produced the unprovenanced Anglo-Saxon burial, possibly during the excavation of one of the numerous clay extraction hollows. Therefore these two pits were positioned to test the possibility that this hollow, the largest in the area by a factor of four, might have uncovered the known burial and disturbed part of a cemetery.

### 2.4 Establishing a grid.

Using a Zeiss-Jena level, exact sitings along the proposed pipeline could be made by referring to the red surveyors' pegs in the field boundaries. The pipeline was always used as the north-south baseline of a twenty-metre wide linear grid, fourteen metres from the western edge of the access corridor, and therefore designated as the axis 14/0.

However, since the pipeline does not run in a single straight line across this sector, the northings are calculated from two points: A, which is the most southerly point on the pipeline within the limits of the survey (National Grid TL 1411 2152), and B, the point in field 0070 at which the direction of the pipeline changes (TL 1412 2176) (see figure 2). Coordinates north of these points are prefixed with the relevant letter; for example, the coordinate for the south-west corner of Pit 7 is B 14/30, whereas the south-west coordinate of the rectangular geophysical area is A 0/120.

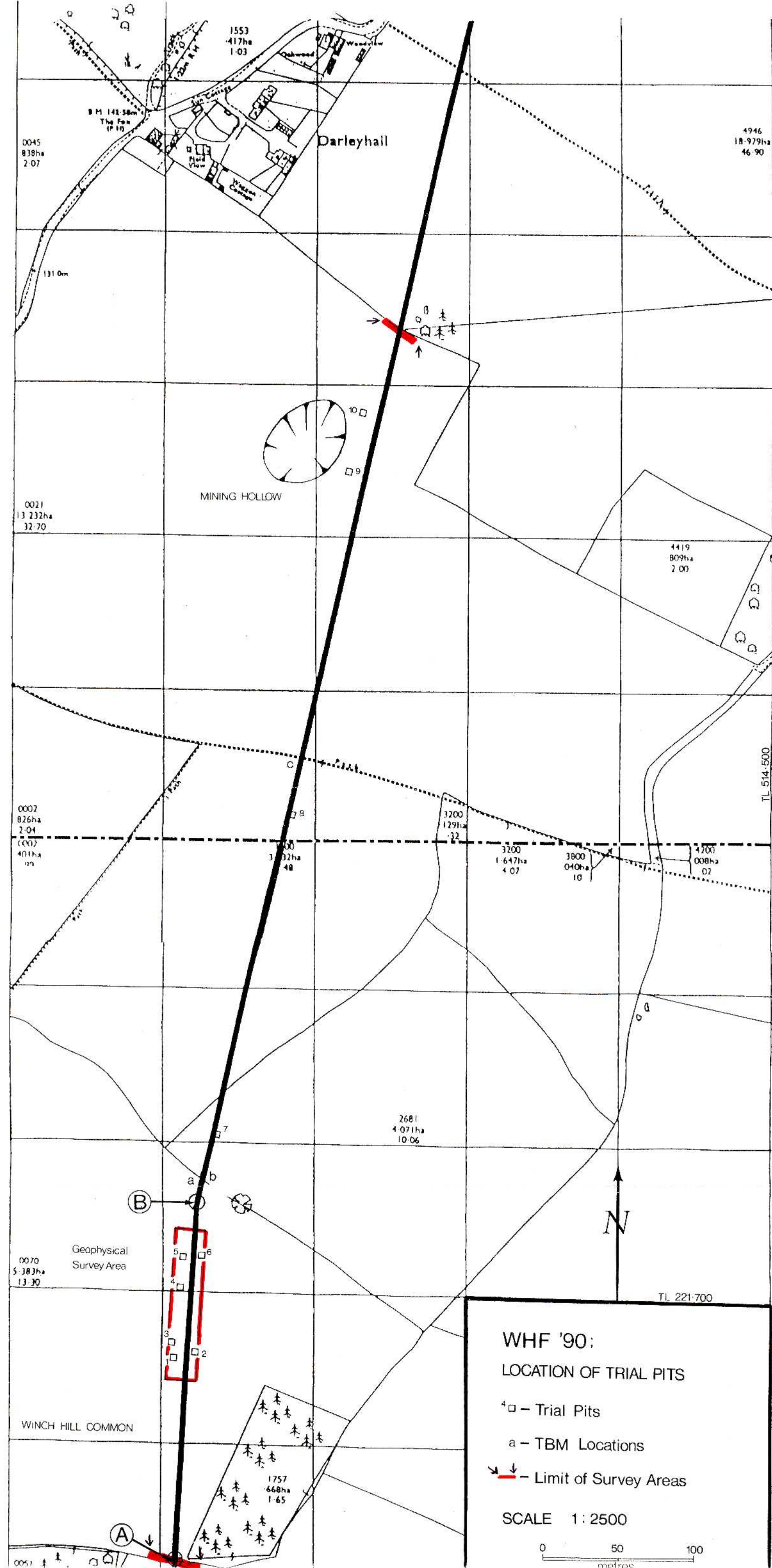


Fig. 2



## 2.5 Excavation procedure and recording

Each member of the team was responsible for the excavation and recording of one trial pit per day. Where a trial pit revealed archaeological deposits, excavation was limited to the minimum amount of disturbance required to extract demonstrably uncontaminated datable material.

