ARCHAEOLOGICAL WATCHING BRIEF AT DROITWICH CANALS, WORCESTERSHIRE. M5 GEOTECHNICAL

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With contributions by A. Crawford, K. Head and A. Mann

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Project P2745
Report 1345
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Archaeological watching brief at Droitwich Canals, Worcestershire. M5 Geotechnical.

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Background information

Client	Halcrow UK
Site address	Droitwich Canals, North of Hanbury Road, Droitwich, Worcestershire
National Grid reference	SO 9078 6332 – SO 9162 6313
Sites and Monuments Record reference	WSM 34367
Planning authority reference	Worcestershire County Council P99A0347
Brief	n/a
Project design	HEAS 2005
Project parameters	IFA 1999

Previous archaeological work on the site

The route of the proposed new Droitwich Canal has been the subject of an archaeological desk based assessment, this report highlights the archaeological background and ramifications of the future works (Woodiwiss 2003).

Previous archaeological work on associated sites

Droitwich has been the subject of a recent survey undertaken as part of the Central Marches Historic Towns Survey. The research report contains a summary of previous archaeological work in the town and its immediate surroundings (Buteux and Hurst 1996).

The soils consist of peloalluvial gley soils along the river (Mackney *et al* 1983), surrounded by stagnogleys argillic brown earths overlying Mercian Mudstone (Keuper Marl) and third river terrace deposits (Beard *et al* 1986).

Aims

The aim of the archaeological watching brief was to observe and record any artefacts and deposits of archaeological interest associated with a series of ten geotechnical test pits. Observations were carried out in order to record archaeological deposits and to determine their extent, state of preservation, date and type.

Methods

General specification for fieldwork	CAS 1995	
Sources consulted	Sources cited by the SMR 1st Edition OS Map 1885 Woodiwiss 2003	
Dates of fieldwork	24th – 26th May 2005	
Area of deposits observed	*c* 60m²	Indicated on Fig 1
Dimensions of excavated areas observed	10 Test Pits	length 2.80 – 3.10m width 1.80m depth 3.50 – 4.50m

Access to or visibility of structure

Observation of the test pits was undertaken both during and after machine excavation. The exposed sections were sufficiently clean to observe well-differentiated archaeological deposits, though any less clear may not have been identified. Access to the deep trenches was not made for safety reasons.

Statement of confidence

Access to, and visibility of, deposits allowed a high degree of confidence that the aims of the project have been achieved.

Discussion

During the excavation of the ten geotechnical test pits a number of organic rich features were exposed (trenches 3, 4, 5, 10), and a post-medieval ditch (trench 6). The five other pits contained no features of note.

The topsoil was invariably a dark brown silty loam to a depth of 0.35m, overlying a firm mid brown sandy clay. Trench 10, just to the north of the entrance of the Droitwich Rugby Club was excavated through an existing car park surface, though the buried topsoil and subsoil was still present underneath.

Trenches 1, 2, 7, 8 and 9 contained no visible archaeological remains. The topsoil and subsoil were excavated and revealed undisturbed Mercian Mudstone at around 0.25 – 0.40m below the surface.

Trench 3, located just to the west of the access road to the new housing development at Impney Farm, contained a layer of modern building rubble, presumably from the recent development and the embankment for the road bridge, this was overlain by a thin layer of topsoil. Beneath the rubble layer were a number of organic rich peat and alluvial layers that appeared to lie within a roughly north to south aligned feature. These deposits extended to 2.7m below the present ground surface and overlay the natural Mercian Mudstone.

Trench 4, just to the east of the M5, were it crosses the Body Brook, again contained a series of peat and alluvial deposits up to 1.2m below the surface, though they appeared to contain less organics than those within trench 3. These deposits were clearly sloping down to the south, towards the present course of the Body Brook and many represent an earlier course of the stream prior to its re-routing during the construction the earlier Barge Canal in 1853 (Fig 1).

Trench 5 again contained topsoil, overlying subsoil, but a large feature, possibly running east to west, was noted. This feature, exposed on its northern end, extended to at least 2.7m below the surface. Within this feature were a series of grey alluvial clay deposits with pockets of peat throughout. The sequence and type of the deposits here differed considerably from those within trenches 3 and 4.

Trench 6 partially revealed a ditch aligned north to south under the overlying topsoil. The ditch contained a sequence of clay deposits a number of which contained a high quantity of charcoal flecks. One context was almost pure charcoal and likely represented a tip line. Pottery from the fill of this ditch suggested a post-medieval date.

Trench 10 revealed two make-up layers for the present disused car-park, comprising mixed loose gravels and tarmac. These deposits appeared to have been lain directly onto the topsoil. Below the subsoil, at 0.7 – 1.5m below the surface a layer of re-deposited natural mudstone was visible. This overlain a sequence of blue/grey alluvial clays. Within these clays a band of peat was visible between 2 – 2.2m. Recording in this trench was hampered by the rapid refilling by the ground-water.

Artefact analysis (by Angus Crawford)

Artefact recovery policy

All artefacts from the area of salvage recording were retrieved by hand and retained in accordance with the service manual (CAS 1995 as amended).

Method of analysis

All hand-retrieved finds were examined and a primary record was made on a Microsoft Access 2000 database. Artefacts were identified, quantified and dated and a *terminus post quem* date produced for each stratified context.

Pottery 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).

Artefactual analysis

The pottery assemblage retrieved from the watching brief consisted of seven sherds weighing 190g. Further artefactual material consisted of brick and roof tile fragments. All recovered finds came from unstratified topsoil and subsoil contexts and could be dated to the post-medieval period only.

Context	Material	Type	Total	Weight (g)
100	Brick	Post-medieval	2	63
100	Pottery	Post-medieval	1	2
100	Roof tile	Post-medieval	4	111
200	Pottery	Post-medieval	2	3
301	Pottery	Post-medieval	1	176
401	Brick	Post-medieval	4	131
500	Brick	Post-medieval	1	19
501	Brick	Post-medieval	1	35
600	Pottery	Post-medieval	2	6
604	Pottery	Post-medieval	1	3
900	Brick	Post-medieval	6	30

Table 1: Quantification of the assemblage

Discussion of the pottery

All sherds have been grouped and quantified according to fabric type (see Table 2). The preservation level was good and only one diagnostic form sherd was present and could be dated accordingly, the remaining sherds were datable by fabric type to the general period or production span. Where mentioned, all specific forms are referenced to the type series within the report for Deansway, Worcester (Bryant 2004).

