Archaeological Services & Consultancy Ltd

ARCHAEOLOGICAL STRIP & RECORD: CLAPHAM TO TURVEY WATER TOWER REINFORCEMENT MAIN, BEDFORDSHIRE

on behalf of Anglian Water Services Ltd

J Richards BA PIFA

January 2008

ASC: 907/CTW/3

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Site Data

ASC project code:	CTW	*ASC Project No:*	907
County:	Bedfordshire		
Civil Parish:	Bromham and Clapham		
NGR (to 8 figs):	TL 0348 5224 to TL 0082 5240		
Present use:	Open farmland		
Planning proposal:	Reinforcement water main from Clapham to Mushroom Hill, north of Bromham		
Local Planning Authority:	n/a – permitted development under AWSL's statutory powers		
Date of fieldwork:	2nd July-31st August 2007		
Client:	Anglian Water Services Ltd Thorpe Wood House Thorpe Wood Peterborough PE3 6WT		
Contact name:	Kevin Colyer, Senior Design Engineer		

Internal Quality Check

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CONTENTS

Appendices:

Figures:

Plates:

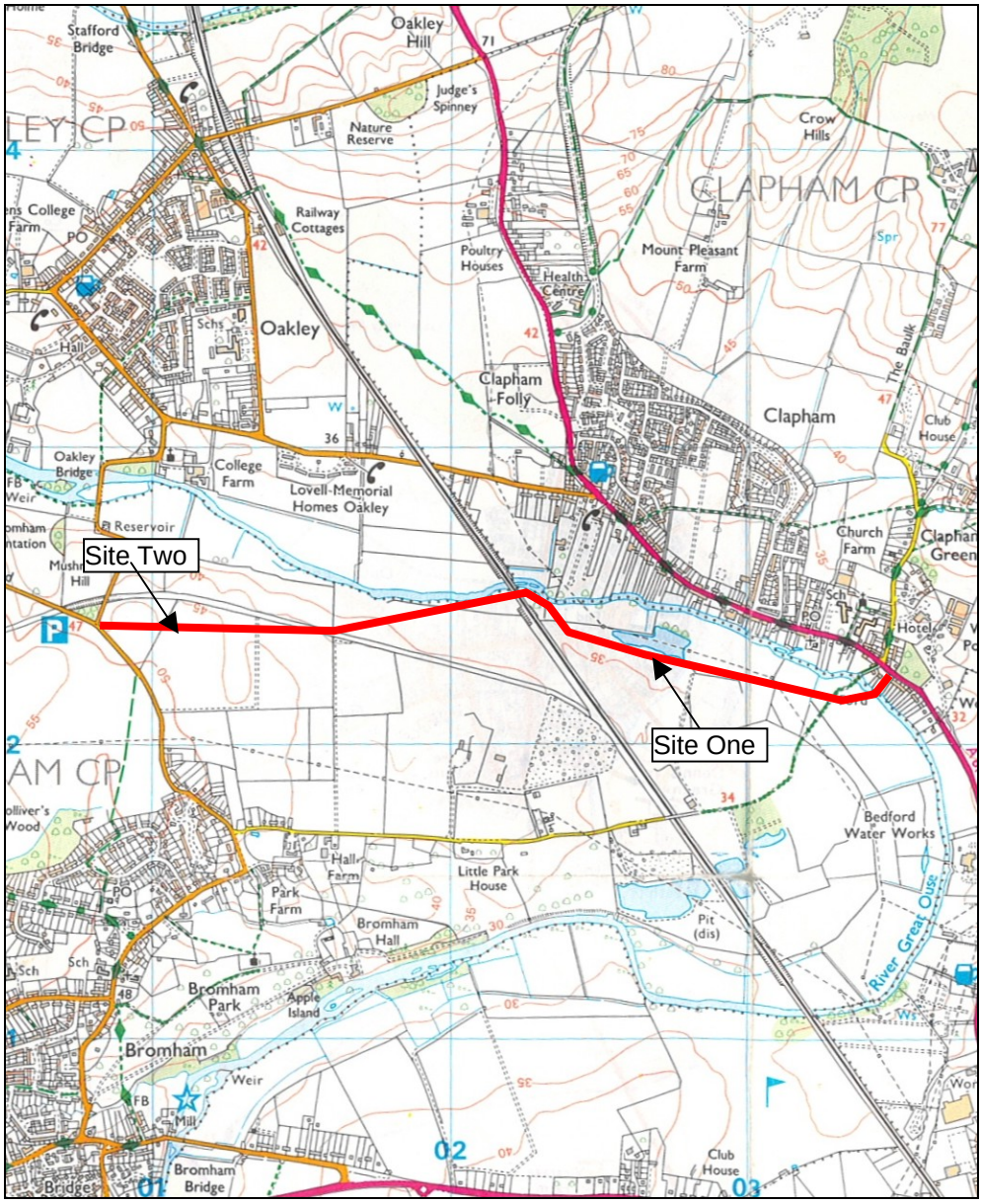

Figure 1: Route of water main showing locations of archaeological sites *(scale 1:25,000)*

Summary

During July and August 2007 Archaeological Services and Consultancy Ltd conducted a strip and record excavation along the route of the Clapham to Turvey Water Tower Reinforcement Main. Two areas of archaeological features were found. Site One comprised a series of field boundaries and settlement evidence dating to the mid Iron Age and the 2nd century AD. Site Two comprised a series of postholes and a large pit of Iron Age date, and a curvi-linear boundary ditch of probable prehistoric date. Site One possibly forms a continuation of a site to the north excavated in the 1960s and 1970s by Tilson in advance of quarrying. Site Two was known from cropmarks visible in aerial photographs of the area.

1 Introduction

1.1 In July 2007 *Archaeological Services and Consultancy Ltd* (ASC) carried out a strip and record excavation on the Clapham to Turvey Water Tower Reinforcement Main project (NGR TL 0348 5224 to TL 0082 5240: Fig. 1). The project was commissioned by Anglian Water Services Ltd., and was carried out as fulfilment of their statutory obligation towards the environment according to a brief (Mather 2007) prepared by the *Heritage and Environment Section, Bedfordshire County Council* (HES), and a project design prepared by ASC (Zeepvat 2007).

1.2 ***Settings***

1.2.1 *The Water Main Route*

The water main route runs along the Ouse valley from Clapham in the east to a point midway between Bromham and Oakley to the west, a distance of *c.*2.95km (Fig. 1). Commencing at a junction with existing mains adjacent to the Bedford-Clapham Road, south of the village centre of Clapham (NGR TL 0348 5224), it crosses the river before turning to the southwest and then to the WNW after *c.*0.25km. It holds this course, paralleling the river and a major electricity pylon route for *c.*1km. Reaching the A6 (T) Clapham bypass it turns to the northwest for *c.*0.1km, then again to the WNW for the same distance, passing beneath the bypass. The route immediately swings to the ESE, passing beneath the Bedford-Wellingborough railway line. It continues on this alignment for *c.*0.7km, turning to the west as it crosses the route of the former Bedford-Northampton railway. After a further 0.8km on this east-west alignment, the water main route terminates at an existing main at a T-junction on the minor road linking Bromham and Oakley at Mushroom Hill (NGR TL 0082 5240).

The route passes through open land, most of which is under agriculture. This is predominantly arable agriculture to the west of the pipeline route, and mixed arable and pasture land to the east of the pipeline route. Some sections of the route pass close to areas of former gravel extraction, where the degree of disturbance was considered to make it highly unlikely that any archaeology survived.

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1.2.2 *Services, Buildings, Access etc.*

Access to the site was from the road at the western end of the water main route, and an un-adopted lane from Bromham to the mid-point of the pipeline route. For the majority of the route there were no buildings in the vicinity, except towards the east end, where it was closer to Clapham.

1.2.3 *Geology & Topography*

The site was situated within the Ouse valley, and traversed an area comprising two different soil associations. The west end of the route lay on soils belonging to the Moreton Association, which consist of *"Well drained calcareous clayey and fine loamy soils over limestone, in places shallow and brashy. Some deeper slowly permeable calcareous clayey soils"*, which overlies Jurassic clay and limestone (Soil Survey 1983; 511b). The east end of the route lay on soils belonging to the Efford 1 Association, consisting of "*Well drained fine loamy soils often over gravel, associated with similar permeable soils variably affected by groundwater"*, which overlie marine and river terrace gravel (Soil Survey 1983; 571s). The elevation along the route varied from *c.*45-32m OD.

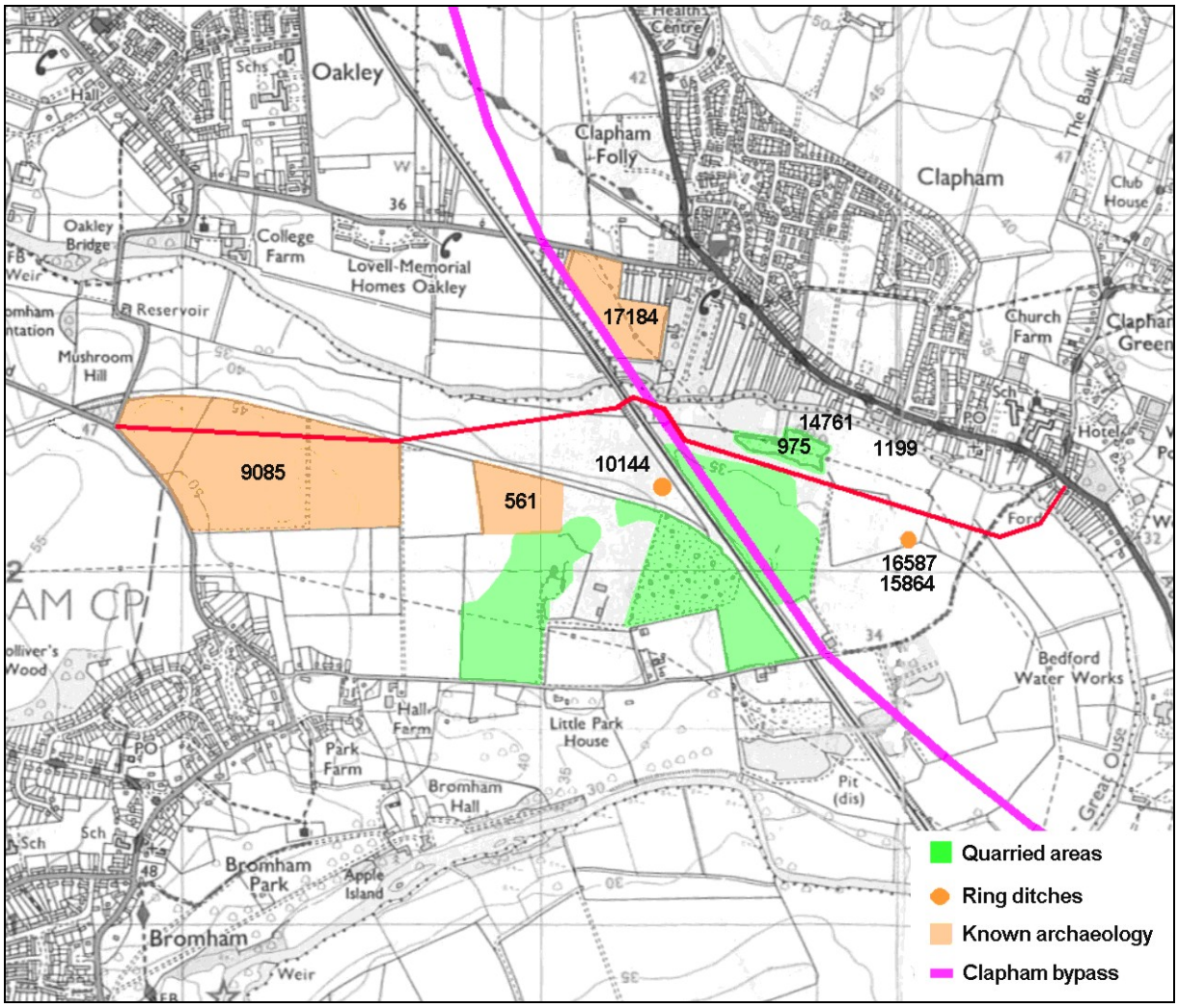

Figure 2: Water main route, in relation to significant archaeological sites and constraints

2 Aims & Methods

2.1 *Aims*

In line with the requirements of the *brief* (Section 4), the aims of the strip and record excavation were:

- To establish the date, nature and extent of activity or occupation in the water main corridor;
- To establish the relationship of any remains found to the surrounding contemporary landscapes;
- To recover artefacts to assist in the development of type series within the region;
- To recover palaeo-environmental remains to determine local environmental conditions.

2.2 *Standards*

The work will conform to the requirements of the *brief*, to the relevant sections of the Institute of Archaeologists' *Standard & Guidance Notes* (IFA 2001) and *Code of Conduct* (IFA 2000a), to current English Heritage guidelines (EH 1991), to *Standards for Field Archaeology in the East of England* (ALGAO 2003), and to the relevant sections of ASC's own *Operations Manual.*

2.3 *Methods*

In line with the requirements of the *brief* (Section 5), the methods to be adopted for this project were:

- Stripping of the topsoil (and upper subsoil if necessary) under archaeological supervision within the pipeline corridor, down to the primary identification level, using a toothless bucket
- Sampling of any archaeological deposits present in order to obtain dating material and to determine function

Any areas known to have been quarried were excluded from this process (Fig. 2).

