
**ARCHAEOLOGICAL EXCAVATION
AT WILLOW TREE FEN,
DEEPING ST NICHOLAS,
LINCOLNSHIRE
(WTCE 11)**

Work Undertaken For
Lincolnshire Wildlife Trust



October 2013

Report Compiled by
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National Grid Reference: TF 1779 2211
The Collection Accession No: LCNCC: 2011.339
OASIS Record No: archaeo11-148514


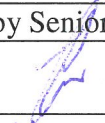
APS Report No. **48/13**

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1. SUMMARY

An archaeological excavation was undertaken on land at Willow Tree Farm, Deeping St Nicholas, in the area known as Pinchbeck South Fen. This work was in advance of the land being re-wetted. The excavations were undertaken as a community excavation, using local volunteers supervised by specialist staff from Archaeological Project Services.

The site lies on farmland in an area of dense cropmarks of predominantly Romano-British (AD 43-410) date, including trackways, fields and settlement features. Furthermore, the Fenland Survey identified a saltern (salt-making site) at the site which was the site excavated as part of this project. Numerous sites of Iron Age (800 BC-AD 43) and Romano-British date are also known in the immediate vicinity of the site. A previous evaluation of the site had recorded ditches of a field system to the southeast the extent of which was determined through geophysical survey and fieldwalking, as well as confirming the presence of a saltern at the current site.

The evaluation identified a sequence of natural, Romano-British and recent deposits. Dating to the 1st to 2nd centuries AD, were the remains of a saltern including settling tanks, an encircling ditch, gullies and dumped deposits of ash and briquetage.

The saltern had gone out of use by the mid 2nd century and two ditches of a field system of 3rd to 4th century date were also recorded. These may relate to the field system, previously evaluated to the southeast of the site. The deeper of the two ditches contained evidence of peat formation, perhaps indicating a deterioration of the local environment.

The largest category of finds retrieved from the evaluation comprises briquetage,

the debris from the brine-heating processes used to produce salt. Containers, clips and pedestals were identified in the assemblage as well as remnants of hearths or ovens.

A large collection of Romano-British pottery was retrieved and provided the main means of phasing the site. Pottery included some Late Iron Age types which may have continued in use throughout the 1st century. Most of the pottery was 2nd to 3rd century in date. A single post-medieval sherd was also collected.

Other finds collected from the excavations include two Roman bone pins, post-medieval glass and roofing slate. Post-medieval artefacts may relate to a wind powered pumping engine which is recorded close to the site in the 17th – 18th centuries.

Community participation in the excavation was successful with numerous volunteers taking part in the excavation and subsequent finds processing.

2. INTRODUCTION

2.1 Definition of an Excavation

An archaeological excavation is defined as, “a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during the fieldwork are studied and the results of that study published in detail appropriate to the project design” (IfA 2008).

2.2 Background to the excavations

Archaeological Project Services was commissioned by Lincolnshire Wildlife Trust to undertake a programme of archaeological investigation in advance of proposed re-wetting at Willow Tree Farm (formerly known as Digby's Wash Farm), Deeping St Nicholas, Lincolnshire. The investigations were undertaken between the 20th September and 4th October 2011 in accordance with a project design prepared by Archaeological Project Services. The excavation was undertaken with the contribution of volunteers attending the open days at the site.

2.3 Topography and Geology

Deeping St Nicholas is located approximately 8km southwest of Spalding and 13km southeast of Bourne in the administrative district of South Holland, Lincolnshire (Fig. 1).

Situated about 7km northwest of the centre of Deeping St Nicholas village, Willow Tree Farm comprises a block of land of *c.* 8ha, just across the river from Guthrum Gowt and centred on National Grid Reference TF 1779 2211 (Fig. 2). Willow Tree Farm is on relatively level ground south and east of the River Glen. The area is low-lying, at an elevation *c.* 2m OD and below (highest on the roddons that run generally eastwards to the eastern boundary of the site and beyond; lower in the intervening areas).

Local soils are of the Wallasea 2 Series, pelo-alluvial gley soils (Hodge *et al.* 1984, 338). These are developed on a drift geology of older marine alluvium, alongside which are younger marine deposits which in turn seals a solid geology of Jurassic Oxford Clay (BGS 1992).

2.4 Archaeological Setting

This part of the Lincolnshire Fenland has been the subject of two intensive fieldwalking programmes, the first by Hallam (1970), carried out largely in the 1950s, and the latter by the Fenland Survey during the 1980s (Hayes and Lane 1992).

Both surveys report dense concentrations of pottery sites and briquetage, the ceramic debris from saltmaking. The earlier survey concentrated primarily on cropmark sites and yielded numerous Romano-British pottery scatters associated with the cropmarks of double ditched linear features, interpreted as tracks, along with enclosures, paddocks and larger fields. An idea of the layout of the surrounding cropmarks is depicted on Figure 2 (taken from the most recent mapping by Palmer 1996).

In addition to the cropmark areas the Fenland Survey fieldwalked the land in between cropmarks and plotted the relict ancient creek systems (roddons). This revealed a much denser pattern of settlements and particularly saltmaking sites.

Prior to this excavation, an evaluation was undertaken of the site and surrounding area (Lane *et al.* 2010, 8). Geophysical survey located a number of anomalies of which most corresponded to cropmarks of the area. Trial trenching determined that some of these cropmarks were stock enclosures of which one may have been occupied seasonally. A geophysical anomaly was also identified which on morphological grounds was similar to a saltern. Subsequent fieldwalking confirmed the presence of a saltern which was the site subsequently excavated to form the basis of this report.

3. AIMS AND OBJECTIVES

The aim of the work was to identify, investigate, record and report on (replace by record) the archaeological features and deposits exposed or unavoidably disturbed by the proposed re-wetting of Willow Tree Fen.

Where deposits and features were revealed the investigations sought to recover as much information as possible on the origins, development, character, significance and nature of the economic and industrial activities. The general objectives of the work were to:

- Establish the type of archaeological activity that may be present within the site.
- Determine the likely extent of archaeological activity present on the site.
- Determine the date and function of the archaeological features present on the site.
- Determine the state of preservation of the archaeological features present on the site.
- Determine the spatial arrangement of the archaeological features present within the site.
- Establish the way in which the archaeological features identified fit into the pattern of occupation and land-use in the surrounding landscape.

The community excavation project aims to:

- Provide opportunities for extensive community involvement for volunteers, local school children and

the general public to engage in the project

- Gain detailed archaeological information on nature of the remains at the site
- Gather information on the archaeological remains present to inform their sympathetic management in the future.
- Build on previous, non-intrusive, fieldwork and research to further aid understanding of salt making in a wider context.
- Provide information and materials for other interpretation events and activities planned within the wider project.

4. METHODS

A single trench, measuring 21m by 22m, was excavated to the surface of the underlying natural geology or to the upper surface of archaeological deposits (Fig. 3).

Removal of topsoil and other overburden was undertaken by mechanical excavator using a toothless ditching bucket. The exposed surfaces of the trenches were then cleaned by hand and inspected for archaeological remains.

Each deposit exposed during the excavation was allocated a unique reference number (context number) with an individual written description. A list of all contexts and their interpretations appears as Appendix 2. A photographic record was also compiled and sections and plans were drawn at a scale of 1:10 and 1:20 respectively. Recording was undertaken based on the single context approach developed by the Museum of London (MoLAS 1994) with minor

modifications by Archaeological Project Services.

The locations of the excavation area and archaeological features within it were surveyed using a Thales Z-Max GPS. Raw satellite data is calibrated via the OS NET service resulting in extremely accurate readings. The calibrated data is logged in the field to a mobile device running Fast Survey and subsequently processed in the office by n4ce data processing software which is used to produce customised CAD files.

Following excavation, finds were examined and a period date assigned where possible (Appendix 3). The records were also checked and a stratigraphic matrix produced. Phasing was based on the nature of the deposits and recognisable relationships between them.

5. RESULTS

Following post-excavation analysis, three principal phases were identified;

Phase 1	Natural deposits
Phase 2	Romano-British deposits
Phase 3	Post-Roman and recent deposits

The results of the archaeological evaluation are discussed in trench order. Archaeological contexts are described below. The numbers in brackets are the context numbers assigned in the field.

Phase 1 Natural deposits

The earliest deposit encountered during the excavation was a layer of bluish grey clay (150, 154, 157 and 159). Encountered by augering, this measured in excess of 0.9m thick (Fig. 8). Above this were layers of yellowish brown silty clay (149, 153 and 156), yellowish brown clayey silt (148,

152 and 158) and yellowish brown silt (147, 151 and 155). These deposits are interpreted as the fills of a relict creek which had a depth of c. 1.9m and was over 5m wide.

Natural deposits exposed within sondage cuts include grey clay (066, 071 and 089), yellow silt (067) and yellowish brown silt (105).

Phase 2 Romano-British deposits

Phase 2.1 Saltern

A pre-saltern land surface was identified in the central southern part of the site, in and around sondage (057). This comprised a former topsoil layer of dark brownish grey silty clay (090) and grey clayey silt (134) and had been eroded from the northern part of the site. Ploughing furrows were evident within this deposit, although their antiquity could not be established and no finds were retrieved from the buried soil.

Aligned broadly east-west in the northern part of the site was a creek (132) which may have provided the saltwater needed for the saltern. It represents the latest phase of the natural creek identified through augering and was at least 12m long and 7m wide with an established depth of 0.7m (Fig. 6, Section 19; Plate 4). A primary fill of brown silt (127) was overlain by a dumped fill of red silt with fired clay and briquetage (126). The sequence continued with the deposition of a laminated brown clayey silt (125) suggesting natural infilling with later fills comprising blue silty clay (124 and 131), brown silts (128 and 129) with a final fill of light brown silt (123).

Located in the southern corner of the site was a rectangular pit or ditch terminus (029). This measured over 3m long, was 1.72m wide and 0.95m deep (Fig. 6, Sections 17 and 20; Plate 5). A total of eight fills were recorded and include a

basal fill of grey silty sand (122), over which the sequence of deposits began with brown sandy silt (121) followed by greyish brown clayey silt (120), brownish grey silt (119), brownish grey clayey silt (118), yellowish brown and pink silt with small briquetage fragments (117), brownish grey silt (028/116) and finally the uppermost fill of pinkish grey sandy silt with fired clay (115). A radiocarbon date of 86-116 cal AD was obtained from a fragment of wood at the base of the feature. Pottery was dated to AD 120-150 and was retrieved from the upper fill (028).

Located 3m to the north of (029) were two rectangular features interpreted as settling tanks. The westernmost (020) was 1.56m long, 0.49m wide and 0.62m deep (Fig. 5, Section 13; Fig. 7, Section 23). This contained a single fill of brownish red silt (019). A single sherd of Roman pottery was recovered from the fill along with briquetage, including structural and container elements.

The second settling tank (016) was 2m long, 0.86m wide and 0.97m deep (Fig. 7, Sections 21 and 22; Plate 6). Filling this was a primary deposit of grey clay (041) over which was a layer ranging from brownish red to yellowish brown silt (014 and 015) from which mid 2nd to 3rd century pottery was recovered along with briquetage, including clips, structural and container fragments.

Between the two settling tanks was an east-west aligned depression (048) that was 0.54m wide and 0.15m deep (Fig. 5, Section 13). This contained a single fill of brownish yellow silt (047).

Leading eastwards from the settling tank (016) was a gully (040/043/050/052/096). This had a combined length of 6.67m and was between 0.17m and 0.26m wide and up to 0.16m deep (Fig. 7, Sections 25 and 26; Plate 7). Fills comprised brownish red

silts (039/042/049/051/098), yellow silt (097), yellowish brown silt (140) and grey silt (141).

Broadly aligned north-south with a return to the southwest at the southern end was gully (144), located northwest of the settling tanks. This was 17.5m long, up to 0.72m wide by 0.15m deep (Fig. 7, Section 27; Plate 8). Two fills were recorded, a lower of brownish yellow silt (143) and an upper fill of grey clayey silt with occasional small briquetage fragments (142). The irregular nature of this feature may indicate it was used for drainage, the flow of water having eroded the sides of the gully.

Much of the salt-making activity was identified by numerous and often discrete dumped deposits lying on the east and northern sides of the excavated area. The sequence identified within the central sondage (Fig. 4, Section 6) starts with deposits of pink burnt clay with briquetage (080), black charcoal rich silt (083) and mottled pink and yellow burnt silt and clay (072). The latter may have been a surrounding bank as later deposits butted against this layer. This layer also contained large pieces of a fired clay hearth or oven structure.

Between (080) and (083) were further dumped deposits of yellowish pink burnt silt (081) overlain by grey clay (082). Southwest of (083) was a dumped layer of pink burnt clay (084).

Northeast of (080) to the limit of (072) dumped materials comprised grey ash (079), pink burnt clay (078), grey ash with briquetage (076) and grey clay (074). Deposit (074) overlay (072) and was beneath dumped deposits of pink burnt clay (075 and 077).

The second sequence of dumped deposits was recorded overlying the pre-saltern

buried land surface (134) in sondage (057). This sequence comprised red silt with ash lenses (056), mixed reddish brown, yellowish brown and grey silt (085), mixed red, grey silt with thin brown lenses of ash (086) and brownish red silt with briquetage (133). A single sherd of 2nd to 3rd century date was retrieved from (085).

An isolated dumped deposit was recorded in sondage (006) and comprised bluish grey clay with briquetage (061). This was 0.24m thick (Fig. 4, Section 4). A single sherd of 2nd to 3rd century pottery was recovered from this deposit.

At some period, the area of the saltern was provided with an encircling ditch (003/023/027/038/055/065/068/088 and 091) that cut through the dumped deposits and the gully to the east of the settling tanks. The ditch had a visible length of 27.5m, and varied between 0.96m and 2.6m wide and between 0.17m and 0.66m deep. The wider and deeper parts of the ditch were generally located on the eastern side of the excavated area.

Ten sections were excavated across the line of this ditch which showed a variety of fills most of which represent further dumping of saltern waste. Natural infilling of this ditch is poorly represented, but may include deposits of yellow and brown silt (069) and yellow silt (093), in ditch segments (068) and (091) respectively (Fig. 4, Section 6; Fig. 5, Section 11). The dumped deposits within the ditch comprised (022 and 037) a greyish brown clayey silt with frequent briquetage and ash, (044) a greyish brown silt (Fig. 5, Sections 7 to 10), orange brown silt with briquetage and ash (004, 005, 012 and 036; Fig. 4, Sections 1, 2 and 5), yellowish brown clayey silt (062), reddish brown clayey silt (063), yellowish brown clayey silt (064), in Section 4 (Fig. 4) and brownish pink clay (070), in Section 6 (Fig. 4), all occurring along the northern

arm of the ditch.

Sections across the eastern part of the ditch revealed infilling dumped deposits of brownish red clayey silt (054), orange brown clayey silt (109), brownish orange clayey silt (108), brownish grey clay (107), recorded in Section 18 (Fig. 6; Plate 9), light brown silt with red and green flecks (095), greyish green silt (094), bluish grey clayey silt (092) in Section 11 (Fig. 5) and brownish red clayey silt (087) and greyish brown clayey silt (106) identified in Section 14 (Fig. 5; Plate 10).

The fills of the ditch produced large quantities of briquetage fragments ranging in size from quite large pieces to small, sometimes dust like, pieces. The dating of these fragments is broadly Late Iron Age to the 1st century AD. Sherds of 1st century pottery were recovered from fills (005) and (044), with a later, 2nd to 3rd century sherd retrieved from the upper fill (054), which is possibly intrusive.

Dumping continued after the ditch was backfilled as evidenced by layers of pink burnt clay (073), reddish brown silt (099 and 102), grey silt (100 and 103), greenish grey clayey silt (101) and brownish grey silt (110).

Phase 2.2 Post-saltern activity

Cutting the encircling ditch was an east-west aligned ditch (031). This measured 6.2m long, 0.96m wide and 0.27m deep (Fig. 5, Section 12; Plate 11). This contained a single fill of reddish brown clayey silt (030) that contained residual briquetage fragments along with late 2nd to early 3rd century pottery and two bone pins of 1st – 2nd century date.

Situated in the northern corner of the site was a cut feature, the extent of which was not fully defined though its uppermost deposits were recorded along the northeast

side of the excavated area. From this evidence it was over 21m long and wider than 7m. A machine cut sondage established a minimum depth of 0.65m (Fig. 7, Section 24; Plate 12). Though not recorded, the earliest deposit within the large ditch was a compacted layer of animal bone over which was a reddish brown clayey silt layer (139). Above this was a fill of humified peat with nodules of iron pan (138), followed by grey desiccated peat (137) and finally brown silty clay (136).

Sealing the enclosing ditch on the northern side of the excavated area was an alluvial deposit of yellowish brown clayey silt (060) and silt (104) which measured up to 0.1m thick. These may derive from the large feature referred to above.

Phase 3 Post-Roman and Recent deposits

Sealing all archaeological layers was the current topsoil comprising grey silt (001) and brown silt (135). This measured between 0.16m and 0.3m thick.

Unstratified finds retrieval from within the southeast margin of the site (059) included post-medieval finds comprising pottery, glass, brick and roofing slate of 17th – 19th century date.

6. DISCUSSION

Natural deposits comprise clays, clayey silts, silty clays and silt and can be related to the underlying drift geology of older marine alluvium. In addition, the infill of a relict creek (roddon) was also recorded.

Elements of the previously identified saltern were examined and included two settling tanks, ditches, gullies and dumped deposits. No hearth was located and it appears that this may have been truncated

by later agricultural activity at the site.

The saltern may have been in operation from the 1st century AD, perhaps Late Iron Age, and into the early 2nd century. The earlier date for the origin of the saltern is based on a few sherds of pottery that are in a Late Iron Age tradition, though this does not mean to say that the same examples were not being manufactured after the Romans took control of the area. Furthermore, 'old' pots may have had a longer period of usage beyond that of domestic use, as seen at a medieval saltern in King's Lynn (Cope-Faulkner *forthcoming*).

The hearths for boiling brine would most likely have been located at the highest point of the roddon, immediately north of the two settling tanks. No remains or indications of their location survived suggesting that the site had suffered a degree of truncation, probably through ploughing since the drainage of Deeping Fen.

The two settling tanks are so interpreted as their depth is suitable for the separation of any mineral content from the brine used in the subsequent manufacture of salt. The next stage would see the evaporation of the brine in shallower containers above a hearth.

Salt-making had created an extensive area of dumped material, typified by ash, broken briquetage and silt deposits, surrounding the postulated site of the hearth. Initially, such dumping may have provided a 'higher' working platform for the salt-makers and would have been continually added to during the working life of the saltern. At some time, and for reasons not clear, the saltern area was defined by a circular ditch, of which approximately 25% is visible within the excavated area. The provision of this ditch did not mark the end of salt-production, as

the fills contained large amounts of broken briquetage.

Many of the excavated salterns in the Fens have a similar encircling ditch and these are often interpreted as a water catchment feature. They were found at the 3rd to 1st century BC saltern at Helpringham as well as the 4th century AD example at Middleton, Norfolk (Lane 2005, 22). However, at Willow Tree Fen the encircling ditch is unlikely to have functioned as a water catchment feature as it was placed on a slight slope and was not lined. It may have been provided for localised drainage of the saltern hearth area.

Cessation of salt-making is likely to have occurred during the mid to late 2nd century. This is a similar date to the end of the saltern phase at Wygate Park, Spalding (Hall *et al.* forthcoming), Cowbit (Trimble 2001, 160) and a little earlier than that at Holbeach St Johns (Bell *et al.* 1999, 68). The reason for the decline in salt-making at this time is not particularly clear although a deteriorating climate has been suggested. However, this would preclude the later settlement recorded in the vicinity of Willow Tree Fen. It is possible that marine influences retreated eastwards where any salt-making evidence is now buried beneath later marine alluvium (Lane 2001, 464), although there is a recognised dearth of Roman salterns post-dating the mid 2nd century.

Once the saltern had been abandoned, the site became part of a wider agricultural settlement with an adjacent system of enclosures. An adjacent domestic Roman site was identified during the Fenland Survey (PIN 30) that lay some 60m to the east (Hayes and Lane 1992, Fig. 88) and it is likely that domestic pottery and ditch (029) could belong to that site. Enclosures lay to the southeast and were partly examined in 2010 by geophysical survey

and trench evaluation (Lane *et al.* 2010, 9). Large numbers of cattle bone may indicate the livestock reared at the site. However, further south an arable regime seems to have been preferred and evidenced by thin scatters of pottery representing manuring (Hayes and Lane 1992, 172).