The discussion below is a summary of the finds and associated location or contexts by period. Where possible, *terminus post quem* dates have been allocated and the importance of individual finds commented upon as necessary.

Context	Fabric number	Fabric name	Total	Weight (g)
100	84	Creamware	1	2
200	83	Porcelain	2	3
301	78	Red sandy ware	1	176
600	91	Post-medieval buff ware	2	6
604	78	Red sandy ware	1	3

Table 2: Quantification of the pottery by fabric

All sherds were identified as post-medieval in origin. The diagnostic sherd, from context 301, was a red sandy ware drinking tankard (fabric 78). The quality of manufacture and its black glaze on red slip suggests a production period of around the late 18th to early 19th century. An undiagnostic sherd of red sandy ware was also recovered from context 604 and can only be broadly dated to the 18th or 19th century.

The remaining pottery from the assemblage consisted of single sherds of creamware (fabric 84) and dating between 1750 to 1780, porcelain (fabric 83) dating from around the late 18th to middle 19th and two sherds of post-medieval buff ware consistent with 18th century production types.

Other finds consisted of brick and roof tile fragments in poor condition. Due to their small size and condition, these could not be more precisely identified then a general post-medieval date.

Significance

The assemblage is too small to have much significance in interpreting the site. However it can be generally taken as representing low-level domestic household discard during the latter post-medieval period. The poor condition of the bricks and roof tile may indicate that they have been subjected to a degree of plough damage at some stage during their disposition and prior to their subsequent association with the pottery assemblage.

Environmental analysis (by Katie Head and Andrew Mann)

Methods

Fieldwork and sampling policy

The environmental sampling policy was as defined in the County Archaeological Service Recording System (CAS 1995 as amended). Samples of 10 litres were taken from six contexts of unknown date that were subsequently sub-sampled for pollen analysis.

Processing and analysis of pollen (Katie Head)

Six samples (304, 303, 307, 308, 503, 504) were selected from two palaeochannels, high in organic matter. A sediment sample of 2cm^3 was measured volumetrically. To remove clays, the samples were soaked for 24 hours and then boiled in tetra-Sodium Pyrophosphate for 1 hour, sieved through a 120µm mesh, washed onto a 10µm mesh, and the residue collected. To dissolve any humic material, the samples were digested by 10% Potassium Hydroxide for 20mins in a boiling water bath. 10% Hydrochloric acid was then added in order to remove any calcium carbonate within the sample. To remove any silicaceous material, the samples were soaked overnight and then digested using Hydrofluoric Acid in a hot water bath for 15 mins. As the samples were primarily organic in

nature, they were acetolysed for 3 mins 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.

The samples were rapidly scanned for pollen on a GS binocular polarising microscope at 400x magnification, and species presence was estimated. No detailed counts were made as part these preliminary investigations. Identification was aided by using the pollen reference manual by Moore *et al* (1991). Nomenclature follows Stace (1997) and Bennett (1994).

Processing and analysis of plant macrofossils, insects and molluscs (Andrew Mann)

For each of the contexts sampled (304, 303, 307, 308, 503, 504) a sub-sample of 1 litre was processed by the paraffin flotation method outlined by Coope and Osbourne (1967) as follows. The sub-sample was broken up in a bowl of water to separate the light organic remains from the mineral fraction and heavier residue. The material was then drained on a 300µm sieve, mixed with paraffin and added to water. This method was specifically designed to recover insect remains that float to the surface and become stuck by surface tensions. Although not designed to recover plant macrofossils or molluscs this procedure was sufficient for the purposes of their assessment as well. The remainder of the bulk sample was retained for further analysis.

As both the residues and flots contained a high proportion of organic material both were scanned using a low powered EMT stereo light microscope. Plant and molluscan remains were identified using modern reference collections maintained by the Service, and the seed identification manual (Beijerinck 1947). Nomenclature for the plant remains follows the *Flora of the British Isles,* 3rd edition (Clapham, Tutin and Moore 1989) and the molluscs follow the *Atlas of the Land and Freshwater Molluscs of Britain and Ireland* (Kerney 1999).

Results

Pollen (Katie Head)

Palaeochannel 1 (305)

All contexts from test pit 3 were fills of palaeochannel 305, with contexts 304, 307, and 308 in sequential order, while context 303 was slightly removed from this main sequence.

Context 303, sample 2

Context 303 consisted of a dark peaty deposit, and again produced approximately 60% TLP of Poaceae undiff. (grasses). Other herbs were similar to the above context, with additions of *Circaea* (enchanter's-nightshade), *Prunella vulgais*-type (self-heal), and *Anthemis* type (corn chamomile). Trees and shrubs included a wide range of species such as *Alnus* (alder), *Salix* (willow), *Quercus* (oak), *Pinus* (pine), *Corylus* (hazel), and *Betula* (birch). This context may represent larger clearings within woodland or more open areas close to river, as both self-heal and enchanter's-nightshade area found in woods, clearings, and shady places.

Context 304, sample 1

This alluvial deposit of dark blueish grey alluvial clay was high in organic matter. The deposit was dominated by Poaceae undiff. (grasses), contributing approximately 70% total land pollen (TLP). Other herbs included Rosaceae, such as *Filipendula* (meadow sweet) and *Potentilla* type (tormentil), as well as *Ranunculus acris*-type (meadow buttercup), *Cichorium intybus*-type most probably *Taraxacum officinale* (dandelion), and *Plantago lanceolata* (ribwort plantain). Trees and shrubs were relatively low, comprising *Quercus* (oak), *Corylus* (hazel), *Alnus* (alder), and *Hedera* (ivy). This context appears to reflect a relatively cleared landscape compared with context 303, most probably with alder, oak, and hazel colonising the river edge, while the damp-loving herbs mentioned above, expanding across wetter grassland areas of the site.