2.4 *Constraints*

A site visit on 2nd July 2007 revealed that the section of the pipeline route between the two known areas of quarrying had not been previously disturbed as originally suggested (Section 1.2.1, Fig. 2). This area was therefore included in the strip and record excavation.

Periods of heavy rain caused temporary localised flooding of the River Great Ouse (Plate 1). This caused disruption to the planned work programme, both at the eastern end of the pipeline route, closest to Clapham, and beneath the railway and road bridges at the mid-point of the pipeline route. Removal of topsoil recommenced in these areas after the floodwater subsided.

Monitoring during the removal of concrete blocks beneath the A6 viaduct revealed that this area had been extensively disturbed in the recent past, probably during the construction of the A6 Clapham by-pass between 2001 and 2004.

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3 Archaeological & Historical Background

HER = Bedfordshire Historic Environment Record

3.1 Prehistoric *(before 600BC)*

Evidence of prehistoric activity is often to be found along river valleys, and as the site lies within the Ouse valley, the potential for finding remains of this period may be quite high. Spot finds of prehistoric artefacts have been recorded in the area of the proposed pipeline. In addition, the water main corridor passes close to at least two ring ditches (ploughed-out burial mounds) of likely Bronze Age date (HER 10144, 16587). Possible prehistoric features have been noted on aerial photographs in HER 9085, through which the water main route passes.

3.2 Iron Age and Roman *(600BC-c.AD450)*

Activity of Iron Age or Roman date is recorded on a number of sites close to the pipeline route. At HER 17184, excavations in advance of the Clapham bypass revealed evidence for Iron Age, Roman and Saxon activity north of the river. To the south of the river opposite Clapham, the water main passes close to HER 975, a Roman site recorded in advance of gravel quarrying. The route also passes through HER 9085, an extensive area of rectilinear enclosures of likely Iron Age or Roman date. In addition, a number of other Iron Age Roman sites and findspots are recorded in the Clapham and Bromham areas, beyond the water main route.

3.3 Saxon *(c.450-1066)*

It is likely that the village of Clapham is of late Saxon origin, and Saxon evidence from HER 17184 has already been noted. HER 14761, on the bank of the river south of Clapham, was an earthworks site, recorded in the HER as 'Danish harbour', destroyed by gravel quarrying. Evidence for ridge-and-furrow ploughing, which may be of late Saxon or medieval date, has been recorded in the valley near Oakley and Bromham, and could be encountered along the water main route.

3.4 Medieval *(1066-1500)*

Evidence for medieval occupation in the area is plentiful. The east end of the water main route terminates close to the historic medieval core of Clapham and spot finds of medieval artefacts have been discovered in the area. On the bank of the river north of the route at Clapham is the site of a medieval watermill (HER 1199).

3.5 Post-Medieval *(1500-1900)*

During most of the medieval and post-medieval periods, the area through which the water main route passes has been under predominantly agricultural use. It was not until the 19th century that there was any significant change to this. The Midland main line was constructed in the mid 19th century, and remains in use. The water main will pass beneath the railway bridge crossing the Ouse. The former Bedford-Northampton line, through which the water main passes, was constructed in 1872 and closed to passengers in 1962.

3.6 Modern *(1900-present)*

More recently, the Ouse valley has been subject to gravel extraction, which has affected large areas in the vicinity of the water main route. In line with the

requirements of the brief, an attempt has been made to identify those areas, to determine which sections of the route (if any) pass through areas of former gravel extraction, and can therefore be omitted from the strip and record excavation. Based upon Ordnance survey maps and aerial photos, a number of areas have been identified as subject to gravel extraction. It will be noted that the water main passes between two gravel extraction areas, one of which is known to have contained evidence of Roman occupation. Based upon the available information, it has not been possible to determine any further gravel extraction areas, or to what degree quarrying operations may have impinged upon adjoining areas to those pits that were identified.

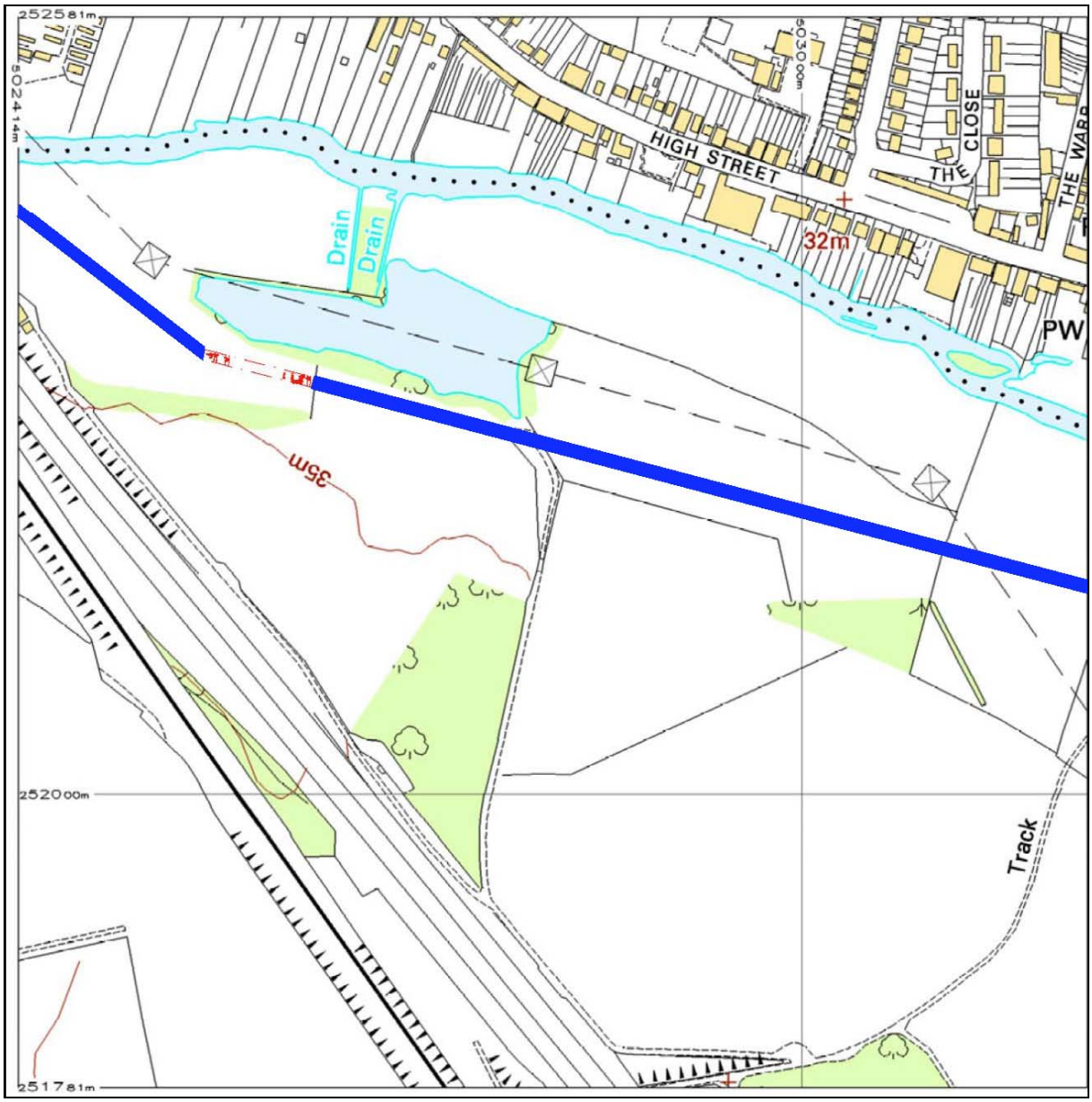

Figure 3: Location of Site One shown in red, watermain route in blue (*scale 1:5000*)

4 Results

General

Topsoil and upper subsoil were removed under archaeological supervision by a mechanical excavator with a toothless bucket.

Archaeological remains were observed in two distinct areas of the pipeline route. Site One was centred on NGR TL 02680 52259, to the east of the Clapham bypass (Fig. 1). Site Two was centred on NGR TL 01174 52418 (Fig. 1).

Site 1 was identified whilst monitoring topsoil removal on 2nd July 2007 and it was excavated between 3rd and 17th July 2007.

Ten further site visits were made between 13th and 31st August 2007 to monitor topsoil removal of the remainder of the pipeline route. Site two was identified during these monitoring visits and was excavated between 23rd and 31st August 2007.

Site 1:

The 0.40m thick dark greyish brown clayey silt topsoil sealed all archaeological features on site. These features were centred on NGR TL 02680 52259, to the east of the Clapham bypass, between two areas of known quarrying (Fig. 2 and Fig. 3).

Posthole alignment
Six postholes (Contexts [1003], [1005], [1007], [1025], [1027] and [1029]) formed an east-west alignment in two groups of three, either side of a large irregular shaped pit (Contexts [1009] and [1011]). These postholes all had similar fills of dark brown silty clay (Contexts (1002), (1004), (1006), (1026), (1028) and (1030)), and may have formed the supports of a boundary fence. All of these postholes were longer north-south than east-west and were sub-circular in plan (Figs. 4 and 5; Plates 3 and 4). None of these postholes contained any pottery fragments and no environmental samples were taken from them.

Irregular shaped pit
A slot 0.70m wide was excavated into the irregular shaped pit (Context [1011]) and it was found to be 0.77m deep with an uneven base and sides. The narrow terminus of this pit was also excavated and found to be much shallower, at only 0.40m deep, with irregular sides (Context [1009]. The dark reddish brown silty clay fill of this feature (Contexts (1010) and (1012)) contained no pottery or animal bone fragments and no environmental samples were taken. (Figures 4 and 5; Plate 2).

Ditch [1019]
A 2.80m wide ditch with a steep sided u-shaped profile [1019] was noted immediately east of the posthole alignment. This crossed the stripped area on a north-south alignment. It was 0.83m deep, with uneven sides (Figures 4 and 5; Plate 5). The fill of this ditch (1020) was a dark orangey brown sandy silt with frequent inclusions of flint pebbles, gravel and stone fragments. A number of pottery sherds of late Roman shell tempered ware were recovered from the 1.50m wide slot excavated by hand through this feature, along with animal bone fragments (Appendix 5). Environmental sample number 2 was taken from this fill, charred cereal grains and charred arable weed seeds were observed within this sample (Appendix 4). This ditch was cut by a modern feature at the southern side of the pipeline easement. This

modern feature was not excavated, but is thought to relate to the quarrying of the area to the south of the pipeline route.

Ditch [1049]
A second ditch [1049] was observed 7m east of ditch [1019], also on a North-South alignment across the pipeline easement. This had a v-shaped profile, and was 2.80m wide narrowing to only 0.20m at the base, which was 1.02m deep. The sides of this ditch were stepped rather than straight (Figures 4 and 6; Plate 6). The fill (1050) was a dark orangey brown silty clay with occasional rounded flint pebbles and gravel inclusions. Pottery sherds dating to between the early 2nd century and the early 3rd century AD (Appendix 5) and animal bone fragments were also recovered from this feature. Environmental sample number 7 was taken from this fill, this contained charred arable weed seeds but no charred grains (Appendix 4).

Gully [1043] and [1045]
A gully 4m long and 0.50m wide was noted 20m east of ditch [1049]. The north terminus of this gully [1043] was excavated and was 0.10m deep. The south terminus of this gully [1045] was also 0.10m deep. The fill of the gully (Contexts (1044) and (1046)) was a dark greyish brown silty clay with occasional inclusions of gravel (Figures 4 and 6; Plates 7 and 8), and contained pottery sherds and fragments of animal bone, no environmental samples were taken from this fill. The pottery from (1044) dated to the Late Iron Age and Roman periods (Appendix 5).

Narrow ditch [1001]
Six metres east of this gully, a 1m wide ditch [1001] was observed crossing the pipeline easement on a north-south alignment. A 2m wide slot was excavated by hand in this ditch, and it was found to be 0.30m deep with concave sides and base forming a wide u-shaped profile (Figures 4 and 6; Plate 9). The ditch was filled by (1002), a mid-brown silty clay with frequent gravel inclusions. Pottery sherds of late 2nd to early /mid 3rd century AD (Appendix 5) and fragments of animal bone were recovered from this fill, and environmental sample number 1 was taken from it. This sample contained charred cereal grains and charred arable weed seeds (Appendix 4). A second section of this ditch [1017] was also excavated to determine the relationship between this ditch and the adjacent gully [1015]. No relationship between these two features could be determined, and the two fills (1018) and (1016) were almost identical.

Gully [1015]
This gully [1015] was 0.40m wide and 0.13m deep; and it was filled by (1016) a mid greyish brown silty clay. It extended east from ditch [1001] for 1.50m before being cut by a large pit [1013] (Figures 4 and 6; Plates 10 and 12). Sherds of pottery were recovered from this gully, but no animal bone fragments were observed. The pottery dates to between the late 1st and mid- to late 2nd century AD (Appendix 5). No environmental samples were taken from the fill of this feature.