All the trial pits were excavated manually, systematically removing each layer. All features and deposits were given context numbers and fully described using pro forma record cards. All finds were collected for analysis. Field drawings were made of surfaces and sections, including post-excavation plans of the cleaned subsoil in pits which produced no archaeological features. A photographic record was maintained.

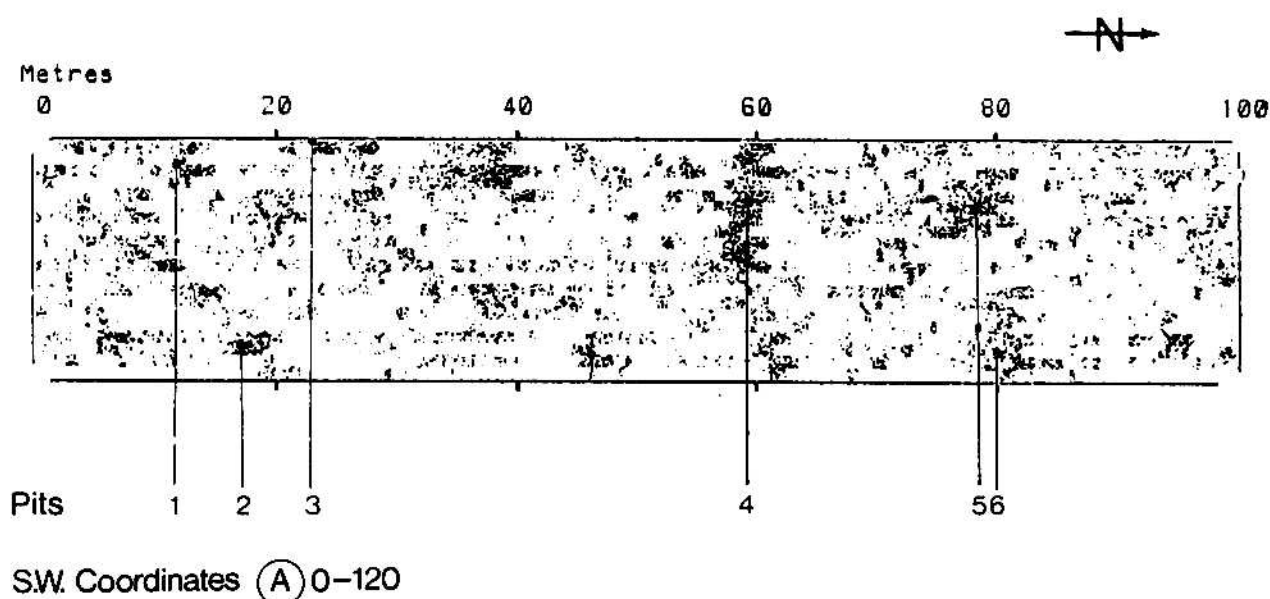
Finally, the pits were backfilled leaving a slight mound to allow for subsidence and settling. The fieldwork for this section of the pipeline was completed in four and a half days.

2.6 The heights of all features were recorded in relation to four temporary bench marks established along the pipeline route. Subsequently these points were measured in relation to the bench mark on the long barn at Winch Hill Farm, and the absolute heights calculated.

2.7 The finds and records were then checked and analysed and a draft report prepared. Field drawings were checked and from them final drawings were prepared for this report; other plans were added as this text was written.

# WINCH HILL FARM

## *Magnetometer Survey*



SW. Coordinates (A) 0-120

Figure 3: Magnetometer survey printout provided by Geophysical Surveys Ltd, showing the positions of trial pits, located near major anomalies

### 3 Results

3.1 The pits within the geophysical survey area (see figure 3).

Pit 1 SW grid: A 2/132. Surface level 137.52m OD (See figure 4).

