ARCHAEOLOGICAL WATCHING BRIEF ON THE CAPESTHORNE PIPELINE DIVERSION, SIDDINGTON, CHESHIRE

Adam Lee

With contributions by Alan Jacobs, Katie Head and Ben Johnson (ARS Ltd)

Illustrated by Carolyn Hunt and Tom Rogers

18th October 2007

Historic Environment and Archaeology Service,
Worcestershire County Council,
Woodbury,
University of Worcester,
Henwick Grove,
Worcester WR2 6AJ

Project 3069
Report 1542

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Part 1 Project summary

An archaeological watching brief was undertaken on the Capesthorne Pipeline Diversion (site centre SJ 833 714). It was undertaken at the instruction of CgMs Consulting on behalf of Mouchel Parkman acting for National Grid (the Client), who intend to divert an existing gas pipeline around a proposed extension to Dingle Bank Quarry, Siddington, Cheshire. This involved the stripping, by machine, of an easement and subsequent pipe trench. The project aimed to determine if any significant archaeological features or deposits were present and if so to indicate what there location, date and nature were.

The majority of the stripped easement revealed little of archaeological importance. However three features were identified that are described in this report. A probable field boundary ditch was identified and the finds recovered from the fill suggest a date of 17th-18th century. An old track way which was identified in the eastern part of the easement corresponds with a track leading to a lodge which is shown on the 1872 Ordnance Survey map. The western part of the easement revealed an area of dark deposits within a natural hollow. Environmental investigation of these deposits indicated that, although not formed by human activity, the deposits were of value in determining environmental conditions in the area in the past. Pollen analysis dated the deposits to the Bronze Age.

Part 2 Detailed report

1. Background

1.1 Reasons for the project

An archaeological watching brief was undertaken on the Capesthorne Pipeline Diversion (site centre SJ 833 714) (Fig 1), at the instruction of CgMs Consulting on behalf of Mouchel Parkman acting for Transco (the Client), who intend to divert an existing gas pipeline around an extension to Dingle Bank Quarry, Siddington Cheshire. The scheme involved the stripping/excavation, by machine, of an easement and subsequent pipe trench. The pipeline is to be constructed under permitted development rights and there is therefore no archaeological brief. However, there is a Code of Conduct for the exercising of statutory powers, which requires any impact, or potential impact of significant archaeological remains to be appropriately mitigated.

1.2 Project parameters

The project conforms to the *Standard and guidance for an archaeological watching brief* (IFA 1999).

1.3 Aims

The aims of the watching brief were to locate archaeological deposits and determine, if present, their extent, state of preservation, date, type, vulnerability and documentation. The purpose of this was to establish their significance, since this would make it possible to recommend an appropriate treatment which may then be integrated with the proposed development programme.

2. Methods

2.1 Documentary search

An archaeological desk based assessment of the proposed pipeline diversion was prepared by CgMs Ltd prior to the beginning of the project (Weaver 2006). Of relevance also is an archaeological desk-based assessment undertaken by National Museums Liverpool on behalf of WBB Minerals, which assessed the area within the extension to Dingle Bank Quarry (Adams and Ahmad 2004).

2.2 Fieldwork methodology

2.2.1 Fieldwork strategy

A detailed specification has been prepared by the Service (HEAS 2007).

Fieldwork was undertaken between 16th April and 11th June 2007.

The area stripped, comprising both the easement area and compound, amounted to just over 22,000m² in area. The location of the easement and compound is indicated in Figure 2. For the purposes of this project, the site was divided into 5 areas (Fig 2) and these areas represent the 5 fields through which the easement runs.

Deposits considered not to be significant (Topsoil) were removed using a 360º tracked excavator, employing a toothless bucket and under archaeological supervision. Subsequent

excavation was undertaken by hand. Deep excavation areas, namely the pipe trench, were not accessed for safety reasons and recording was undertaken from above. Clean surfaces were inspected and selected deposits were excavated to retrieve artefactual material and environmental samples, as well as to determine their nature. Deposits were recorded according to standard Service practice (CAS 1995). On completion of excavation, hand dug trenches were reinstated by replacing the excavated material.

2.2.2 Structural analysis

All fieldwork records were checked and cross-referenced. Analysis was effected through a combination of structural, artefactual and ecofactual evidence, allied to the information derived from other sources.

2.3 Artefact methodology, by Alan Jacobs

2.3.1 Artefact recovery policy

The artefact recovery policy conformed to standard Service practice (CAS 1995; appendix 2).

2.3.2 Method of analysis

All hand retrieved finds were examined and a primary record was made on a Microsoft Access 2000 database. They were identified, quantified and dated to period. A *terminus post quem* date was produced for each stratified context. The date was used for determining the broad date of phases defined for the site. All information was recorded on *pro forma* sheets.

The pottery and ceramic building material was examined under x20 magnification and recorded by fabric type and form according to the fabric reference series maintained by the service (Hurst and Rees 1992; Hurst 1994).

2.4 Environmental archaeology

Pollen Analysis by Katie Head

2.4.1 Sampling policy for pollen analysis

The environmental sampling strategy conformed to standard Service practice (CAS 1995, appendix 4). Six sub-samples were taken from six contexts of unknown date and assessed for pollen remains.

2.4.2 Method of analysis

Six pollen samples were selected from six contexts of an organic nature (contexts: 402-406, and 408). Sediment samples of 2cm^3 were measured volumetrically. To remove clays, the samples were soaked for 24 hours and then heated in tetra-Sodium pyrophosphate for 20 minutes, sieved through a 120µm mesh, washed onto a 10µm mesh, and the residue collected. 10% Hydrochloric acid was added in order to remove any Calcium carbonate. The samples were then soaked overnight and digested using Hydrofluoric acid in a hot water bath for 20mins to remove any silicaceous material. As the samples were primarily organic in nature, they were acetolysed for 3mins to break down the cellulose material. Finally the pollen pellet was stained with safranine, washed in alcohol to dehydrate the sample, and preserved in silicon oil.

Pollen grains were counted to a total of 300-350 land pollen grains (TLP), for assessment purposes on a GS binocular polarising microscope at 400x magnification, and identification

was aided by using the pollen reference collection maintained by the Service and reference manual by Moore *et al* (1991). Nomenclature for pollen follows Stace (2001) and Bennett (1994).

2.5 Botanical Macrofossil Samples Assessment: See Appendix 4

3. Topographical and archaeological context

The background to the site has been described in two desk-based assessments, Steven Weaver 2006 of CgMs Consulting, *Archaeological Desk Based Assessment, Capesthorne Diversion, Siddington, Cheshire* and Mark Adams and Clare Ahmad 2004 of National Museums Liverpool, *An Archaeological Desk Based Assessment of Dingle Bank Quarry, Chelford, Cheshire.* The following section is summarised from these two studies.