Pit [1013] and posthole [1023]
A large ovoid pit [1013] cut gully [1015]. This pit was 2.80m east-west at its widest point against the southern edge of the stripped area, and extending 2.40m north from this edge. It extended south beyond the stripped area. Half of the exposed area of the pit was excavated by hand to a depth of 0.20m. The fill of the pit (1014) was a mid greyish-brown silty clay (Figures 4 and 7; Plates 11 and 12). This fill contained broken pottery and fragments of

animal bone. No environmental samples were taken from fill (1014). The pottery was of various dates between the Iron Age and Saxon periods (Appendix 5).

The excavated half of this pit revealed a post hole [1023]. This was circular with a diameter of 0.35m, and had almost vertical sides and a flat base. The fill (1024) was dark greyish black silty clay with frequent charcoal inclusions (Fig. 4; Plates 11 and 12). This fill contained sherds of pottery but no fragments of animal bone were observed. Environmental sample number 3 was taken from this fill. This sample contained charred cereal grains as well as arable weed seeds (Appendix 4). This fill was much darker than (1014) which overlay it, and as it was not visible in plan it is clear that pit [1013] was cut later than posthole [1023]. The pottery from (1024) has been dated to the 3rd to 4th centuries AD, although some sherds of Late Bronze Age to Mid Iron Age were also present (Appendix 5).

Gully [1021]
A curvi-linear gully 0.40m-0.50m wide extended northeast from the east side of pit [1013]. This gully, [1021], was cut by the pit, as it was not visible in the section of the excavated part. The eastern terminus of this gully [1035] was excavated and was 0.15m deep. The gully was filled by a mid greyish brown silty clay with frequent gravel inclusions (Contexts 1022) and (1036). (Figures 4 and 7; Plates 11 and 12). This fill contained sherds of p ottery, but no fragments of animal bone were observed. The pottery from (1022) has been dated to between the mid 1st century and mid 3rd century AD (Appendix 5). No environmental samples were taken from the fill.

Gully [1037]
The southern terminus of a further linear gully [1037] was observed 0.40m northeast of gully terminus [1035]. This gully extended for 3.30m on a north-south alignment. It was 0.40m wide and 0.02m deep and was filled by (1038), a mid brownish grey sandy silt with frequent gravel inclusions. No finds were observed within this fill, and no environmental samples were taken from it.

Pit [1039]
The northern terminus of gully [1037] was cut by a sub-circular pit [1039] approximately 1m in diameter and 0.32m deep, which was filled by (1040), a dark brownish grey sandy silt with frequent gravel inclusions and occasional charcoal flecks (Figures 4 and 7; Plates 12 and 13). The fill of this pit was similar to that of the gully, and contained pottery of 2nd to 4th century date (Appendix 5). Environmental sample number 5 was taken from this fill, charred remains of arable weed seeds were found within this sample (Appendix 4).

Posthole [1033]
Immediately east of the gap between terminus [1035] and terminus [1037] there was a post hole [1033]. This was 0.50m across east-west, and 0.60m across north-south. (Figures 4 and 7; Plate 14) It had steep sides and a concave base. It was filled by (1034), a mid brownish grey sandy silt. No finds were observed within this fill, and no environmental samples were taken from it.

Gully [1031]
A curvi-linear gully [1031] lay to the east of this post hole, following the same curve as gullies [1035] and [1037]. This gully was 0.40m to 0.50m wide and 0.16m deep. It was also cut by pit [1013] against the southern edge of the stripped area (Figures 4 and 7; Plate 12). The fill of gully [1031] was (1032), a mid brownish grey sandy silt with occasional charcoal

inclusions and frequent inclusions of gravel. It contained sherds of pottery dating between the mid to late 3rd century and the 4th century (Appendix 5); and fragments of animal bone. Environmental sample number 4 was taken from the fill of this gully and contained charred cereal grains and charred arable weed seeds (Appendix 4).

Ditch [1047]
At the north side of the stripped area, directly opposite gully [1031] was the terminus of a ditch 1.90m wide. This ditch terminus [1047] was excavated and found to be 0.30m deep. The ditch had gently sloping sides and a concave base (Figures 4 and 7; Plate 15). It was filled by (1048), a dark brownish grey silty clay with frequent inclusions of gravel, no finds were observed within this. No environmental samples were taken from this fill.

Ditch [1041]
Two metres to the east of this ditch terminus, a further ditch [1041], 2.80m wide and 0.40m deep, crossed the easement on a north-south alignment. This ditch had a deep u-shaped profile (Figures 4 and 7; Plate 16). The fill (1042) was a dark brownish grey silty clay with occasional inclusions of gravel. It contained sherds of pottery dating from the 2nd century AD (Appendix 5), and fragments of animal bone. Environmental sample number 6 was taken from this fill, and contained both charred cereal grains and charred arable weed seeds (Appendix 4). This ditch formed the easternmost feature on Site One.

All of the above features cut into the mid orangey brown silty clay natural strata. To the eastern part of Site One this silty clay contained high concentrations of broken flint pebbles and flint gravels.

Plate1: View of flooding constraints below A6 bridge

Plate 2: Section of probable tree throw [1009] Scale 1m

Plate 3: Post holes [1003], [1005] and [1007] Scale 1m

Plate 4: Postholes [1025], [1027] and [1029] Scale 1m

Plate 5: Section of ditch [1019] Scale 1m

Plate 6: Section of ditch [1049] Scale 1m

Plate 7: Gully terminus [1043] Scale 0.50m

Plate 8: Gully terminus [1045] Scale 0.50m

Plate 9: Section of ditch [1001] Scale 0.50m

Plate 10: View of ditch [1017] and gully [1015] Scale 0.50m

Plate 11: View of pit [1013] and post hole [1023], with gully [1021] Scale 1m

Plate 12: Gullies [1031], [1035] and [1037] Scale 1m

Plate 13: Pit [1039] Scale 0.50m

Plate 14: Post hole [1033] Scale 0.50m

Plate 15: Section of ditch terminus [1047] Scale 1m

Plate 16: Section of ditch [1041] Scale 1m

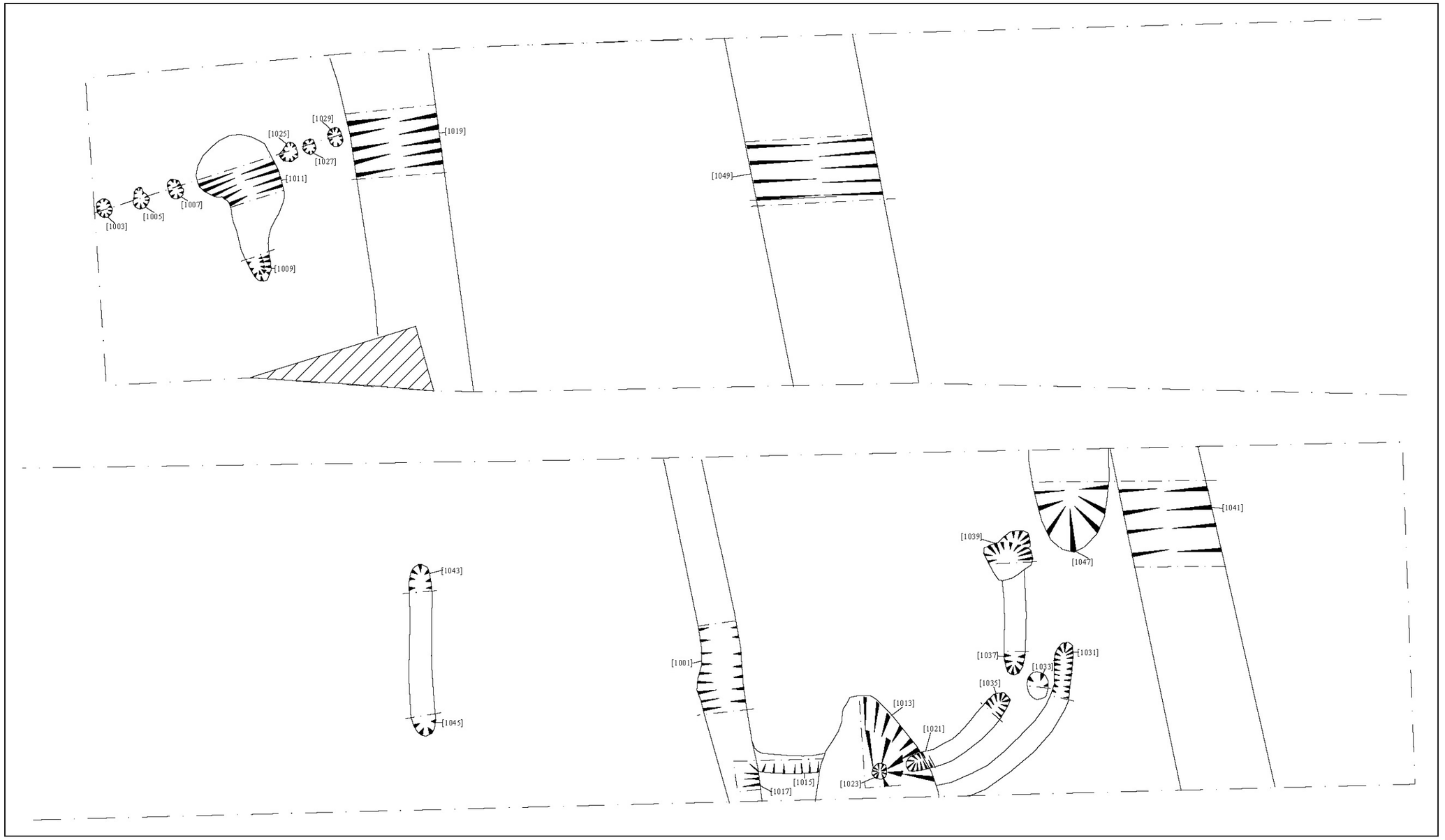

Figure 4: Plan of Site One (*Scale 1:100*)

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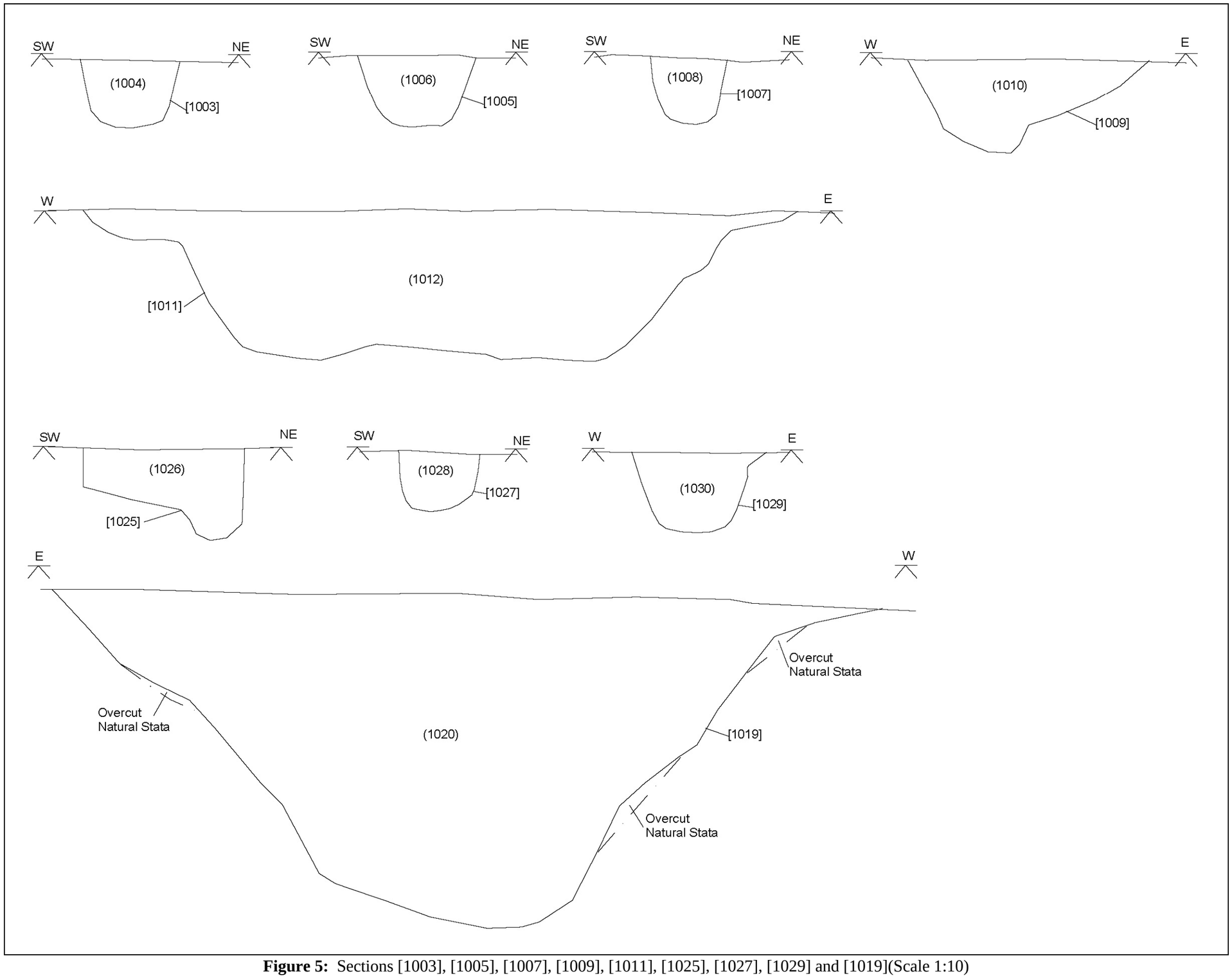