This trial pit was located over a distinct anomaly shown on the geophysical survey readout.

The ploughsoil ([1]) was 0.24m deep and composed of dark reddish brown clay loam with numerous (40%) medium and large angular flints. The surface had been harrowed and bore a crop of new cereal shoots. With minor variations this matrix was uniform over the whole surface of field 0070. The ploughsoil from Pit 1 produced a number of finds: three fragments of animal bone and ten sherds of Romano-British pottery (see Appendix 3).

The topsoil was removed to reveal two layers. In the south-west corner of the pit, layer [6] appeared as a silty clay loam with 5% medium flints and 5% small chalk lumps and flecks. This layer was mottled with small patches 20mm in diameter of black carbonised/organic material, and contained thirteen sherds of Romano-British pottery (see Appendix 3) as well as nine fragments of animal bone. In the west corner the bone appears to be from small domestic animals, probably ovicaprid. Layer [6] contained identifiable fragments of mandible and two teeth. In the north-east of the pit a different surface appeared. Layer [5] was a mid brown silty clay with 90% medium subangular flints. Layer [6] was removed to reveal the compact surface [5] sloping down towards the south-west corner of the trial pit. Seven Romano-British potsherds were recovered from this surface (see Appendix 3).

The quantity and uniformity of the finds from this trial pit indicates that the magnetometer survey has located a Romano-British feature; the pottery is datable to the second to third centuries AD. Modern cultivation (See Appendix 2) has disturbed the surface of the feature, bringing archaeological material into the ploughsoil (possibly from layer [6]), although the degree of disturbance appears to be limited. Layer [6] was interpreted as a general fill containing domestic residue. Layer [5], which was cleaned and recorded but not excavated further, has the appearance of a metalled surface, the flints seemingly selected for size and placed with flat surfaces uppermost.

Pit 2 SW grid: A 17/137. Surface level: 137.13m OD.

Also located on a sizable anomaly (similar to Pit 1), excavation revealed a 0.2m depth of ploughsoil which produced the only two finds from this pit, a post-medieval rim sherd and a fragments of medieval tile. Beneath the ploughsoil lay a 0.1m deep layer of mixed red/yellow clay and mid brown clay loam ([3]) caused by occasional deep ploughing into the natural clay-with-flints subsoil which lay directly below. This sequence of layers proved to be the pattern for this area where no archaeological features were present, typified by the section drawing of Pit 4.

Pit 3 SW grid: A 0/143. Surface level: 137.54m OD.

This pit again produced no evidence of archaeological activity, even though situated over a reasonable anomaly. Two layers were recorded above the subsoil: a 0.2m depth of ploughsoil on top of a shallow layer ([2]) of what appeared to be modern ploughsoil left undisturbed by this year's cultivation. Neither layer produced finds.

Pit 4 SW grid: A 5/179. Surface level 136.48m (see figure 4).

The geophysical survey readout shows a large, possibly linear, feature beneath the surface at this point. Pit 4 was placed centrally within the most dense area of the anomaly. It was therefore surprising that below two superimposed layers (similar to those seen in Pit 3) the underlying subsoil was devoid of archaeological features. One piece of medieval tile was recovered from the ploughsoil.

Pit 5 SW grid: A 5/198. Surface level 135.83m OD (see figure 4).

Pit 5 was dug in approximately the centre of a very large geophysical anomaly, seven by five metres. The ploughsoil (0.15m deep) produced one sherd of medieval tile,

and when removed revealed a friable layer of mid brown clay loam with 50% medium angular flints ([9]) 0.08m deep. This produced one fragment of mediæval tile and one piece of abraded red Romano-British pottery.

The ensuing layer, indicated by a slight colour change and increase in the quantity of chalk flecks ([13]), produced four abraded Romano-British potsherds (see Appendix 3) and was considered to be a partially-disturbed pit or ditch fill. In the light of this interpretation, layer [9] may represent a subsequent fill, or part of the same material suffering from profound plough damage.