The large ditch (029) located along the northeastern side of the excavated area, though not securely dated is similar to the ditches revealed during the evaluation. Presumably when the ditches were no longer maintained, perhaps after the site's abandonment, peat developed, indicating plant growth in standing freshwater. Alluvial silt is recorded above this and may indicate deterioration of the local climate.

Peat continued to develop across the area until Deeping Fen was drained in the 17th century. A map of Deeping Fen, surveyed in 1670 (Featherstone 1763), names the area of Willow Tree Fen as 'New Intake'. Depicted in the close vicinity of the site is a wind-powered drainage engine, the proximity of which may account for the few finds of 17th – 19th century date recovered as unstratified material from cleaning the excavated area.

Pottery provided the key means of dating the deposits recorded. The pottery ranges in date from the 1st century to the 3rd century AD and includes some examples of Native Iron Age traditions. The assemblage is not considered to be indicative of high status, though does include a number of imports from sources in Gaul and finewares from near Peterborough. In addition to the Roman pottery, a single sherd of 18th – 20th century date was also retrieved.

Briquetage is the largest category of material recovered from the excavation. Most of the briquetage is derived from the hearths with smaller amounts relating to

containers and pedestals. Some of the briquetage fragments were large, particularly the structural elements which might represent the deliberate dismantling of the salt-making apparatus after a seasons work. A similar interpretation of the depositing of large fragments of briquetage has been proposed for Cowbit (Peachey *et al.* 2011, 48) and also Wygate Park (Morris forthcoming).

Other finds, contemporary with the Romano-British phases at Willow Tree Fen include two bone hair pins from a post-salern ditch. These hair pins, along with the pottery, suggest a domestic aspect to the site which is otherwise absent in the form of excavated features.

7. CONCLUSIONS

An archaeological excavation was undertaken at Willow Tree Fen, Deeping St Nicholas, as the site lay in an area of known archaeological remains of the Romano-British period, principally a salt-producing site, which had been identified from previous evaluation of the site. The excavation was undertaken as a community project and provided opportunities for volunteers to learn about archaeological excavation techniques.

The excavations revealed part of a saltern which was typified by numerous dumped deposits, drainage features and settling tanks. It appears to have functioned during the 1st century and into the mid 2nd century AD. No hearths were located and it is believed that these had been ploughed out.

A later system of ditches may indicate that once the saltern was no longer in use, the area became part of the field systems associated with 2nd to 4th century settlement located to the east and south of the excavated area.

Finds retrieved from the excavation are dominated by fragments of briquetage. Approximately 4500 fragments were retrieved from the investigation and comprised the full range of material associated with the production of salt.

Pottery spanning the 1st to 3rd centuries AD was retrieved in some numbers and provided the means of phasing the site. Other contemporary finds include two bone hair pins.

A small number of post-medieval artefacts were also retrieved. These may derive from a manuring scatter, although a wind powered pumping engine is recorded from the general vicinity of the site.

8. ACKNOWLEDGEMENTS

Archaeological Project Services wishes to acknowledge the assistance of the Lincolnshire Wildlife Trust (LWT) for commissioning the fieldwork and post-excavation analysis. Marcus Craythorne and Tracey McAndrew of LWT provided much help and infrastructure. The project was coordinated by Tom Lane who edited this report along with Dale Trimble. Elizabeth Bates allowed access to the parish files and library maintained by Heritage Lincolnshire.

Our particular thanks go to the many volunteers who assisted with the work.

9. PERSONNEL

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 Finds Processing: Denise Buckley
 Photographic reproduction: Sue Unsworth

Illustration: Paul Cope-Faulkner
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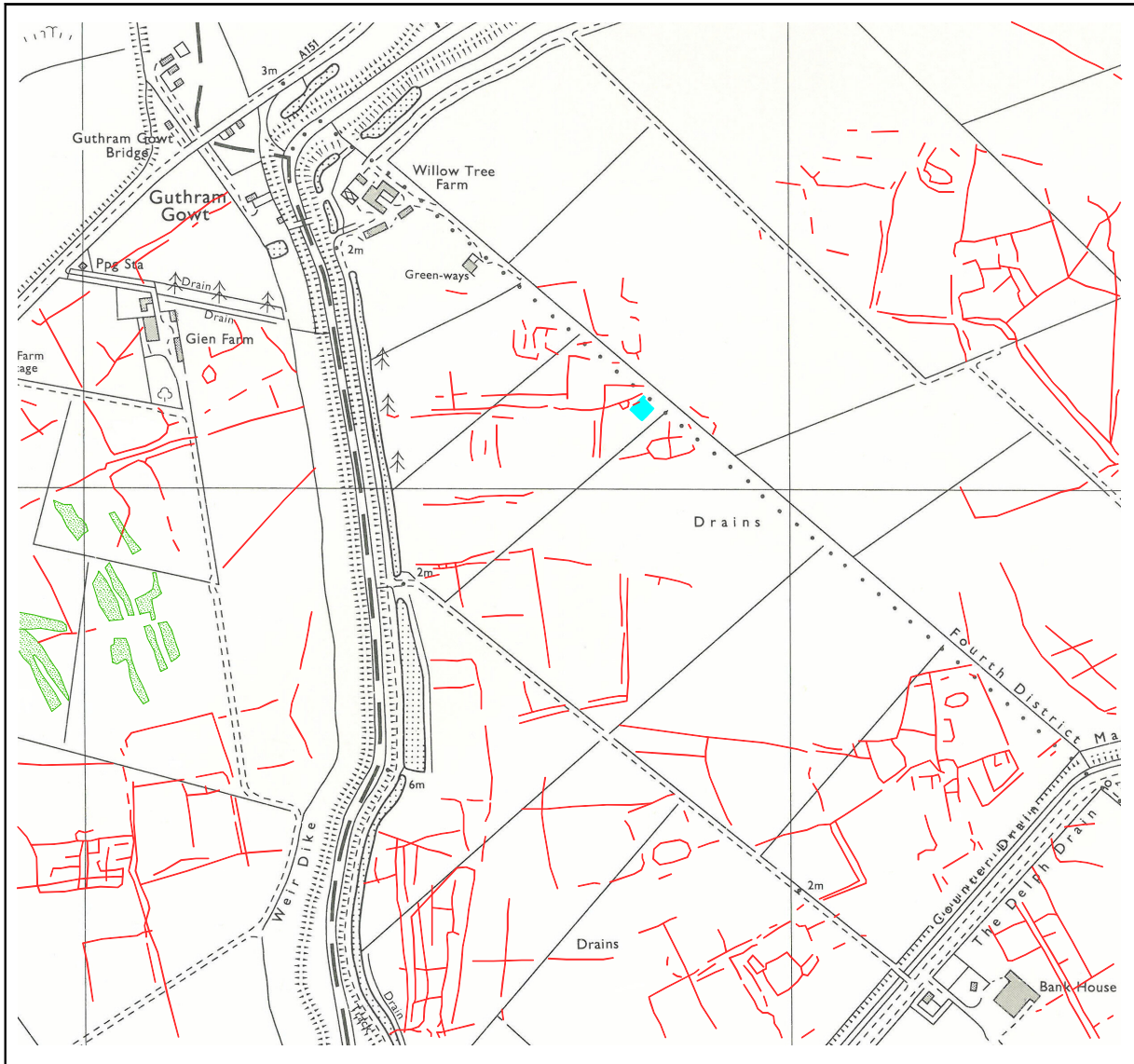
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11. ABBREVIATIONS

APS	Archaeological Project Services
BGS	British Geological Survey
IfA	Institute for Archaeologists
LAO	Lincolnshire Archive Office
MoLAS	Museum of London Archaeological Services
OS	Ordnance Survey



Figure 1 - General location map



-  The excavated area
-  Cropmarks (after Palmer 1996, Fig. 2)
-  Turbarry (after Palmer 1996, Fig. 2)

0  500m

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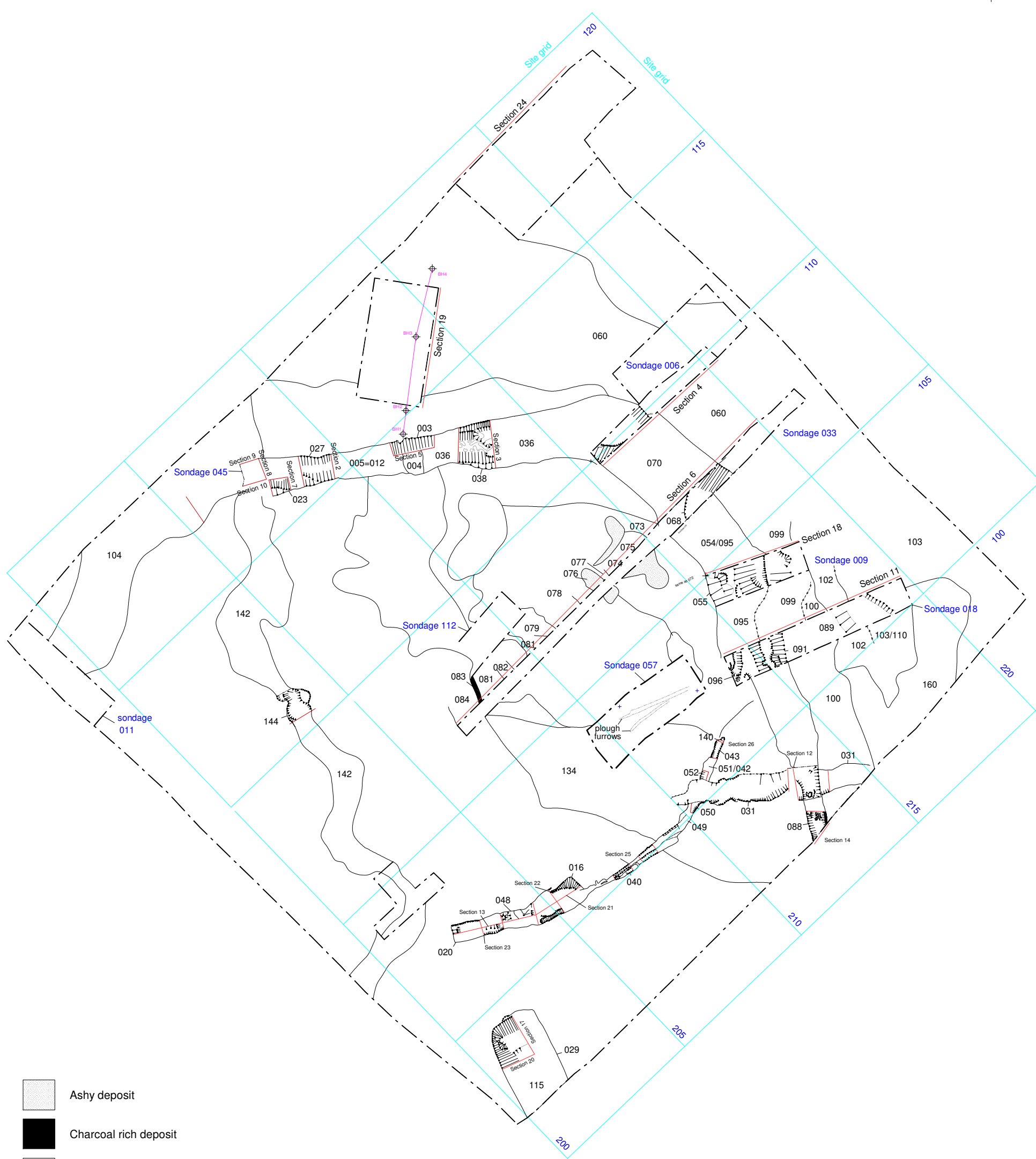



 Archaeological Project Services		
Project Name: Willow Tree Fen, Deeping St Nicholas		
Scale 1:10000	Drawn by: PCF	Report No: 48/13

Figure 2 - Site location plan



-  Ashy deposit
-  Charcoal rich deposit
-  Borehole and line of transect (Fig. 8)




	Archaeological Project Services	
Project Name: Willow Tree Fen, Deeping St Nicholas		
Scale 1:125	Drawn by: PCF	Report No: 48/13

Figure 3 - Plan of excavated features

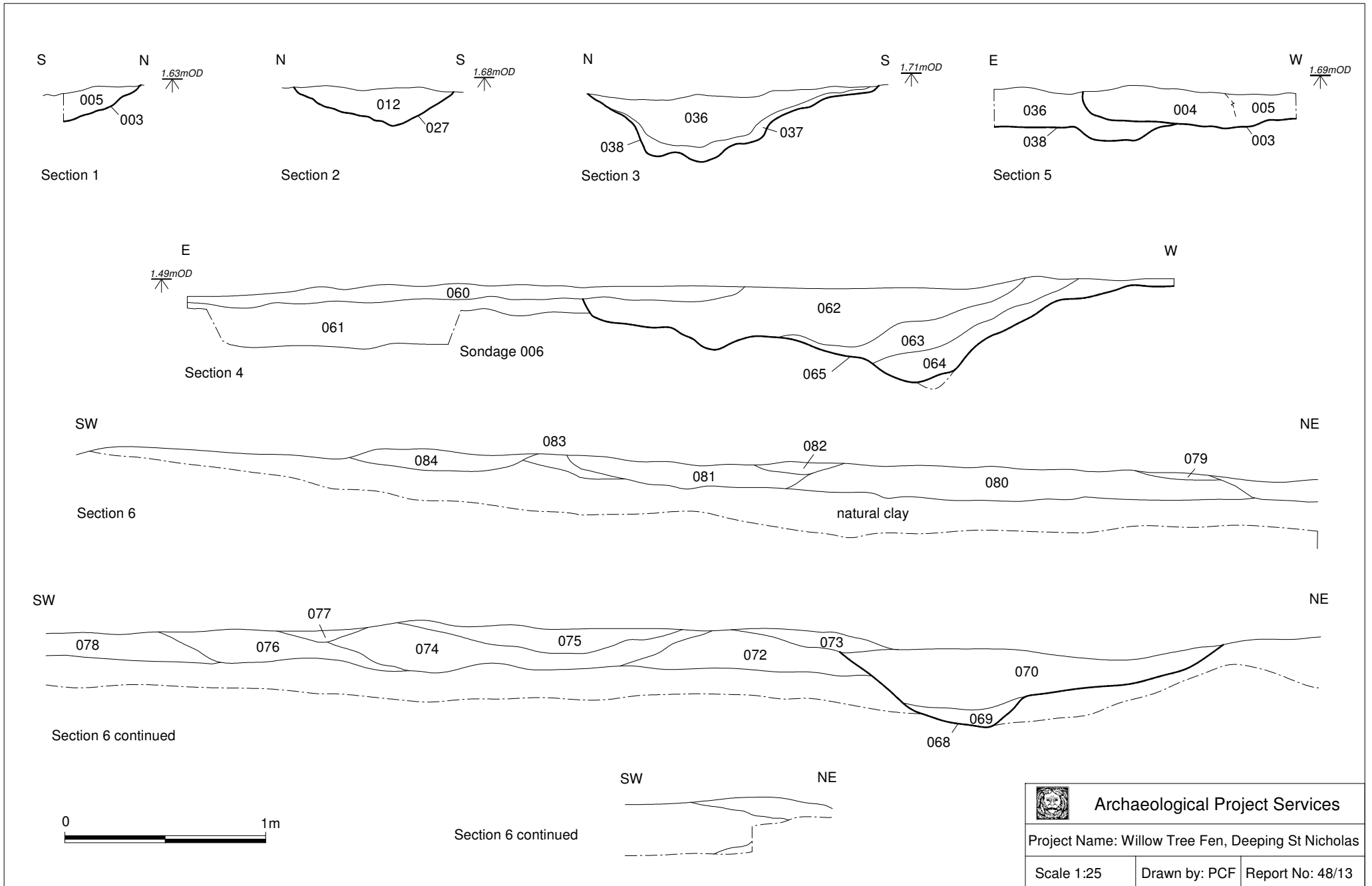


Figure 4 - Sections 1 to 6

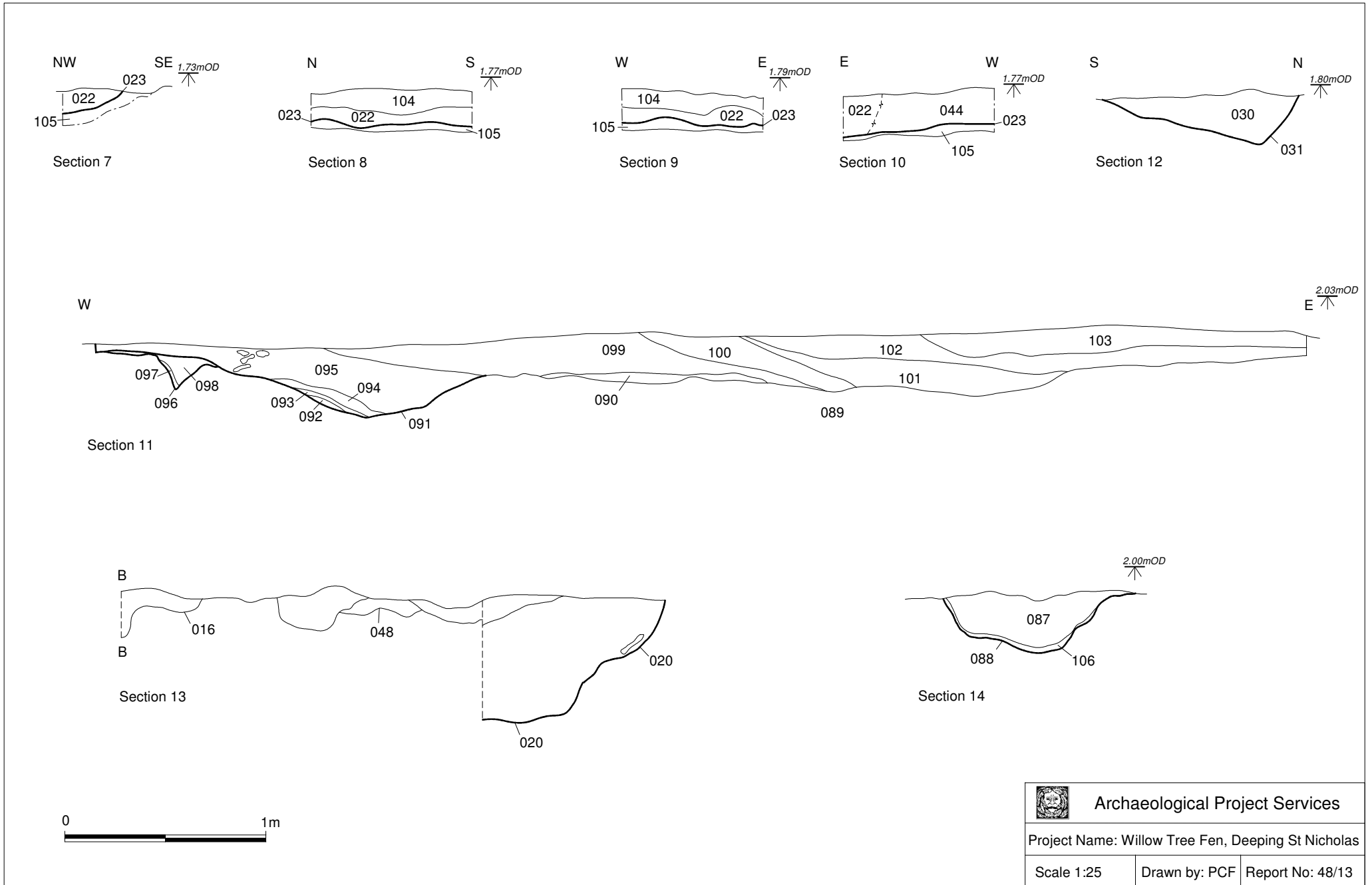



Figure 5 - Sections 7 to 14

 Archaeological Project Services		
Project Name: Willow Tree Fen, Deeping St Nicholas		
Scale 1:25	Drawn by: PCF	Report No: 48/13