Figure 5: Sections [1003], [1005], [1007], [1009], [1011], [1025], [1027], [1029] and [1019](Scale 1:10)

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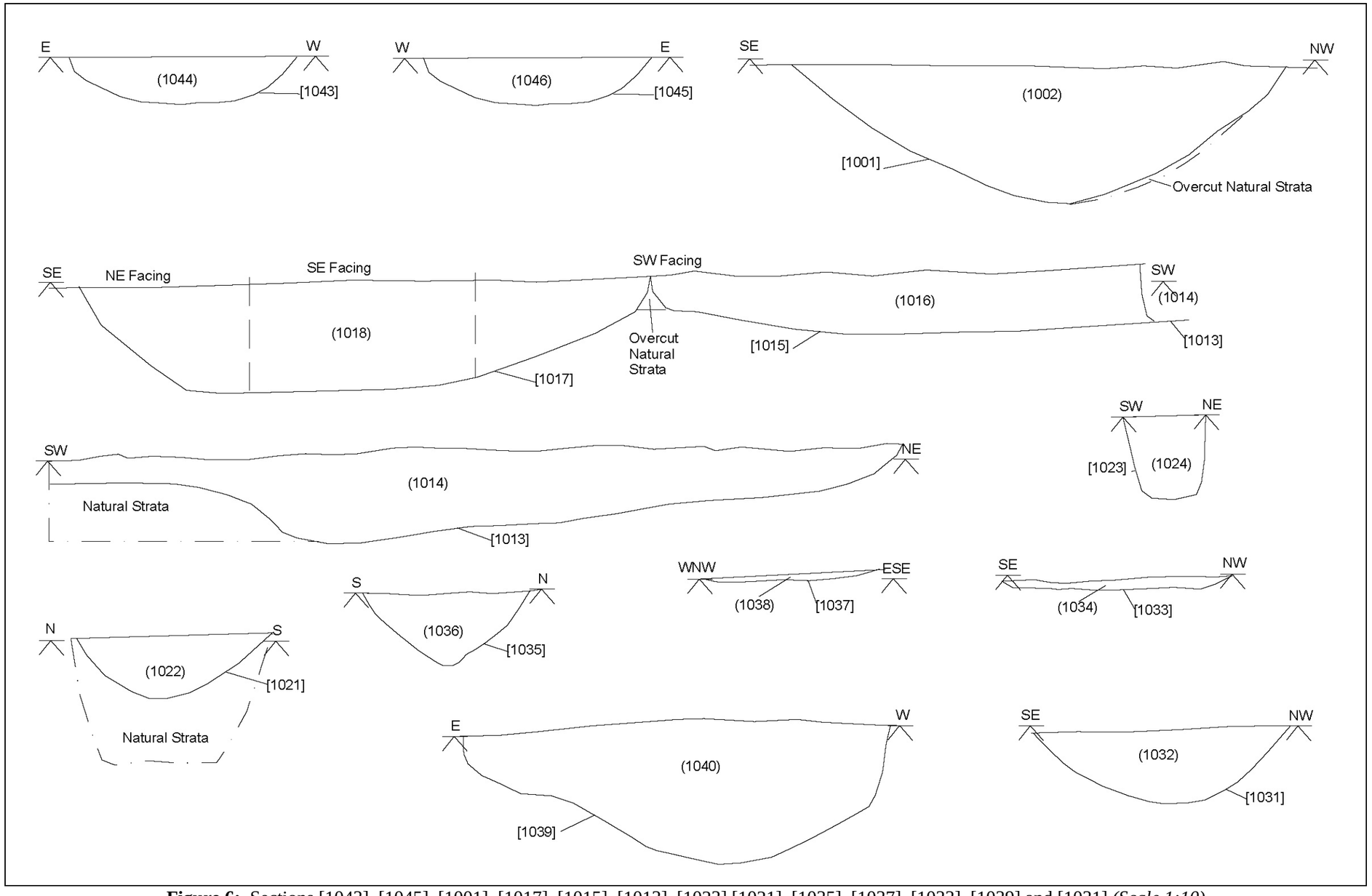

Figure 6: Sections [1043], [1045], [1001], [1017], [1015], [1013], [1023],[1021], [1035], [1037], [1033], [1039] and [1031] *(Scale 1:10)*

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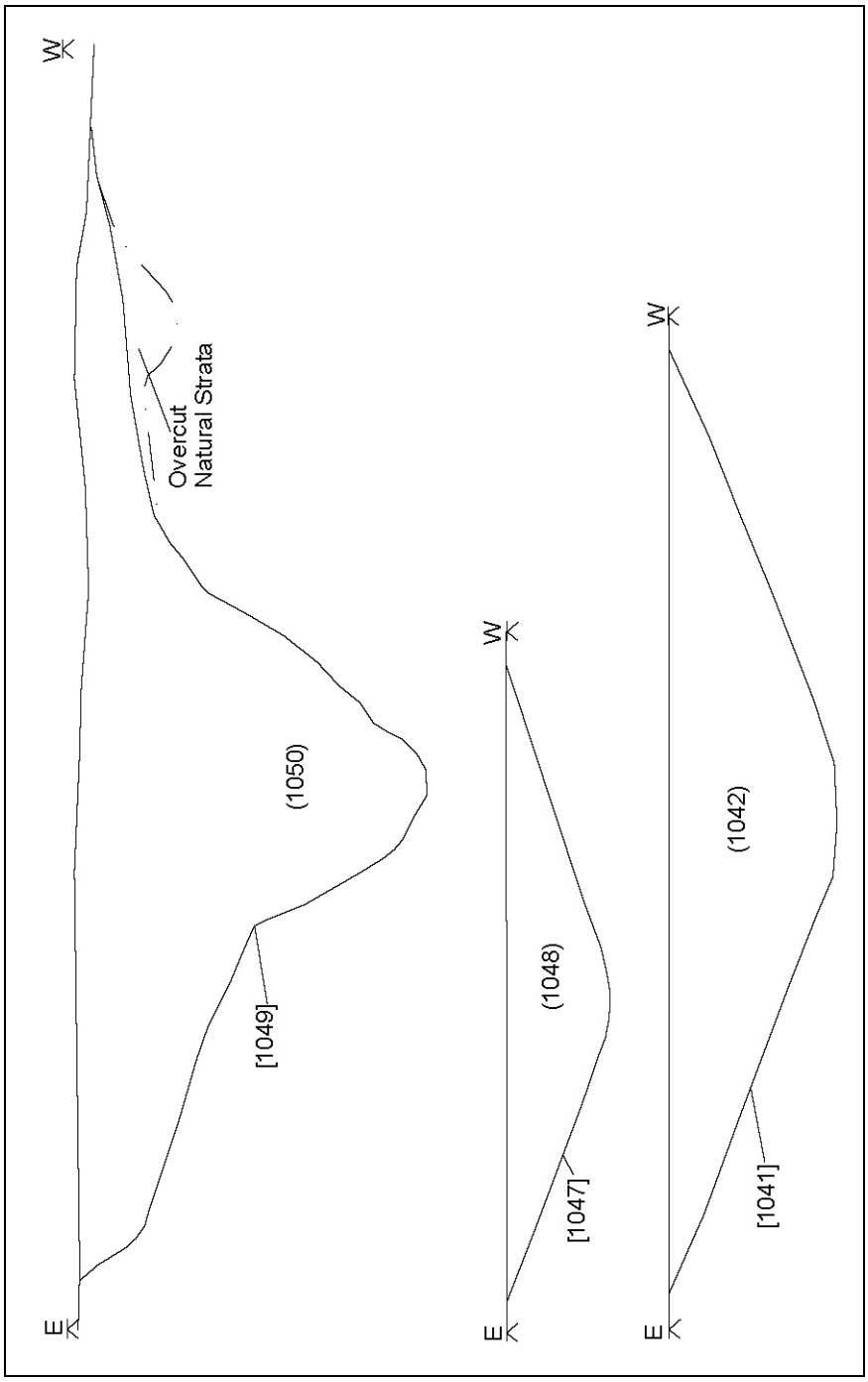

Figure 7: Sections [1049], [1047] and [1041] *(Scale 1:20)*

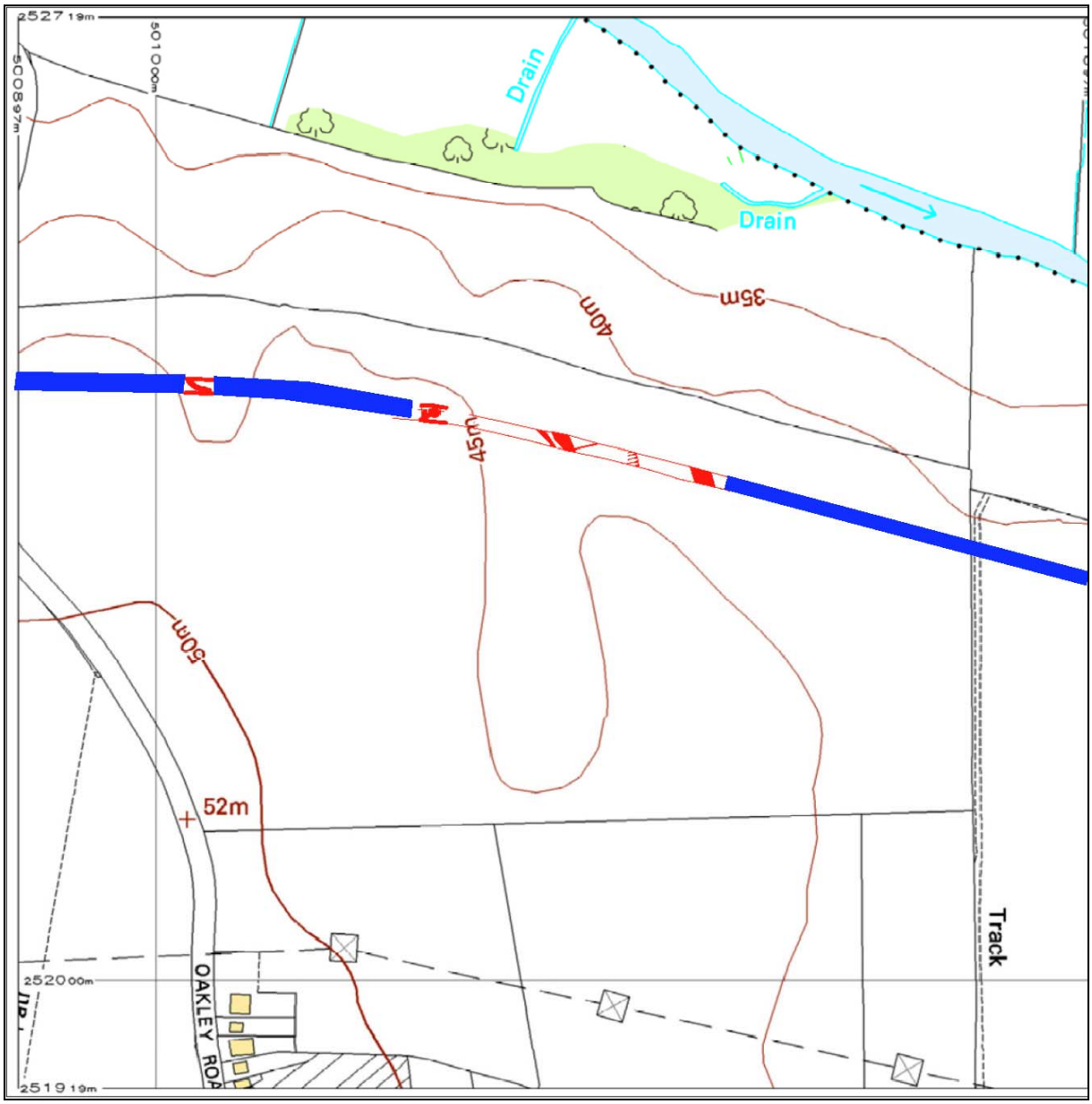

Figure 8: Location of Site Two shown in red, pipeline route in blue *(Scale 1:5000)*

Site 2:

The dark blackish grey silty clay topsoil varied in depth from 0.20m to 0.40m, being deeper in areas of lower elevation. The subsoil was a dark reddish brown silty clay soil, and also varied in thickness. In areas of higher ground there was often no subsoil present; however, there was a distinct natural ridge and valley in the field to the far west of the easement and the subsoil extended to c1m in thickness in this valley. On average however the subsoil was c.0.20m thick.