Beneath [13] a more compact layer ([15]) of similar material, with further increased amounts of chalk flecks, extended downwards for 0.1m and furnished one sherd of Romano-British red sandy ware. Layer [15] was removed to expose [16], a friable to firm dark reddish brown silty clay containing 20% medium flints and 20% small chalk pieces. At this depth all features were well below the maximum depth of a modern plough, and appear to be generally undisturbed (see Summary). Layer [16] yielded three Romano-British potsherds and one iron nail, and was 0.08m deep. Excavation was discontinued after removing layer [16] to reveal the surface of layer [17], a similar but slightly less stony matrix than the previous material. No finds were recovered from [17]; however, the presence of chalk flecks and lumps, together with the absence of clay subsoil, indicates that [17], in common with layers [15] and [16] is redeposited material, probably backfill within a negative feature, datable from the artifacts to the second to third centuries AD.

Pit 6 SW grid: A 17/200. Surface level 135.15m OD.

Situated centrally on a similar sized anomaly to that investigated by Pit 5, this pit proved negative. Beneath 0.2m of ploughsoil ([8]) containing numerous pieces of mediæval tile and four fragments of Romano-British pottery (see Appendix 3), lay the undisturbed natural clay-with-flints subsoil.

3.2 Test pits situated along the remaining pipeline route (see figure 2).

Pit 7 SW grid: B 14/46. Surface level 129.30m OD (see figure 5, below).

Pit 7 was located beyond the northern boundary of field 0070 approximately sixty metres from the magnetometer survey area, in what appears on the 1:2500 map as field 2681. This point is at the limit of the upland area of Winch Hill Common, beyond which the land falls away sharply into the valley. This pit was dug in order to measure the extent of the activity recognised further south. The ploughsoil ([8]) was similar to that seen in field 0070 but with fewer flints. This overlay a 0.15m deep layer of compact mid reddish-brown silty clay loam comparable with layer [2] in Pit 3, and interpreted as modern ploughsoil untouched by the most recent cultivation. This last layer ([10]) was removed, uncovering the natural undisturbed subsoil.

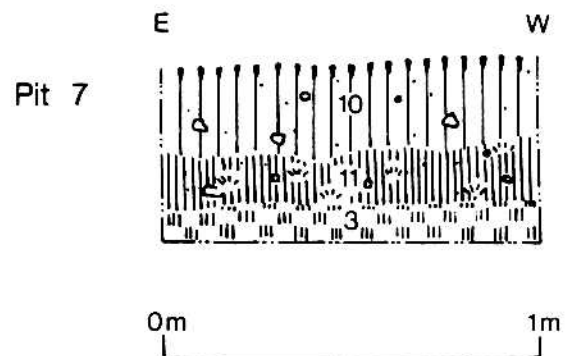


Figure 5

No finds were recovered from this trial pit, nor any signs of archaeological activity.

Pit 8 SW grid: B 14/160. Surface level 123.96m OD (see figure 6, below).

Pit 8 was dug on a small natural terrace in field 1400, forty metres from the path which forms the northern boundary, below the main slope of Darleyhall Common. Situated significantly above the poorly-drained valley floor, and below a severely plough-damaged area of hillside, Pit 8 sampled the central area of the pipeline between Pit 7 and Pit 9.

The ploughsoil ([18]) was of a different consistency to that encountered further south, more humic with less clay and smaller flints. This layer was 0.2m deep and produced one fragment of mediæval tile. The following layer ([14]) was a firm mixture of the ploughsoil and the subsoil: the result of sporadic deep ploughing. This layer produced one sherd of mediæval pottery, and lay directly above the clay-with-flints natural ([19]).

No archaeological features were uncovered.

Pit 9 SW grid: B 1/490. Surface level 141.49m OD (see figure 7, below).

Pit 10 SW grid: B 1/530. Surface level 143.70m OD.

Small opencast mines dug to supply local demands either for chalk for foundations, etc, or clay for brickmaking over the last two centuries (or more) have left numerous small circular dells in the fields around Darleyhall and Winch Hill Farms, referred to by the local farmers as 'dewponds'. The pipeline crosses close to the largest of these depressions (sixty metres in diameter and two metres deep). The unprovenanced Anglo-Saxon burial tentatively located in this area may well have been unearthed during the excavation of one of these hollows; bearing this possibility in mind, both Pit 9 and Pit 10 were dug to the west of the pipeline, near the edge of the depression, leaving a one metre gap at the edge of the access corridor to allow for trampling.

The ploughsoil ([20]) was identical in both cases, a mid reddish-brown clay loam with 20-25% medium and large angular flints. This layer extended downwards for an average 0.2m and produced no finds. A shallow layer, 0.05m deep, similar to layer [14] in Pit 8 separated the ploughsoil from the undisturbed natural clay. All the contexts in both pits were archaeologically sterile.