The development site is located in a series of agricultural fields, which at the time of the monitoring, were under pasture. The site is generally level and is approximately 91 m above Ordnance Datum. The presence of a high water table is to be noted due to its possible impact on the preservation of archaeological deposits.

The underlying solid geology comprises of Pleistocene glacial sands and gravels which overly Triassic Keuper Marls (Geological Survey of Great Britain, Sheet 110). Found within Pleistocene glacial sands and gravels are the 'Chelford Sands' which are thought to have been laid down during the last Ice Age c 67,000 BP and consist of laminated detrital organic mud deposits. These deposits, often referred to as the 'Chelford Beds', have been extensively studied. The dominant podzol soils overly the glaciofluvial sands and gravel deposits are acidic in nature.

The desk-based assessment compiled by CgMs Ltd in June 2006 identified that the site has limited archaeological potential. There are no records of Prehistoric, Roman or Saxon/early medieval – medieval remains within the pipeline route or within 1 km of the site. There is, however, evidence of settlement on the site that appears on 19th century maps of the area. The buildings are referred to as 'The Lodge' and access appears to have been via a trackway to the south.

4. Results

Three features were identified in the stripped area that are of interest. A ditch (302) (see figure 4: section 3 and plate 6) was identified in field 3 (see figure 2). Two other features were identified in field 4 (see figure 2). An old track way was identified in the eastern part of the easement in field 4. The western part of the easement in field 4 revealed an area of dark organic deposits, which sat in a natural hollow (see figure 3). Two test pits were excavated by hand into these deposits and sections were recorded (See Figure 4: Sections 1 & 2 and Plates 9 & 10). The excavation of the pipe trench through the organic deposits in field 4 revealed the patchy nature of the feature (See Plates 11 & 12). Section 5 shows the stratigraphy of natural deposits in field 2 (See figure 4 and Plate 4).

4.1 Structural analysis

The trenches and features recorded are shown in Figures 2, 3 and 4 (see plates1, 2, 3, 5, 7, 8, 13 and 14). The results of the structural analysis are presented in Appendix 1, which consists of description of deposits and features identified during the fieldwork.

4.1.1 **Phase 1 Natural deposits**

The underlying solid geology comprises of Pleistocene glacial sands and gravels which overly Triassic Keuper Marls (Geological Survey of Great Britain, Sheet 110).

4.1.2 **Phase 2. Bronze Age deposits**

An area of dark organic deposits with multiple layers was identified to the south of the site (the south west corner of field 4) (see figure 3). The deposits were patchy and ranged in depth from 0.20m to 1m+. The environmental analysis of the samples taken from the organic deposits produced well-preserved pollen samples thought to date from the Bronze Age. The organic deposits appeared to extend beyond the easement strip and may survive elsewhere on the site.

4.1.3 **Phase 3. Post medieval deposits**

A ditch (302) was identified in field 3 running roughly east to west in the easement (see figure 2), this feature was 1.7m wide max and 0.20m in depth and contained one fill (303). The finds recovered from the ditch suggest a date of 17th-18th century.

A trackway identified in the eastern part of the easement in field 4 is thought to relate to the 19th Lodge depicted on the 1872 Ordnance Survey map of the area (figure 5).

4.2 Artefact analysis, by Alan Jacobs

The artefactual assemblage recovered is summarised in tables 1 and 2. The pottery assemblage retrieved from the excavated area consisted of 52 sherds of pottery weighing 1.088kg, in addition fragments of furnace slag; stone, brick and clay pipe stems were recovered. The group came from two stratified contexts and could be dated from the medieval period onwards (see Table1). The level of preservation was generally fair with the majority of sherds displaying only moderate levels of abrasion.

Material	Type	Total	Weight
Pottery	Medieval	1	51
Pottery	Post-medieval	44	942
Pottery	Modern	7	95
Bone	Mammal	2	2
Brick	Modern	2	122
Glass	Modern	1	59
Slag	Furnace	1	27
Stone	Chert?	1	1
Tobacco pipe	Stem	7	14

Table 1: Quantification of the assemblage

4.2.1 **The pottery**

All sherds have been grouped and quantified according to fabric type (Table 2). A total of four diagnostic form sherds were present and could be dated accordingly, the remaining sherds were datable by fabric type to their general period or production span.

Fabric	Fabric common name	Total	Weight
78	Post-medieval red wares	36	850
81.4	Miscellaneous late stoneware	2	53
81.5	White salt-glazed stoneware	2	16
84	Creamware	1	41
85	Modern stone china	5	42
91	Post-medieval buff wares	5	35
99	Miscellaneous medieval wares	1	51

Table 2: Quantification of the pottery by fabric

4.2.2 Medieval pottery

Only a single sherd of medieval pottery was recovered (Fabric 99), this was in a coarse local ware and is most likely from the base of a large jug. This was recovered from the topsoil (context 500).

4.2.3 Post-medieval pottery

The bulk of the pottery recovered was of post-medieval date and was dominated by red sandy ware (Fabric 78). This fabric was represented in a variety of forms including chamber pots (contexts 203 and 300), pancheons (contexts 303 and 100) and storage jars (contexts 200 and 203). The majority of sherds were abraded and unidentifiable (contexts 100,200, 203, 303 and 400), most likely representing manuring in the 17th-18th century. Post-medieval buff ware (Fabric 91) was present (contexts 100, 200 and 300) only in the topsoil. The only forms recovered consisted of a large pie dish or platter (context 300), large body sherds of a pancheon (context 200) and a large storage jar (context 100), all of late 17th-18th century date. White salt glazed stoneware (Fabric 81.5) was present in the form of a press-moulded plate or dish with a weave pattern (context 400); these forms were common between 1730 and about 1760 AD. Only a single fragment of Creamware (Fabric 84) was recovered, this was the base of a small bowl or cup (context 203) and would date from the late 1750s to early 1790s when this fabric was most commonly distributed.

4.3 Environmental analysis

Six contexts recovered from the organic deposits (420-406) were subjected to environmental analysis. The results of the pollen analysis are reproduced below. Botanic macrofossil analysis was also undertaken but preservation was found to be very poor. The results of this study are included as Appendix 4.