Site two comprised a group of postholes and a large pit, centred on NGR TL 501380 252230, and a curvi-linear ditch centred on NGR TL 501025 252430.

Posthole [2005]
This was 0.40m in diameter and 0.25m deep. It had almost vertical sides and an uneven flattish base (Figures 9 and 11; Plate 19). It was filled by (2006), a mid brownish grey silty sand with occasional gravel inclusions. A single, undiagnostic, sherd of Roman pottery was recovered from this fill (Appendix 5). Environmental sample number 10 was taken from the fill, this contained charred cereal grains and charred arable weed seeds (Appendix 4).

Posthole [2007] and [2013]
Two metres south-southeast of posthole [2005] was a pair of postholes ([2007] and [2013]). The southern-most of these, posthole [2007], was also the larger. It was 0.90m in diameter. On excavation, this proved to have a stake hole to the southern side of the base 0.30m deep. The remainder of this posthole was 0.15m deep and had sides which sloped at a 45 degree angle to a concave base. The stake hole had vertical sides and a concave base (Figures 9 and 11; Plate 19). Environmental sample number 11 was taken from posthole fill (2008), which was a dark greyish brown silty sand with moderate inclusion of gravel. Sherds of a ceramic tile of unknown date were recovered from fill (2008) (Appendix 5). The environmental sample contained charred cereal grains and charred arable weed seeds (Appendix 4).

Posthole [2013] was ovoid in plan, being 0.70m east-west and 0.40m north-south. This posthole had sloping sides and a concave base 0.21m deep. It was filled by (2014), a mid brownish grey silty sand with occasional gravel inclusions (Figures 9 and 11; Plate 19). No pottery was recovered from this feature, but a possible struck flint flake was. Environmental sample number 14 was taken from posthole fill (2014). This contained no charred cereal grain, but did contain charred arable weed seeds (Appendix 4).

Posthole [2019]
One metre east-northeast of posthole [2005] another posthole [2019] was observed. This was 0.60m in diameter, and had uneven sides sloping to a flat base 0.35m deep. It was filled by (2020), a dark greyish brown silty sand with moderate inclusions of gravel. No pottery was recovered from this fill, and no environmental sample was taken (Figures 9 and 11; Plate 19).

Posthole [2017]
Approximately 1.50m to the north of posthole [2019] was posthole [2017]. This was 0.45m in diameter. Its southern side was vertical, but its northern side sloped at 45 degrees to a concave base which undercut the southern side. It was 0.45m deep and was filled by (2018), a dark blackish brown silty sand with moderate inclusions of gravel. No finds were recovered from this fill and no environmental sample was taken. The flint inclusions were concentrated in the upper part of the undercut (Figures 9 and 11; Plate 19).

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Posthole [2011]
Approximately 1m southeast of posthole [2007] was posthole [2011] (the southernmost of a line of three postholes). This was 0.50m in diameter and 0.28m deep with concave sides and a flat base (Figures 9 and 11; Plate 19). It was filled by (2012), a dark greyish brown silty sand with moderate inclusions of gravel. Environmental sample number 13 was taken from posthole fill (2012). This contained charred cereal grains and charred arable weed seeds (Appendix 4).

Posthole [2009]
Three metres north-east of posthole [2011] was posthole [2009]. This was 0.45m in diameter and 0.38m deep, with a flat base. Its southern side was almost vertical, whilst its northern side had a steep slope (Figures 9 and 11; Plate 19). This posthole was filled by (2010), a mid blueish grey silty sand with frequent inclusions of charcoal and occasional inclusions of gravel. No finds were recovered from this feature. Environmental sample number 12 was taken from posthole fill (2010), no charred plant remains were observed in this sample (Appendix 4).

Posthole [2015]
Three metres northeast of [2009] was a further posthole [2015]. This was 0.55m in diameter and 0.55m deep. It had uneven, steeply sloping sides and a concave base (Figures 9 and 11; Plate 19). Environmental sample number 15 was taken from the fill of this posthole (2016), which was a mid greyish brown silty sand with frequent inclusions of gravel. This contained no charred plant remains (Appendix 4). Pottery sherds were also recovered from this posthole fill, they date from the Late Bronze Age to Mid Iron Age (Appendix 5).

Pit [2021]
Immediately to the east of this posthole was a large pit [2021]. This was 4.50m in diameter, but only 0.20m in depth. It had gently sloping sides and a flat base (Figures 9 and 11; Plate 20). This pit was filled by (2022), a dark greyish brown silty sand with frequent inclusions of gravel and occasional charcoal inclusions. Pottery sherds and fragments of animal bones were recovered from this feature and environmental sample number 16 was taken from pit fill (2022). This contained charred cereal grains and charred arable weed seeds (Appendix 4). The pottery sherds have been identified as being of Late Bronze Age to Mid Iron Age date (Appendix 5).

Curvilinear ditch [2001] and [2003]
A curvi-linear ditch [2001] was also noted 100m east of the western terminus of the water main route, at NGR TL 501025 252430 (Figure 10; Plates 17 and 18). This contained a possible struck flint flake, and its terminus [2003] contained several fragments of animal bone within the fill (2004). This ditch was 0.80m wide and 0.20m deep, with gently sloping sides and a concave base. It was filled by a light brownish grey silty clay with frequent inclusions of gravel (Contexts (2002) and (2004)). No environmental samples were taken from the fills of this feature.

A number of areas of modern ground disturbance were observed in the fields to the western end of the easement (Figure 9; Plates 21 and 22). In particular a modern pipe trench on a N-S alignment. There were a number of field drains in the western-most field. These were on both north-south and northwest-southeast alignments and were all of red ceramic. This evidence of land improvement in the late 18th and early 19th centuries suggests that this field

has been used for arable agriculture for at least the last two centuries and that prior to this it had been prone to waterlogging.

All of these features were sealed by the topsoil and were cut into the natural strata. No stratigraphic relationships were observed between the features.

The natural strata varied considerably across the pipeline route. At the western terminus of the easement, it was a mid orangey brown clayey silt, after 50m it changed to a mid orangey brown sandy gravel. After another 25m (on higher ground), it became a very stiff yellow clay with blue clay mottling (this was the location of the curvi-linear ditch [2001] and [2003]). As the elevation dropped to the east, the natural strata changed back to a mid orangey brown clayey silt. The elevation rose again after 300m and the natural strata at this point was a dark brownish orange sandy gravel (this was where the post holes and the pit were located). To the east of this point the natural changed back to a mid orangey brown clayey silt, and remained this as far as the railway bridge.

The pipeline crosses the route of the former Bedford-Northampton railway line. This was evident as a deep cutting to the north and south of the easement between the first and second fields from the west end of the easement, but had been filled in along the route of the pipeline to allow for access between the two fields. The construction of this railway line in 1872 caused substantial ground disturbance in this area and any archaeological remains which may have been present are likely to have been destroyed by the construction of the railway. There is no record of any archaeological remains being found during the construction of the railway line, and it closed to passengers in 1962.