Context 307, sample 3

Context 307 comprised a dark brown/black peat containing abundant molluscs. This context appeared to be slightly lower in Poaceae undiff. (grasses), approximately 40% TLP, while other herbs included new additions of Chenopodiaceae and *Artemisia* (mugwort).Trees and shrubs were dominated by *Salix* (willow), as well as *Alnus* (alder), *Betula* (birch), *Corylus* (hazel), *Fraxinus* (ash), and *Quercus* (oak). It appears that woodland was more enclosed at this point, with fewer herbs and increased trees and shrubs.

Context 308, sample 4

Context 308, underlying 307, was of a similar peaty nature to above, but contained substantial mollusca. The deposit was significantly different from the other fills, in that it was dominated by *Alnus* (alder), contributing approximately 70% TLP. Other arboreal taxa included *Corylus* (hazel) in particular, as well as *Quercus* (oak), *Pinus* (pine), *Tilia* (lime), *Salix* (willow), *Ulmus* (elm), and *Viburnum opulus* (guelder rose). Herbs were extremely low in number, primarily comprising Poaceae undiff. (grasses). The assumed earlier date of this context, seems to be reflected in the pollen suite, which is dominated by alder fen carr. Willow appears to have replaced alder to some extent by context 307.

Palaeochannel 1: landscape sequence

This group of deposits demonstrate clear vegetation change from a wooded landscape of alder carr, into one of cleared, open damp grassland, with occasional stands of alder, hazel, and oak.

Palaeochannel 2 (505)

Both contexts from test pit 5 were also fills of the same palaeochannel (505), with 503 overlying 504.

Context 503, sample 5

Context 503 was a mixture of blue/grey alluvial sandy clay and dark brown peat, of which Poaceae undiff. (grasses) made up approximately 50% TLP. Other herbs were similar to contexts in test pit 3, and included taxa such as *Artemisia* (mugwort), *Taraxacum officinale* (dandelion), Rosaceae, *Rumex acetosa* (common sorrel), and *Primula veris* type (cowslip). Trees and shrubs were not particularly high but were dominated by *Corylus* (hazel), *Alnus* (alder), and *Quercus* (oak).

Context 504, sample 6

Again this context was a mixture of dark grey/blue alluvial sandy clay and peaty organic matter. Poaeae undiff. (grasses) contributed to approximately 40% TLP, while there was a higher species diversity amongst other herbs. These included primarily Cyperaceae (sedge) and *Plantago lanceolata* (ribwort plantain), as well as other taxa found in the previous context. Trees and shrubs were also notable, dominated equally by *Quercus* (oak), *Corylus* (hazel), and *Alnus* (alder), although there were occasional examples of *Betula* (birch) and *Pinus* (pine). There were also a few grains of *Calluna vulgaris* (heather).

Palaeochannel 2: landscape sequence

These two contexts seem to reflect woodland clearance, whereby species diversity increased as the area was opened up.

Plant macrofossils (Andrew Mann)

All samples were largely organic in nature, although much of this plant debris was unidentifiable. This appears to be principally made up of mosses, sedges and general herbaceous material that have

become preserved in the anoxic waterlogged conditions visible on site. The two deepest contexts also contain greater quantities of wood/twig fragments, which may indicate higher energy fluvial environments during initial deposition of material. Some of these wood fragments are also of sufficient size to provide identification to species level and also radiocarbon dates if required.

The seeds recovered from these samples are however limited in frequency and diversity. The majority of species are those that would be expected to be found around bogs and watercourses, including sedges (*Carex* spp), rushes (*Schoenoplectus* spp *lacustris*), crowfoot (*Ranunculus* spp) and alder trees (*Alnus glutinosa*). Other species present are commonly found on the disturbed ground often surrounding the banks of watercourses, and include thistle (*Carduus/Cirsium* sp), common nettle (*Urtica dioica*) and dock (*Rumex* sp). Some species are also edible and may have been collected as food, including elder (*Sambucus nigra*), blackberry/bramble (*Rubus fruticosus* agg), plum (*Prunus domestica*), and black mustard (*Brassica nigra*).

Molluscs (Andrew Mann)

Molluscan remains were only present in two contexts processed: (308) and (307). Of these, molluscs were considerably more abundant in the earlier deposit (308). Although molluscan remains were limited to these contexts, shell preservation and diversity was excellent within both. A number of juvenile species were also present suggesting this assemblages was contemporary and not introduced.

Within these two contexts terrestrial and aquatic mollusc were preserved, representing a variety of habitats. Aquatic species present included *Bithynia tentaculata*, *Lymnaea* spp, *Gyraulus* spp, and the bivalves *Pisidium* spp. A number of ostracod shells also survived, although these were not identified. The terrestrial assemblage contained species indicative of a variety of habitats including grassland, scrub/hedgerow and woodland, including *Discus rotundatus*, *Clausilia bidentata*, *Carychium* spp, *Oxychilus* spp, *Vertigo* spp and *Vallonia* spp. This broad span of habitats represented suggests a wide range of environments surrounded the feature, although it is possible that due to the sampling methods employed during the watching brief, stratigraphic boundaries were crossed, resulting in an intermediate assemblage.

Insects (Andrew Mann)

The preservation of insect (coleoptera) remains was varied throughout the deposits analysed. The majority of fragments recovered were elytras (wing cases) with occasional head capsules or thorax carapaces, which may make species identification difficult. However, the preservation of the elytras was generally good, and occasional complete abdomens were recovered. The majority of contexts contained approximately ten minimum numbers of individuals from which little differentiation through the profile could be determined at this stage. As the one litre sample processed during assessment is smaller than the recommended 5-10 litres suggested for palaeo-entomological analysis, it is expected that when full analysis takes place good assemblages will be recovered. Species diversity, although moderate, may also increase if larger sized samples are processed.