4.3.1 Pollen (Katie Head)

Contexts 420-406 were part of the same sequence, with Context 406 representing the lowest sample (just above the natural), while Context 408 represented a separate deep deposit also located just above the natural. All the samples were dominated by trees and shrubs making up to between 50% and 76% TLP, the lower contexts (e.g. contexts 406 and 408) ending to be higher in this group of taxa than the upper (e.g. context 402). The four taxa in this group comprise primarily *Alnus* (alder) and *Corylus* (hazel), followed by *Betula* (birch) and *Quercus* (oak), with *Corylus* (hazel) tending to fall quite noticeably in the upper contexts. Also significant within the tree population, was *Pinus* (pine), which peaked in contexts 405 and 408, although this may merely represent a preservation bias as pine will preserve well compared to other grains, in mineral sediments. In addition to the arboreal component, heathland was also notable, comprising just *Calluna vulgaris* (heather) and tending to expand the further up the profile. The last major contributor was Poaceae undiff. (grasses) which

made up to between 8% and 30% TLP, with this group, like the heathland, expanding the further up the profile. Other herbs were in low numbers and included *Plantago lanceolata* (ribwort plantain), Lactuceae *cichorium intybus*-type (e.g. *Taraxacum officinale* (dandelion)), and *Filipendula* (meadowsweet).

The suite of taxa from these six contexts indicate a relatively wooded landscape, tending to suggest that this dates to somewhere around the mid to late Bronze Age. The abundance of alder and hazel, as well as some of the oak, most probably derived from wetter environments located beside watercourses in the valley areas, while birch and *Tilia* (lime) would have colonised the drier surrounding slopes. Birch and pine may have also taken advantage of the more open areas cleared by local populations, highlighted by herbs such as ribwort plantain. The site seems to have started as a largely wooded environment, possibly with a heather understorey, which gradually became more open with grassland and heathland developing, the latter most probably expanding in upland areas around the site, a characteristic of Bronze Age landscapes.

5. Synthesis

Apart from the organic deposits in field 4, only two post medieval features were recorded across the easement and it is probable that this area was cleared or drained at a relatively late date and has since been agricultural.

5.1 Bronze Age landscape: pollen evidence.

The pollen evidence suggests a Bronze Age landscape. The most comparable site to Capesthorne, is that of Bury in Greater Manchester, dating to the mid to late Bronze Age (Head 2006). Like the Capesthorne, Bury included a large fen woodland component of alder and hazel, which developed into an area of increasing oak and birch, the latter taxon having colonised the site possibly following small-scale clearances by local populations. The site at Bury, however, seems to have been located in a much wetter environment located beside a palaeochannel, leading to a large increase in meadowland herbs.

Close to Capesthorne, in the Bollin valley region, two sites, the River Bollin area and Oversley Farm, have provided environmental evidence from the Bronze and Iron Ages, (Garner 2001). Like Capesthorne, at Oversley Farm the pollen record for the Bronze Age indicated a dominance of open heathland, which would have been grazed by stock. This site was, however, much more open during the Early Bronze Age with the pollen record highlighting a hazel/alder/birch scrub with little woodland. These open conditions are supported by large pollen counts of grasses, herbs, heaths, bracken, and cereals suggestive of a mosaic of open pastoral and arable environments on the site and indicating an agriculturally based settlement. At the other site around the River Bollin, the pollen evidence indicated that during the Iron Age, the area comprised marginal fen by the river, with the surrounding slopes colonised by hazel and ash (Shimwell and Downhill 1998). It appears that the river area was a well-used food resource abundant with wild fruits and game, while plant macrofossil evidence indicated that crops were also cultivated around the site.

Also in this area, just south of Manchester, at Lindow Moss, the clearance and regeneration of Early Bronze Age woodland was seen to occur within the pollen record, while during the Iron Age there was evidence of increased disturbance (Branch and Scaife 1995). There was also a highly wooded phase and increased wetness at the site between 770 and 400 cal. BC, suggested to be caused by a deterioration in climate (Mullin 2003; Leah *et al* 1997). The hillfort of Bar Mere in Cheshire also reflected woodland clearance, cultivation, and regeneration between 2000 and 1500 BC, followed by possibly selective clearance of oak until 1200 BC, to be replaced by agricultural land (Schoenwetter 1982).

More generally, a survey on the wetlands of the Greater Manchester area, provided evidence of prehistoric activity through pollen and plant macrofossil analysis on Chat Moss mire, as

well as survey and stratigraphical analysis on a number of smaller mires (Wells *et al* 1993; Hall *et al* 1995). At Mellor, Stockport (Thompson *et al* 2005), an Iron Age settlement included palaeoenvironmental evidence of a mixed deciduous woodland around the site as well as wet meadowland associated with an open body of water. Cereal pollen was also recorded indicating a mixed farming economy. At nearby Hyde, pollen evidence from two peat deposits at Brook House Meadow, Godley Hall Brook (Ogle *et al* 1997) also indicated a wooded landscape of primarily alder fen carr during the Bronze Age, which then saw a major episode of clearance dating to the Late Bronze Age/Early Iron Age (810 – 415 cal BC).

The Capesthorne area seems to have comprised a mosaic of environments, with the site itself relatively wooded compared with some other sites nearby, which were more cleared during this time. These earlier clearances may have occurred in order to use the resources local to those sites in the Bollin Valley. Capesthorne is therefore more comparable to the sites in the wider Cheshire/Manchester region of Bury, Brook House Meadow and Mellor.

The pollen remains from all six contexts, believed to date to the Bronze Age, were all well preserved and in abundant concentrations. There are a number of Bronze Age and Iron Age sites in the Cheshire region, and the site at Capesthorne would serve as an important comparison, allowing a picture of regional environmental change to be developed.

6. Publication summary

The Service has a professional obligation to publish the results of archaeological projects within a reasonable period of time. To this end, the Service intends to use this summary as the basis for publication through local or regional journals. The client is requested to consider the content of this section as being acceptable for such publication.

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The majority of the stripped easement revealed nothing of archaeological importance. However three features were identified that are of interest. A ditch was identified in the eastern part of the stripped easement. The finds recovered from the ditch suggest a date of 17th-18th century and it is likely to represent a field boundary. Two other features were identified in the southern part of the stripped easement. A track way was identified which tallies with a track associated with 'The Lodge', which is shown on the 1872 Ordnance Survey map. An area of dark organic deposits, which sat in a natural hollow, was also identified. Botanical macrofossil preservation was poor but pollen analysis provided a clear picture of mixed woodland and fen. From comparison from similar local studies, it is thought that these deposits date from the Bronze Age. The quality of the pollen from the samples will enhance the picture of regional environmental change.

7. Acknowledgements

The Service would like to thank the following for their kind assistance in the successful conclusion of this project, Cathy Patrick and Greg Pugh of CgMs Ltd and Jenny Stavely of National Grid.

8. Personnel

The fieldwork and report preparation was led by Adam Lee. The project manager responsible for the quality of the project was Tom Rogers. Fieldwork was undertaken by Adam Lee, finds analysis by Alan Jacobs, environmental analysis by Katie Head (WHEAS) and Ben Johnson (ARS Ltd) and illustrations by Carolyn Hunt And Tom Rogers.