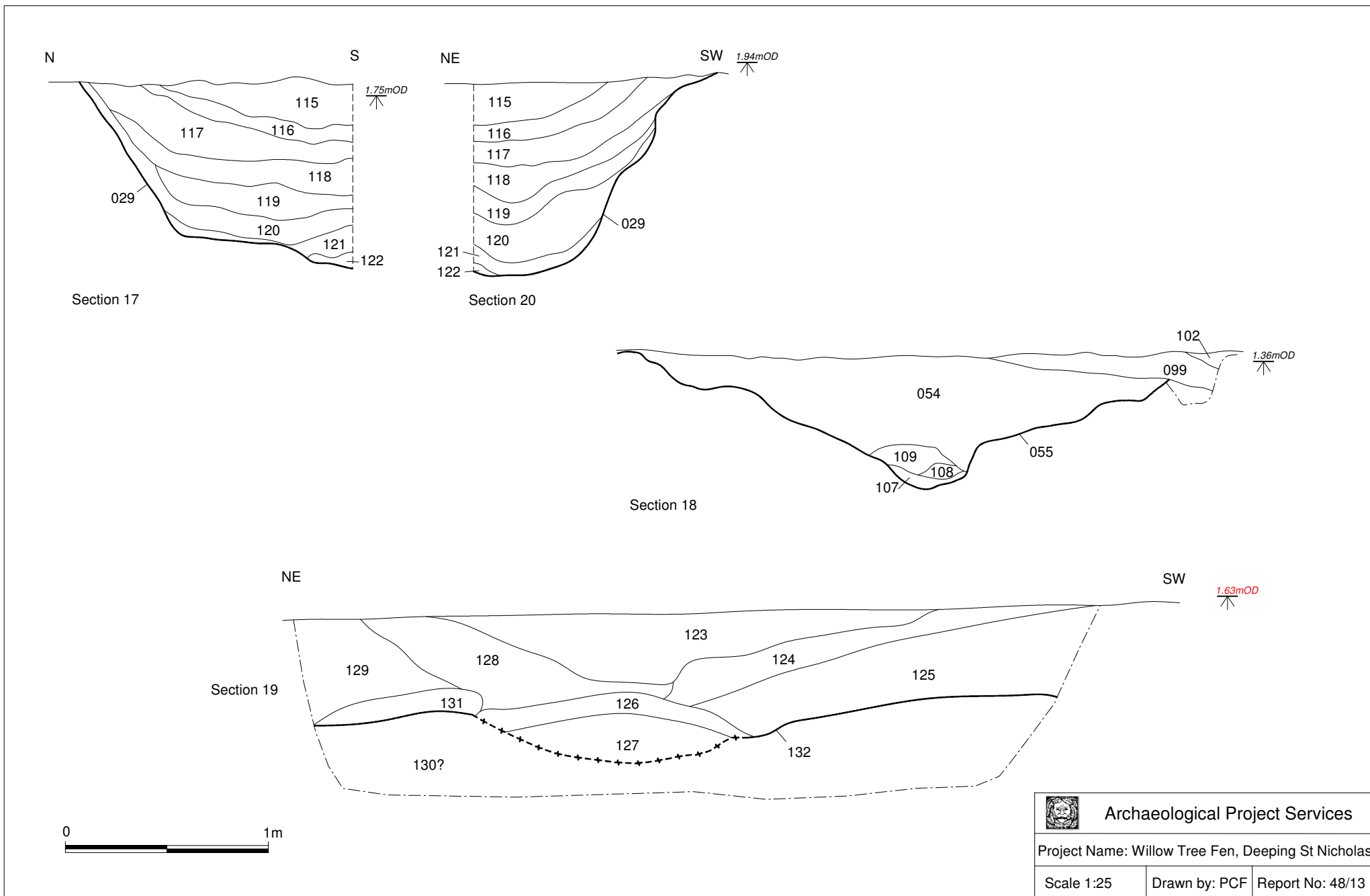


Figure 6 - Sections 17 to 20

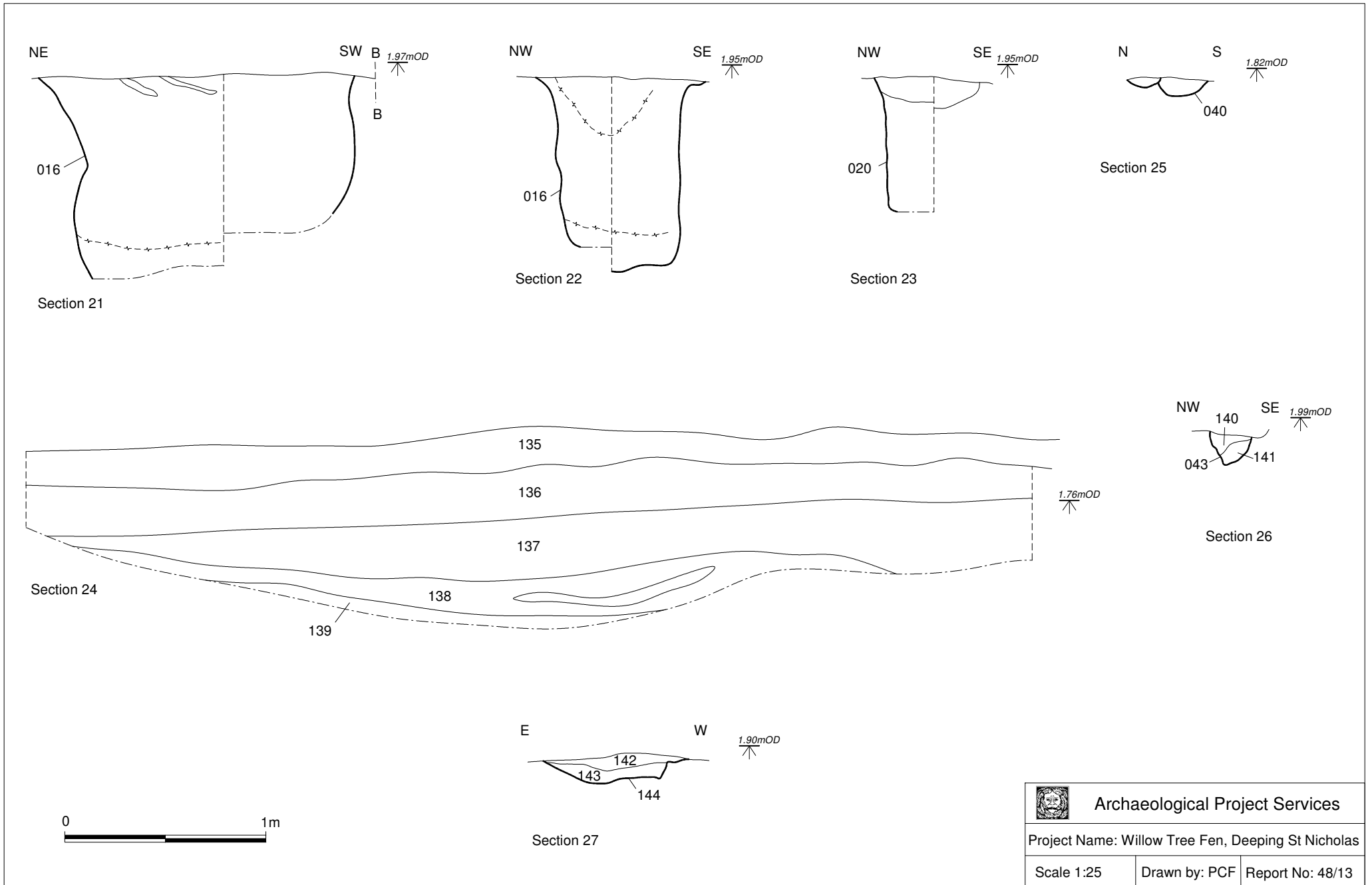
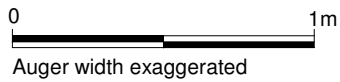
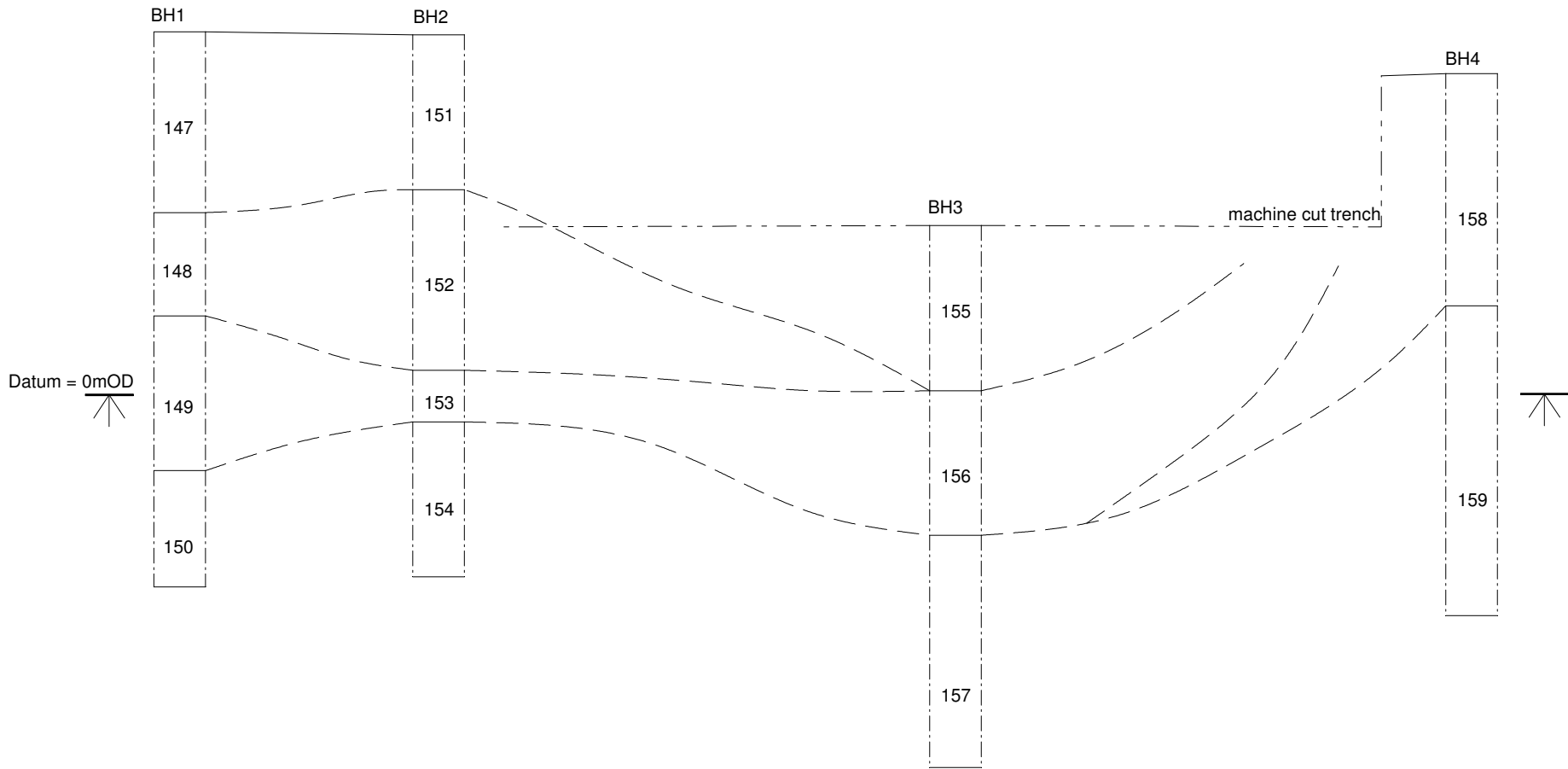


Figure 7 - Sections 21 to 27




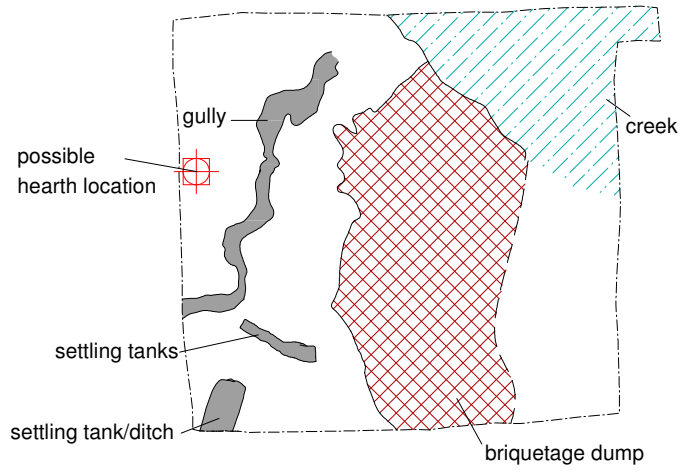
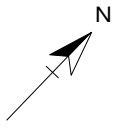
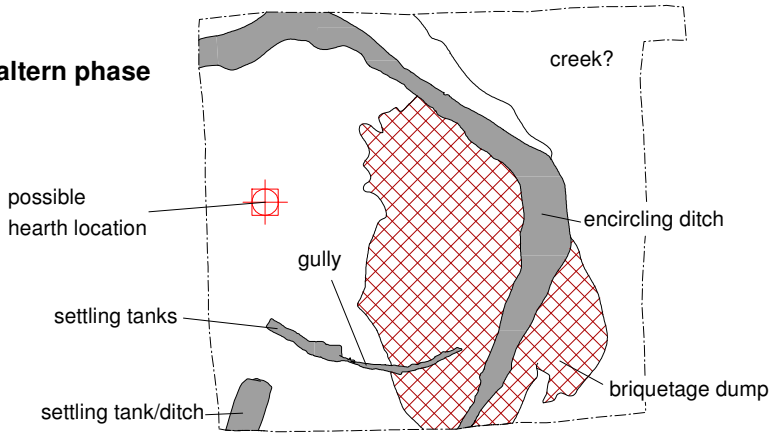
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Project Name: Willow Tree Fen, Deeping St Nicholas		
Scale 1:25	Drawn by: PCF	Report No: 48/13

Figure 8 - Auger profile through the roddon

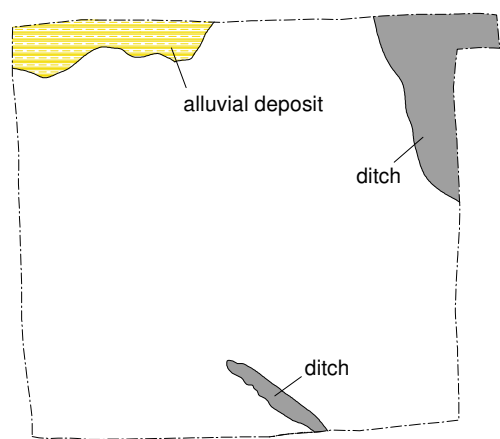


Phase 2.1 Initial saltern phase

Phase 2.1 Later saltern phase



Phase 2.2 Post saltern phase




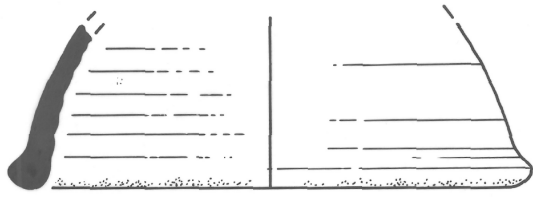
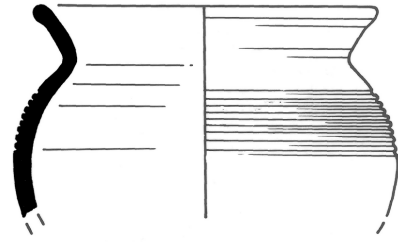
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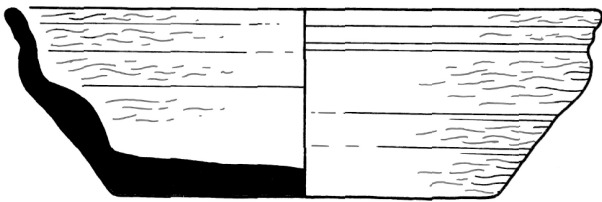
Figure 9 - Simplified phase plan



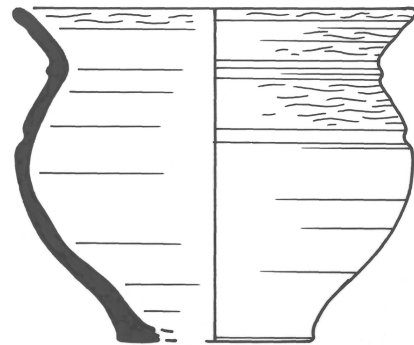
(013) Lid, Miscellaneous Coarse Grey Ware



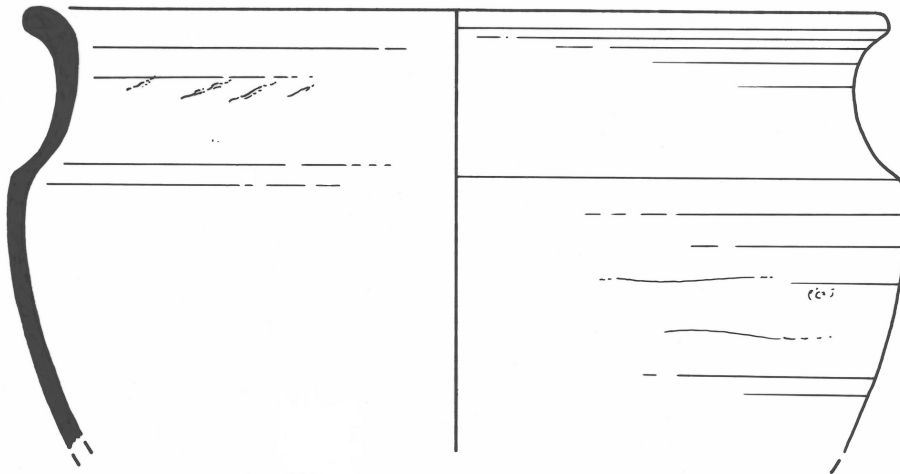
(026) Jar with everted rim, Miscellaneous Grey ware



(028) Gallo-Belgic Imitation Plate
Grey Fine Micaceous Ware



(028) Wide Mouthed Jar
Micaceous Grey Ware Type 1 (site specific)



(030/032) Wide Mouthed Bowl
Micaceous Grey Ware Type 1 (site specific)



Archaeological Project Services

Project Name: Willow Tree Fen, Deeping St Nicholas

Scale 1:2

Drawn by: DW

Report No: 48/13

Figure 10 - The illustrated pottery



Plate 1 – Initial cleaning of the site by volunteers



Plate 2 – The western part of the site after excavation, looking northwest



Plate 3 – The eastern part of the site, looking north



Plate 4 – Section 19 showing the natural creek (132), looking east



Plate 5 – Ditch terminus or rectangular pit (029), looking southeast



Plate 6 – Section 21 through settling tank (016), looking south



Plate 7 – Section 26 showing gully remnant (043), looking northeast



Plate 8 – Section 27 through gully (144), looking southeast

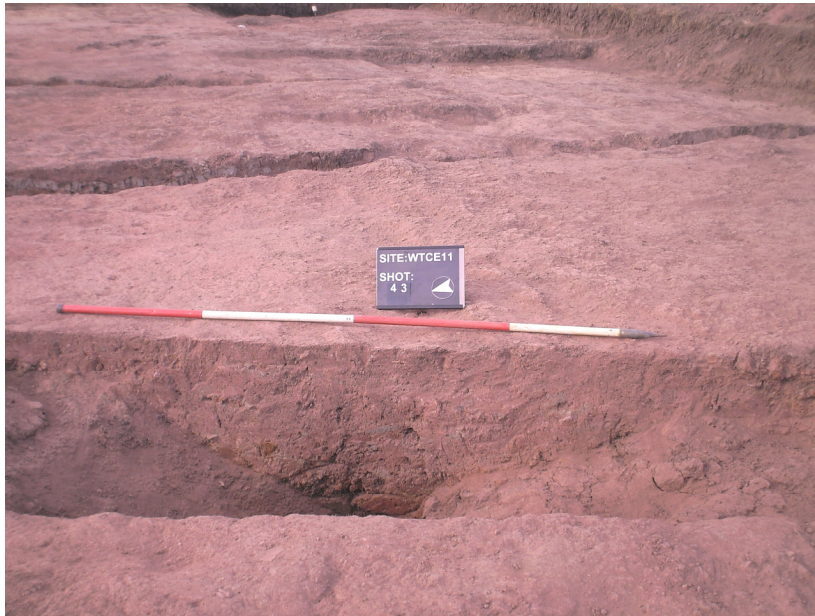


Plate 9 – Section 18 showing the encircling ditch (055), looking northwest (north arrow wrongly placed)



Plate 10 – Section 14 of ditch (088), looking southeast



Plate 11 – Section 12 showing the later Romano-British ditch (031), looking west



Plate 12 – Section 24 showing the upper fills of the later Romano-British feature, looking northwest

Appendix 1

WILLOW TREE FEN NATURE RESERVE, PINCHBECK, LINCOLNSHIRE - ARCHAEOLOGICAL PROJECT DESIGN FOR COMMUNITY EXCAVATION

1 SUMMARY

- 1.1 *This document comprises a project design for a archaeological community excavation to be undertaken at Willow Tree Fen, a nature reserve owned by the Lincolnshire Wildlife Trust. Situated between Bourne and Spalding, south of the River Glen on the Tongue End to Pode Hole Road.*
- 1.2 *The excavation site lies in an area of known archaeological remains. Previous archaeological work in the immediate area during a community archaeology weekend in January 2010 uncovered the remains of a salt making area dating most probably to the late Iron Age/Early Roman period (c. 100 BC–AD 100), through geophysical survey and detailed fieldwalking. A 20m long trench was opened over the site and this revealed the expected mass of broken briquetage (the ceramic debris from the salt making process).*
- 1.3 *The community excavation will take place over a 2 week period. This includes 12 working days, 3 of which will be over consecutive weekends. It has been proposed that the excavation will take place in September/October 2011.*
- 1.4 *Provision has been made for excavation to be undertaken by volunteers and members of the local community with training and supervision provided by professional archaeological staff. In addition to the excavation the project will include a programme for volunteers to engage in finds processing and post excavation activities. Outreach activities for school children to learn about archeological techniques and the importance of salt making throughout history as well as providing hands on experience. On site activities for the general public will include site tours, guided walks, displays and information on the excavations and history of the area as well as opportunities to participate. Opportunities will also be offered for young people to be actively involved in the investigations.*
- 1.5 *All excavation and other activities will be undertaken under professional archaeological supervision and guidance.*
- 1.6 *On completion of the archaeological element of the fieldwork a report will be prepared by Archaeological Project Services detailing the findings of the excavation and the results of the community activities. The report will consist of a text describing the excavation methodology and nature of the archaeological deposits located and will be supported by illustrations and photographs.*

2 INTRODUCTION

- 2.1 This document comprises a project design for community excavation at Willow Tree Fen Nature Reserve, Pinchbeck, Lincolnshire, as a proposal put forward to the Lincolnshire Wildlife Trust by Archaeological Project Services.