Overall discussion

A radiocarbon date for these deposits has yet to be obtained, but it is possible that they date back to the Mesolithic period. Although alder is present within the pollen record, this does not necessarily indicate that the deposits are later (ie following the alder rise (c. 5500 cal. BC)) as alder is often found within very early deposits on floodplain sites where it will easily colonise the wetter valley basin (e.g. Wellington Quarry in Herefordshire (Greig, *in prep* (a)). An early date is possible as there is the adjacent comparable site of Impney Farm, situated over the brow of the hill (Williams *et al* 2005). Pollen records at Impney Farm covered both the early post-glacial and Mesolithic periods but deposits were truncated, leaving a gap in the sequence until the post-medieval period. This meant that the pollen record was incomplete, providing no evidence of woodland clearance during the prehistoric period. The current findings at Droitwich Canals seem to indicate clearance by human activity within the woodland, comparable to sites such as Wellington and Cookley (Greig, *in*

prep (b)), suggesting a late Mesolithic/ early Neolithic date. In addition, the only other environmental evidence at Impney were plant macrofossils, which were relatively badly preserved, highlighting the importance of both the molluscan and insect remains recovered during the watching brief at Droitwich Canals.

Significance

As mentioned earlier, it is difficult to assess the significance of these deposits without radiocarbon dates. The presence of peat deposits that date to the Mesolithic period however, have been located at Impney Farm which suggests that these deposits may also be prehistoric in date.

Pollen: all six samples produced well-preserved pollen remains in high concentrations. The deposits were of a substantial depth and will provide a continuous pattern of vegetation change. This is of regional importance due to the truncated pollen results from the nearby site of Impney Farm.

Plant macrofossils recovered during this watching brief are similar to those that would be expected from most aquatic deposits such as bogs and channels, and the quantity and diversity of seeds is similar to those samples recovered from the Impney Farm investigations. However, of specific interest with regards to the plant remains, are the edible fruits within the upper part sequences. The lower deposits also contain wood fragments large enough to identify to species.

Molluscs: The large numbers of molluscs in contexts 308 and 307 are more significant as the preservation and diversity of species was much more interesting. Although only located in the lowest samples these species can provide information regarding the water conditions within the feature and the surrounding environment. If identified, the ostracods recovered can also provide information regarding water conditions. Large assemblages of the molluscan remains (particularly of prehistoric date) are not common within the West Midlands region. Most assemblages of this size are recovered from the South of England, overlying chalk substrate, for example in the Kennet Valley and on Salisbury Plain.

Coleoptera: similarly few coleopteran assemblages have been analysed within this region and this sequence has the potential to be an important addition to palaeoentomological research on the Holocene landscape. Very few insect faunas have been analysed in the Severn valley and its catchments in comparison to the Trent and Thames valleys specifically from the prehistoric periods. Unfortunately coleopteran analysis is often overlooked when pollen analysis is undertaken even though they can provide complementary evidence.

Overall significance: The evaluation has shown that deep organic deposits (peat or organic clays) exist along the line of the canal redevelopment. These would be an invaluable resource for reconstructing the past landscape and human activity on the east side of the present-day town of Droitwich. The results (and previous work at nearby Impney Farm) suggest that the deposits are likely to be prehistoric in date, at least in the lower parts of the two profiles. The prehistoric period in the locality has been poorly covered by environmental research, and yet with the development of the salt extraction industry by the Iron Age, it is an area of significant importance in the region.

The importance of palaeoenvironmental research has been highlighted within the Regional Research Frameworks for Archaeology in the West Midlands, and in particular, ‘pollen sequences which cover a long time span and are more or less continuous are a prized resource’ (Pearson forthcoming). In this case, the deep deposits revealed by the evaluation, of up to 2.7m, may cover a long time span. Examples of research priorities identified by the West Midlands Regional Frameworks (Greig forthcoming, Pearson forthcoming), which could potentially be addressed by the deposits discussed above are as follows:

- Identification of the (i) elm decline (ii) Mesolithic/Neolithic woodland clearances and browsing by animals

- Consideration of any environmental evidence for late prehistoric climate deterioration

- Mapping of deposits of potential for palaeoenvironmental study, particularly in 'target' areas near key settlement sites

- Using high resolution sampling for pollen sequences to look for specific episodes of environmental or cultural change

- Closely dating the sequences (which will usually require AMS dating)

Droitwich can be considered as a key settlement site from the Iron Age onwards, and therefore a good 'target' area for palaeoenvironmental research. Environmental evidence for the effect of salt extraction on the local woodland (forest clearance or management) would greatly contribute towards the research on this area. Also the depth of deposits are likely to be ideal for closely dating sequences of environmental change and high resolution pollen sampling to look for specific episodes of change. These may include, for example, initial clearances for agriculture, and subsequent phases of woodland regeneration, which may have occurred in post-Roman, and 13th/14th centuries (possibly 'Black Death' related).

Recommendations

The following recommendations are made with regard to mitigation of significant palaeoenvironmental deposits which have been demonstrated to exist by the current project.

Should significant historic dates be obtained then further mitigation may have the following staged approach.

- Desk-based assessment to place the area in its fluvial context and to outline a strategy for the collection of field information. The assessment would draw on existing information from surrounding sites, drift geology and topography, historic mapping, Lidar information.

- Field investigation to determine sequence of deposition of palaeochannels and obtain samples.

- Assessment of potential (to justify the expenses of the final phase).

- Analysis and report.

Conclusion

Based upon the work carried out during the geotechnical test pitting it would appear that there is little or no direct evidence (human settlement etc) of human activity within the area of the proposed canal redevelopment. The test pits cannot however be considered an adequate sample on which to demonstrate absence, the presence of Mesolithic settlement for instance has not been tested.

The thin scattering of post-medieval pottery throughout the field is broadly consistent with a background scatter representing farming activity in the post-medieval and modern periods. The occupation associated with this activity would be located elsewhere. The artefactual material would have been moved into surrounding fields as a result of concentrating domestic rubbish in midden heaps, which are subsequently spread about the arable fields. This practice is authenticated historically for the medieval period (Astill and Grant 1988).

However, implications for important and substantial paleoenvironmental evidence maybe gained during the redevelopment works. The extent and condition of the well preserved alluvial and peat deposits within a number of the trenches would clearly enhance the paleoenvironmental evidence of the region. A number of these deposits could well be Mesolithic in date, especially at lower levels, as indicated at nearby Impney Farm. The large gap in the sequence was missing at Impney Farm

and the relatively poor preservation of the plant macrofossils highlights the importance of any future evidence from a detailed environmental study along the Droitwich Canals.