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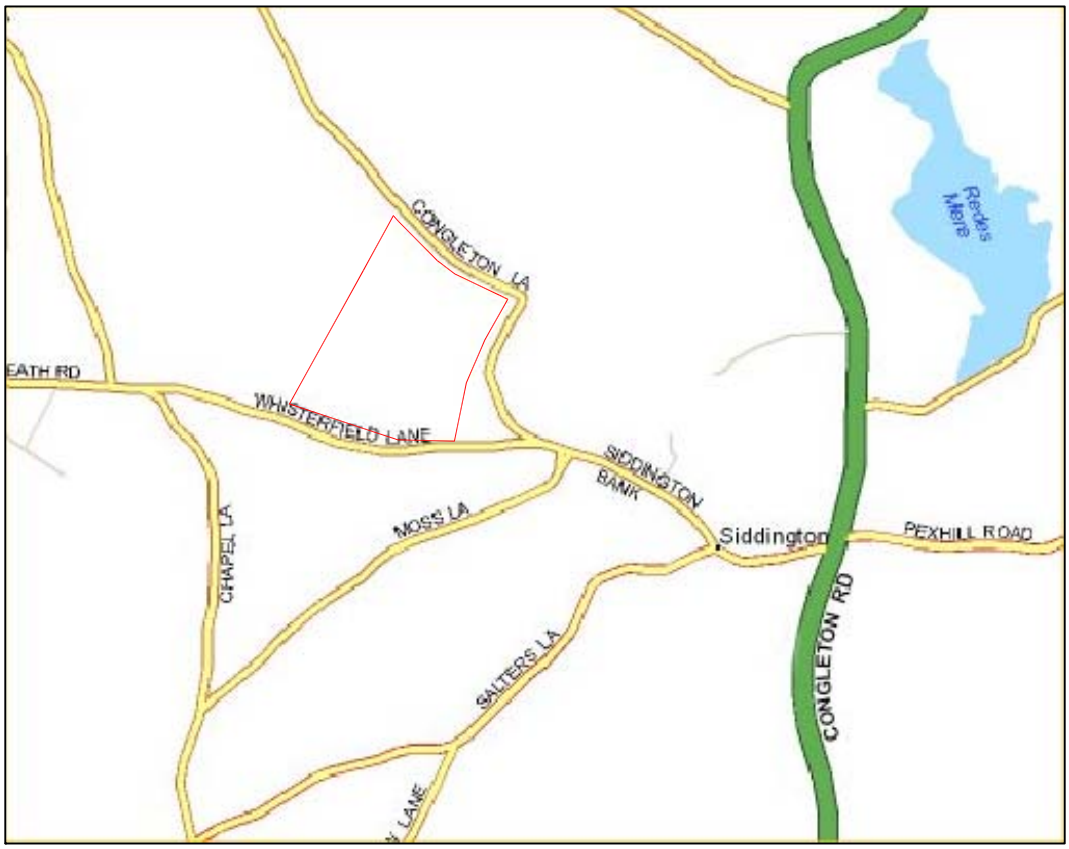
Figures