3 PROJECT BACKGROUND

- 3.1 Willow Tree Fen Nature Reserve is some 114 hectares of former arable land that the Lincolnshire Wildlife Trust is transforming into traditional (Medieval) Fenland Landscape of shallow meres, grazing marshes and hay meadows.
- 3.2 A salt making site first discovered in English Heritage funded Fenland Survey was re-located on the Willow Tree Fen Community Archaeology Weekend using geophysical survey and detailed fieldwalking. A 20m long trench was opened over the site and this revealed the expected mass of broken briquetage. Given the lack of time to deal with such a large amount of material the trench was backfilled.
- 3.3 In January 2010, a weekend of community archaeological activity took place on the Willow Tree Fen Nature Reserve. Some 120 people took part in minor excavations, fieldwalking, geophysical survey and hand augering, organised by the Lincolnshire Wildlife Trust using specialist staff from Heritage Trust Lincolnshire and Archaeological Project Services. The size of the turnout indicated that the general public are highly interested in participating in this activity.

4 AIMS AND OBJECTIVES

- 4.1 The community excavation project aims to:
 - 4.1.1 Provide opportunities for extensive community involvement for volunteers, local school children and the general public to engage in the project and:
 - Learn about how archaeologists gather information.
 - Receive training in archaeological methods and techniques.

- Participate in excavation, recording, finds processing and identification.
 - Understand what is found during the excavations.
 - Learn about the heritage of their area, particularly relating to salt production and the importance of salt throughout history.
- 4.1.2 Gain detailed archaeological information on nature of the remains at the site.
- 4.1.3 Gather information on the archaeological remains present to inform their sympathetic management in the future.
- 4.1.4 Build on previous, non-intrusive, fieldwork and research to further aid understanding of salt making in a wider context.
- 4.1.5 Provide information and materials for other interpretation events and activities planned within the wider project.

5 SITE LOCATION, SOILS AND TOPOGRAPHY

- 5.1 Willow Tree Fen Nature reserve is situated between Bourne and Spalding, south of the River Glen, on the Tongue End to Podge Hole Road. The entrance bridge is at National grid Reference TF 181213.

6 ARCHAEOLOGICAL OVERVIEW

- 6.1 Willow Tree Fen is a new nature reserve purchased by the Lincolnshire Wildlife Trust in 2009. Formally arable land growing beans and cereals with a number of low depressions that become waterlogged in wet periods, the fen is being restored to a typical wet fenland landscape. The nature reserve will include a mixture of reed beds, shallow meres, seasonally flooded pastures and hay meadows, providing habitats for rare and threatened wetland species.
- 6.2 In January 2010, a weekend of community archaeological activity took place on the Willow Tree Fen site. Among the sites discovered were the remains of a salt making area dating most probably to the Late Iron Age/Early Roman period (c. 100BC–AD 100). This is one of many known in the vicinity of Willow Tree Fen, (Hayes and Lane 1992, Lane and Morris 2001).

7 COMMUNITY ENGAGEMENT

- 7.1 **Excavation:** The archaeological excavations (excavation area and ‘Little Dig’ sandpit) will provide the opportunity for volunteers, school children and the general public to learn about how archaeologists gather information, to learn about archaeological techniques and the importance of salt making throughout history as well as providing hands on experience. On site activities for the general public will include site tours, guided walks, displays and information on the excavations and history of the area as well as opportunities to participate. Opportunities will be offered for young people to be actively involved in the investigations.
- 7.2 For younger children a covered sandpit (‘Little Dig’) containing finds will provide hands on excavation experience and opportunity to learn about and discover archaeology.
- 7.3 The opportunities provided will be suitable for the age / abilities of individual groups. All excavation and recording will be under archaeological supervision.

Volunteers:

- 7.3.1 Volunteers will be able to participate in the excavation. They will receive training in excavation and recording techniques and will carry these out under supervision of archaeological staff.
- 7.3.2 All volunteers will receive an induction including Health and Safety, the archaeological context and findings of the investigation. This will be supported by information sheets and display materials about the project.
- 7.3.3 Volunteers involved in the project and members of the public will be expected to register/book time slots during the project to enable individuals to have the maximum benefit of training and supervision. Where possible, and on public open days, others will be accommodated where numbers allow.
- 7.3.4 Volunteers will have the opportunity to undertake a range of excavation and related tasks including: removing turf and topsoil, excavating deposits and cleaning structural remains, compiling on-site records (written, drawn and photographic), collecting and recording finds, sieving excavated deposits, metal detecting (in approved areas only) and processing finds (cleaning, marking, cataloguing). They will also assist with other project activities (see below).
- 7.3.5 Recruitment of volunteers is to be managed by the Client. It is proposed that volunteers will be expected to register/book time slots during the project. Numbers participating in any session will need to be limited (agreed with the Client) to enable individuals to have the maximum benefit of training and supervision.

School Children:

- 7.3.6 Provision has been made for groups of school children to visit the site during the project (Education Days). Depending on their age/ability they will be able to dig in a sand pit ('Little Dig') and discover for themselves how information and materials are retrieved and what they mean.
- 7.3.7 Visits to site will include a site tour and the opportunity to participate in a range of activities with materials provided. The information, activities etc will be suitable for the age group (s) and where possible linked to the National Curriculum.
- 7.3.8 Little Dig: The Little Dig sandpit will be available for education days and demonstration days, providing the experience of excavating archaeology in a safe manner, the children will be provided with trowels to see what they can find in the sand. Lists will be provided showing what there is to be found in either a written or pictorial form, depending on their age.
- 7.3.9 School visits and details of the range of activities available will be arranged in advance with the local school(s). It is assumed that children will be under the direct supervision of a teacher or other suitably qualified adult(s) at all times.

7.4 **Finds processing, identification and finds handling collection:**

Opportunities for volunteers and school children to process finds (washing and marking), dependent on age / ability, will be available throughout the fieldwork period so that people can experience / see the process of finds retrieval. This work will be under the supervision of an experienced finds supervisor.

- 7.5 Finds specialists will be available each day to provide information on finds identification using a finds handling collection and the pottery and other finds as they are retrieved from the excavation. This will be supported by fact sheets and displays.

Volunteers:

- 7.5.1 Volunteers will be able to register/book finds processing sessions. It is hoped that there will be sufficient interest to process the bulk of the finds material recovered during the course of the fieldwork project. They will also have the opportunity to learn about finds identification and cataloguing and creating a drawn record.

School Children:

- 7.5.2 Demonstrations of finds processing, handling and identification will be provided as part of the other activities available for school children. They will also have the opportunity to participate (dependent on age / ability).

Young People:

- 7.5.3 Young people will be able to learn and participate in finds handling, (as above).

General Public:

- 7.5.4 The finds handling collection, display materials and finds specialists will be available on public open days to explain and identify materials retrieved from the excavation and demonstration finds work. Participation in finds work will be dependent on numbers.

7.6 **Activities for volunteers**

- 7.6.1 Should the conditions preclude undertaking excavation activities the volunteers will be offered the opportunity to contribute to the wider project by participating in one or more of the following depending on numbers:
 - 7.6.2 Finds processing, identification, handling as detailed above.
 - 7.6.3 Create a photo story board or site record book in which the volunteers can record what they have seen and learnt and reflecting their perceptions of their experiences.
 - 7.6.4 Using and building on the display, information and interpretive materials provided, they could develop ideas and materials for their group such as publicity and display materials, their own ideas for interpretation and future projects.
 - 7.6.5 As well as an opportunity for informal questions and learning more about salt making and excavation techniques, they could take the opportunity to provide feedback on the volunteer experience. Feedback forms will be provided.
 - 7.6.6 Digital Record: In addition to photographs taken in the normal course of excavation a digital photographic (and video) record will be made of the activities and community engagement to provide materials for reporting subsequent interpretation or display. The volunteers could develop this to create a record for their group.

- 7.7 **Interpretation, display materials, information and work sheets**
- 7.7.1 A series of display and information panels will be produced for general display including materials on salt making and the importance of salt throughout history, archaeological techniques and methods and finds processing. Updated material will be added as the site investigations progress, (and in agreement can be posted on the APS/HTL and/or any project website alongside other publicity materials).
- 7.7.2 Information sheets and work sheets will be provided for specific topics and themes. Finds materials will also be on display.
- 7.8 **Other Activities**
- A programme of other activities and a range of display and interpretation materials will be available so that different age and ability groups can explore the history of salt making and its importance throughout history.
- 7.9 These activities are aimed at children and young adults, small groups will be able to participate in one or more of the following hands on activities with instruction/supervisions by professional staff.
- 7.9.1 **Growing Salt Crystals:** All the equipment will be available for children to participate in this simple experiment to grow salt crystals.
- 7.9.2 **Salt Painting:** Children will be able to paint a water colour picture and sprinkle salt on the picture and discuss how salt affects the paint colour and what the forming salt crystals look like.
- 7.9.3 **Cress Crop Marks:** Materials will be available for children to have a go at recreating crop marks using small trays and cress seeds. This will give them an understanding of how archaeologists use crop marks to determine the presence of archaeological features. The children will be provided with information sheets and guidance on how to create a similar effect.
- 7.9.4 **Onsite Activities:** In addition to the activities available and the opportunities to excavate on site, it is proposed to offer young people the opportunity to develop the photographic record of the progress of the excavation, by taking photographs (or making video recordings) of the day, reflecting their perceptions of the experience. This material would be downloaded to the computer with the potential for creating a story board or other media based representations of the excavation. This part of the exercise could be developed during the day and/or material would be available for the group to take away to be developed at a later stage.
- 7.10 **Public Open Days**
- The site will be open to the general public for 3 days over 2 weekends. A full programme of timed site tours, with opportunities to see the display and interpretive material and watch the activities on-site will be available. Where possible, depending on numbers, there will be opportunities to join in the general activities (excavation and finds handling) on site.
- 7.11 Provision has been made for additional guided walks of Willow Tree Fen Nature Reserve to be undertaken as part of an extended 'site tour'.
- 7.12 Demonstrations of finds illustration (drawing pottery and other finds) will be available on public open days, with arrangements for (limited) numbers to try out their drawing skills.
- 7.13 **Volunteers:** It is understood that a large number of volunteers have already participated in / registered with the project. It is hoped that some may wish to become more involved in the activities during the community engagement and the opportunity (with training and support) would be offered to volunteers to assist or lead site tours/guided walks so that they can share their experiences and knowledge gained about their heritage with others, or act as Stewards.
- 7.14 **Digital Record:** In addition to photographs taken in the normal course of excavation a digital photographic (and video) record will be made of the activities and community engagement to provide materials for subsequent interpretation projects (e.g. artist interpretation).

8 HEALTH AND SAFETY AND OTHER MATTERS

- 8.1 All work will be undertaken following statutory Health and Safety requirements in operation at the time of the investigation. A Risk Assessment will be produced prior to site works and copied to the Client (together with copies of the company Health and Safety procedures / insurances as required).
- 8.2 All staff will receive a site Health and Safety induction. All staff are trained in the safe use of tools / manual handling.
- 8.3 All volunteers participating in the excavation / on-site activities will receive a Health and Safety induction

and be required to read and sign the site Risk Assessment.

- 8.4 Children and young people will only be allowed on-site / to participate under the supervision of a parent / guardian or suitably qualified adult (e.g. teacher / youth worker).
- 8.5 Fencing will be placed around the excavation areas and further barrier fencing will be used to define viewing areas, walk-ways / routes in and around any activity areas.
- 8.6 Site welfare will be established on site (site accommodation, toilets).

9 EXCAVATION

9.1 General Considerations

- 9.1.1 The work will be undertaken according to the relevant codes of practice issued by the Institute for Archaeologists (IfA 2008) and the guidelines set out in the Lincolnshire Archaeological Handbook. *Archaeological Project Services* is an IfA Registered Organisation (No. 21).
- 9.1.2 Any and all artefacts found during the investigation and thought to be 'treasure', as defined by the Treasure Act 1996, will be removed from site to a secure store and promptly reported to the appropriate coroner's office.
- 9.1.3 Should human remains be encountered, they will be left *in situ* with excavation being limited to the identification and recording of such remains. If removal of the remains is necessary the appropriate Ministry of Justice licences will be obtained and the local environmental health department informed. If relevant, the coroner and the police will be notified.

9.2 Excavation Methodology

- 9.2.1 An area for excavation will be defined in the project brief, the precise location and size of the trench (approximately X or similar sized area) will be determined in consultation with the Lincolnshire Wildlife trust, (based on previous excavations on survey evidence).
- 9.2.2 Removal of the topsoil and any other overburden will be undertaken by mechanical excavator using a toothless ditching bucket. To ensure that the correct amount of material is removed and that no archaeological deposits are damaged, this work will be supervised by Archaeological Project Services. On completion of the removal of the overburden, further excavation will be by hand.
- 9.2.3 Investigation of the features will be undertaken to determine their date, form and function. The work will consist of test pitting the briquetage (the ceramic material covering a saltern salt), in a grid pattern prior to being removed. Should features be located which may be worthy of preservation *in situ*, excavation will be limited to the absolute minimum (i.e. The minimum disturbance) necessary to interpret the form, function and date of the features.
- 9.2.4 The archaeological deposits and features encountered will be recorded on Archaeological Project Services pro-forma context record sheets. The system used is the single context method by which individual archaeological units of stratigraphy are assigned a unique record number and are individually described and drawn.
- 9.2.5 Plans of features will be drawn at a scale of 1:20 and sections at a scale of 1:10. Should individual features merit it, they will be drawn at a larger scale.
- 9.2.6 Throughout the duration of the excavations a photographic record consisting of black and white prints (reproduced as contact sheets) and colour digital images will be compiled. The photographic record will consist of:
 - the site before the commencement of field operations.
 - the site during work to show specific stages of work, and the layout of the archaeology within the excavated area.
 - individual features and, where appropriate, their sections.
 - groups of features where their relationship is important.
 - the site on completion of field work
- 9.3 Should human remains be encountered, they will be left *in situ* with excavation being limited to the identification and recording such remains. If removal of the remains is necessary the appropriate Home Office Licences will be obtained and the local environmental health department informed. If relevant, the coroner and police will be notified.
- 9.4 Finds collected during fieldwork will be bagged and labelled according to the individual deposit from which they were recovered ready for later washing and analysis.
- 9.5 The spoil generated during the investigations will be mounded along the edges of the trial trenches with the top soil being kept separate from the other material excavated for subsequent backfilling.

- 9.6 The precise location of the trenches within the site and location of site recording grid has been established by previous GPS survey.
- 9.7 During the excavation specialist advice will be obtained from an environmental archaeologist. If necessary the specialist will visit the site and will prepare a report detailing the nature of the environmental material present on the site and its potential for additional analysis should further stages of archaeological work be required. The results of the specialists' assessment will be incorporated into the final report.
- 9.8 Deposits with potential to provide environmental information will be bulk sampled. If possible these should be from a range of feature types distributed across the site from well preserved and dated contexts.

10 PROGRAMME AND STAFFING FOR EXCAVATION AND FIELD BASED ACTIVITIES

- 10.1 The Senior Archaeologist, Archaeological Project Services, Tom Lane, MIFA, will have overall responsibility and control of all aspects of the work. Staff experienced in field investigation techniques, community engagement and post-excavation techniques will be employed on the project together with APS' Archaeology Outreach Officer (Appendices 1 and 2).
- 10.2 A minimum of four staff will be engaged in the site works and during public open times. Staff involved in the on-site activities will include; Senior APS Staff, project officers, supervisors, survey and excavation assistants, APS's finds specialists, finds supervisors and illustrator.
- 10.3 A 12 day programme of site works is proposed (including site mobilisation) providing 10 days for community engagement including volunteers and school group visits and 3 weekend days for public activities.

11 POST-EXCAVATION AND REPORT

11.1 Stage 1

- 11.1.1 On completion of site operations, the records and schedules produced during the investigations will be checked and ordered to ensure that they form a uniform sequence constituting a level II archive. A stratigraphic matrix of the archaeological deposits and features present on the site will be prepared. All photographic material will be catalogued: the colour digital images will be labelled and the black and white contact prints will be labelled, in both cases the labelling will refer to schedules identifying the subject/s photographed.
- 11.1.2 All finds recovered during the investigations will be washed, marked, bagged and labelled according to the individual deposit from which they were recovered. Any finds requiring specialist treatment and conservation will be sent to the Conservation Laboratory, Lincoln.

11.2 Stage 2

- 11.2.1 Detailed examination of the stratigraphic matrix to enable the determination of the various phases of activity on the site.
- 11.2.2 Finds will be sent to specialists for identification and dating.

11.3 Stage 3

- 11.3.1 On completion of stage 2, a report detailing the findings of the investigation will be prepared. This will consist of:
- A non-technical summary of the results of the investigation.
 - A description of the archaeological setting of the site.
 - Description of the topography and geology of the investigation area.
 - Description of the methodologies used during the investigation and discussion of their effectiveness in the light of the results
 - A text describing the findings of the investigation.
 - Plans of the trenches showing the archaeological features exposed. If a sequence of archaeological deposits is encountered, separate plans for each phase will be produced.
 - Sections of the trenches and archaeological features.
 - Interpretation of the archaeological features exposed and their context within the surrounding landscape.
 - Specialist reports on the finds from the site.
 - Appropriate photographs of the site and specific archaeological features or groups of features.
 - A consideration of the significance of the remains found, in local, regional, national and international terms.

- 12.1 The documentation and records generated during the investigation will be sorted and ordered into the format acceptable to The Collection, Lincoln. An accession number will be obtained prior to commencement of the works. Compilation of the archive will be undertaken following the requirements of the document titled *Conditions for the Acceptance of Project Archives* for long-term storage and curation.

13 REPORT DEPOSITION

- 13.1 Copies of the report will be sent to: the client and to the Lincolnshire County Council Historic Environment Record.