It is to this end that a series of environmental recommendations have been proposed.

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.

An archaeological watching brief was undertaken on behalf of Halcrow UK along the proposed route of the new Droitwich canal, to the north of Hanbury Road, Droitwich, Worcestershire (NGR ref SO 9078 6332 – SO 9162 6313; SMR ref WSM 34367). The excavation of ten geotechnical test pits has shown that deep organic deposits (peat or organic clays) exist along the line of the canal redevelopment. Implications for important and substantial paleoenvironmental evidence maybe gained during the redevelopment works. The extent and condition of the well preserved alluvial and peat deposits within a number of the trenches would clearly enhance the paleoenvironmental evidence of the region. A number of these deposits could well be Mesolithic in date, especially at lower levels. A large gap in the local paleoenvirnmental sequence and the relatively poor preservation of the plant macrofossils found at near-by sites, highlights the importance of any future evidence from a detailed environmental study along the Droitwich Canals. It is to this end that a series of environmental recommendations have been proposed.

Archive

Trench record sheets AS41	10
Fieldwork progress records AS2	3
Photographic records AS3	3
Digital photographs	102
Sample records AS17	1
Drawings	5
Boxes of finds	1

The project archive is intended to be placed at:

Worcestershire County Museum
Hartlebury Castle, Hartlebury
Near Kidderminster
Worcestershire DY11 7XZ

telephone 01299 250416

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Bibliography

Astill, G, and Grant, A, 1988. *The countryside of medieval England*, Oxford

Beard, G R, Cope, D W, Jones, R J A, Palmer, R, C, and Whitfield, W A D, 1986 *Soils of Worcester and the Malverns district,* Soil Survey of England and Wales, Sheet 150

Beijerinck, W, 1947 *Zadenatlas der Nederlandsche Flora*, Wagoningen CAS 1995 *Manual of Service practice: fieldwork recording manual* County Archaeological Service, Hereford and Worcester County Council, internal report, **399**

Bennett, K D, 1994 *Annotated catalogue of pollen and pteridophyte spore types of the British Isles*, unpublished report, Department of Plant Sciences, University of Cambridge

Bryant, V 2004 Medieval and early post-medieval pottery in Dalwood, H, and Edwards, R. *Excavations at Deansway 1988-89*, CBA Res Rep, 139, pp 281-331

Buteux, V and Hurst, D, 1996 *Archaeological assessment of Droitwich, Hereford and Worcester*, County Archaeological Service, Worcestershire County Council, report **312**

CAS 1995 (as amended) *Manual of Service practice: fieldwork recording manual*, County Archaeological Service, Hereford and Worcester County Council, report, **399**

Coope, G. R. and Osbourne, P. J. 1967 Report on a coleopterous fauna of a Roman well at Barnsley Park, Gloustershire. *Transactions of the Bristol and Gloustershire Archaeological Society*, 86: 84-87

Clapham, A R, Tutin, T G and Moore D M, 1989 *Flora of the British Isles*, (3rd edition), Cambridge University Press

Greig, J, in prep (a) Prehistoric lime woods of Herefordshire; pollen and seeds from Wellington quarry, Marden, Herefordshire, in R Jackson, and D Miller (eds), *Wellington quarry Herefordshire (1986-1996): Investigations of a landscape in the lower Lugg valley*

Greig, J, in prep (b) Pollen diagram from Cookley, Worcestershire

Greig, J forthcoming *Priorities in Neolithic and bronze Age environmental archaeology in the West Midlands region*, West Midlands Regional Frameworks for Archaeology

HEAS 2005 *Proposal for an archaeological watching brief at Droitwich Canals, M5 Geotechnical. Worcestershire,* Historic Environment and Archaeology Service, Worcestershire County Council, unpublished document dated 16th May 2005, **P2745**

Hurst, J D, 1994 (as amended) *Pottery fabrics. A multi-period series for the County of Hereford and Worcester*, County Archaeological Service, Hereford and Worcester County Council, report, **445**

Hurst, J D, and Rees, H, 1992 Pottery fabrics; a multi-period series for the County of Hereford and Worcester, in Woodiwiss, S G (ed), *Iron Age and Roman salt production and the medieval town of Droitwich*, CBA Res Rep, **81**

IFA, 1999 *Standard and guidance for an archaeological watching brief,* Institute of Field Archaeologists

Kerney, M. 1999. Atlas of the Land and Freshwater Molluscs Of Britain and Ireland. Colchester: Harley

Moore, P D, Webb, J A and Collinson, M E, 1991 *Pollen analysis*, Blackwell Scientific Publications, Oxford (2nd edition)

Pearson, E, forthcoming Cows, beans and view: Landscape and farming of the West Midlands in later prehistory, West Midlands Regional Frameworks for Archaeology

Stace, C, 1997 *New flora of the British Isles*, Cambridge University Press, Cambridge (2nd edition)

Williams, P, Hurst, D, Pearson, E, and Greig, J, 2005 *Archaeological watching brief and building recording at Impney Farm, Dodderhill, Worcestershire*, Historic Environment and Archaeology Service, Worcestershire County Council, internal report **991**

Woodiwiss, S, 2003 *Archaeological desk-based assessment for the Droitwich Canals, Worcestershire,* Historic Environment and Archaeology Service, Worcestershire County Council, report, **1132**