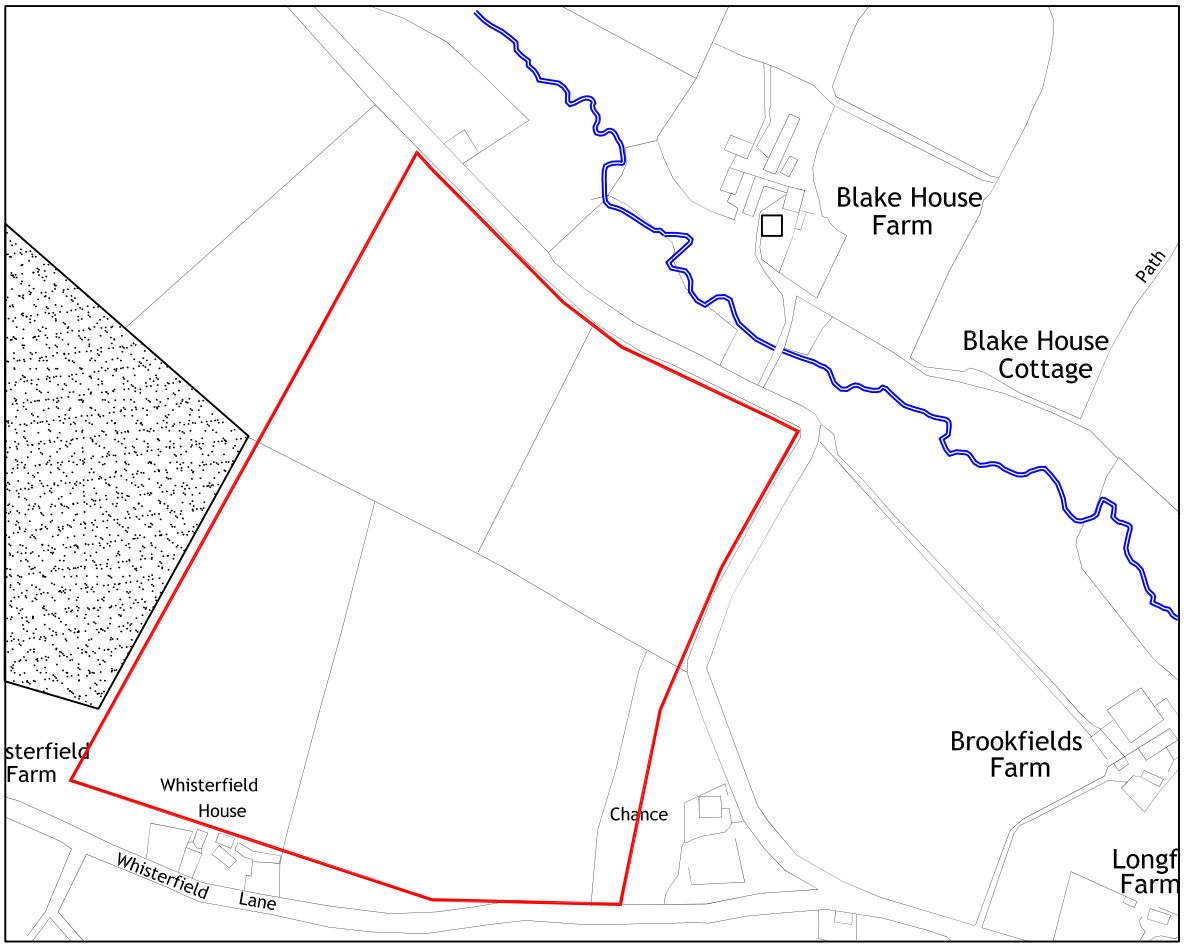


Figure 1. Site location

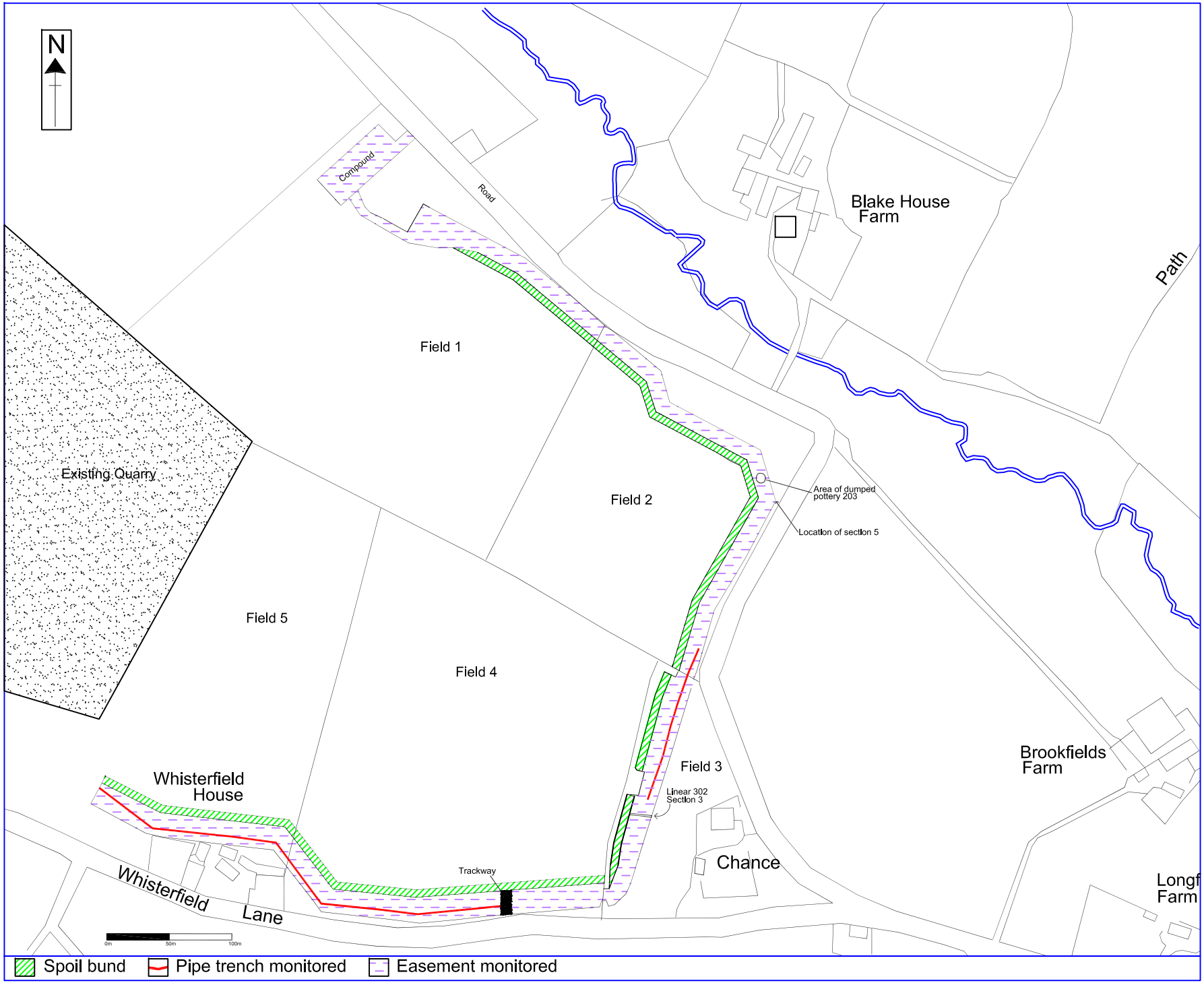