Plate 17: Section of ditch [2001], scale 1m

Plate 18: Ditch terminus [2003], scale 1m

Plate 19: Overview of postholes, scale 2m

Plate 20: Section of pit [2021] Scale 2m

Plate 21: Section through modern ground disturbance

Plate 22: Section showing modern pipe trench, scale 2m

Plate 23: Overview of field west of bridges

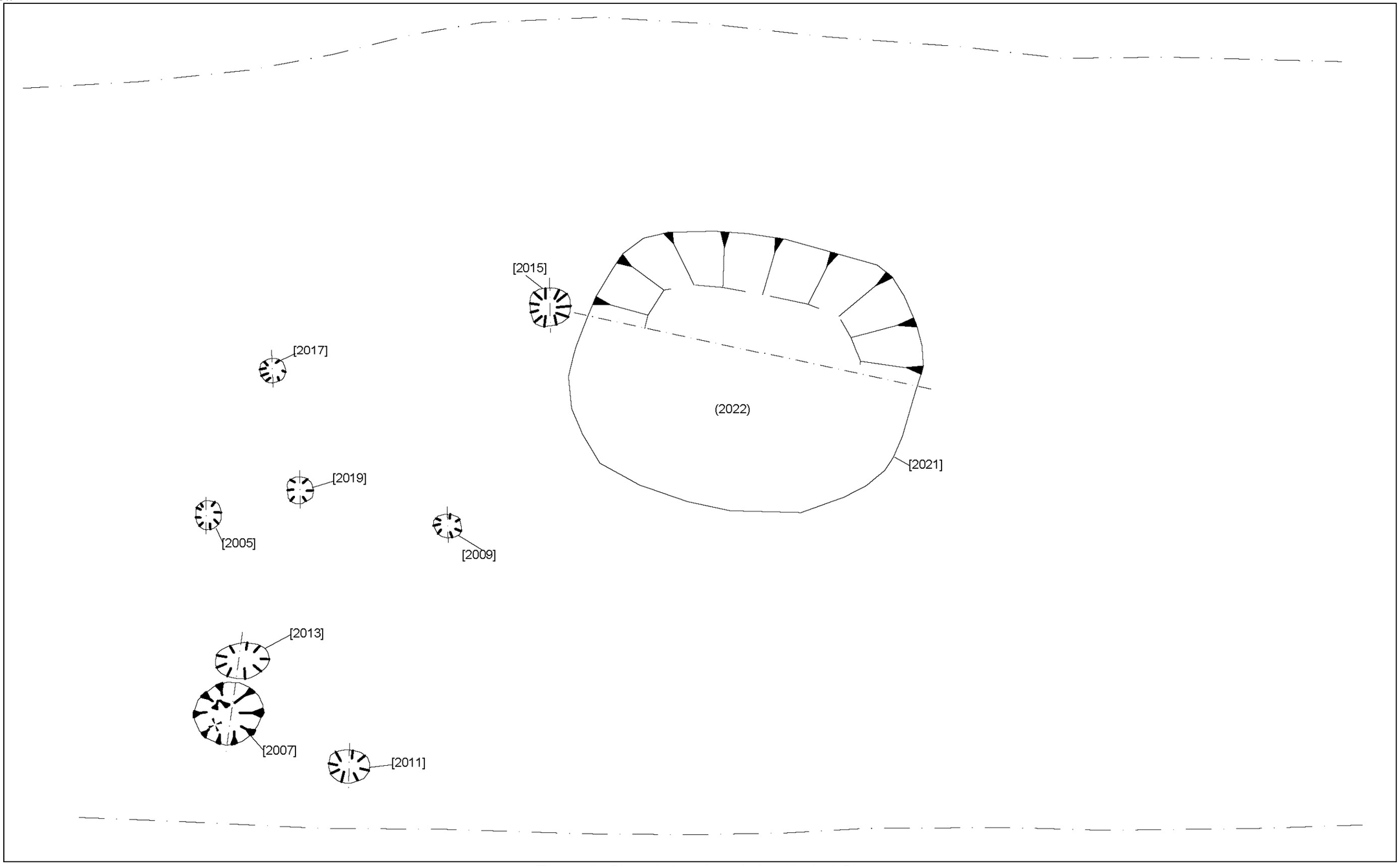

Figure 9: Plan of pit and postholes *(Scale 1:50)*

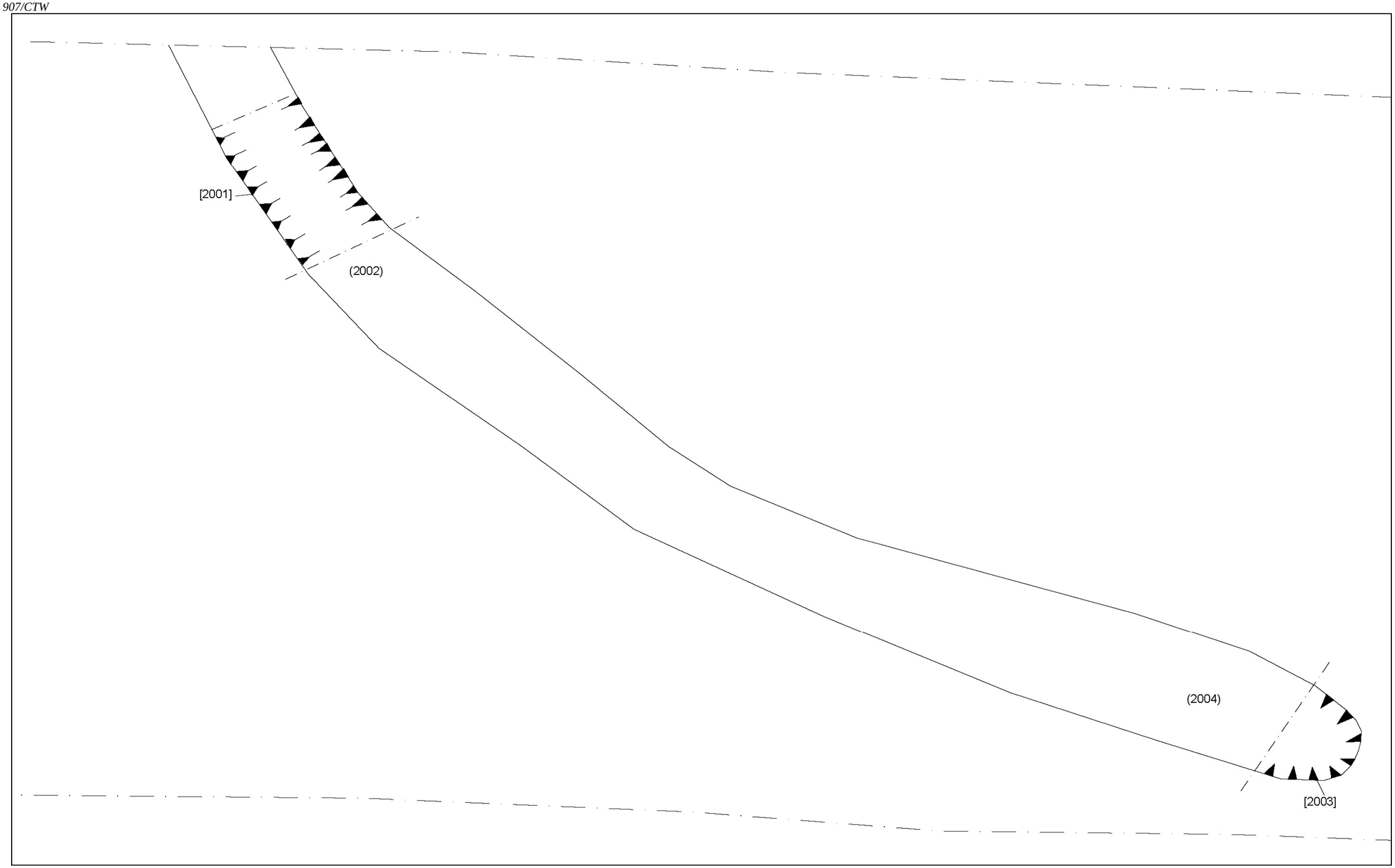

Figure 10: Plan of ditch *(Scale 1:50)*

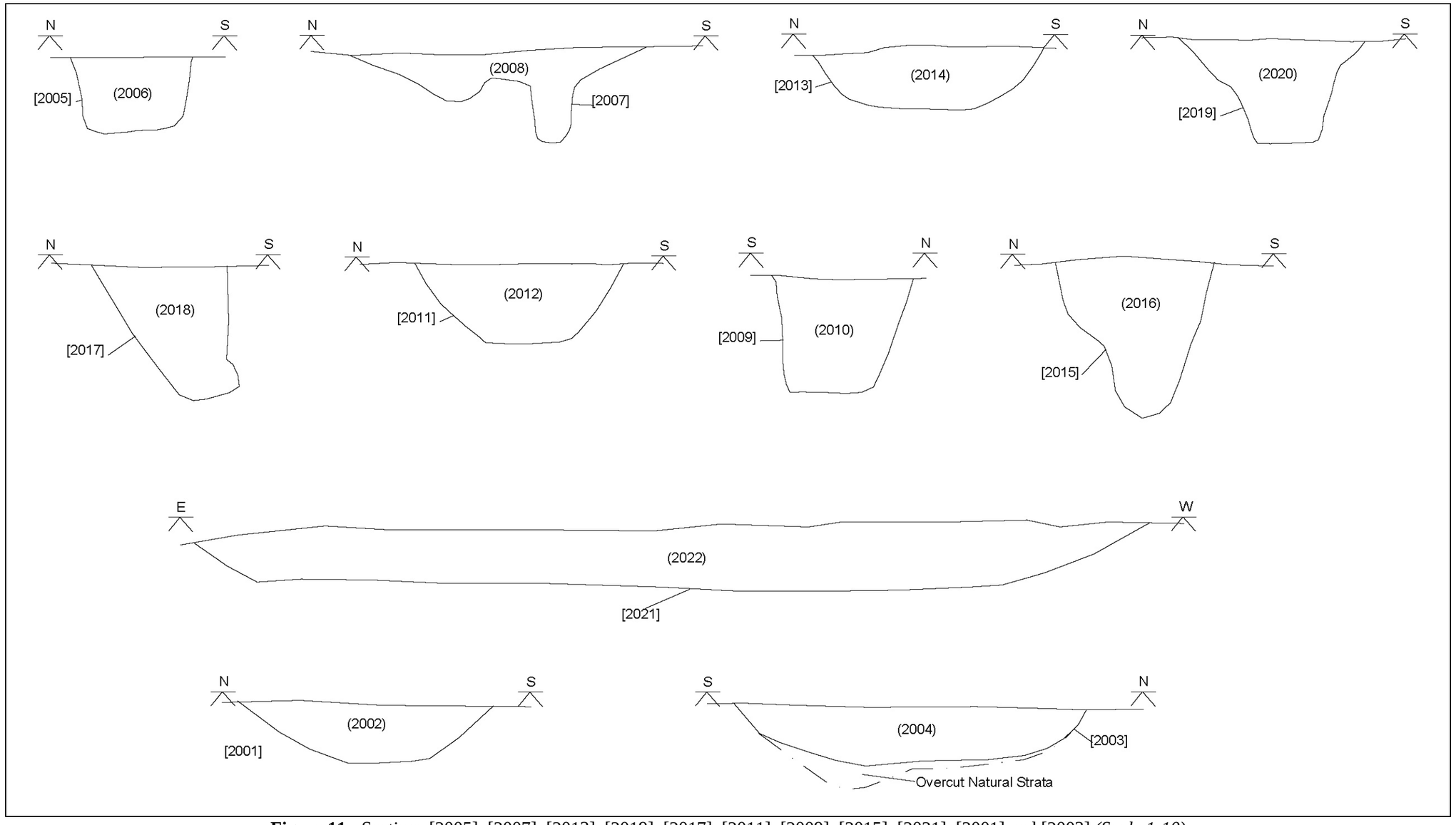

Figure 11: Sections [2005], [2007], [2013], [2019], [2017], [2011], [2009], [2015], [2021], [2001] and [2003] *(Scale 1:10)*

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5. Conclusions

5.1 Site 1

The V-shaped ditches ([1019], [1041] and [1049]) have been interpreted as forming part of a field system associated with a settlement of Iron Age or Roman date. Ditch terminus [1047] may form part of a field boundary, and would therefore relate to a different phase, as it is only 1m from ditch [1041].

The narrower linear ditch [1001] may relate to a sub-divison of one of these enclosures and the gullies ([1015], [1021], [1031], [1033], [1035] and [1037]) may represent an enclosure within this field system, possibly for livestock management as the interior of this enclosure shows no signs of occupation activity.

A low density of charred cereal grains, predominantly of spelt wheat and barley, were present in nine of the environmental samples taken from this site. Charred seeds of typical arable weeds (Good King Henry, sorrel and bedstaws) were also present in some features. These indicate the proximity of a settlement and that the surrounding area was used, at least in part, for arable agriculture. Some evidence of common club rush was found in the environmental sample from (1024), indicating the proximity of wetland (Appendix 4).

All the environmental samples contained uncharred seeds of weed plants common to arable and disturbed land, including goosefoots, chickweeds, knotgrasses, brambles and ivy leaved speedwell (Appendix 4).

The environmental evidence therefore suggests that Site One represents the periphery of the settlement activity, close to the river (Appendix 4). It is possible therefore that there may have been further archaeological remains to the north and south of the pipeline route.

The pottery sherds recovered from this site are predominantly of the 2nd century AD, although some sherds of early pottery from the Late Bronze Age to Mid Iron Age were found in three of the features, and ditch [1019] contained pottery that has been interpreted as being of Saxon date. The 2nd century pottery showed little variation in form or fabric and as such is typical of rural sites of this period (Appendix 5).

This section of the pipeline route passes between two areas known to have been quarried in the recent past (Fig. 2). The area to the north of the pipeline route (Fig. 2, site 975) was excavated prior to quarrying in the late 1960s and early 1970s, however, the area to the south of the pipeline route had already been quarried by 1968 when Tilson's excavations began (Tilson 1975).

These rescue excavations revealed a series of ditches of late Iron Age to Roman date and later Roman corn-drying kilns. Some of these ditches extended south beyond the area excavated by Tilson. Unfortunately, few records of these excavations are available, and it is not possible to directly relate the ditches found at Site One to those found in the earlier excavations. However, the ditches excavated by Tilson were of a similar size to those at site one, and were also of v-shaped profile. It is probable therefore that site one forms a continuation of the field system exposed by Tilson.

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Excavations on the north bank of the River Great Ouse by Bedfordshire County Archaeological Services (Edmondson *et al* 2006) in advance of the Clapham by-pass in 2001 revealed further evidence of continuous occupation from the early Iron Age onward, and particularly a late Iron Age or Romano-British field system, the ring ditches of three roundhouses and associated rubbish pits and a corn drying kiln similar to that found by Tilson (Edmondson et al 2006).

The valley of the River Great Ouse is prone to flooding, and this was experienced not only during this strip and record excavation but also during the BCAS excavations (Edmondson *et al* 2006) and the rescue excavations in the late 1960s to early 1970s (Tilson 1975) . The Roman settlement evidence revealed by BCAS was sealed by alluvium to the south of the site, close to the river, suggesting that seasonal flooding has affected settlement patterns here since at least Saxon times.

It is clear that there was extensive settlement activity on both sides of the river in this part of the Ouse Valley during the late Iron Age and Roman periods and this suggests that there may have been fewer problems caused by flooding during this time.

5.2 Site 2

Cropmarks were known from aerial photographs of the field at the far west of the pipeline route. These had been interpreted as representing Iron Age or Romano-British settlement activity (HER 9085).

A group of post holes forming two alignments, and a large, shallow pit were observed during the strip and record excavation. These are of unknown date, but one contained a possible struck flint, and the post hole closest to the pit contained pottery of Iron Age date. The pit contained fragments of Iron Age pottery and fragments of animal bones, and has been interpreted as a possible rubbish pit. It is possible that the pottery recovered from the post hole closest to the pit represents contamination with the fill of the pit, as the pottery in the post hole was from the surface of the fill, and the site is known to have been ploughed.

A large, curvi-linear ditch [2001] and [2003] was noted 100m east of the western terminus of the pipeline route (c. 300m west of the post hole alignment described above). A possible struck flint was recovered from this, as were a number of fragments of animal bone from the ditch terminus [2003]. This ditch had a flat-bottomed, U-shaped profile, which suggests that it was a boundary ditch, and did not have a defensive purpose. The terminus of this ditch was rounded. No other features were associated with this ditch.

The pipeline route therefore crosses through an area of settlement in this field dating to the Iron Age, and it is likely that further archaeological remains may be found during any future work either to the south or the north of the pipeline route. The large, curvi-linear ditch is also evidence of earlier prehistoric settlement activity in this area.

5.3 Overall Conclusions

Two discrete areas of siginificant archaeological remains were observed during the strip and record excavation.

Site One comprised a number of boundary ditches and associated pits and postholes dating to the mid Iron Age and Roman periods. No evidence of activity during the late pre-Roman Iron Age was observed at this site, and most of the activity on the site dates to the 2nd century AD. This site was situated close to the south bank of the River Great Ouse, between two areas of known gravel extraction.

Site Two, comprising a group of postholes and a large pit dating to beween the late Bronze Age and the early to mid Iron Age, and a large curvi-linear ditch of probable prehistoric date at some distance from these, was situated towards the western end of the pipeline route, on an area of higher ground.

The route of the pipeline passes through two distinct areas of settlement activity. The earliest is site two, which is situated on the higher ground to the west of the pipeline route, and dates from the Late Bronze Age to Mid Iron Age. Site one is close to the river in the eastern part of the pipeline route, and dates to the 2nd Century AD.

The presence of archaeological remains at Site One indicates that the two areas of gravel extraction noted in Figure 2 did not extend into the pipeline route. However, the former Bedford to Northampton railway and this had caused ground disturbance over an area 20m wide, and would have destroyed any earlier archaeological remains which may have been present.

A large area of modern ground disturbance, was also noted at NGR TL 502000 252450. This included the cut for a modern pipe trench on a northeast-southwest alignment. This also would have destroyed any archaeological features present in this area.

Confidence Rating
Parts of the pipeline route were prone to flooding, which affected the programme of work, but did not prevent any areas being examined for archaeological remains. Weather and site conditions during the excavation phases were generally good, and all archaeological features exposed were examined according to the requirements of the project design. A high confidence rating is therefore attached to the results of this strip and record excavation.

6. Acknowledgements

The writers are grateful to BSP Associates Ltd for commissioning the archaeological work and to *Anglian Water Services Ltd* for funding it. The on-site assistance of Balfour Beatty Utilities Ltd is also acknowledged. The author would also like to thank Lesley-Ann Mather of *Bedfordshire County Council* for curatorial advice, and Alistair Hill of *University of Leicester* for conducting the environmental analysis under the supervision of Angela Monkton of *University of Leicester Archaeological Services.* The specialist services of Andrew Fawcett, in analysing the pottery are also recognised.

The fieldwork was conducted on behalf of ASC Ltd by Lizzie Gill and Jenny Richards (Site One) and by Jenny Richards with the assistance of Ralph Browne and Janice McLeish (Site Two). The assistance of Nigel Wilson in conducting the GPS survey of Site Two is also gratefully acknowledged. The report was written by Jenny Richards, and edited by Bob Zeepvat BA MIFA.