Plate 1: Peat fill paleo-channel, trench 3. Facing east

Plate 2: Peat/organic filled channel, trench 3. Facing south

Plate 3: Peat/alluvial deposits, trench 4. Facing west

Plate 4: Alluvial/peat filled channel prior to excavation trench 5. Facing north

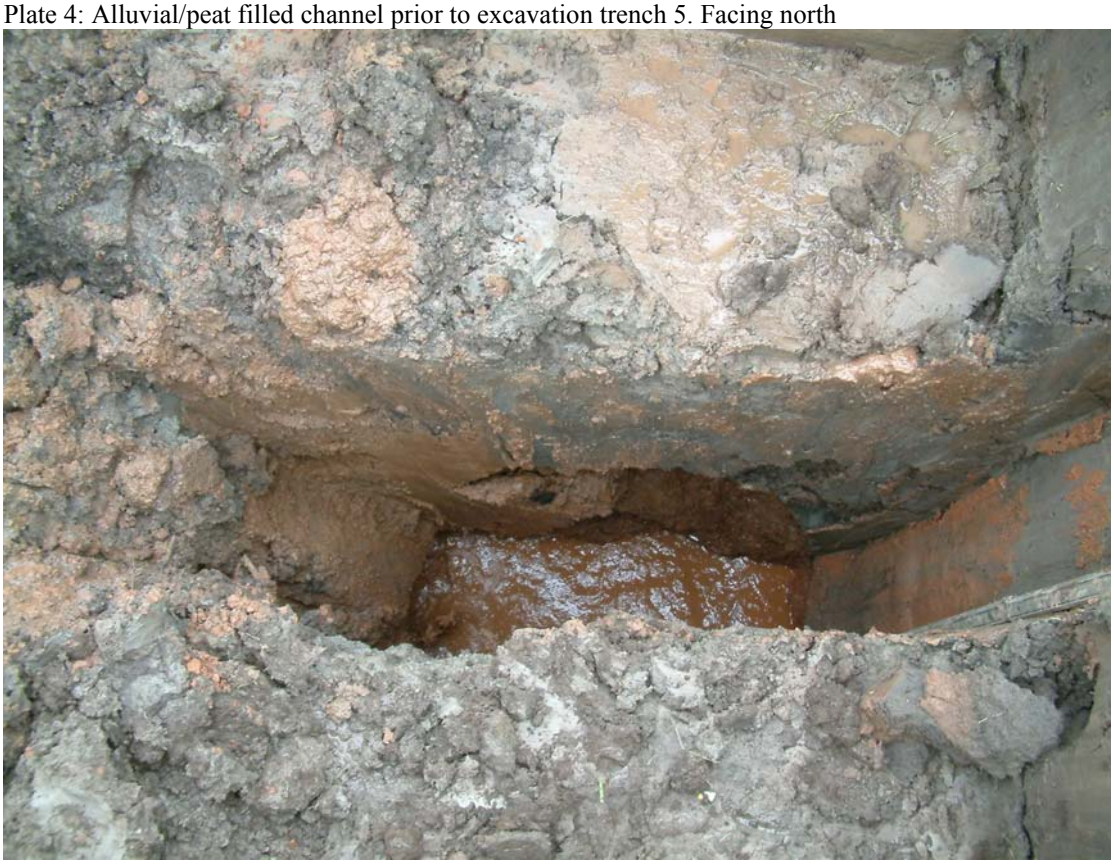


Plate 5: Paleo-channel and alluvial deposits, trench 5. Facing west, with bank to left

Plate 6: Post-medieval ditch, trench 6. Facing west

Plate 7: Alluvial deposits and peat layer, trench 10. Facing north

Deposit description

Test Pit 1

Context	Classification	Description	Depth below surface
100	Topsoil	Friable dark brown silty loam. Well-defined boundary. Occasional organics from existing turf, gravel and small pebbles.	0.00 - 0.35m
101	Subsoil	Moderately compact mid brown sandy clay. Diffuse boundary below. Occasional charcoal flecks and small sub-rounded pebbles.	0.35 - 0.50m
102	Natural	Mercian Mudstone. Compact reddish brown sandy clay. Patches of small sub-rounded pebbles and occasional bands of blue/grey sandy clay.	0.50m +

Test Pit 2

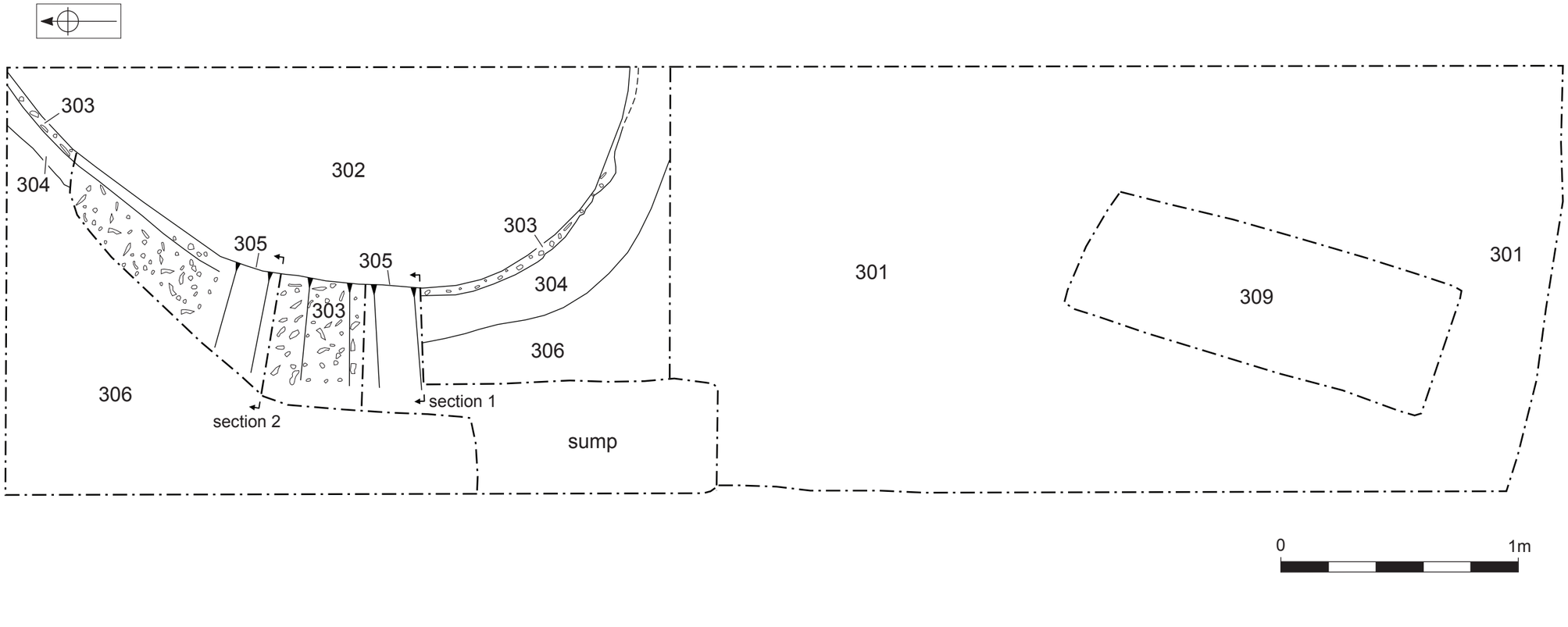
Context	Classification	Description	Depth below surface
200	Topsoil	Friable dark brown silty loam. Well-defined boundary. Occasional organics from existing turf, gravel and small pebbles.	0.00 - 0.40m
201	Subsoil	Moderately compact mid brown sandy clay. Diffuse boundary below. Occasional charcoal flecks and small sub-rounded pebbles.	0.40 - 0.50m
202	Paleo-channel	NE – SW defuse linear. 1.30m wide by 0.30m deep. Contains plastic blue/grey alluvial sandy clay. Very frequent sub-rounded pebbles and gravels.	0.50m - 0.80m
203	Natural	Mercian Mudstone. Compact reddish brown sandy clay. Patches of small sub-rounded pebbles and occasional bands of blue/grey sandy clay.	0.50m +