Figure 2. Site plan showing areas stripped and field numbers

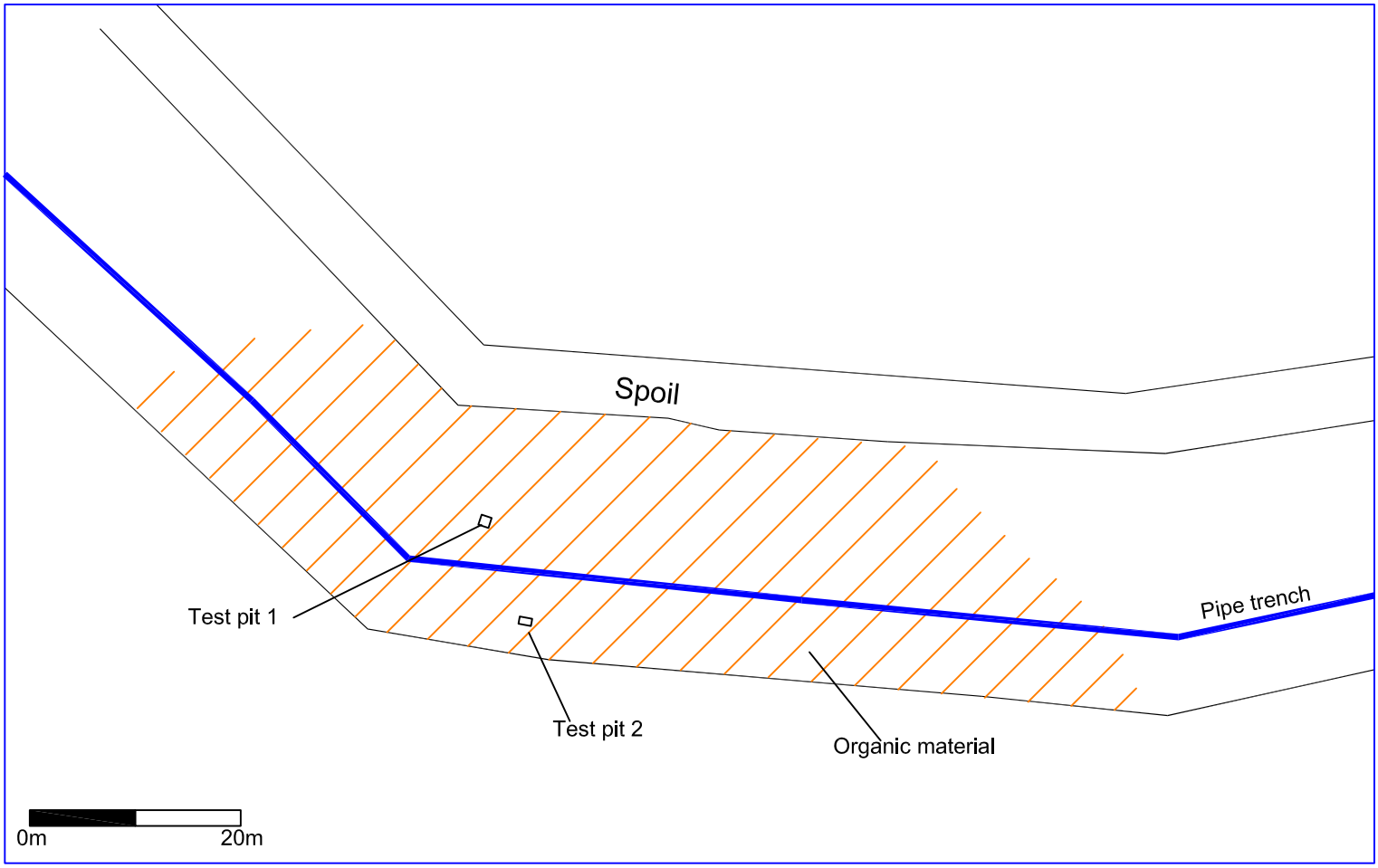
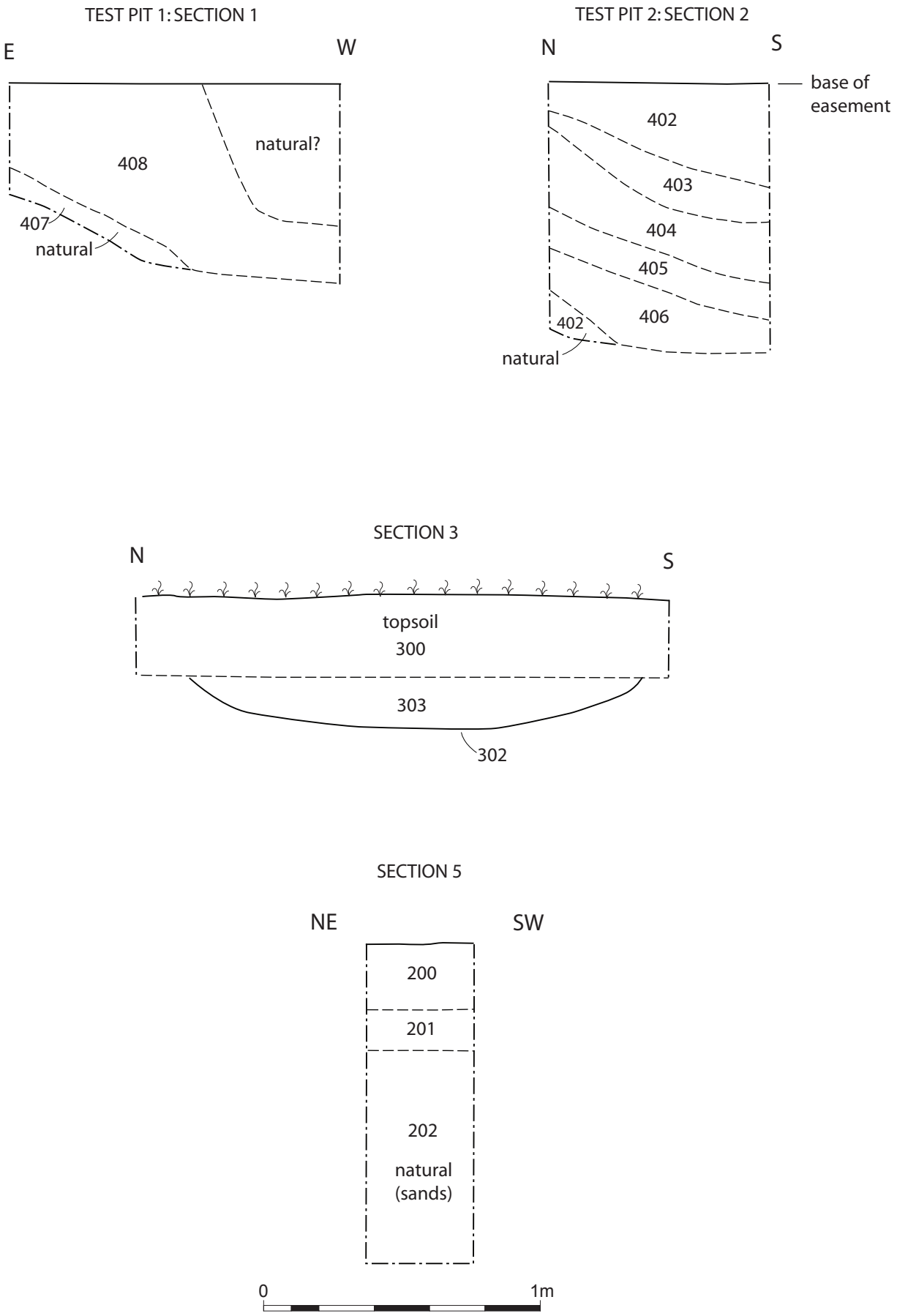