14 PUBLICATION

- 14.1 A report of the findings of the investigation will be submitted for inclusion in the appropriate local journal. Notes or articles describing the results of the investigation will also be submitted for publication in the appropriate national journals: *Britannia* or *Proceedings of the Prehistoric Society*.
- 14.2 Details of the investigation will also be input to the Online Access to the Index of Archaeological Investigations (OASIS).

15 POST-EXCAVATION PROGRAMME, STAFFING AND SPECIALISTS

- 15.1 The Senior Archaeologist will have overall responsibility and control of all aspects of the work. Post-excavation report production is expected to take 6 to 10 working weeks. Post-excavation analysis will be undertaken by the Project Officer, or post-excavation analyst as appropriate, with assistance from a finds supervisor, illustrator and in-house /external specialists.
- 15.2 The following organisations/persons will, in principle and if necessary, be used to provide the relevant specialist work and reports in respect of any objects or material recovered during the investigation that require their expert knowledge and input. Engagement of any particular specialist subcontractor is also dependent on their availability and ability to meet programming requirements.

<u>Task</u>	<u>Body to be undertaking the work</u>
Conservation	Conservation Laboratory, Lincoln.
Pottery Analysis Prehistoric:	David Knight Trent and Peak Archaeological Trust Small assemblages may be reported on by Dale Trimble, APS.
Roman:	Alex Beeby, APS.
Post-Roman:	Dr Anne Irving APS.
Metalwork specialist	J Cowgill, Independent Specialist/G Taylor, APS
Other Artefacts	G Taylor, APS
Human Remains Analysis	R Gowland, independent specialist
Animal Remains Analysis	M. Holmes, independent specialist
Environmental Analysis	J Rackham, independent specialist

16 CURATORIAL MONITORING

- 16.1 Curatorial responsibility for the archaeological work undertaken on the site lies with Lincolnshire County Council's Historic Environment Team. They will be given notice of the commencement of the project to enable them to attend site as appropriate.
- 16.2 Variations to the scheme of works will only be made following written consent from the Curator.

17 INSURANCES

- 17.1 Archaeological Project Services, as part of the Heritage Trust of Lincolnshire, maintains Employers Liability insurance to £10,000,000. Additionally, the company maintains Public and Products Liability insurances, each with indemnity of £5,000,000. Copies of insurance documentation can be supplied on request.

18 COPYRIGHT

- 18.1 Archaeological Project Services shall retain full copyright of any commissioned reports under the *Copyright, Designs and Patents Act 1988* with all rights reserved; excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project as described in the Project Specification.

- 18.2 Licence will also be given to the archaeological curators to use the documentary archive for educational, public and research purposes.
- 18.3 In the case of non-satisfactory settlement of account then copyright will remain fully and exclusively with Archaeological Project Services. In these circumstances it will be an infringement under the *Copyright, Designs and Patents Act 1988* for the client to pass any report, partial report, or copy of same, to any third party. Reports submitted in good faith by Archaeological Project Services to any Planning Authority or archaeological curator will be removed from said Planning Authority and/or archaeological curator. The Planning Authority and/or archaeological curator will be notified by Archaeological Project Services that the use of any such information previously supplied constitutes an infringement under the *Copyright, Designs and Patents Act 1988* and may result in legal action.
- 18.4 The author of any report or specialist contribution to a report shall retain intellectual copyright of their work and may make use of their work for educational or research purposes or for further publication.

19 BIBLIOGRAPHY

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Version 1, 2nd April 2011

Appendix 2

CONTEXT DESCRIPTIONS

No.	Area	Description	Interpretation	Same as	Phase
001		Firm dark grey silt, 0.3m thick	Topsoil		3
003		Linear feature, aligned east-west, 0.87m long by 0.4m wide by 0.17m deep, gentle sides and irregular base	ditch/gully		2.1
004		Loose mid orange brown silt and crushed briquetage, frequent briquetage and ash	Fill of (003)		2.1
005		Loose mid orange brown silt and crushed briquetage, frequent briquetage	Fill of (003)	012	2.1
012		Loose mid orange brown silt and crushed briquetage with frequent briquetage	Fill of (027)	005	2.1
014		Firm to friable dark brownish red silt to dark yellowish brown silt	Fill of (016)	015	2.1
015		Firm to friable dark brownish red silt to dark yellowish brown silt	Fill of (016)	014	2.1
016		Rectangular feature, 2m long by 0.86m wide by 0.97m deep, vertical sides and flat base	Settling tank		2.1
019		Firm to friable dark brownish red silt becoming clayier with depth	Fill of (020)		2.1
020		Rectangular feature, 1.56m long by 0.49m wide and 0.62m deep, vertical sides and flat base	Settling tank		2.1
022		Friable mid greyish brown clayey silt with frequent briquetage and ash, 0.17m thick	Fill of (023)		2.1
023		Linear feature, aligned east-west.			2.1
027		Linear feature, aligned east-west, 1m long by 0.82m wide by 0.19m deep, shallow side to north, steeper to south with irregular base	Ditch	003 & 038	2.1
028		Brownish grey silt	Fill of (029)	116	2.1
029		Rectangular feature, >3.02m long by 1.72m wide by 0.95m deep, near vertical sides and flattish base	Pit		2.1
030		Firm mid reddish brown clayey silt briquetage fragments	Fill of (031)		2.2
031		Linear feature, aligned east-west, 1m long by 0.27m wide, irregular sides and base	Ditch		2.2
036		Loose mid orange brown crushed briquetage and silt with frequent briquetage fragments	Fill of (038)		2.1
037		Hard dark greyish brown clayey silt, 20-40mm thick	Fill of (038)		2.1
038		Linear feature, aligned east-west, 1m long by 1.3m wide by 0.3m deep, steep side to north, irregular base	Ditch	003 & 027	2.1
039		Firm to friable mid brownish red silt	Fill of (040)		2.1
040		Linear feature, aligned northeast-southwest, >1.9m long by 0.17m wide by 75mm deep, vertical sides and flat base	Gully		2.1
041		Soft to plastic mid grey clay with occasional charcoal	Fill of (016)		2.1
042		Firm to friable mid brownish red silt	Fill of (043)		2.1
043		Curvilinear feature, broadly aligned northeast-southwest, 0.65m long by 0.21m wide by 0.18m deep, vertical to near vertical sides and irregular base	Gully	040, 050 & 052	2.1
044		Friable dark greyish brown silt with occasional briquetage fragments	Fill of (023)		2.1
047		Firm mid brownish yellow silt	Fill of (048)		2.1
048		Linear feature, aligned east-west, 0.54m wide by 0.15m deep, uneven sides and base	Gully		2.1
049		Firm to friable mid brownish red silt	Fill of (050)		2.1
050		Linear feature, aligned northeast-southwest, 1.84m long by 0.26m wide by 0.1m deep, vertical lip, gradual sides and uneven base	Gully	040 & 043 etc	2.1
051		Firm to friable mid brownish red silt	Fill of (052)		2.1
052		Curvilinear feature, broadly aligned northeast-southwest, 0.65m long by 0.26m wide by 60mm deep, steep sides and uneven base	Gully	040 & 043 etc	2.1
054		Friable mid brownish red clayey silt with briquetage	Fill of (055)		2.1

No.	Area	Description	Interpretation	Same as	Phase
055		Linear feature, aligned east-west, 3.05m long by 0.7m wide, steep sides and flat base	Ditch		2.1
056	S057	Friable mid red silt with occasional ash lenses and briquetage fragments, 50mm thick	Dumped deposit		2.1
060	S006	Compact mid yellowish brown clayey silt	Alluvial deposit		2.2
061	S006	Compact mid bluish grey silty clay with briquetage fragments	Occupation deposit		2.1
062	S006	Firm id reddish brown clayey silt with frequent briquetage fragments	Fill of (065)		2.1
063	S006	Firm dark yellowish brown clayey silt with frequent briquetage, tips from west to east	Fill of (065)		2.1
064	S006	Firm dark yellowish brown clayey silt with frequent briquetage	Fill of (065)		2.1
065	S006	Linear feature, aligned north-south, 0.5m deep, gradual sides and flat base	Ditch		2.1
066		Firm mid grey clay, >50mm thick	Natural deposit		1
067		Friable mid yellow silt, >0.2m thick	Natural deposit		1
068		Curvilinear feature, 0.38m deep, gradual sides and rounded base	Ditch		2.1
069		Friable mottled yellow and brown silt	Fill of (068)		2.1
070		Friable mixed mid brownish pink with yellow mottling, burnt clay with frequent briquetage fragments	Fill of (068)	017	2.1
071		Firm mid grey clay, >0.25m thick	Natural deposit		1
072		Friable mottled mid pink and yellow burnt silt and clay, 0.2m thick	Dumped deposit		2.1
073		Friable light pink burnt clay, 80mm thick	Dumped deposit		2.1
074		Firm light grey clay, 0.21m thick	Dumped deposit		2.1
075		Friable light pink burnt clay, 0.13m thick	Dumped deposit		2.1
076		Friable light grey ash and briquetage, 0.17m thick	Rake-out and collapsed structure		2.1
077		Friable light pink burnt clay, 50mm thick	Dumped deposit		2.1
078	S033	Friable mid pink burnt clay, 0.15m thick	Dumped deposit		2.1
079	S033	Friable light grey ash, 30mm thick	Rake-out		2.1
080	S033	Friable mid pink burnt clay with briquetage fragments, 0.18m thick	Dumped deposit		2.1
081	S033	Friable mid yellowish pink burnt silt, 0.12m thick	Dumped deposit		2.1
082	S033	Firm light grey clay, 50mm thick	Dumped deposit		2.1
083	S033	Friable black charcoal rich silt, 70mm thick	Dumped deposit	035	2.1
084	S033	Friable mid pink burnt clay, 90mm thick	Dumped deposit		2.1
085	S057	Firm to friable mixed mid reddish brown, yellowish brown and grey silt with occasional briquetage fragments, 80mm thick	Dumped deposit		2.1
086	S057	Firm light grey with mid brown lenses silt and ash with moderate briquetage fragments, 50mm thick	Dumped deposit		2.1
087		Loose mid brownish red clayey silt with frequent briquetage	Fill of (088)		2.1
088		Linear feature, aligned north-south, 0.3m deep, irregular sides and rounded base	Ditch		2.1
089	S018	Firm to plastic mid grey clay	Natural deposit		1
090	S018	Firm to plastic dark brownish grey silty clay, 50mm thick	Buried soil		2.1
091	S018	Linear feature, north-south turning east-west, 1.4m wide by 0.3m deep, gradual sides and rounded base	Ditch		2.1
092	S018	Firm dark bluish grey clayey silt	Fill of (091)		2.1
093	S018	Friable dark yellow silt	Fill of (091)		2.1
094	S018	Soft and friable light greyish green silt and ash, dumped from northwest	Fill of (091)		2.1
095	S018	Friable light brown with red and green flecks, silt, occasional briquetage fragments	Fill of (091)	054	2.1
096	S018	Linear feature, aligned northeast-southwest, 0.87m long by 0.23m wide by 0.16m deep, steep side to west, V-shaped base	Gully		2.1
097	S018	Firm to compacted dark yellow silt, on west side of cut	Fill of (096)		2.1

No.	Area	Description	Interpretation	Same as	Phase
098	S018	Firm to friable light brownish red silt	Fill of (096)		2.1
099	S018	Firm to friable light reddish brown silt with occasional charcoal fragments, 0.18m thick	Dumped deposit	025	2.1
100	S018	Firm and friable mid grey silt with occasional small briquetage fragments, 0.15m thick	Dumped deposit		2.1
101	S018	Firm light greenish grey clayey silt, 0.15m thick	Dumped deposit		2.1
102	S018	Firm mid reddish brown silt, with occasional small charcoal and briquetage fragments, 0.13m thick	Dumped deposit		2.1
103	S018	Firm dark grey silt, 0.13m thick	Dumped deposit	110	2.1
104		Hard mid yellowish brown silt, 0.1m thick	Alluvial deposit		2.2
105		Hard mid yellowish brown silt,>50mm thick	Natural deposit		1
106		Firm mid greyish brown clayey silt with occasional small briquetage fragments	Fill of (088)		2.1
107		Firm mid brownish grey clay	Fill of (055)		2.1
108		Friable mid brownish orange clayey silt	Fill of (055)		2.1
109		Friable mid orange brown clayey silt	Fill of (055)		2.1
110		Firm dark brownish grey silt with occasional small briquetage fragments	Dumped deposit	103	2.1
115		Firm mid pinkish grey sandy silt with frequent fired clay	Fill of (029)		2.1
116		Firm dark brownish grey	Fill of (029)		2.1
117		Firm mid yellowish brown and pink silt with frequent small briquetage fragments	Fill of (029)		2.1
118		Firm dark brownish grey clayey silt	Fill of (029)		2.1
119		Firm mid to dark brownish grey silt	Fill of (029)		2.1
120		Firm mid to dark greyish brown clayey silt	Fill of (029)		2.1
121		Firm mid brown sandy silt	Fill of (029)		2.1
122		Firm light grey silty sand	Fill of (029)		2.1
123		Light brown silt	Fill of (132)		2.1
124		Stiff blue silty clay	Fill of (132)		2.1
125		Light brown clayey silt with laminations	Fill of (132)		2.1
126		Red silt with frequent fired clay and occasional briquetage	Fill of (132)		2.1
127		Light brown silt	Fill of (132)		2.1
128		Mid to light brown silt	Fill of (132)		2.1
129		Light brown silt	Fill of (132)		2.1
131		Stiff blue silty clay	Fill of (132)		2.1
132		Linear feature, aligned northwest-southeast, >12m long by 7m wide and 0.7m deep, gradual sides and rounded base	Creek		2.1
133	S057	Firm mid red and brownish red silt and briquetage fragments, with occasional charcoal fragments, 95mm thick	Dumped deposit		2.1
134	S057	Firm dark grey clayey silt	Buried soil		2.1
135		Mid brown silt, 0.16m thick	Topsoil		3
136		Firm mid to dark brown silty clay	Fill of large ditch		2.2
137		Firm dark grey desiccated peat	Fill of large ditch		2.2
138		Soft dark brown humified peat with nodules of iron pan	Fill of large ditch		2.2
139		Firm reddish brown clayey silt	Fill of large ditch		2.2
140		Firm light yellowish brown silt with occasional ash lenses	Fill of (043)		2.1
141		Firm to friable dark grey silt	Fill of (043)		2.1
142		Friable mid grey clayey silt with occasional briquetage fragments	Fill of (144)		2.1
143		Friable mid brownish yellow silt	Fill of (144)		2.1
144		Linear feature, aligned north-south, 17.5m long by 0.72m wide and 0.15m deep, irregular sides and base	Gully		2.1

No.	Area	Description	Interpretation	Same as	Phase
147	BH1	Firm yellowish brown silt	Alluvial deposit		1
148	BH1	Firm yellowish brown clayey silt	Alluvial deposit		1
149	BH1	Firm yellowish brown silty clay	Alluvial deposit		1
150	BH1	Firm bluish grey clay	Alluvial deposit	154, 157, 159	1
151	BH2	Firm yellowish brown silt	Alluvial deposit		1
152	BH2	Firm yellowish brown clayey silt	Alluvial deposit		1
153	BH2	Firm yellowish brown silty clay	Alluvial deposit		1
154	BH2	Firm bluish grey clay	Alluvial deposit	150, 157, 159	1
155	BH3	Firm yellowish brown silt	Alluvial deposit		1
156	BH3	Firm yellowish brown silty clay	Alluvial deposit		1
157	BH3	Firm bluish grey clay	Alluvial deposit	150, 154, 159	1
158	BH4	Firm yellowish brown clayey silt	Alluvial deposit		1
159	BH4	Firm bluish grey clay	Alluvial deposit	150, 154, 157	1

Contexts relating to Sondage cuts

No.	Description	Same as
006	Sondage cut	
009	Sondage cut	
011	Sondage cut	
018	Sondage cut	Finds are (103)
033	Sondage cut	
045	Sondage cut	
057	Sondage cut	
112	Sondage cut	

Contexts relating to unstratified finds

Context	Description
002	Unstratified finds retrieval
013	Unstratified finds retrieval - southwest corner of site
021	Unstratified finds retrieval
024	Unstratified finds retrieval
026	Unstratified finds retrieval
032	Unstratified finds retrieval
059	Unstratified finds retrieval - south edge of site near (031)
145	Unstratified finds retrieval
146	Unstratified finds retrieval

Appendix 3

THE FINDS

ROMAN POTTERY

By Alex Beeby

Introduction

All the material was recorded at archive level in accordance with the guidelines laid out by Darling (2004) and to conform to Lincolnshire County Council's *Archaeology Handbook*. The pottery codenames (Cname) are in accordance with the Roman pottery type series for Lincoln, (Darling and Precious, forthcoming). A total of 323 sherds from 180 vessels, weighing 3904 grams was recovered from the site.

Methodology

The material was laid out and viewed in context order. Sherds were counted and weighed by individual vessel within each context. The pottery was examined visually and using x20 magnification. This information was then added to an Access database. An archive list of the pottery is included in Archive Catalogue 1, with a summary of fabric types in Table 2 below. A total of four sherds were removed for the Roman pottery fabric type series held by the Heritage Trust of Lincolnshire, where they will remain available for examination. The abbreviation 'FS' has been recorded in the comments section of the Archive Catalogue where a sample has been retained.

Condition

The condition of the pottery is generally very fragmentary, and this is reflected in the notably low overall mean average sherd weight just 12.1 grams. A very high proportion of the material (73%), is from unstratified contexts making this figure especially low. The average weight of the remaining stratified material alone is still moderately low however at 18.7 grams.

A large number of the total vessels recorded (26%) have soot or carbonised organic matter deposits; this is likely to be evidence of use over a hearth or fire. This is a relatively high proportion for a site of this type and date, and it is possible that some of these pots were exposed to a heat source during salt-making or other industrial activities on the site, although there are no instances of saline deposits within any of the vessels. An additional five vessels have sooting over the broken edge, this is often caused after disposal, for example during waste burning.

A single sherd of Samian Ware has a black tarry substance along one broken edge; this is likely to be a repair in antiquity. Samian Ware vessels were often repaired, as they were presumably expensive and difficult to replace.

Dating

Table 1 below shows a summary of pottery spot dates, as well as average sherd weights by context. Generally speaking, 1-20 grams is a low (fragmented) weight; whilst 20-30 would usually be seen as a moderate weight.

Around half the contexts from which pottery was recovered are unstratified. Almost all of the material, including that from stratified deposits is likely to date to the 2nd century AD, with a few pieces probably belonging to the 1st century. Although much of the material could also be 3rd century in date, there are no sherds which can certainly be said to be post date AD 200. There are however several vessels which can be securely dated to between AD 100 - 200, including early to middle and later 2nd century types.

Table 1, Summary of Dating and Average Sherd Weight by Context

Context	Deposit Condition	Context Spot Date	Comment	Av. Sherd W(g)
005	Stratified	1st to Mid 2nd Century	Single sherd	9
015		Mid 2nd to 3rd Century	Single sherd	11
018		2nd Century		10.3
019		Roman	Single sherd	3
025	Stratified	Late 2nd to 3rd Century	Single sherd	13
028		Early 2nd to Mid 2nd Century		39.9
030		Late 2nd to Early 3rd Century		14.2
044		1st Century	Single sherd	57
054		Mid 2nd to 3rd Century		11
056		2nd to 3rd Century	Single sherd; likely 2nd century	4

Context	Deposit Condition	Context Spot Date	Comment	Av. Sherd W(g)
085		2nd to 3rd Century	Single sherd	10
001	Modern/Unstratified	N/A	Topsoil; M2-3C	N/A
002		N/A	Material Mid 2nd to Late 2nd Century	N/A
006		N/A	Material 2nd to 3rd Century	N/A
009		N/A	Material 2nd to 3rd Century	N/A
013		N/A	Mostly Mid 2nd, perhaps into the 3rd Century	N/A
021		N/A	Mid 2nd to 3rd Century	N/A
024		N/A	Mostly Mid 2nd to 3rd Century	N/A
026		N/A	Late 1st to Early 2nd	N/A
032		N/A	Mid 2nd to 3rd	N/A
059		N/A	Good 2nd century group; latest pieces M2-L2C	N/A
145		N/A	M2-L2C; Contains Late IA/EROM types as well as and M2-L2C or later material	N/A
146		N/A	Spot date M2-M3C; Mixed but probably all 2nd century latest pieces post 150 possibly into 3rd century	N/A

Results

See Table 2 below for a breakdown of pottery classified by fabric. There is a range of types, although sandy grey fabrics dominate. There are also five vessels in Iron Age type shell tempered fabrics and a sixth in a prehistoric, organic tempered type. See Table 4 in the range section for a breakdown of form types recovered, as well as an in depth discussion of the fabric types recorded.