Test Pit 3

Context	Classification	Description	Depth below surface
300	Topsoil	Friable dark brown silty loam. Well-defined boundary. Occasional organics from existing turf, gravel and small pebbles.	0.00 - 0.12m
301	Made Ground	Firm dark brown silty clay. Frequent modern brick, tile, stone and 'builders sand'. Occasional charcoal flecks. Well-defined boundary.	0.12 - 0.70m
302	Bank of channel	Fine reddish brown silty clay. Compact. Occasional charcoal flecks.	0.70m +
303	Peat	Dark brown/black soft peaty clay. High % of organic material. Well-defined boundary. Fill of 305.	0.70 - 1.20m
304	Alluvial clay	Dark blueish grey alluvial clay. Plastic. Frequent organics. Well-defined boundary. Fill of 305.	0.70m +
305	Paleo-channel	A roughly north – south curva-linear paleo-channel? Only partially exposed within trench. Steep sided, concave base. Filled by 303, 304, 306, 307 and 308.	C 0.50 - 2.75m
306	Alluvial clay	Reddish brown sandy clay. Plastic. Occasional organics. Well-defined boundary. Fill of 305.	0.70m +
307	Peat	Very dark brown/black peat. Loose. Frequent organics and molluscs. Occasional dark brown alluvial clay. Well-defined boundary. Fill of 305.	1.20 – 2.20m
308	Peat	Same as 307, though containing more frequent molluscs.	2.20 - 2.75m
309	Natural	Mercian Mudstone. Compact reddish brown sandy clay. Patches of small sub-rounded pebbles and occasional bands of blue/grey sandy clay.	2.75m +