Figure 3. Detail of organic material in south west corner of field 4



Sections

Figure 4

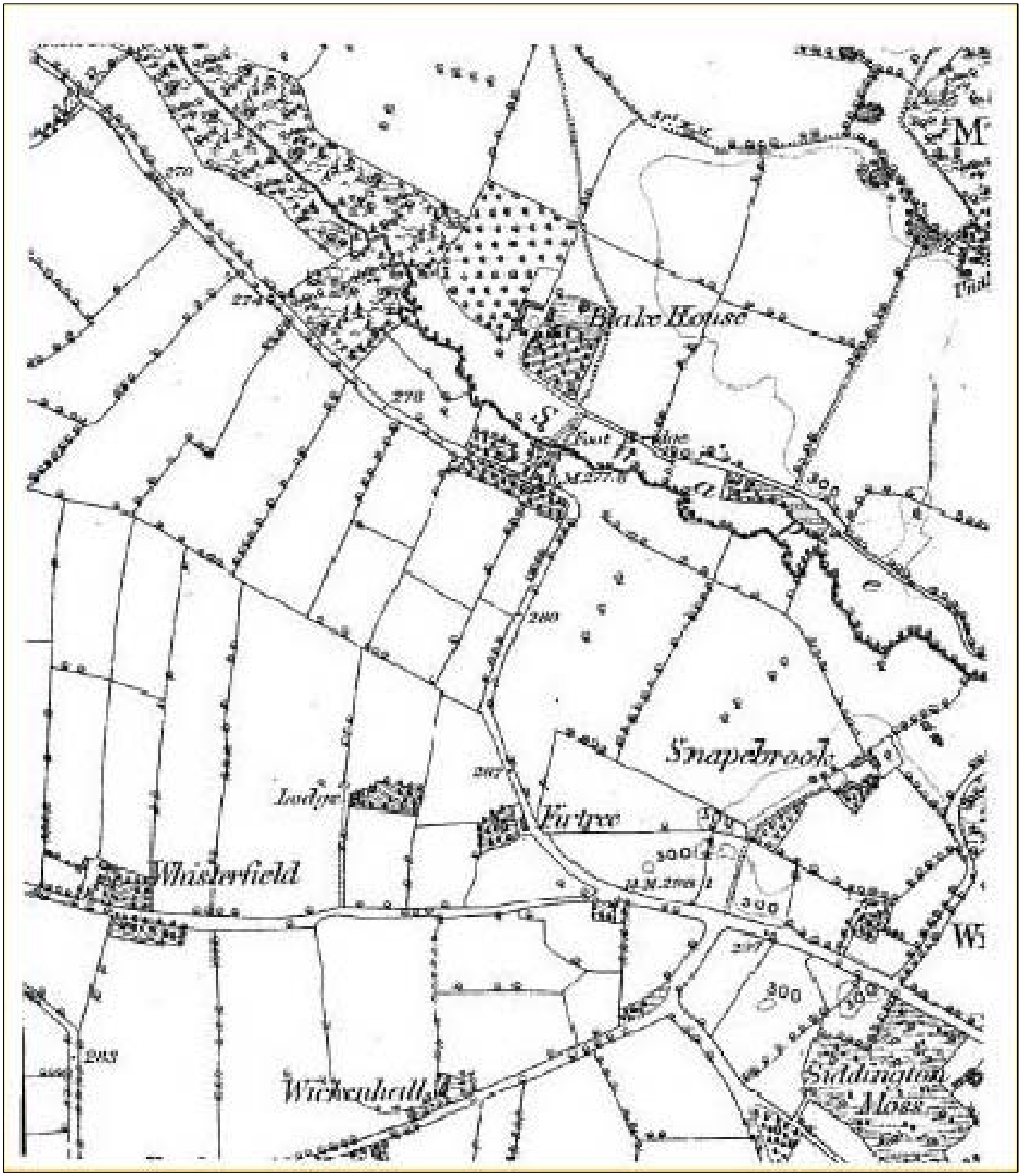


Figure 5 Extract of 1872 Ordnance survey map

Plates

Plate 1: Stripping the compound in field 1, looking SW

Plate 2: Stripping the easement in field 1, looking SE

Plate 3: The stripped easement in field 2, looking NE

Plate 4: Section 5, showing the baulk in field 2. See Figure 4

Plate 5: The stripped easement in field 3, looking NE

Plate 6: Section 3, Ditch 302 in field 3. See figure 4

Plate 7: Excavation of the pipe trench in field 3, looking NE

Plate 8: The easement in field 4, looking East

Plate 9: Section 1, showing dark organic deposits in SW corner of field 4. See Figure 4

Plate 10: Section 2, showing dark organic deposits in SW corner of field 4. See Figure 4

Plate 11: Organic deposits in field 4 reviled during excavation of the pipe trench, looking SW

Plate 12: Organic deposits in field 4 reviled during excavation of the pipe trench, looking N

Plate 13: The stripped easement in field 5, looking West

Plate 14: The pipe trench and pipe in field 5, Looking West

Appendix 1: Context descriptions

Field 1 including compound

Deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
100	Topsoil	Firm mid brown sandy silt. Occasional small – large rounded stones.	0-0.30m
101	Natural	Firm-soft mid yellow orange silty sand with areas stained brown from topsoil. The deposit has many plough scars visible on its surface.	0.30m +

Field 2

Deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
200	Topsoil	Firm mid brown sandy silt. Occasional small – large rounded stones.	0-0.30m
201	Subsoil	Firm-soft mid yellow orange silty sand with areas stained brown from topsoil. The deposit has many plough scars visible on its surface.	0.30-0.45m
202	Natural	Clean natural sand deposits.	0.45m +
203	Deposit	Dump of post medieval pottery just below topsoil. The deposit was not excavated.	N/A

Field 3

Deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
300	Topsoil	Firm mid brown sandy silt. Occasional small-large rounded stones.	0-0.30m
301	Natural	Firm-soft mid orange yellow sand with areas stained brown from topsoil. The deposit has many plough scars visible on its surface.	0.30m +
302	Ditch Cut	Cut of linear post Medieval ditch running E-W across easement. The ditch has a 'U' shape profile with concave sides and base.	0.30-0.50m
303	Ditch Fill	Firm mid orange brown sandy silt with occasional small – large rounded stones, occasional charcoal flecks and occasional flecks of fuel ash. Post-Medieval finds were recovered from this ditch.	0.30-0.50m

Field 4

Deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
400	Topsoil	Firm dark brown sandy silt. Moderate small-medium rounded stones.	
401	Subsoil	Natural silty sand deposit consisting of mid orange stony silty sand and light grey yellow sand with patches of manganese flecks.	
402	Layer	Firm dark brown sandy silt with high organic content. Occasional small to large rounded stones. Deposit contained a few patches of light yellow brown sand.	
403	Layer	Dark to light mixed deposit. Patches of dark sandy silt and light yellow brown sand. The dark silt patches contained organic material.	
404	Layer	This deposit is very similar to deposit 402, although it contained more organic material (small twigs and fragments of wood) and had a higher water content. Deposit also had occasional small to large stones.	
405	Layer	Very mixed deposit containing patches and bands of dark sandy silt and light yellow grey sand.	

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
406	Layer	This deposit had a high organic content. Deposit was very mixed and mottled with patches of dark organic sandy silt that were very waterlogged and patches of yellow brown sand.	
407	Natural	Natural sand deposit. Light yellow grey sand with patches of sands and gravels.	
408	Layer	Firm dark black brown sandy silt, a very damp waterlogged deposit with a high organic content. Occasional small to large stones. Frequent root disturbance.	

Field 5

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
500	Topsoil	Firm dark brown sandy silt. Moderate small to large rounded stones.	
501	Natural	Loose mid orange sands and gravel, some very clean gravel patches.	

Appendix 2: Pottery assemblage

Context	Material	Type	Total	Weight	Date of context
100	Pottery	Post-medieval	1	37	19th-20th century
100	Tobacco pipe	Stem	7	14	19th-20th century
100	Pottery	Post-medieval	3	13	19th-20th century
100	Pottery	Post-medieval	1	8	19th-20th century
100	Pottery	Post-medieval	1	23	19th-20th century
100	Bone	Mammal	2	2	19th-20th century
100	Slag	Furnace	1	27	19th-20th century
100	Pottery	Post-medieval	3	14	19th-20th century
100	Pottery	Modern	1	4	19th-20th century
200	Pottery	Post-medieval	1	91	18th century
200	Pottery	Post-medieval	2	24	18th century
200	Pottery	Post-medieval	1	14	18th century
200	Stone	Chirt?	1	1	18th century
200	Pottery	Post-medieval	7	97	18th century
203	Pottery	Modern	1	49	1850-2000 AD
203	Pottery	Modern	2	11	1850-2000 AD
203	Pottery	Post-medieval	1	41	1850-2000 AD
203	Pottery	Modern	2	25	1850-2000 AD
203	Pottery	Post-medieval	9	163	1850-2000 AD
203	Pottery	Post-medieval	2	51	1850-2000 AD
203	Pottery	Post-medieval	2	55	1850-2000 AD
300	Pottery	Post-medieval	1	7	18th century
300	Pottery	Post-medieval	2	52	18th century
303	Pottery	Post-medieval	3	213	19th-20th century
303	Pottery	Modern	1	6	19th-20th century
303	Brick	Modern	2	122	19th-20th century
303	Glass	Modern	1	59	19th-20th century
400	Pottery	Post-medieval	2	23	18th century
400	Pottery	Post-medieval	2	16	18th century
500	Pottery	Medieval	1	51	12th-14th century