Table 2, Summary of the Pottery Fabrics

Fabric	Cname	Full Name	NoS	NoV	W (g)
Amphora	DR20	Dr 20 Amphorae	2	2	63
Samian	SAMCG	Central Gaulish Samian Ware	12	6	48
	SAMCG-EG	Central or East Gaulish Samian Ware	2	1	6
	SAMLM?	Les Martres de Veyre Samian Ware?	1	1	3
	SAMSG	South Gaulish Samian Ware	1	1	2
Oxidised (Fine)	NVCC	Nene Valley Colour-Coated	3	2	21
	BUFFIN	Fine Buff Fabrics	1	1	4
Reduced (Fine)	GFIN	Miscellaneous Fine Grey Ware	3	2	7
	GMICG	Grey Fine Micaceous Wares	23	9	316
Oxidised	CR	Creamware "Flagon" Fabric	2	2	9
	NVCR	Nene Valley Cream Ware	4	2	32
	NVPA	Nene Valley Parchment Ware	4	1	72
Reduced	BB1	Black Burnished Ware Type 1	2	1	7
	BBT	Black Burnished Type Ware	1	1	6
	GREY	Miscellaneous Grey Ware	56	41	519
	GRFF	Fairly Fine Grey Ware	1	1	10
	GREYC	Miscellaneous Coarse Grey Ware	2	2	33
	GRYMIC	Miscellaneous Micaceous Grey Ware (Sandy)	7	5	28
	GRYMIC1/?	Micaceous Grey Ware Type 1 (Site Specific)/?*	48	33	972
	NVGM/?*	Nene Valley Type Grey - Micaceous Variant/?*	6	3	142
NVGW	Nene Valley Grey Ware	69	34	531	

Fabric	Cname	Full Name	NoS	NoV	W (g)
Shell	IAMSH	Iron Age Tradition Hand-Made With Minimal Fine Shell	2	2	66
	IASH	Native Tradition Shell-Tempered	5	3	102
	SHEL	Undifferentiated Shell-Tempered	53	21	753
	SHELC	Undifferentiated Coarse Shell-Tempered	8	1	137
	SHELF	Undifferentiated Fine Shell-Tempered	1	1	1
Organic	IAORG?	Iron Age Fabric with Organic Inclusions?	4	1	14
Total			323	180	3904

*Includes some uncertain identifications

Provenance

See Table 3 below for a list of features which yielded pottery. Cut features, layers and modern/unstratified contexts are listed below in separate groups.

Table 3, Table of Features which produced Roman Pottery

Context Type	Feature Type	Cut	Same As*	Fill/Layer	Comment
Cut Features	Ditch/Gully	[003]	[023], [055]	(005)	
	Settling Tank	[016]	N/A	(015)	
	Ditch/Gully	[023]	[003], [055]	(044)	
	Pit	[029]	(115)	(019)	
			N/A	(028)	
	Ditch	[031]	N/A	(030)	
Ditch	[055]	[003], [023]	(054)		
Layers	Dump Deposit	N/A	N/A	(018)	Same as (103)
	Dump Deposit	N/A	N/A	(025)	Same as (099)
	Dump Deposit	N/A	N/A	(056)	
	Dump Deposit	N/A	N/A	(085)	
Modern/ Unstratified	Topsoil	N/A	N/A	(001)	
	N/A	N/A	N/A	(002)	
	N/A	N/A	N/A	(006)	
	N/A	N/A	N/A	(009)	
	N/A	N/A	N/A	(021)	
	N/A	N/A	N/A	(013)	
	N/A	N/A	N/A	(024)	
	N/A	N/A	N/A	(026)	
	N/A	N/A	N/A	(032)	
	N/A	N/A	N/A	(059)	
	N/A	N/A	N/A	(145)	
N/A	N/A	N/A	(146)		

* Equivalent/grouped cut numbers are only listed where they produced pottery. A full list of numbers including those without material are included, where they are discussed, within the Range section of this report.

Range

There is relatively broad range of pottery fabric types represented, although greyware types dominate, these accounting for 70% of the total number of vessels recorded. There is a notably restricted range of finewares, these representing just 13% of the total, almost half of which are comprised of Samian Wares. There just two vessels in Nene Valley Colour Coated fineware (NVCC) recorded, in contrast to the 34 in the coarser more utilitarian Nene Valley Greyware (NVGW), which is of a similar date

There is a good range of forms within this assemblage with jar and bowl forms in courseware fabrics forming the largest groups (See Table 4 below). There is a notable absence of mortaria however, and only nine beakers here. Mortaria and beaker forms are central to Roman cooking and consumption. Despite this there are sherds from four flagons, two amphora and a total of nine vessels in Samian ware, including five cups, suggesting that the practice of

eating and drinking in a Romanised manner was taking place. This is not, however, a high status assemblage.

Table 4, The Pottery Form Types Recorded

Form Class	Form	Cname	Full Name	NoS	NoV	W(g)
Samian	Cup	27?	Samian Form 27?	1	1	3
		33	Samian Form 33	8	4	27
	Bowl	36?	Samian Form 36?	3	1	12
		37	Samian Form 37	2	2	11
	Dish	18/31-31	Samian Form 18/31 or 31	2	1	6
Closed	Flagon	F/?	Unclassified Flagon/?*	9	4	110
	Beaker	BK	Unclassified Beaker	7	6	27
		BKCOR	Beaker with Cornice Rim	2	1	17
		BKFN?	Beaker with Funnel Neck?	1	1	25
		BKPH	Poppy Head Beaker	1	1	5
	Jar	J	Unclassified Jar	28	18	333
		JCUR	Jar with Curved Rim	15	4	215
		JEV/?	Jar with Everted Rim/?*	11	9	148
		JGLOB?	Iron Age Type Globular Jar?	1	1	57
		JL/?	Large Jar/?	5	3	294
		JNN	Narrow Necked Jar	2	2	98
		JWM/?	Wide Mouthed Jar/?*	20	10	528
	Beaker or Jar	JBK/?	Unclassified Jar or Beaker/?*	13	8	45
	Closed	CLSD	Closed Form	8	6	55
Open or Closed	Bowl or Cup	BSC	Small Bowl or Cup	3	1	7
	Bowl or Jar	JB	Unclassified Jar or Bowl	54	31	402
		JBL	Large Jar or Bowl	2	1	35
		JBWM/?	Wide Mouthed Jar or Bowl/?*	50	17	558
Open	Bowl	B/?	Unclassified Bowl/?*	3	3	15
		B36	Bowl imitation Samian 36	1	1	13
		BFL	Bowl with Flat Flanged Rim	1	1	12
		BG225	Bowl with Rounded Rim	4	1	103
		BWME	Wide Mouthed Bowl	19	2	199
		Bowl or Dish	BD	Unclassified Bowl or Dish	4	2
	Plate	PGB	Plate Gallo-Belgic Imitation	3	2	159
	Dish	DFL	Flange Rimmed Dish	1	1	19
		DGR	Dish with Grooved Rim	1	1	6
		DPR	Dish with Plain Rim	2	2	14

Form Class	Form	Cname	Full Name	NoS	NoV	W(g)
Other	Lid	L	Unclassified Lid	1	1	25
	Amphora	A	Amphora	2	2	63
	Undiagnostic	U	Undiagnostic of Form	33	28	180
Total				323	180	3904

*Includes some uncertain identifications

Discussion by Area

A total of seven cut features produced pottery as well as four dump deposits.

Linear [023], [027],[003],[038], [065], [068], [055], [091], [088]

Fill deposits from three interventions along this feature produced pottery.

Fill (044) in [023] yielded a large sherd from a jar, possibly globular in form, in an Iron Age Tradition fabric with fine minimal shell (IAMSH). This vessel appears to be wheel finished and is very much in the late Iron Age tradition for vessels in this area. It is likely to date to first century AD, possibly even pre-conquest. A single sherd from (005) in [003] is in a very similar (although not identical) fabric and is likely to be of a similar Late Iron Age/early Roman date.

Upper fill (054) within [055] produced a single sherd in Nene Valley Grey Ware (NVGW). This is unlikely to date to much earlier than AD 150 and could be considerably later. This piece could be intrusive, or it could represent a fill phase of infilling within the feature.

Settling Tank [016]

A single small sherd of Nene Valley Grey Ware (NVGW) came from this feature; it is likely to belong to the mid 2nd to 3rd centuries.

Ditch [031]

Ditch [031] yielded sherds from 12 vessels including several large fresh pieces. This is a good small group of similarly dated types. Of particular note is a flagon in Nene Valley Parchment Ware (NVPA) and a beaker with a cornice rim in Nene Valley Colour Coated Ware (NVCC). Neat cornice beaker rims of the type seen here are most common in the later 2nd and into the early 3rd century and both these vessels are likely to date to that period (Perrin 1999, 92, *c.f.* see also Fig 51.195 for a parallel of the Flagon).

Ditch terminal [029]

This feature produced the best datable group recovered from the excavation, with sherds from a total of nine vessels, eight of which came from fill (028). Many of these fragments are substantially sized and fresh.

An imitation Gallo Belgic Plate from this context, in a fine micaceous greyware (GMICG), (Drawing 3) is of special interest. This vessel is a type copying a continental form and this can be securely dated here to the late first to early second century (Marney 1989, fig 31.1-3). An everted rim jar in a shell tempered fabric (SHEL) from this context would seem to be a copy of a Black Burnished Ware 1 (BB1) vessel. These BB1 jars were first imported into the Lincolnshire area from around AD 120, suggesting a date no earlier than this for the group. A wide mouthed jar in Grey Micaceous Ware 1 (GRYMIC1) with burnished lattice decoration on the shoulder is closely paralleled at Hockwold cum Wilton in Norfolk That vessel has a likely date of mid to late 2nd century (Gurney 1986, 77-78, fig 88.83).

Based on the pottery a fairly precise date, probably within the range AD 120 to 150, can be suggested for this context.

Dump Deposit Layers (056) and (085)

These layers yielded single sherd in Shell tempered (SHEL) and grey fine micaceous (GMICG) wares. These probably date to the 2nd or 3rd centuries, but they are too fragmentary for any further meaningful analysis.

Dump Deposit Layers (018) and (025)

Layer (018) produced a range of greyware vessels, the most notable of which is a wide mouthed bowl similar to that from (030) mentioned above. Based on this, a similar date of mid to late 2nd or perhaps the early 3rd century is suggested here.

A single sherd from a Nene Valley Grey Ware (NVGW) copy of a Samian form 36 bowl was the only material from layer (025). These are mostly 3rd century in date (Perrin 1999 fig 59.95-98), although a date in the later 2nd cannot be discounted.

Discussion of Fabrics

Most of the pottery types identified within this assemblage are common in this area in the 2nd century AD. Coarse fabrics in this category include Nene Valley Wares (NWGW, NVPA, NVCR), Black Burnished Ware 1 (BB1), Black Burnished Ware Type (BBT) as well as Miscellaneous greywares, including coarse and fairly fine types (GREY, GRFF, GREYC). Fine Fabrics include Nene Valley Colour Coated Ware (NVCC), Fine Buff Ware (BUFFIN) and Miscellaneous Fine and Fine Micaceous Grey Wares (GFIN, GMICG). A number of other fabrics are worthy of special note

Iron Age Type Fabrics

Five vessels in Iron Age type shell tempered fabrics were recorded. Two of these have rare fine shell and are classified as Iron Age Tradition Shell Tempered with Fine Minimal Shell (IAMSH), whilst the remainder in more typical late Iron Age Native Tradition Shell Tempered type (IASH). Four of these vessels are, or appear to be, wheel finished and so are likely to be very late Iron Age or Early Roman in date. Only two sherds, both in IAMSH are from stratified contexts, these came from linear feature [023], [027], [003], [038], [065], [068], [055], [091], [088] (see discussion by area above) where they may be residual. Four sherds from a vessel in a prehistoric, organic tempered fabric (IAORG?) were also recovered, although these are unstratified (013). This may be Iron Age, although it is in a poor condition and so very difficult to date.

Samian Ware

The presence of Samian ware on the site is interesting, even though all of the material is unstratified. There are pieces from factories in Southern Gaul (SAMSG), Central Gaul (SAMCG, SAMLM?) and possibly even Eastern Gaul represented (SAMCG-EG). The broad range of types in such a relatively small assemblage is unusual and shows a level of contact with trade routes and markets. Samian Ware vessels were clearly purchased over a number of years and brought to the site.

Nene Valley Type Grey - Micaceous Variant (NVGM)

This is a reduced fairly fine greyware fabric with a pale core and darker grey fumed or slipped surfaces. Visually it is strikingly similar to standard Nene Valley grey fabrics except for the presence of moderate to abundant fine silver micaceous flecks within the clay, and where applicable, the slip. The forms are standard Nene Valley Types, including for example Wide Mouthed Bowls and Jars and a round rimmed Gillam Type 225 bowl. Similar fabrics have been noted in this area before, both at March Longhill Road in northeast Cambridgeshire (Beeby, forthcoming) and East Winch in North West Norfolk (Peachey 2008, 44). At East Winch Andrew Peachey suggests this fabric, which he calls GRS1, is reminiscent of products produced in the Waveney Valley on the Norfolk-Suffolk border and these vessels “may represent a migrant or ‘outlier’ potter working somewhere in Northwest Norfolk” (*ibid.*), presumably with imported clay. However given the increasingly apparent and wide distribution of this pottery around the Wash area it is possible that the source of the clay is more local than this. Future work should help to locate the source or sources of NVGM.

Micaceous Grey Ware Type 1 (Site Specific) (GRYMIC1)

Micaceous Grey Ware Type 1 is a hard sandy greyware fabric with moderate to fine silver mica inclusions and rare angular black inclusions, presumably some kind of ferruginous mineral. Quartz is subrounded to subangular and includes both white and clear, sometimes quite highly polished grains. The core is a mid pale grey colour, although this is noticeably darker than either NVGM or standard Nene Valley Greyware. Sometimes sherds have mid brown-grey margins and surfaces are a mid dark grey and are probably fumed or slipped in the tradition of the Nene Valley potters. Where determinable, forms in this fabric are almost exclusively wide mouthed jars and bowls (see drawings 4 and 5). Exceptions to this include a flat flanged bowl (BFL) and an imitation Gallo-Belgic plate (PGB). Datable forms are likely to be second century.

A similar fabric, also recorded as GRYMIC1, from a recently excavated site at Longhill Road, March (Beeby, forthcoming) may be from the same source. That material is of a similar date and includes an analogous repertoire of vessels. Further work in this area should help to clarify the origin and distribution of this material, hopefully allowing a new fabric code to be created.

Potential

The pottery should be retained as part of the site archive and should pose no problems for long term storage. A total of five vessels have been chosen for illustration as they are good or unusual examples of their type.

Table 5, Illustrated Vessels

Dr	Context	Cname	Full Name	Form Code	Form Name	Sherds	Weight (g)
1	013	GREYC	Miscellaneous Coarse Grey Ware	L	Lid	1	25
2	026	GREY	Miscellaneous Grey Ware	JWM	Wide Mouthed Jar	3	29
3	028	GMICG	Grey Fine Micaceous Wares	PGB	Plate Gallo-Belgic Imitation	2	140
4	028	GRYMIC1	Micaceous Grey Ware Type 1 (Site Specific)	JWM	Wide Mouthed Jar	4	56
5	030/032	GRYMIC1	Micaceous Grey Ware Type 1 (Site Specific)	BWME	Wide Mouthed Bowl	2	105

Summary

A moderately sized assemblage comprising 323 sherds was recovered during the community excavation although only 27% by sherd count came from stratified contexts. This is not a high status assemblage and although some 'luxury' items such as amphorae and Samian Ware vessels are present, the majority of the pottery is domestic and the range of types is restricted. Most of this material is likely to date to the second century perhaps into the early third.

Assuming that there are two distinct phases on the site, a saltern and a post saltern domestic/agricultural phase, then this first phase is, ceramically invisible, with the earlier features producing no early material. Settling Tank [016] yielded material of second to third century date although this is only one sherd and could be intrusive. A small amount of later Iron Age type pottery was recovered from the later dated linear ditch [023], [027], [003], [038], [065], [068], [055], [091], [088] where is likely to be redeposited, but it can not be said with any certainty that these sherds are contemporary with the features associated with the salt making phase .

POST ROMAN POTTERY

By Alex Beeby

Introduction

The material was recorded at archive level in accordance with the guidelines laid out in Slowikowski *et al.* (2001) and to conform to Lincolnshire County Council's *Archaeology Handbook*. The pottery codename (Cname) is in accordance with the Post Roman pottery type series for Lincolnshire, as published in Young *et al.* (2005). A single sherds from a single vessel, weighing 1 gram was recovered from the site.

Methodology

The material was laid out, viewed and weighed before being examined visually and using x20 magnification. This information was then added to an Access database. An archive list of the pottery is included in Table 6 below. The pottery dates to the late post medieval or early modern period.

Condition

There is a single, very small sherd of pottery, this is burnt and the glaze has partially melted.

Results

Table 6, Post Roman Pottery Archive

Cxt	Cname	Full Name	Form	NoS	NoV	W(g)	Decoration	Part	Description	Date
059	PORC	Porcelain	?	1	1	1	Blue transfer print	BS	Burnt; glaze partially melted	18th-20th

Provenance

The sherd is unstratified. It has been labelled with the context number (059).

Range

There is a single sherd of porcelain (PORC) of 18th -20th century date.

Potential

There is no potential for further work. The pottery should be retained as part of the site archive.

Summary

A single, unstratified sherd of pottery dating to the 18th -20th centuries was recovered during the excavation.

CERAMIC BUILDING MATERIAL

By Alex Beeby

Introduction

All the material was recorded at archive level in accordance with the guidelines laid out by the ACBMG (2001) and to conform to Lincolnshire County Council's *Archaeology Handbook*. A total of three fragments of ceramic building material, weighing 27 grams was recovered from the site.

Methodology

The material was laid out and viewed in context order. Fragments were counted and weighed within each context. The ceramic building material was examined visually and using x20 magnification. This information was then added to an Access database. An archive list of the ceramic building material is included in Table [#].

Condition

The material is fragmentary.

Results

Table 7, Ceramic Building Material Archive

Cxt	Cname	Full Name	Fabric	Description	Date	NoF	W (g)
002	CBM	Ceramic Building Material	Oxidised; fine sandy; Ca grit; sparse fine mica	Flake with single surface; land drain?	Roman or Post Roman	1	3
013	MODDRAIN	Modern Ceramic Drain		Flake; abraded; land drain	17th-19th	1	10
059	CBM	Ceramic Building Material	Oxidised; Calcareous	Flake; single surface; calcareous 'Fenland brick type' fabric; mortar attached to broken edge	17th-19th	1	14
Total						3	27

Provenance

All of the ceramic building material is unstratified.

Range

There are three flakes of ceramic building material; two pieces are largely un-diagnostic, whilst a third is likely to be a fragment of ceramic field drain pipe.

Potential

There is no potential for further work. The ceramic building material should be retained as part of the site archive and should pose no problems for long term storage.

Summary

Three unstratified fragments of ceramic building material were recovered during the excavation; these are of limited archaeological interest.

BRIQUETAGE

By Tom Lane

Introduction

In the region of 4500 pieces of briquetage, the ceramic material associated with salt production, was retrieved during excavation of a site at Willow Tree Fen, Deeping St Nicholas.

Initially located during the Fenland Survey the site was at that time identified as two discrete clusters and allotted the site codes DSN 2 and 3 (Hayes and Lane 1992, fig. 102). Subsequently the site underwent geophysical survey, fieldwalking and trial trenching as part of a programme of works in advance of a change of land use and re-wetting of the area.