7. Archive

7.1 The project archive will comprise:

1. Brief
2. Project Design
3. Initial Report
4. Clients site plans
5. Site records
6. Finds records
7. Finds
8. Sample records
9. Site record drawings
10. List of photographs
11. B/W prints & negatives
12. Original specialist reports and supporting information
13. CDROM with copies of all digital files.

7.2 The archive will be deposited with Bedford Museum.

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Appendix 1: Excavation Summary Tables

Context Registers

Site one

Context	Type	Description
1001	Cut	Cut of ditch, 1.20m wide and 0.33m deep, same as (1018)
1002	Fill	Mid orangey brown silty clay with frequent gravel inclusions, fill of ditch [1001], same as [1017]
1003	Cut	Oval cut of probable double post hole
1004	Fill	Dark blackish brown, silty clay fill of [1003] with occasional gravel and charcoal inclusions
1005	Cut	Oval cut of double post hole
1006	Fill	Dark blackish brown silty clay fill of [1005] with occasional gravel and charcoal inclusions
1007	Cut	Oval cut of double post hole
1008	Fill	Dark blackish brown silty clay fill of [1007] with occasional gravel and charcoal inclusions
1009	Cut	Cut of terminus of large, irregular oval pit, probable tree throw
1010	Fill	Dark reddish brown silty clay fill of [1009] with frequent gravels
1011	Cut	Cut of large irregular oval pit, probable tree throw
1012	Fill	Dark reddish brown silty clay fill of [1011] with frequent gravels, same as (1010)
1013	Cut	Sub-circular cut of pit
1014	Fill	Mid greyish brown silty clay fill of [1013]
1015	Cut	Cut of curvi-linear ditch terminus, butting [1017]
1016	Fill	Mid greyish brown silty clay fill of [1015]
1017	Cut	Cut of ditch, same as [1001]
1018	Fill	Mid greyish brown silty clay fill of [1017] with frequent gravels and moderate inclusions of charcoal; same as (1002)
1019	Cut	Cut of ditch 2.10m wide and 0.83m deep, roughly v-shaped profile, extends across easement in N-S alignment
1020	Fill	Dark orangey brown sandy silt fill of [1019] with frequent inclusions of stone
1021	Cut	Cut of ditch/gully which terminates below [1013]
2022	Fill	Mid greyish brown silty clay fill of [1021] with frequent gravel inclusions, very similar to (1014)
1023	Cut	0.35m diameter cut of post hole with flat base and vertical sides; 0.19m deep, in base of [1013]
1024	Fill	Dark greyish black silty clay fill of [1023] with very frequent charcoal inclusions; darker than (1014)
1025	Cut	Oval cut of double post hole with possible stake hole against eastern edge
1026	Fill	Dark orangey brown silty clay fill of [1025] with occasional gravel inclusions
1027	Cut	Oval cut of double post hole
1028	Fill	Dark orangey brown silty clay fill of [1027] with occasional gravel inclusions
1029	Cut	Oval cut of double post hole
1030	Fill	Dark orangey brown silty clay fill of [1029] with occasional gravel and charcoal inclusions
1031	Cut	Cut of terminus of gully
1032	Fill	Mid brownish grey sandy silt fill of [1031] with occasional charcoal inclusions and frequent gravel inclusions
1033	Cut	Sub circular cut of 0.50m diameter post hole
1034	Fill	Mid brownish grey sandy silt fill of [1033]
1035	Cut	Cut of south western terminus of ditch/gully, part of [1021]
1036	Fill	Mid brownish grey sandy silt fill of [1035] with frequent gravel inclusions; same as (1022)
1037	Cut	Cut of northern terminus of very shallow ditch/gully
1038	Fill	Mid brownish grey sandy silt fill of [1037] with frequent gravel inclusions
1039	Cut	Sub-circular cut of pit cut into gully (1038)
1040	Fill	Dark brownish grey sandy silt fill of [1039] with frequent gravel inclusions and occasional charcoal flecks
1041	Cut	0.40m deep, v-shaped cut of ditch 2.80m wide
1042	Fill	Dark greyish brown silty clay fill of [1041], moderate inclusions of gravel
1043	Cut	Cut of northern terminus of shallow gully
1044	Fill	Dark greyish brown silty clay fill of [1043], some gravel inclusions same as (1046)
1045	Cut	Cut of southern terminus of shallow gully
1046	Fill	Dark greyish brown silty clay fill of [1045], some gravel inclusions same as (1044)
1047	Cut	Shallow u-shaped cut of 1.90m wide ditch terminus
1048	Fill	Dark greyish brown silty clay fill of [1047], frequent gravel inclusions
1049	Cut	Cut of ditch with v-shaped profile
1050	Fill	Dark orangey brown silty clay fill of [1049] with frequent pebble inclusions and occasional limestone and sandstone fragments

Site two

Context	Type	Description
2001	Cut	Shallow u-shaped, flat bottomed cut of ditch, probable prehistoric boundary ditch
2002	Fill	Light brownish grey silty clay fill of [2001]; frequent inclusions of gravel
2003	Cut	Rounded cut of ditch terminus, probable prehistoric boundary ditch
2004	Fill	Light brownish grey silty clay fill of [2003]; frequent inclusions of gravel
2005	Cut	Circular cut of post hole
2006	Fill	Mid brownish grey silty sand fill of [2005], rare inclusions of gravel
2007	Cut	Ovoid cut of post hole, with stake hole in base
2008	Fill	Dark greyish brown silty sand fill of [2007]; moderate inclusions of gravel
2009	Cut	Circular cut of post hole
2010	Fill	Mid blue grey silty sand fill of [2009]; frequent charcoal inclusions
2011	Cut	Circular cut of posthole
2012	Fill	Dark greyish brown silty sand fill of [2011]; moderate gravel inclusions
2013	Cut	Circular cut of post hole
2014	Fill	Mid brownish grey silty sand fill of [2013]; few gravel inclusions
2015	Cut	Circular cut of post hole
2016	Fill	Mid greyish brown silty sand fill of [2015]; frequent gravel inclusions
2017	Cut	Circular cut of post hole
2018	Fill	Dark blackish brown silty sand fill of [2017]; moderate gravel inclusions
2019	Cut	Circular cut of post hole
2020	Fill	Dark greyish brown silty sand fill of [2019]; moderate gravel inclusions
2021	Cut	Shallow cut of pit
2022	Fill	Dark greyish brown silty sand fill of [2021]; frequent gravel inclusions, occasional charcoal fragments

Appendix 2: Finds Concordance

Context	Pottery		Bone		Flint (no)	Shell (g)	Stone (no)	Other Finds	
	(no)	**(g)**	**(no)**	**(g)**				**Type**	**(no)**
Site One									
1002*	22	250	9	52					
1014	12	130	1	1					
1016	1	105							
1020	30	240	18	170					
1022	1	1							
1024*	8	31							
1032*	19	217	2	5					
1040*	27	410	3	3					
1042*	73	1305	25	391					
1044	1	15							
1050	77	1120	11	395					
Site Two									
2002			4						
2004					1				
2008	32+	616							
2014					1				
2016	6	129							
2022*	11	190	10	62	1			Stone	1
* These contexts also contain material from the larger sieving residue (10 mm)									

Appendix 3: List of Photographs

SITE NAME: Clapham Turvey Site 1		SITE NO/CODE: 907/CTW
B&W	Digital	Subject
1	1	SW facing shot of ditch [1001], 1m scale
2	-	ID shot
3	2	NW facing shot of post hole [1003], 0.5m scale
4	3	N facing shot of post hole [1005], 0.5m scale
5	4	N facing shot of post hole [1007], 0.5m scale
6	5	E facing shot of post hole alignment, 1m scale
7	6	E facing shot of tree throw [1009], 0.5m scale
8	7	N facing shot of tree throw [1011], 1m scale
9	-	N facing shot of tree throw [1011], 1m scale
10	8	NE facing shot of section through ditch [1015] and ditch [1017]
11	9	E facing shot of post hole alignment, 1m scale
12	10	N facing shot of terminus [1009], 0.5m scale
13	11	NE facing shot of pit [1013] and post hole [1023]
-	12	NE facing shot of pit [1013] and post hole [1023]
-	13	NE facing shot of pit [1013] and post hole [1023]
	14	NE facing shot of pit [1013] and post hole [1023]
14	15	N facing shot of post hole [1025], 0.5m scale
15	16	N facing shot of post hole [1027], 0.5m scale
16	17	N facing shot of post hole [1029], 0.5m scale
17	18	E facing shot of post hole alignment, 1m scale
18	19	SW facing shot of ditch terminus [1031]
19	20	SW facing shot of post hole [1033]
20	21	W facing shot of ditch terminus [1035]
21	22	NE facing shot of ditch terminus [1035]
22	23	N facing shot of pit [1039]
23	24	S facing shot of ditch [1019]
	25	S facing shot of ditch [1019]
24	26	S facing section of ditch [1049]
25	27	Section of ditch [1041]
26	28	Section of ditch terminus [1047]
27	29	Section of ditch terminus [1043]
28	30	Section of ditch terminus [1045]

SITE NAME: Clapham Turvey Site 2		SITE NO/CODE: 907/CTW
B&W	Digital	Subject
1	1	Field west of bridges
2	2	Field west of bridges
3	3	Ditch [2001]
4	4	Ditch [2001]
5	5	Ditch terminus [2003]
6	6	Ditch terminus [2003]
7	7	Field west of bridges
8	8	Modern disturbance
9	9	Modern pipe trench
10	10	Overview of modern disturbance
11	11	Post hole [2005]
12	12	Post hole [2007]
13	13	Post hole [2009]
14	14	Post hole [2011]
15	15	Post hole [2013]
16	16	Post hole [2015]
17	17	Post hole [2017]
18	18	Post hole [2019]
19	19	Pit [2021]
20	20	Ditch [2023]

Appendix 4: An assessment of the plant remains, by Alistair Hill

Introduction

Excavations were carried out by Archaeological Services & Consultancy Ltd during the construction of the Clapham to Turvey Water Tower Reinforcement Main, Bedfordshire. In the process of carrying out the excavations along the pipeline route, soil samples were taken to facilitate the recovery of preserved plant remains. The collection and analysis of archaeobotanical evidence from archaeological sites presents archaeologists with a very distinctive range of data that can be used to interpret the economic systems of past societies as 'almost all plant species attested for archaeological sites have economic implications, either of direct or of indirect nature' (van Zeist 1991:109).

Methods

The archaeobotanical samples were taken from discrete datable contexts identified as having the potential for the preservation of plant remains. A total of 14 samples were taken from a range of contexts that have been attributed to the Romano-British period.

The plant remains were processed by Archaeological Services & Consultancy Ltd. using bulk flotation, utilising 10mm and 4mm sieves, with the flotation fraction (flot) collected on a micro-mesh. The flotation fractions (flots) were air dried and packed in film canisters that were marked with details of the project code, context and sample numbers prior to laboratory analysis.

The analysis of all the flots received was carried out by scanning and 100% sorting each flot using a binocular microscope with magnification settings of between x7 and x40. The carbonized plant remains (except charcoal) were separated from the flots and stored separately as either cereal grain, chaff, weed seeds, nutshells and fruit stones prior to being identified further. The University of Leicester's environmental laboratory's modern seed reference collection and reference manuals (e.g. Anderberg 1994, Berggren 1969, 1981 and Cappers *et al* 2006) were then used to identify, subject to the degree of preservation, the morphological characteristics of the archaeobotanical evidence found in each of the samples.

The numerical quantification by species, of the grains, pulses and seeds from each sample, was carried out using the following methodology. For cereals, each grain present in the assemblage was counted as one. Where fragments of grain were present an estimate of the number of whole grains this would have represented was made by combining fragments. This method was also used in the counting of the pulses present in the assemblage. The weed seeds, although generally poorly preserved, in common with the rest of the archaeobotanical assemblage were counted as one unless they could be identified as fragments of a fractured large weed seed (following van der Veen 1992). The results of the quantification were tabulated (see Table 1) with the plant names and order following Stace (1997).

Preservation

The survival and quality of plant material at archaeological sites is mainly determined by the taphonomic conditions present at an excavation site. These conditions include the mode of preservation, the conditions that surrounded the organic evidence and the local or regional climatic conditions. In this instance the archaeobotanical remains from the excavation were found to have been preserved through carbonisation.

Carbonisation occurs when the botanical material has been subjected to fire, which in most cases preserves a carbonised morphological structure of the material that is not subject to biological decay but is susceptible to mechanical damage (Moffett 1993).

Results

Charred plant remains were found in 12 of the samples. However, the flots were mostly composed of uncharred intrusive root material and the density of items per litre, with the exception of sample 16, was low at up to 0.5 items per litre of soil. The cereal grains were in general broken and abraded and the only evidence of chaff was found in sample 2 from a ditch context. The cereal grains included spelt wheat (*Triticum spelta*) some barley (*Hordeum)* and some indeterminate cereal. The only evidence of diagnostic chaff found in sample 2 was a wheat glume base, which was identified as spelt (*Triticum spelta*).