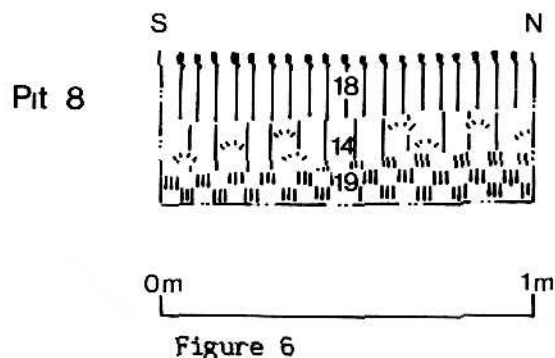


Figure 6

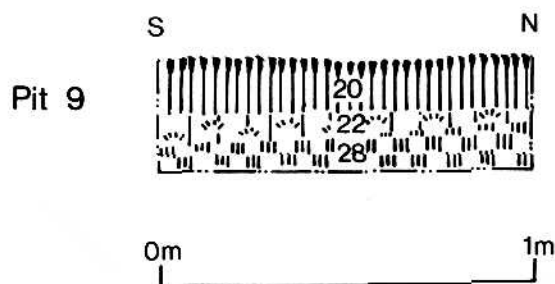


Figure 7



#### 4 Summary and Conclusions

4.1 Neither the magnetometer nor the archaeological surveys located the suspected Anglo-Saxon cemetery. This is presumably because it is situated either to one side of the pipeline route or to the north of the line surveyed. In retrospect perhaps the survey area should have included the fields east of Darleyhall, immediately to the north and south of Darley Road. It would still be possible to carry out a pre-construction survey of these two fields. Alternatively, one could wait to see if anything is revealed by the topsoil stripping of this part of the route. However, this would be less satisfactory.

4.2 The anomalies located by the magnetometer survey in field 0070 indicate the presence of a hitherto unknown site. Not all the anomalies are archaeological; some are natural subsoil features. Nevertheless, surface and buried artifacts, together with at least two archaeological features (in Pits 1 and 5) confirm the existence of a fairly extensive Romano-British farmstead or other settlement. This deserves further investigation and recording in advance of the construction of the pipeline to ascertain its character, function and dating.

### Appendix 1: Fieldwalking

The quantity of surface finds in the area of the magnetometer survey in field 0070 prompted a rapid fieldwalking session, taking advantage of the tapes and markers already laid out to locate the trial pits on the recorded anomalies.

The one hundred by twenty-metre rectangle was divided into twenty-metre squares numbered 1 to 5, beginning at the south of the area. Four transects (corresponding to the number of people in the team) were quickly walked in each square, the finds collected and their positions noted on pro-forma record cards.

The finds were cleaned and identified and the information converted into a bar chart (figure 8). Post-medieval finds were rare in the sample and discounted as incidental. The remaining categories – medieval, Romano-British and metal working slag – show interesting patterns, particularly when compared with the magnetometer readout, where the peaks of activity appear to coincide.