Excavation, the subject of this report, revealed a series of features including 'settling tanks' and a curving ditch which appears to delimit the main working area. The associated heating structure, hearth or oven, is likely to have been situated on the former roddon (silted salt marsh creek) on the western part of the excavated area. No features were found in that area and any once present had been ploughed out. A considerable amount of hearth/oven material

had been dumped in the surrounding ditch and other cut features, indicating the former presence of such a heating structure.

Briquetage was found in a number of deposits, including unstratified cleaning layers and in sondages. Of the stratified material most came from the surrounding (penannular) ditch, but with quantities from the settling tanks and redeposited in later features.

Condition of the Assemblage

As with most briquetage assemblages the condition of the material was highly varied. Some objects were complete while other, particularly structural material and container pieces were very fragmentary. No full profile of a container survived.

Method of Analysis

The material was chiefly from hand-excavated contexts and examined macroscopically and assigned to a general briquetage class based broadly on those identified in Lane and Morris (2001). Full or minimum height or thickness was recorded where appropriate. Given the high rate of re-deposition of the briquetage around the site the analysis was not as detailed as undertaken in some sites.

Fabrics

Attempts were made to relate the material to the broad fabric groups identified on Fenland briquetage by Morris (2001). No material was forwarded for thin sectioning and all fabric identifications resulted from viewing the briquetage macroscopically.

A common fabric is organic-tempered where the local clay has been used and various amounts of organic material have been added, resulting in linear vesicles after firing. Impressions of seeds are moderately common in container pieces. Elsewhere in the Fenland this type of temper has been identified as chaff from cereal processing (Murphy 2001). Rather less organic material than that used for containers was apparent in the bricks/platforms, of which some had occasional inclusions of grog (crushed briquetage), perhaps included accidentally. Pedestals and clips were also made using variously organic tempers. Organic tempers can increase the ease of manufacture, strength and porosity of ceramics as well as reduce their overall weight (Morris 2007, 438)

A silty fabric was also in common use on the site for structural material. Elsewhere, for example at Wygate Park, Spalding (Morris, forthcoming), this was shown to be un-tempered use of the local alluvial Fenland clays.

Variations in the sand/quartz content were noted in the Wygate Park material which underwent microscopic and thin section analysis but such minor variations were not evident in the macroscopically assessed Willow Tree Fen assemblage.

No fossil shell tempered pieces, typical of the Middle Iron Age and earlier in Lincolnshire, were noted.

Classes and Types of Briquetage Forms

The full range of briquetage is detailed in archive appendix 2.

The briquetage from Willow Tree Fen fits into the four main classifications identified by Morris (Lane and Morris 2001; Morris 2007)

Containers – Shallow, sub-rectangular, pan or trough-like ceramic containers. Within the container classification three parts of the vessel are recognisable and referred to thus; Rim; Body sherd; Base

Supports – these are items which hold in place the containers in the heating structure and comprise:-

Bars or Rods – often referred to in the literature as ‘cigar-shaped bars’ (eg Hallam 1970) these are designed to hold the containers in place within the heating structure.

Spacer/clips – Lumps of fired clay which had been squeezed across the rims of usually two different containers to secure or stabilize them during the brine evaporation process.

Pedestals – hand-squeezed pillars of clay onto which containers were placed

Platforms – Porous, very thick tiles from the floor of the salt oven, having four squared off side edges and two well-

fingering or finger-smoothed parallel horizontal surfaces. Other flooring, eg from hearths, tends to be thicker than the platforms, with only one smoothed surface, often salt-bleached (Morris 2007, 435).

Bricks – are large pedestals (not hand-squeezed) and designed to hold containers over oven flues in the manner of the examples from Middleton, Norfolk (Crowson 2001, Plate 9).

Structural material/Oven lining

Derives from salt production hearths or ovens partially below ground and from partial domes

Miscellaneous

Items, usually very fragmentary, not assigned to a specific form

Containers

These are thought to be predominantly rectangular in plan although the remains are fragmentary. Various rim-types were recognised but recorded only broadly as some repaired vessels indicate different rim types can appear on the same vessel after repair. Repairs were recorded on some rims in the Willow Tree Fen assemblage. Rims are generally rounded or pointed but hand fashioned so that differences can occur. No cut rims were noted and no marks were present below the rims to suggest that they had been cut. The thicknesses of the vessel walls varied, being thicker at the base and thinner at the rim. Generally the wall thicknesses varied from 6-12mm. Some corner pieces (in plan) were present indicating generally rounded corners.

No full profiles were recorded, although one sherd from (009) was, at 85mm high, a near complete profile.

Container sherds from context (087), the fill of the surrounding ditch at the southernmost part of the site, were slightly different, being generally thicker, with less bleaching and a very rough inside surface, probably the result of scraping salt out. It is possible that these might have been used for drying rather than boiling/crystallising the salt. Occasionally, there are containers which have been cut or sawn vertically pre-firing, sometimes all the way through and other times leaving a small piece attached, possibly so that they can be easily broken (eg settling tank context 015). Again, these may have been used for drying rather than evaporation.

Most of the containers exhibited a white-yellow bleaching effect, the result of repeated heating of brine.

Supports

A number of different types of support were present including those designed to hold the containers in place vertically and to level them up (pedestals, bars and bricks) and spacer/clips and bars, used chiefly for clipping multiple containers over hearths/ovens and ensuring they remain stable laterally.

Supports present included Bricks such as the 78 x 75mm x minimum 85mm tall example from (008) and many examples of hand-squeezed broadly cylindrical pedestals, almost all in a fragmentary state.

Being smaller the clips/spacers tended to be more complete (eg the example from (042)). Clips appeared to separate the containers with a gap of 20-30mm between them, although one example showed the gap to have been c.70mm.

The presence of platforms suggests the use of ovens (indirect heating structures) as opposed to hearths where the containers are in more direct contact with the heat source. Platforms are like floor tiles but separate the fire from the containers. These tend to have the bleaching effect from prolonged contact with salt water on their uppermost side. Again no complete examples were found. Two types were found at Spalding Wygate Park, hand-made and mould-made. The type of manufacture of the WTF examples cannot be identified.

Structural Material/Oven Lining

This is material that formed parts of the demolished hearths/ oven walls and floors. Because of the fragmentary nature of the remains much of this material can only be recorded under the miscellaneous category as there is little to identify it precisely. Two pieces that are possibly structural (although could be platforms) had been perforated before firing with a c18-20mm diameter hole.

Large pieces, thought to be from the hearth/oven floor had been cast into the surrounding ditch and protected from attrition. A single piece has a relatively flat surface with yellow/white coating, thought to be the result of contact with hot brine. In total, this piece, which measures 220 x 190mm in plan, is 130mm thick. Beneath the surface the clay tends to be a purple colour then shading into a buff the further away from the hot area. From the same deposit a further piece has two coated surfaces, one at 90 degrees to the other. This piece may have originated vertically and have been a corner, perhaps at a junction where the main body of the oven meets a flue.

Miscellaneous

As in most briquetage assemblages there are large numbers of fragmented pieces which could have been originally from any of the previous categories, other than container.

Many of the pieces exhibited the white 'bleaching' effect from extensive contact with salt water. Containers in particular were, in many instances, bleached throughout their fabrics.

Discussion*Site location*

The site is located on a roddon (extinct creek) some 50m west of the parish boundary between Pinchbeck and Deeping St Nicholas (in the latter parish) and was first recorded as a surface scatter of briquetage during the Fenland Survey when there appeared to be two separate clusters (recorded as DSN 1 and DSN2). These were on the inland edge of a roddon which continued seaward and on which numerous other salterns both of Iron Age and Roman date were situated, along with Roman settlement formed after the creek had dried out (Hayes and Lane 1992). The excavated site lay on the sloping northern and western sides of the roddon

Feature types on site

Excavation revealed a series of features of a type recorded previously on saltern sites of the late Iron Age and Roman periods in the Fens. These included a penannular ditch (called the 'surrounding' ditch) which encompasses the main features (eg Lane 2005, fig.4) and 'settling tanks', into which brine was poured to enable impurities to settle out before evaporation. Missing at Willow Tree Fen was the location of the heating facility (probably an oven). Such features are usually in close proximity to the settling tanks but, in this case, would have been high up on the roddon and the basal remains of the heating structure had probably been ploughed away. Large pieces of such a demolished structure were found in the surrounding ditch, where they had been dumped or placed when the site was decommissioned, as previously recorded in, for example, the Late Iron Age/early Roman site at Peak Hill, Cowbit (Failes *et al* 2011, 13) and at the Late Roman site at Middleton, Norfolk (Crowson 2001, 244). Away from the Fenland such a configuration of surrounding ditch, settling tanks and hearths/ovens are also known in Essex (eg at Stanford Wharf [Biddulph *et al* 2012, 133]).

Elsewhere, surrounding ditches have been interpreted as 'water-entrapment' features (eg Crowson 2001, 167). At Willow Tree Fen the surrounding ditch was unlined, on a slope, and unlikely to have served a purpose for prolonged water storage. At its western terminal the ditch appeared to have been connected to a winding, narrow natural gully (145), thought at one time to have supplied water to the ditch, but probably the configuration was co-incidental. It is possible that the ditch merely 'marked out' the boundaries of the salt working, although why such ditches are commonly penannular, with none being completely circular is at present unexplained. A drainage function is possible, given the undoubted movement and therefore slopping around of brine in the salt making process. Moving away from a functional interpretation the ditch may have bounded the area where the salt-makers worked, delimiting the salt-works and excluding those without the knowledge, or magic, of transforming sea water into what was a revered, necessary and economically essential product.

The heating structures were probably more like ovens (but without the full dome) than hearths. Access to the containers would have been necessary during heating to move the brine from container to container, to remove the fully crystallised salt and to top up the containers with brine. Also, the oven-like heating structures would have enabled better control of heat than the direct heating system of containers on hearths.

Not all of the features 'within' the surrounding ditch were exposed, with the southern part of the ditch extending beyond the limit of excavation. However, the features revealed were typical of those on previously excavated sites with no expected feature-types absent.

Distribution of briquetage

As with many saltern sites of the period the vast majority of the briquetage was not in its original location with a considerable amount of dumping occurring. The surrounding ditch in particular had been used to dump large quantities of heating structure and broken container fragments. Most of this dumping probably took place at the end of the working life of the saltern but routine maintenance would have accounted for quite an amount of briquetage (industrial waste) dumping. Tip lines along the lower parts of the site (off the roddon) attest to dumping (eg Sections 6 and 11) in that lower area.

Four contexts (015 from a settling tank; 030 from fill Ditch 031; 054 from a fill of the surrounding ditch and 025, dumped deposit in fill of surrounding ditch, contained sawn pieces. These may have been from vessels for drying salt, rather than for initial crystallisation, and the pre-firing cuts perhaps there to enable breakage and removal of

caked salt. It may be no coincidence that all the sawn sherds were found in the southern part of the site and that the process involving the sawn sherds was taking place there.

Dating

The types of briquetage found (see above) accord well with previously recorded Fenland forms with containers, pedestals, clips, and structural pieces all being present. Their forms are indicative of a date within Briquetage Phases 2 and 3 (Morris 2007) (late Iron Age through to 1st-2nd century AD).

From the ‘surrounding’ ditch only a few sherds of pottery were located. Fill (044) in [023] yielded a large sherd from a jar very much in the late Iron Age tradition and is likely to date to first century AD, possibly even pre-conquest. A single sherd from (005) in [003] is in a very similar (although not identical) fabric and is likely to be of a similar Late Iron Age/early Roman date.

Upper fill (054) within [055] produced a single sherd in Nene Valley Grey Ware could be intrusive. It is perhaps more likely to represent a phase of infilling within the feature as it is unlikely to date before 150AD.

A pit (029), or more probably terminus of a linear, contained briquetage and Roman pottery, the latter dating from AD 120 – 150. A radiocarbon date from a piece of wood at the base of the feature gave a date at 68% probability of 86-116 cal AD.

While overall there was little in the way of intercutting of features to aid stratigraphic dating Ditch (031) did cut the infilled surrounding ditch at the south end of the site and yielded pottery dated to the later 2nd to mid 3rd century AD. This post-saltern feature may be an outlier of the Roman site yielding domestic pottery PIN 30, located during the Fenland Survey and situated less than 100m east of the saltern.

Together, this evidence points to a date around the 1st century AD for the saltmaking phase at the site.

Salt making process

The main features at the site indicate that a source of brine was available nearby, probably fed into natural hollows in the salt marsh and strengthened, before being moved (by bucket?) into settling tanks where the sediments and other impurities were allowed to settle out.

The brine was then poured into ceramic containers and placed in an oven-like heating structure to enable crystallisation to take place. It is likely that peat was used to fire the oven and maintain the heat. There is evidence of peat cutting nearby to the northwest around Guthram island in Morton and Bourne (Hayes and Lane 1992, 125).

Whether any other processes, such as filtering, took place is uncertain because of the lack of evidence. Neither is there any indication of how the salt was taken away from the site, or how it was transported and to where.

OTHER FINDS

By Gary Taylor

Introduction

Four other finds (one of them in 2 linking pieces), weighing a total of 14g, were recovered.

Condition

The other finds are in moderate-good condition, though the glass exhibits severe iridescent decay and the bone items are fragile.

Results

Table 8, Other Materials

Cxt	Material	Description	NoF	W (g)	Date
030	bone	Hair pin, conical head with 2 transverse grooves beneath, point broken off, mid 1 st -2 nd century	1	1	mid 1 st -2 nd century
	bone	Pin, complete though broken at mid shaft, flattened approximately triangular head	2(link)	2	
059	glass	green bottle glass, much iridescence, late post-medieval	1	2	late post-medieval
	stone	roofing slate, post-medieval	1	9	

Provenance

The other finds were recovered from (030) and (059)

Range

There are two bone pins of Roman date and pieces of glass and roofing slate of the post-medieval period.

One of the pins has a conical head with two transverse grooves beneath, defining a slight bead below the head. This is a Type 2 pin, under Crummy's typology, and such pins have been found in Colchester dating from perhaps as early as the pre-Flavian period (prior to AD 69) through to c. 200 (Crummy 1995, 21).

The second pin is probably manufactured on a pig's ulna and is much more similar to examples of Late Saxon date, as found in York and elsewhere (MacGregor *et al.* 1999, 1950).

There is also a piece of bottle of late post-medieval date. This is highly iridescent and perhaps dates to the 18th century. In addition, a fragment of roofing slate, also of post-medieval date, perhaps the 19th century, was recovered.

Potential

The other finds are of limited potential.

FAUNAL REMAINS

By Paul Cope-Faulkner

Introduction

A total of 175 (2325g) fragments of animal bone were recovered from stratified contexts.

Methodology

The faunal remains were laid out in context order and reference made to published catalogues (e.g. Schmid 1972; Hillson 2003). All the animal remains were counted and weighed, and where possible identified to species, element and side. Also fusion data, butchery marks, gnawing, burning and pathological changes were noted when present. Ribs and vertebrae were only recorded to species when they were substantially complete and could accurately be identified. Undiagnostic bones were recorded as micro (mouse size), small (rabbit size), medium (sheep size) or large (cattle size).

The condition of the bone was graded using the criteria stipulated by Lyman (1996). Grade 0 being the best preserved bone and grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognisable.

Provenance

The animal bone was retrieved from topsoil (001), the fill of a gully (004), the fill of a settling tank (019), a pit/ditch fill (028), ditch fills (030, 054) and a dumped deposit (110). Additional material was unstratified (002, 013, 024, 026 and 032) or labelled as derived from a sondage cut (006, 008, 009, 011, 017 and 018) and, therefore, treated the same.

Condition

The overall condition of the remains was good to moderate, averaging at grades 2-3 on the Lyman Criteria (1996).

Results

Table 9, Fragments Identified to Taxa

Cxt	Taxon	Element	Side	No.	W (g)	Comments
001	cattle	tibia	-	1	34	
	cattle	molar	-	1	6	
	large mammal	long bone	-	3	37	
	sheep/goat	molar	-	1	5	
	medium mammal	rib	-	1	4	
	medium mammal	long bone	-	1	9	
002*	large mammal	long bone	-	2	9	
	medium mammal	long bone	-	1	2	
004	bird	long bone	-	5	2	calcined

Cxt	Taxon	Element	Side	No.	W (g)	Comments
006	cattle	metacarpal	-	1	130	7x1st, 5x2nd, 6x3rd
	cattle	metatarsus	B	2	324	
	cattle	phalange	B	18	259	
	cattle	tarsal	B	2	76	
008	cattle	phalange	-	1	10	3 rd
	large mammal	carpal	-	1	12	magnum
009	large mammal	long bone	-	1	5	Slightly calcined
011	sheep/goat	humerus	R	1	22	chalky
	medium mammal	long bone	-	1	18	
013*	cattle	molar	-	1	9	
	cattle	mandible	-	6	116	
	large mammal	long bone	-	19	144	
	large mammal	femur	-	1	42	
	sheep/goat	humerus	-	1	11	
017	sheep/goat	metatarsus	-	1	13	
018	large mammal	ulna	R	1	52	
	large mammal	long bone	-	2	8	
	sheep/goat	mandible	R	1	53	
	medium mammal	rib	-	1	1	
019	sheep/goat	vertebra	-	1	13	
022	cattle	metacarpal	l	1	22	juvenile
024	cattle	astragalus	-	1	70	
	large mammal	long bone	-	13	54	
	large mammal	skull	-	5	48	
	sheep/goat	molar	-	5	26	
	medium mammal	humerus	-	1	4	
	medium mammal	long bone	-	9	19	
	medium mammal	rib	-	1	1	
	small mammal	scapula	-	1	1	
026	large mammal	long bone	-	1	8	
	cattle	molar	-	1	10	
	medium mammal	tibia	-	1	9	
	medium mammal	long bone	-	8	11	
	medium mammal	rib	-	1	1	
028	medium mammal	metacarpal	-	2	16	
	medium mammal	metatarsus	-	2	16	
	medium mammal	tibia	-	2	19	
	medium mammal	long bone	-	7	10	
	sheep/goat	molar	-	3	8	
	bird	tibia	-	1	5	
	bird	tibia	-	1	5	
029	cattle	radius	R	1	118	
	cattle	ulna	R	1	34	
	large mammal	long bone	-	1	5	
	medium mamma	tibia	-	2	22	
030	cattle	mandible	R	3	64	2 molars
	cattle	humerus	-	1	28	
	large mammal	long bone	-	4	21	
	sheep/goat	mandible	-	4	15	
	medium mammal	long bone	-	5	8	
	medium mammal	ulna	-	1	3	
031	large mammal	skull	-	2	6	
	large mammal	long bone	-	1	1	
	medium mammal	long bone	-	1	1	
032*	cattle	radius	-	1	93	
052	large mammal	vertebra	-	1	3	
054	large mammal	long bone	-	1	9	
110	cattle	mandible	L	1	110	Inc. 3 molars; juvenile

Summary

The main domesticates are cattle, which probably account for most of the large mammals, and sheep/goat which are probably represented by medium mammal. There is one small mammal that may be a large rodent and could therefore be intrusive. A small number of bird bones were also collected.

The actual stratified material is relatively low in number, particularly for Phase 2.1 which equates with the operating period of the saltern. The post-salern phase has slightly higher numbers of bone within each context which are dominated by cattle. However, the bone count is still relatively low and it may be that arable cultivation was carried out at the site in this phase.

Many of the animal bone derive from sondage cuts through the encircling ditch and dumped deposits associated with the saltern. Included within this are the lower limbs of a single cattle from (006), which may be significant as it was associated with structural briquetage.

There are a few juvenile cattle at Willow Tree Fen, though their numbers are not high enough to suggest a specialism in dairying, as seen at Cowbit which dates to the late Iron Age. Pigs are also absent which may lend support to the seasonal nature of salt-production at Willow Tree Fen as they have relatively low mobility. Otherwise, the assemblage is typical of the fenland (Albarella and Mulville 2001).

The assemblage should be retained for future study and is in a suitable condition for archive storage.

SPOT DATING

The dating in Table 10 is based on the evidence provided by the finds detailed above.