The majority of samples in the assemblage contained charred/carbonised weed seeds from plant species that are mainly associated with disturbed ground and as such are typical arable weeds. These included Good King Henry (*Chenopodium bonus-henricus* L.), which is on occasion said to be a Roman introduction but does occur before this and is sometimes used as a green vegetable (Godwin, 1975), common and sheep's sorrel (*Rumex* acetosa L. and *Rumex acetosella* L.) and bedstraws (*Galium* sp.). Three of the samples also contained small leguminous weeds that probably are representative of crop weeds. Sample 3 contained evidence of common club-rush (*schoenoplectus lacustris* (L.) Palla.), which may have been brought to the site to use as roofing or flooring, or could be from nearby wetland. Unidentified grass seeds were found in six of the samples.

In addition, all 14 samples contained uncharred seeds mainly typical of arable/disturbed land including goosefoots (*Chenopodium* sp.), stitchwort/chickweeds (*Stellaria* sp.), knotgrasses (*Polygonum* sp.), brambles (*Rubus* sp.) and ivy-leaved speedwell (*Veronica hederifolia*).

A breakdown of the presence/absence of uncharred seeds, charcoal, small animal bone/teeth and shell is shown in Table 2.

Conclusion

The archaeobotanical sample assemblages from the Clapham to Turvey Water Tower samples produced a small spread of charred/carbonised material. The low-density scatter of cereal grains, the minimal presence of chaff and the low volumes of weed seeds present in the samples would appear to indicate that these remains were associated with the preparation and consumption of spelt wheat and barley on or in the vicinity of the site and could be interpreted as domestic waste. Low-density scatter is usually associated with slow accumulation over time.

The charred/carbonised weeds seeds are mainly typical of arable/disturbed land and are frequently found in archaeobotanical assemblages. It is likely that the weed seeds are representative of crop contaminants; however they may also have derived from other areas of disturbed ground or brought to the site with other plant material.

Acknowledgements

I am grateful to Lizzie Gill for the information regarding the site and the staff at ASC for the detailed processing of the samples. The work was carried out at the University of Leicester.

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Clapham to Turvey Water Tower (ASC: 907/CTW/2) - Charred Plant Remains

Sample No.	1	2	3	4	5	6	7	10	11	12	13	14	15	16	
Phase	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	
Context	1002	1020	1024	1032	1040	1042	1050	2006	2008	2010	2012	2014	2016	2022	
Feature Type	Ditch	Ditch	Post hole	Ditch	Pit	Ditch	Ditch	Post hole	Post hole	Post hole	Post hole	Post hole	Post hole	Pit	Common name
Grains															
Triticum spelta L.	1	1													Spelt wheat
Triticum spelta L. - tail grain						1									Spelt - tail grain
Triticum cf. *spelta*						3								2	Spelt wheat
Triticum sp.	2														Wheat
cf. *Triticum*	1		1					1							Wheat
Hordeum		1							1					7	Barley
cf. *Hordeum*				1											Barley
Cerealia indet			1								1			7	Cereal
Total grains	**4**	**2**	**2**	**1**	**0**	**4**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**16**	
Cereal Chaff															
Triticum spelta glume bases		1													Spelt
Total chaff	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Other plants															
Chenopodium bonus-henricus L.														1	Good King Henry
Rumex acetosa L.					1										Common sorrel
Rumex acetosella L.					1										Sheep's sorrel
Malva sp.		1													Mallow family
Fabaceae sp (p). small legumes				1	1										Small legumes
Vicia/Lathyrus sp.														1	Vetch/Pea family
Solanum sp.								1							Nightshades
Lamium sp.											1	1			Dead-nettles
Lamiaceae sp.								1							Dead nettle family
Galium sp.					1										Bedstraws
Schoenoplectus lacustris (L.) Palla.			1												Common club rush
Carex sp.				1			1								Sedges
Bromus hordeaceus/secalinus L														1	Brome grass
Poaceae - small	1	1		3		3									Small grass
Poaceae - large					1	1	1								Large grass
indet		1			1			1	7		4	2			Indeterminate
Totals	9	9	5	7	6	12	2	5	9	0	7	3	0	35	
Sample vol. Lts.	40	40	20	20	20	40	40	10	20	10	20	10	10	20	
Flot vol. mls	70	60	40	60	40	40	50	10	40	70	70	20	30	20	
Items/litre	0.2	0.2	0.3	0.4	0.3	0.3	0.1	0.5	0.5	0.0	0.4	0.3	0.0	1.8	

Table 1 Charred/carbonised plant remains

Clapham to Turvey Water Tower (ASC: 907/CTW/2) - Uncharred Plant Remains

Sample No.	1	2	3	4	5	6	7	10	11	12	13	14	15	16	
Phase	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	Rom -Br	
Context	1002	1020	1024	1032	1040	1042	1050	2006	2008	2010	2012	2014	2016	2022	
Feature Type	Ditch	Ditch	Post hole	Ditch	Pit	Ditch	Ditch	Post hole	Post hole	Post hole	Post hole	Post hole	Post hole	Pit	Common name
Stellaria sp (p).	+		+			+	+								Stitchwort family
Chenopodium sp (p).	++	++	++	++	++	++	++	++	++	+	+	+	++	++	Goosefoots
Polygonum aviculare L.													+		Knotgrass
Polygonaceae sp (p).				+											Knotweed family
Fallopia dumetorum (L.). Holub									+						Corpse bindweed
Rubus sp (p).						+			+						Brambles
Aethusa cynapium L.														+	Fool's Parsley
Veronica hederifolia L.	+	+				+		+					+	+	Ivy-leaved Speedwell
Sambucus nigra L.	+						+								Elder
Charcoal										+	+			+	
Small animal bone/teeth							+								
Shell				+	+	+		+			+		+	+	

Table 2: uncharred plant remains

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Appendix 5: An assessment of the pottery, by A. R. Fawcett

This report primarily provides dating evidence for each context that contained pottery from the evaluation work on the Clapham to Turvey Reinforcement Main in Bedfordshire. Dating is based (where applicable) upon both the identification of fabric and form. Thereafter the report contains a brief summary of the results of this analysis.

The assemblage from each context was given a brief examination and subjected to basic quantification (a sherd count and weight per context). No attempt at detailed fabric description or comparison with material of a similar nature has been undertaken. A date range is provided for each fill and where appropriate comments are made as to the condition of the pottery. Other data, such as obvious fabrics and form types, are also included for each context (the keys for these are listed below).

A total of 387 sherds with a combined weight of 4740g have been recovered from the evaluation work. The larger part of this assemblage is dated to the Roman period with smaller elements pertaining to the LBA-EIA/MIA and one fill possibly of a Saxon date.

Two contexts (2016, 2022) indicate a date range between the LBA and EIA/MIA; this is based mainly upon fabric identification as neither hold truly diagnostic sherds. However, 2016 contains a lugged eyelet and 2022 a sherd with stamped decoration. Although both of theses features can occur on early Saxon pottery, the fabrics indicate a pre-historic date. Considering the hand made nature of these fabrics, they only demonstrate slight abrasion thus indicating that they were recovered from their original place of deposition. Fills 1014 and 1024 also appear to contain sherds of this period, although the latter may also have one Saxon/early medieval sherd too.

Most of the Roman pottery sits comfortably within the second century AD; where later ceramics of this era are noted, they are generally in a more abraded state. There is no direct evidence for the LPRIA or the early Roman phase amongst this collection.

The second century material may be described as being suffering from only slight abrasion, the best assemblages being 1042 and 1050 (both of these have a good diagnostic element).
The pottery from the 2nd century AD does not demonstrate any great diversity in form or fabric and indeed is fairly typical of low 'grade' rural activity for this area.

Finally, context 1020 has five hand-made sherds in an entirely different quartz based fabric, in comparison to others of this nature encountered on the site. All are part of the same vessel and join, they also occur alongside later Roman pottery; nevertheless the jar/urn rim is not that distinctive and is only tentatively assigned to the Saxon period.

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Fabric Key

(Codes in parenthises refer to Bedfordshire Type Series)
UNS SA (RO1) Unsourced samian ware, **LNV CC (R12B)** Lower Nene Valley colour coated ware, **VER WH (RO3A)** Verulamium white ware, **UNS WH (RO3)** Unsourced white ware, **HAD OX (R22A)** Hadham oxidised ware, **BSW (RO9D)** Black surfaced/Romanising grey ware, **GRS (RO6B)** Unsourced sandy grey wares, **HAR SH (R13)** 'Harrold' shell tempered wares, **UNS SH (R13)** Unsourced shell tempered wares, **UNS CS (A16/F29)** Unsourced coarse sand mix [HM], **UNS SO (F19)** Unsourced sand and organic tempered ware [HM].

Catalogue

B = dish, C = bowl, G = jar, HM = hand made, abr = abraded, sli = slightly abraded

1002 Late 2nd to mid/late 3rd century AD				
HAR SH, GRS		19	250g	Bx2 abr-sli
1014 IA/Roman/Saxon (mixed deposit)				
UNS SO, BSW, GRS		12	128g	ND, most are [HM] sli
1016 Late 1st to mid/late 2nd century AD				
VER WH		1	108g	ND, sli
1020 ?Saxon (late Roman shell tempered wares are present)				
HAR SH, UNS CS		30	236g	G/Urn [HM] sli (Roman abr)
1022 Mid 1st to mid 3rd century AD				
UNS SA	1	<1g	ND, very	
1024 3rd to 4th century AD (+LBA to EIA/MIA)				
LNV CC, HAD OX, UNS CS		8	39g	?Beaker [HM] sli (Roman abr)
1032 Mid/late 3rd to 4th century AD				
HAR SH 2, GRS	19	213g	G hook rim sli	
1040 2nd to 4th C AD				
GRS, HAR SH		29	406g	ND, abr-sli
1042 Early/mid to later 2nd century AD (possibly some slightly later pottery present)				
HAR SH, UNS WH, GRS	74	1299g	B, Creed rim, ?D, G sli	
1044 LIA/Roman				
UNS SH	1	14g	ND, rilling dec sli	
1050 Early/mid to late 2nd/early 3rd century AD				
HAR SH, GRS, BSW		78	1118g	Gch, Glid, Btri sli
2006 Roman				
BSW		1	1g	ND, sli
2008 Unknown				
UNS SH	97	611g	Ceramic flat tile abr-sli	
2016 LBA-EIA/MIA				
UNS CS	6	128g	ND HM [asv] lugged eyelet sli	
2022 LBA-EIA/MIA				
UNS SO, UNS CS		11	188g	ND, HM, stamped decoration sli

Appendix 6: ASC OASIS Form

PROJECT DETAILS			
Project Name:	Clapham to Turvey Water Tower Reinforcement Main		
Short Description:	During July and August 2007 Archaeological Services and Consultancy Ltd conducted a strip and record excavation along the route of the Clapham to Turvey Water Tower Reinforcement Main. Two areas of archaeological features were found. Site One comprised a series of field boundaries and settlement evidence dating to the mid Iron Age and the 2nd century AD. Site Two comprised a series of postholes and a large pit of Iron Age date, and a curvi-linear boundary ditch of probable prehistoric date. Site One possibly forms a continuation of a site to the north excavated in the 1960s and 1970s by Tilson in advance of quarrying. Site Two was known from cropmarks visible in aerial photographs of the area.		
Project Type	Strip and record excavation		
Site status: (eg. none, SAM, Listed)	None	Previous work: (eg. SMR refs)	None
Current land use:	Agricultural	Future work: (yes / no / unknown)	Unknown
Monument type:		Monument period:	
Significant finds: (artefact type & period)	Iron Age pottery, Roman pottery		
PROJECT LOCATION			
County:	Bedfordshire	OS reference: (8 figs min)	TL 0348 5224 to TL 0082 5240
Site address: (with postcode if known)	Route of watermain between Clapham and Turvey Water Tower TL 0348 5224 to TL 0082 5240		
Study area: (sq. m. or ha)		Height OD: (metres)	32-45mOD
PROJECT CREATORS			
Organisation:	Archaeological Services & Consultancy Ltd		
Project brief originator:	Bedfordshire CC	Project design originator:	R. Zeepvat
Project Manager:	L Gill	Director/Supervisor:	L Gill and J Richards
Sponsor / funding body:	Anglian Water Services Ltd		
PROJECT DATE			
Start date:	2nd July 2007	End date:	31st August 2007
PROJECT ARCHIVES			
	Location (Accession no.)	Content (eg. pottery, animal bone, files/sheets)	
Physical:	Bedford Museum	Pottery	
Paper:	Bedford Museum	Site record sheets, report, specialist reports, B&W photographs and negatives, project design	
Digital:	Bedford Museum	CD-ROM with digital copies of report, specialist reports, project design, digital photographs	
BIBLIOGRAPHY (Journal/monograph, published or forthcoming, or unpublished client report)			
Title:	Archaeological Strip & Record: Clapham to Turvey Water Tower Reinforcement Main		
Serial title & volume:	ASC Ltd Client Report 907/CTW/2		
Author(s):	J Richards		
Page nos	52	Date:	21st November 2007