Table 3: Quantification of assemblage by context

Appendix 3: Pollen Remains

Table 4: Pollen remains from selected contexts

Latin name	Family	Common Name	Habitat	402/ 1	403/ 2	404/ 3	405/ 4	406/ 5	408/ 6
Pteropsida (monolete) indet	Pteropsida	ferns	BCDE	7	2	9	7	1	7
Polypodium	Polypodiaceae	polypody	CD		1			1	2
Pteridium aquilinum	Dennstaedtiaceae	bracken	CD		1	1			
Pinus sylvestris	Pinaceae	pine	C	2	6	8	40	5	38
Ranunculus acris-type	Ranunculaceae	meadow buttercup	CD	1		2			
Ulmus	Ulmaceae	elm	C				1		1
Quercus	Fagaceae	oak	C	36	24	19	25	28	20
Betula	Betulaceae	birch	C	25	28	29	28	33	28
Alnus glutinosa	Betulaceae	alder	C	80	96	83	91	66	101
Corylus avellana-type	Betulaceae	hazel	C	40	47	61	67	66	87
Chenopodiaceae sp	Chenopodiaceae		ABCDE			1		1	
Caryophyllaceae sp	Caryophyllaceae			1			1	1	
Tilia cordata	Tiliaceae	small-leaved lime	C	6	3	2	1	2	1
Salix	Salicaceae	willow	C						1
Calluna vulgaris	Ericaceae	heather	CD	52	41	31	13	63	2
Rosaceae sp	Rosaceae		ABCDE			1			1
Filipendula	Rosaceae	meadow sweet	CDE	1	4	2		2	1
Sorbus-type	Rosaceae	whitebeam	C	2	1				
Hedera helix	Araliaceae	ivy	C			1			
Plantago lanceolata	Plantaginaceae	ribwort plantain	D	4	5	4	3		2
Scabiosa columbaria	Dipsacaceae	small scabious	D		2		2		
Cirsium-type	Asteraceae	thistle	ABCD	1	1				
Cichorium intybus-type	Asteraceae	chicory, wild succory	BD	1			1	3	
Anthemis-type	Asteraceae	corn chamomile	AB	1			1		
Poaceae undiff.	Poaceae	grass	ABCD	107	75	69	54	69	25
Sphagnum	Sphagnum	moss	E	4	3	3	2	4	

Key: A = cultivated ground; B = disturbed ground; C = woodlands, hedgerows, scrub, etc; D = grasslands, meadows, heathland; E = aquatic/wet habitats; F = cultivar.

Appendix 4:

Botanical Macrofossil Samples Assessment Ben Johnson of ARS Ltd

The section headings in the following assessment report refer to those in the 'Management of Archaeological Projects' (HBMC 1991), Appendix 4.

1. FACTUAL DATA

1.1 Quantity

Six environmental samples were taken in sealed plastic bags extracted from organic deposits at the Capesthorne Pipeline excavations. Each sample contained approximately 1l of sediment.

1.2 Provenance

Table 1 below lists the contexts from which the material was recovered.

1.3 Dating

No Radiocarbon dates have been submitted from the six samples. None of the material recovered is short-lived and is not deemed suitable for dating.

1.4 Range and variety

Only two of the samples produced any organic material, contexts 403 and 406. The matrix of these samples was almost entirely tiny wood fragments with some rootlets. None of the wood examined from context 403 could be positively identified due to its small size. The larger fragments present in context 406 appear to be Corylus avellena (Hazel) and all is heartwood. No anthropogenic material, such as domesticated cereal grains were noted.

Table 1 Samples from Capesthorne pipeline

Sample no	Total bulk volume (ml)	Flot. sample (ml)	Matrix and notes	Cereal	Chaff	Weed	Other	Action required
1 (402)	1000	0	No organic material	-	-	-	-	None
2 (403)	1000	5	Very small quantities of degraded wood	-	-	-	-	None
3 (404)	1000	0	No organic material	-	-	-	-	None
4 (405)	1000	0	No organic material	-	-	-	-	None
5 (406)	1000	15	Small quantity of degraded wood *C. avellana*	-	-	-	-	None
6 (407)	1000	0	No organic material	-	-	-	-	None

1.5 Contamination

It is not clear from the material supplied whether there is the possibility of contamination of these samples.

1.6 Residuality

Residual material may exist within each sample due to bioturbation.

1.7 Condition

The samples are relatively clean, with some adherence of fine silts, and all are dry.

1.8 Primary sources and documentation

There are no primary sources or documentation that might enhance the study of this collection

1.9 Methodology

The samples were prepared according to a generic laboratory technique. This involved extracting organic remains from the 1l samples, using flotation and the residue being passed through nested sieves at 1mm, 500µm and 300µm. The retained material, which was never more than 15ml, was examined using a BSMV zoom stereomicroscope at up to x50 magnification. Notes on the matrix, and scores for organic material such as cereals, chaff, weeds and other botanical residues were made and are presented in Table 1. All data was entered into an Excel spreadsheet and a judgment made as to whether further work needed to be undertaken.

2. STATEMENT OF POTENTIAL

2.1 Value of the Data

The assessment has shown that there is very poor preservation conditions for botanical macrofossils within the material recovered from the Capesthorne pipeline excavations.

2.2 Aims of Research

No further botanical macrofossil research is warranted on the material.

2.3 Integration of Study with Other Research

There is no potential for further analysis.

3. ARCHIVE REQUIREMENTS

3.1 Storage and Curation

The environmental samples are presently contained in sealed, labelled plastic bags. Each sample is individually bagged.

3.2 Retention and Discard Policy

It is not thought necessary that this collection is kept for future study.

The archive

The archive consists of:

5	Fieldwork progress records AS2
5	Photographic records AS3
158	Digital photographs
5	Drawing number catalogues AS4
1	Sample records AS17
7	Abbreviated context records AS40
5	Trench record sheets AS41
9	Scale drawings
1	Box of finds

The project archive is intended to be placed at:

Cheshire Museums Service
162 London Road
Northwich
Cheshire
CW9 8AB
Tel (01606) 41331
Fax (01606) 350420
E-mail: cheshiremuseums@cheshire.gov.uk