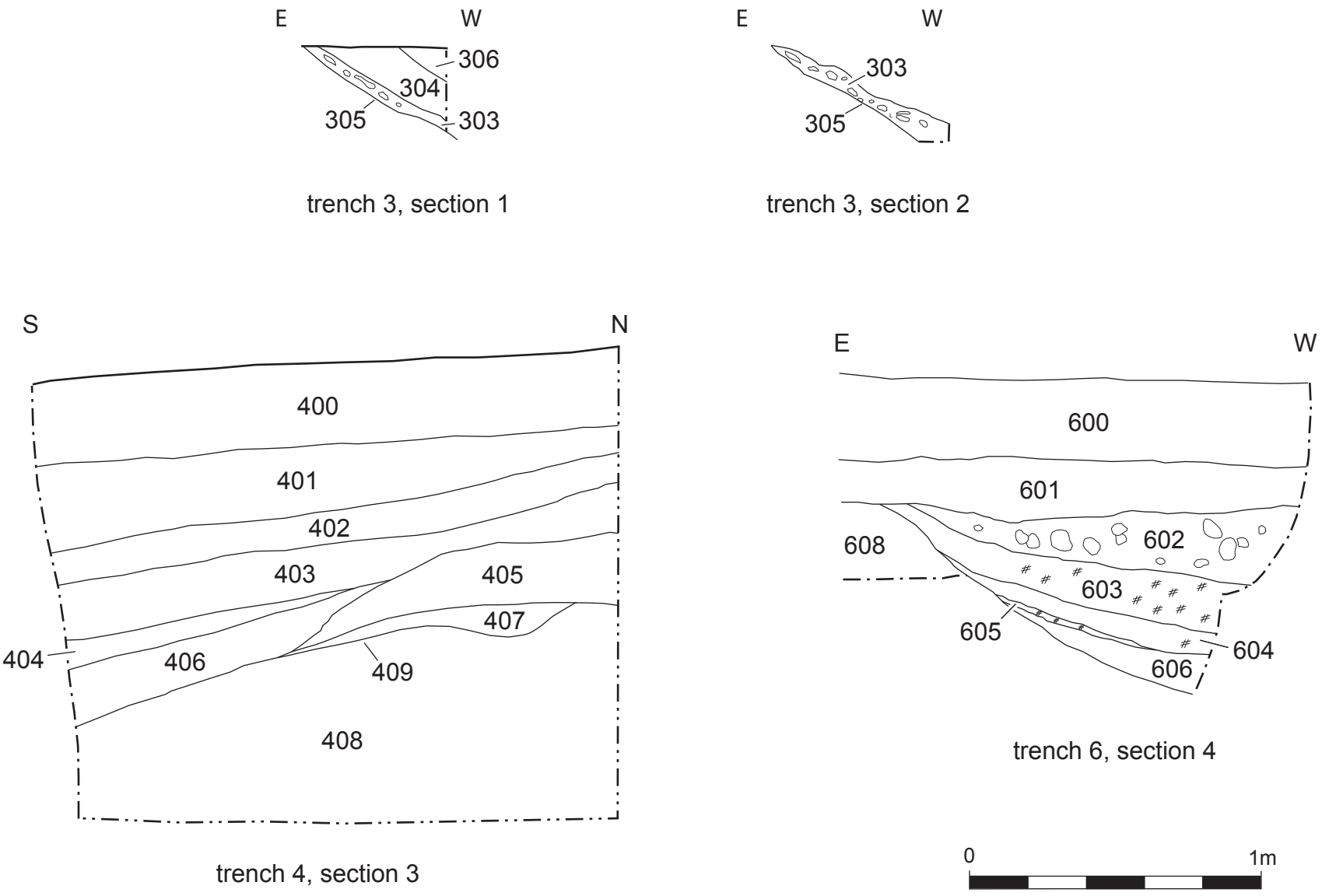
Test Pit 4

Context	Classification	Description	Depth below surface
400	Topsoil	Friable dark brown silty loam. Well-defined boundary. Occasional organics from existing turf, gravel and small pebbles.	0.00 - 0.26m
401	Subsoil	Moderately compact mid brown sandy clay. Diffuse boundary below. Occasional charcoal flecks and small sub-rounded pebbles.	0.26 - 0.40m
402	Layer	Mid – light brown sandy clay. Friable. Occasional sub-rounded pebbles. Well-defined boundary.	0.36 – 0.65m
403	Layer	Yellow/brown sandy silt. Friable. Occasional sub-rounded pebbles. Well-defined boundary.	0.55 – 0.87m
404	Peat	Black organic peat. Loose. Sloping to south. Fill of 410?	0.85 – 0.93m
405	Alluvial clay	Mid grey alluvial sandy clay. Compact. No inclusions. Fill of 410.	0.64 – 0.87m
406	Peat	Dark brown/black mixed peat and grey sandy clay. Sloping to south. Well-defined boundary. Fill of 410.	0.80 – 1.30m
407	Peat/clay	Small pocket of mid - dark brown mixed peat and grey clay. Well-defined boundary. Fill of 410.	0.87 – 0.98m
408	Natural	Mercian Mudstone. Compact reddish brown sandy clay. Patches of small sub-rounded pebbles and occasional bands of blue/grey sandy clay.	0.88m +
409	Channel	East – west channel. Only northern slope exposed. Filled by 404 – 407. Possible line of earlier course of the Body Brook.	0.88m +



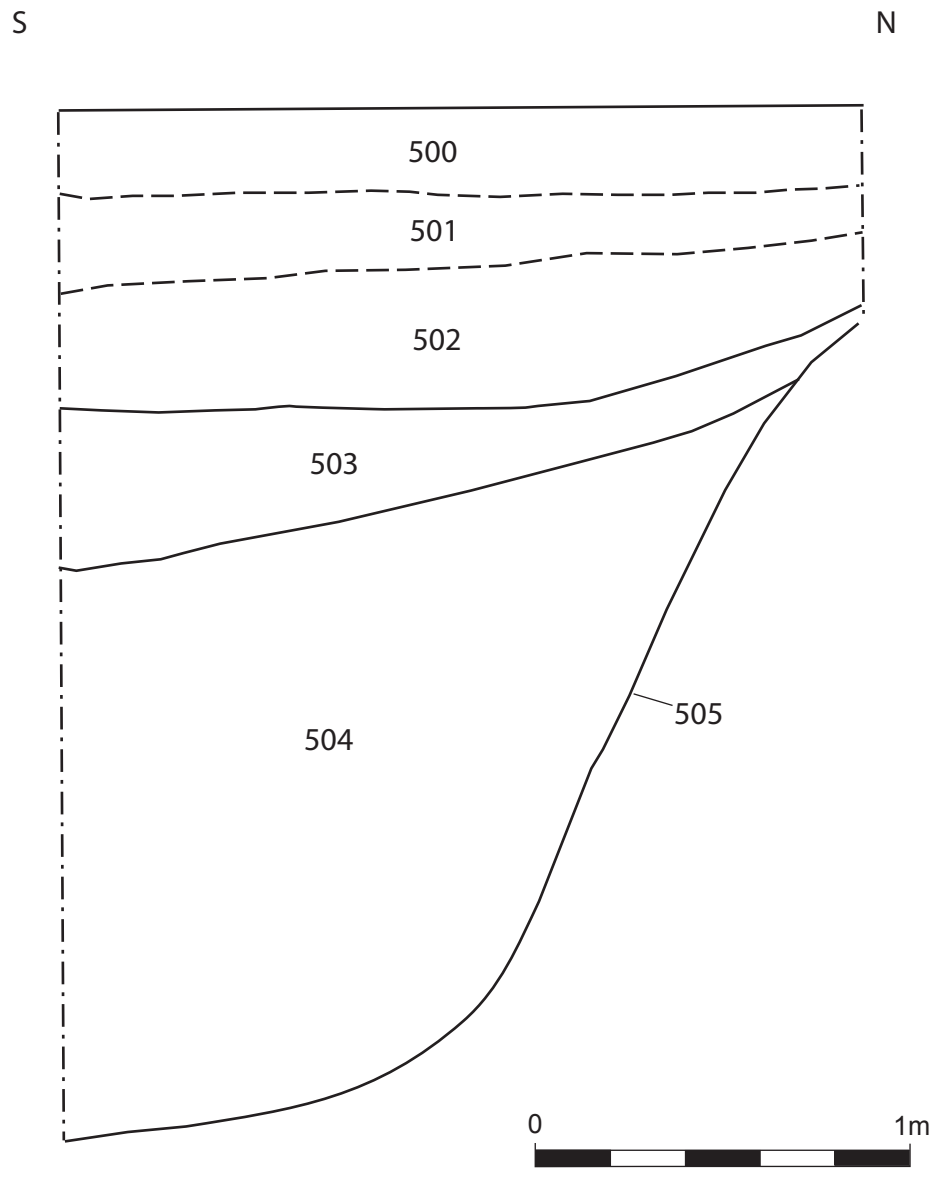
Plan of Trench 3

Figure 2



Sections 1 to 4

Figure 3



Section 5, trenc h 5

Figure 4