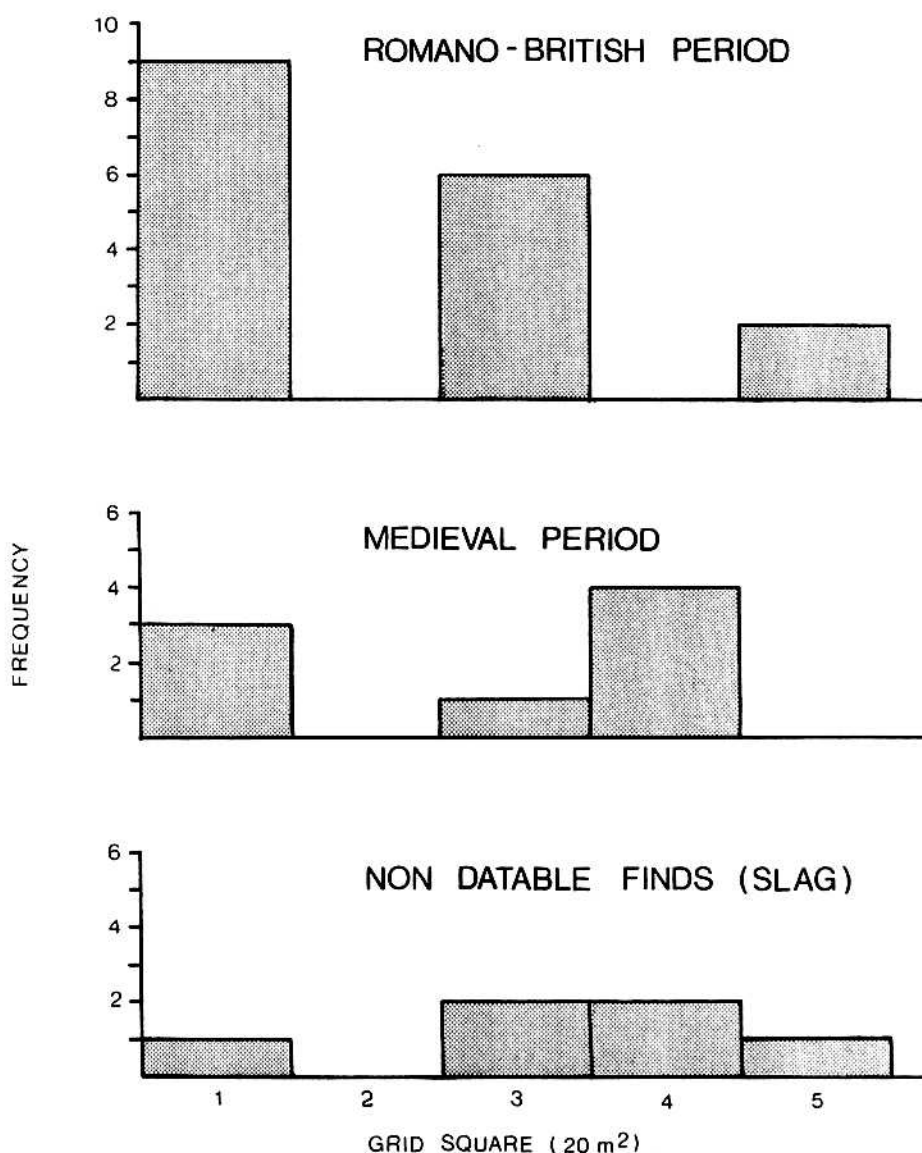


Figure 8: Finds from Fieldwalking

The quantity of Romano-British material presumably reflects the use of deep cultivation machinery (see Appendix 2) and indicates the presence of second to third century AD archaeological remains.

The rest of the pipeline received no formal fieldwalking as this was beyond the scope of the project. However, casual observations indicate a marked decline in finds as the line moves north into field 1400, and an almost complete absence of finds in field 0021 (Darleyhall Common), the only observed material being mediæval and post-mediæval, as might be expected on the former open fields of Darleyhall hamlet.

#### Appendix 2: The Effects of Deep Ploughing

On several occasions over recent years the subsoil in fields 0070 and 1400 has been subjected to considerable disturbance, the last occasion being September 1989. This takes the form of a single slot cut across the field at approximately 1.5m intervals to a depth of 0.6 to 0.7m using an L-shaped coulter blade attached to the hydraulic gear at the rear of the tractor.

The effect is not to turn the subsoil, but to cut and lift it slightly, causing a 'wake' action to rend the soil. This prevents the build-up of a solid clay pan beneath the surface which would inhibit plant growth and make the crops particularly susceptible to drought.

This device was used extensively in field 0070, and to a limited degree in 1400; field 0021 does not appear to have been subjected to its use. Consequently, the subsoil in the former fields is frequently disturbed below the depth of normal ploughing, and negative features cut into this material may also have sustained damage to a maximum depth of 0.7m from the surface.

None of the 'negative' pits produced any indication that the subsoil had been damaged in this way, therefore we assume that the pits were dug in the 1.5m gaps between furrows. The possibility that some archaeological layers in Pits 1 and 5 were affected was noted, and excavation was continued until this aspect of contamination could be dismissed.

#### Appendix 3: Romano-British Pottery from the Trial Pits

##### Pit 1

- [11] 6 grey ware sherds (first to fourth centuries AD; Baldock fabric 11).  
4 grey and red shelly ware sherds (second century AD; Baldock fabric 4).
- [5] 4 grey ware sherds.  
1 red ware sherd.  
4 grey and red shelly ware sherds.
- [6] 12 grey ware sherds.  
1 red sandy ware sherd.

##### Pit 5

- [9] 2 red sandy ware sherds.
- [13] 1 grey ware sherd.  
1 grey and red shelly ware sherd.  
1 red tile fragment.
- [15] 1 red sandy ware sherd.

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