Table 10, Spot dates

Cxt	Date	Comments
001	Modern	
002	U/S	Mid to late 2 nd century group
005	1 st – 2 nd century	Based on 1 sherd
006	2 nd – 3 rd century	Based on 1 sherd
009	2 nd – 3 rd century	
013	U/S	Mostly mid 2 nd century
015	Mid 2 nd to 3 rd century	Based on 1 sherd
018	2 nd century	
019	Roman	Based in 1 sherd
021	Mid 2 nd to 3 rd century	
024	U/S	Mid 2 nd to 3 rd century
025	Late 2 nd to 3 rd century	Based on 1 sherd
026	U/S	Late 1 st to early 2 nd century group
028	Early to mid 2 nd century	Post AD 120
030	Late 2 nd to early 3 rd century	
032	U/S	Mid 2 nd to 3 rd century group
044	1 st century	Based on 1 sherd
054	Mid 2 nd to 3 rd century	
056	2 nd to 3 rd century	Based on 1 sherd
059	U/S	Late post-medieval finds
085	2 nd to 3 rd century	Based on 1 sherd
145	U/S	Mid to late 2 nd century group
146	U/S	2 nd to 3 rd century group

ABBREVIATIONS

ACBMG	Archaeological Ceramic Building Materials Group
BS	Body sherd
CBM	Ceramic Building Material
CXT	Context
LHJ	Lower Handle Join
NoF	Number of Fragments
NoS	Number of sherds
NoV	Number of vessels
PCRG	Prehistoric Ceramic Research Group
TR	Trench
UHJ	Upper Handle Join
W (g)	Weight (grams)

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ARCHIVE CATALOGUES

Archive catalogue 1, Roman Pottery

Cxt No	Cname	Form	Decoration	Vessel	Alter	Dr	Comments	Join	NoS	W(g)
001	GRYMIC1	JB		1			BS; FE FREE SLIP - WHITE; HARD; FS		1	33
001	GRYMIC1	JB		1	ABR		BS; FS		1	6
001	NVGW	BK		1			BS		1	1
001	SHEL	JB	WM	1			BS; TURNING TO NECK PROBABLY NECKED JAR OR BOWL		1	3
002	BUFFIN	BK	BG	1			BS		1	4
002	DR20	A		1	ABR		BS		1	43
002	DR20	A		1			BS		1	20
002	GMICG	U		1	ABR		BS		1	35
002	GREY	JB		1			BS		1	6
002	GREY	J		1			BSS; J		2	6
002	GREY	JBL		1			BSS		2	35
002	GREY	U		1			BS		1	3
002	GREY	JB		1			BS		1	6
002	GREY	DPR		1			RIM; SANDWICH CORE BB2 TYPE		1	8
002	GREY	JWM		1			RIM NECK		1	8
002	GREY	JNN	BVL NECK	1			V LARGE VESSEL; LARGE CA GRITS		1	70
002	GREY	JBK		1	ABR		BS		2	3
002	GREY	JB		1			BS		1	4
002	GRYMIC	U		1	ABR		BS		1	3
002	GRYMIC	JB		1			BSS; J		2	9
002	GRYMIC1	JBWM?		1	V ABR				3	27
002	GRYMIC1	BFL		1	SOOT RIM		RIM		1	12
002	GRYMIC1	U		1			FLAKE		1	2
002	GRYMIC1	U		2			BSS		2	11
002	GRYMIC1	JB		1	ABR INT		BSS		3	19
002	GRYMIC1?	JBWM		1					1	7
002	IASH	JL?	HM	1			BSS; COULD BE LARGE PAN OR DISH?; OX/R/OX		3	77
002	NVCR	F		1			BSS		3	26

Cxt No	Cname	Form	Decoration	Vessel	Alter	Dr	Comments	Join	NoS	W(g)
002	NVGW	JB	B IN BANDS	1	ABR		BS; BASES WITH FTM		6	38
002	NVGW	DPR		1	ABR		RIM		1	6
002	NVGW	JB		1	VABR		RIM		1	4
002	NVGW	DGR		1	ABR		RIM		1	6
002	SAMCG	33		1			BSS; FLAKE		4	17
002	SAMCG	37	MOULDED DEC; OVOLO	1	BURNT		BS		1	5
002	SAMLM?	27?		1			BS		1	3
002	SHEL	JBWM		1	ABR; LEACH; SOOT RIM		RIMS; BSS; J		4	59
002	SHEL	JL		1	ABR; LEACH		RIM		1	27
002	ZDATE						U/S			
002	ZZZ	M2-L2C GRP								
005	IAMSH	J	WF	1	LEACH INT		BS; FE; CLAY PELLIS; RARE SAND; UNUSUAL FABRIC; TRANSITIONAL?		1	9
005	ZDATE						1-2C			
006	GRYMIC1	JB		1	ABR		BS		1	7
006	ZDATE						2-3C			
009	GRYMIC1	U		1	VABR		BS; FS		1	5
009	GRYMIC1	U	B EX	1			BS; FS		1	9
009	ZDATE						2-3C			
013	GMICG	JBWM		1	ABR		BS		1	10
013	GMICG	U		1	ABR INT		BS		1	5
013	GREY	J		1	ABR BASE		BASE		1	5
013	GREY	JWM	B EX	1			BSS; PROB SAME AS GRYMIC1 BUT LESS VISIBLE MICA		3	14
013	GREY	U		1	SOOT INT		BS		1	4
013	GREY	J		1	ABR INT		BS; HIGHLY FIRED		2	15
013	GREYC	L		1	SOOT RIM	1	WALL TO RIM; GROG; VESICULAR		1	25
013	GRYMIC1	JBWM		1			RIM		1	5
013	GRYMIC1	J		1			BS		1	2
013	GRYMIC1	JWM	BDL AND N CORD BELOW NECK	1			BS; HIGHLY FIRED		1	22
013	GRYMIC1	JB	B EX	1	ABR		BS		1	22
013	IAORG?	U	HM	1	LEACH; VESICULAR; SALT AFFECTED		BSS; BURNT OUT VEG AND SOME LEACHED SHELL; OXIDISED; SOFT		4	14
013	NVCR	F?		1			BS		1	6
013	NVGW	BWME	B INT EX	1	ABR		RIM NECKS; BSS		8	35
013	NVGW	JB		1	ABR		BSS		3	13
013	NVGW	DFL		1	ABR		RIM		1	19

Cxt No	Cname	Form	Decoration	Vessel	Alter	Dr	Comments	Join	NoS	W(g)
013	NVGW	B		1	ABR		BASE WITH FTM		1	5
013	NVGW	BK		1			BS		1	1
013	NVGW	J		1			BS		1	10
013	SAMCG	33		1			FLAKE		1	2
013	SAMCG	37	MOULDED DEC	1	BLACK BITUMEN/ TAR REPAIR GUM		BS		1	6
013	SHEL	J	WM	1	LEACH; THICK CARBON DEP INT EX		BSS		4	37
013	SHEL	CLSD		1	LEACH; CARBON DEP EX		BS		1	9
013	SHEL	U		1	SOOT EX		BS		1	6
013	ZDATE						U/S			
013	ZZZ	MOSTLY M2C+								
015	NVGW	JB		1	SOOTEX		BS		1	11
015	ZDATE						M2-3C			
018	GREY	JBWM	LA; CORD BELOW NECK	1	SOOTEX		BSS; V SIMILAR TO PEACHEY FIG 12.37A AT E WINCH; PEACHEY DATES FROM TO L2C BASED ON GURNEY 1986 VESS 83 (EAA31)		2	22
018	GREY	JBWM	BEX	1			BS; CURIOUS 'DIRTY MATRIX'		2	23
018	GREY	JBK		1	ABR		BSS		2	3
018	GRYMIC	U		1	BURNT		BS		1	8
018	SHEL	J	HM?	1	LEACH		BS		2	37
018	ZDATE						2C			
018	ZZZ	PEACHEY WOULD SUGGEST L2 BUT FEELS E2; NO NVGW								
019	GREY	U	BL	1			BS		1	3
019	ZDATE						RO			
021	NVGW	JBK?		1	BURNT; SPALLED		BSS		3	9
021	ZDATE						M2-3C			
024	CR	F	B EX	1	SPALLED		BS		1	6
024	CR	JBK		1	BURNT		BS; MICACEOUS		1	3
024	GRYMIC	J		1			BS		1	1
024	GRYMIC	CLSD		1	ABR INT; SALT INT?		BS; FRAG		2	7
024	GRYMIC1?	JB		1			BSS		2	21
024	NVGW	BK		1			BS		1	2
024	NVGW	BK		1	ABR		BSS		2	15
024	SHEL	J	WM	1	SOOT EX; LEACH		BSS		2	40
024	SHEL	JCUR	WM	1	SOOT EX; LEACH		RIM; BS		2	12
024	ZDATE						U/S			

Cxt No	Cname	Form	Decoration	Vessel	Alter	Dr	Comments	Join	NoS	W(g)
024	ZZZ	MOSTLY M2-3C								
025	NVGW	B36		1	ABR		RIM; JPRS8 FIG 59.95-98; MOST 3C ACCORDING TO PERRIN		1	13
025	ZDATE						L2-3C			
026	GREY	JEV	RIL SHOULDER	1	SOOT EX	2	RIM SHOULDER; REALLY UNUSUAL		3	29
026	GREY	CLSD		1	ABR		BSS		2	11
026	GRYMIC1	B?	HIGH BURNISH	1			BASE FLAKE		1	6
026	GRYMIC1	CLSD		1			BS		1	5
026	GRYMIC1	PGB		1					1	19
026	SHEL	J	RIL	1	SOOT INT; LEACH		BSS; FLAKE		3	27
026	SHEL	JEV?		1			RIM; BSS		1	13
026	ZDATE						L1-E2C			
028	GMICG	PGB	B INT EX	1	SOOT OVER BREAK	3	PROFILE; BS; CF MARNEY FIG 31.1-2		2	140
028	GMICG	BD		1			BASES; FINELY MOULDED FOOT RING; PART TYPE; SAME FABRIC AS PGB; PROB SAMIAN FORM		3	69
028	GRYMIC1	JWM	CORDS; BE EX	1		4	RIM TO GIRTH; LWALL TO BASE; BS; BASE; PROFILE; SMALL VESSEL		4	56
028	GRYMIC1	JL		1	SOOT OVER BREAK		BS		1	190
028	GRYMIC1	JWM	LA NECK; CORDS	1	SPALLED; BURNT; SOOT OVER BREAK		NECK TO LWALL; CF GURNEY FIG 48.83		1	94
028	GRYMIC1	JBWM		1			RIMS		3	59
028	SHEL	JEV		1	THICK CARBON DEP RIM		RIMS; J; BB1 TYPE COPY; GREY		2	20
028	SHEL	J	WM	1	SOOT INT EX		BS; FE GRITS; GREY		1	50
028	ZDATE						E2-M2C			
028	ZZZ	PROBABLY POST 120; SIMILAR TO ASSEMBLAGE FROM PIT 99 AT HOCKWOLD CUM WILTON (GURNEY 1986 FIG 48)								
030	GFIN	JBK	ROUZ	1			BSS		2	5
030	GMICG	JBK	B EX	1			BS; PART TYPE		1	6
030	GMICG	JB		1			BSS; BASE WITH FTM; PART TYPE		11	40
030	GREY	U		1	ABR		BS; BLUE GREY		1	4
030	GRYMIC1	J		1			BS		1	13
030	GRYMIC1	U		1			BS		1	1
030	GRYMIC1	JWM	B EX	1			RIM NECK		1	20
030	GRYMIC1	JWM	B EX	1	FE CONC	5	RIM; RIM TO LWALL; J		2	160
030	NVCC	BKCOR		1			RIM; LARGER VESSEL; J; ML2		2	17
030	NVGM	BKFN?		1	SPALLED		BS		1	25

Cxt No	Cname	Form	Decoration	Vessel	Alter	Dr	Comments	Join	NoS	W(g)
030	NVGW	BWME	B EX IN BANDS	1			BASE; BSS		11	164
030	NVPA	F	PL	1	BURNT		BASE WITH FTM; BSS; WITH HJ; CF PERRIN 1999 FIG 51.195 FOR SIMILAR VESS IN CC L2-E3		4	72
030	SHEL	U		1	LEACH; CARBON DEP EX		BSS		2	30
030	SHEL	JB		1	LEACH; CARBON DEP EX		BSS		2	16
030	SHEL	JCUR	WM?	1	LEACH; SOOT		RIM; BSS; V POOR CONDITION; GREY		8	137
030	ZDATE						L2-E3			
032	GREY	JB		1	BS		BS		1	18
032	GREY	J		1	BSS				2	11
032	GRYMIC1	JWM	B EX	1		5	RIM TO LWALL		2	105
032	NVGM	BG225		1	SOOT OVER BREAK; SPALLED		RIMS; BASES; PROFILE		4	103
032	ZDATE						M2-3C			
044	IAMSH	JGLOB?	WF?	1	LEACH		BS; FINE SHELL; FE CLAY PELLE AND Q; OX/R/OX		1	57
044	ZDATE						1C			
054	GREY	JB		1	ABR		BS; BLUE GREY		1	19
054	GRYMIC1	JWM?		1	SOOT OVER BROKEN EDGE		RIM; BS; FLAT FLANGED RIM		2	20
054	NVGW	JB		1			BS		1	4
054	ZDATE						M2-3C			
056	SHEL	J	RIL; WM	1	LEACH		BS; GREY		1	4
056	ZDATE						2-3C			
059	BB1	JEV		1			RIM; BS		2	7
059	BBT	JEV		1	BG BELOW RIM; B IN BANDS		BS; DOUBLE GROOVE BELOW RIM AND BANDS OF BURNISHING		1	6
059	GFIN	U		1			BASE?		1	2
059	GMICG	BKPH	ROLLER STAMPED LINE	1			BS		1	5
059	GREY	JB		1	ABR		BASE WITH FTM		1	12
059	GREY	U		1			BS		1	9
059	GREY	JBWM		1	WHITE EXT DEP- SLIP?		RIM		1	19
059	GREY	JB		1			BASE WITH FTM		1	24
059	GREY	JB		1			BS		1	8
059	GREY	JB		4			BSS		4	16
059	GREY	JB		1	ABR		BASE WITH FTM; BS		2	15
059	GRYMIC1	JBWM		1			RIM; FLAKE; SUBROUNDED BLACK FE; NORFOLK/CAMBS?		2	8

Cxt No	Cname	Form	Decoration	Vessel	Alter	Dr	Comments	Join	NoS	W(g)
059	NVGW	JBWM	B BANDS	1			RIMS; BSS		7	51
059	NVGW	BSC		1			BSS		3	7
059	NVGW	JB		1	SPALLED		BS		1	18
059	NVGW	JBK		1			BS		1	2
059	NVGW	U		1	ABR		BS		1	2
059	NVGW	BD		1			BASE; CHAMFERED		1	9
059	NVGW	JBWM		3	ABR		RIM;BSS		3	17
059	NVGW	JB		1			BS		1	5
059	NVGW	JB	B IN BANDS; HIGH BURNISH	1			BS		1	5
059	SAMCG	18/31-31		1			RIMS; BS		2	6
059	SHEL	JBWM	WM	1	SOOT EX; LEACH		RIMS; BASES; BSS; J; GREY		17	236
059	SHELF	U		1	SOOT EX		BS		1	1
059	ZDATE						M2-L2C			
059	ZZZ	GREY FABRICS HAVE ANGULAR QUARTZ AND MID GREY FABRIC								
059	ZZZ	GREY WITH ANGULAR QUARTZ PROBABLY A GROUP; GENERALLY 2C POTTERY								
085	GRFF	JEV	B EX	1			RIM		1	10
085	ZDATE						2-3C			
145	GMICG	JBWM		1			RIM; BS; SMALL VESSEL		2	6
145	GREY	J		1	ABR		BASE WITH FTM		1	37
145	GREY	U	SL	1	ABR; LEACHED ?		BS; INCLUSION HOLLOWES		1	5
145	GREYC	CLSD		1	ABR		BS; FLINT		1	8
145	GRYMIC1	U		1			BS; WHITE IRON FREE SLIP		1	3
145	GRYMIC1?	U		1	ABR		BSS		2	3
145	IASH	JEV	WF	1	LEACH		RIM; MICA		1	15
145	IASH	JEV	WF?	1	LEACH; ABR		RIM		1	10
145	NVGW	CLSD		1	ABR		BS		1	15
145	SAMCG	36?		1			BSS; SAMLM?		3	12
145	ZDATE						M2-L2C			
146	GREY	JCUR		1			RIM; BS; J		2	18
146	GREY	U		1	ABR INT		BS		1	4
146	GREY	U		1	ABR		BS		1	3
146	GREY	U		1			BS; PALE FABRIC; COARSE		1	2
146	GREY	J	BWL; BL	1			BS; PREFIRED SCORED LINES; TALLY?		1	17
146	NVCC	B		1			BASE		1	4
146	NVGM?	JBK		1	ABR		BASE WITH FTM; DARK GREY SLIP		1	14
146	NVGW	JNN	CORDS NECK	1			BS		1	28
146	NVGW	BK		1			BS		1	4
146	NVGW	JBWM?		1			BS		1	9
146	NVGW	U		1			RIM		1	3

Cxt No	Cname	Form	Decoration	Vessel	Alter	Dr	Comments	Join	NoS	W(g)
146	SAMCG-EG	33		1			RIMS; J; GROTTY FABRIC; EAST GAUL?		2	6
146	SAMSG	33		1	ABR		RIM; FTM; INCLUDES FRAGMENT OF FOOT RING; BEADED RIM WITH INTERNAL GROOVE BELOW LIP AS 33A		1	2
146	SHEL	JCUR	WM	1	LEACH; SOOT RIM		RIM; BS BASAL; GREY		3	48
146	SHEL	JEV	WM; SCORED LINES AT GIRTH	1	SOOT EX		RIM TO GIRTH; GREY		1	43
146	SHEL	JEV		1	LEACH		RIM; GREY		1	24
146	SHEL	J		1	ABR; LEACH		BS; GREY WITH OX INT		1	12
146	ZDATE						M2-M3C			

Archive catalogue 2, Briquetage

Cxt	Description	No
001	<i>Topsoil</i>	
001	Miscellaneous/structural. small	11
001	Platform. 30mm thick	1
001	Platform. 36mm thick	1
001	Container. All body sherds	6
002	<i>Unstratified Finds retrieval</i>	
002	Miscellaneous/structural	210
002	Rectangular Pedestal/brick. 60 x 65mm at base and minimum 97mm tall	1
002	Disc pedestal. 20mm tall x >30 and >50mm	1
002	Pedestal fragment	1
002	Platform piece. 40mm thick	1
002	Containers. Includes 13 base fragments from straight (linear) vessel and from rounded corners of vessels. Also one rounded rim	291
003	<i>Surrounding Ditch cut Northern end</i>	
003	Platform fragment	1
003	Pedestal. Minimum 65mm tall x c 300mm diam	1
003	Containers including one rounded (in plan) base	20
004	<i>Fill of Cut 003 Surrounding Ditch Northern end</i>	
004	Miscellaneous/structural	65
004	Platform piece 54mm thick	1
004	Pedestal fragment.	1
004	Containers. All body sherds	45
005	<i>Fill of cut 003 Surrounding Ditch northern end</i>	
005	Miscellaneous/structural. Includes structural pieces with 'rim' at top of oven/hearth	110
005	Platform fragment. 30mm thick	1
005	Container. All body sherds	62
006	<i>Sondage cut Section 19 north of ditch cut 003</i>	

Cxt	Description	No
006	Miscellaneous/structural	76
006	Container. Both body sherds	2
008	<i>Fill of 007 Surrounding Ditch northern end. Same as 062</i>	
008	Miscellaneous/structural. Includes several large fragments which could be part of pedestal type described below. Some pieces could be platforms or structural. One piece with no intact outer edges has pre-firing perforation 13mm in diam.	41
008	Brick. Large square form 78mm x 75mm at base and minimum 85mm tall (broken)	1
008	Containers including three base fragments and one pointed rim. One piece has wet clay spacer has fired and has part of container adhering	72
009	<i>Not located</i>	
009	Miscellaneous/structural	181
009	Pedestal. 30mm tall x 30-35mm diam	1
009	Clip 60 x 35 x 25 mm	1
009	Pedestal frag	1
009	Clip or pedestal fragment	1
009	Broken pedestal 40mm tall by minimum 25mm diam at base	1
009	Broken pedestal or bar fragments	2
009	Two miscellaneous pieces. Probably squeezed wet into gaps between containers and/or pedestals but of otherwise unknown function	2
009	Container body sherds	218
009	Container base frag. Almost full profile min 85mm tall. Vessel curving in towards the top. Also Container base from rounded corner. Base 11mm thick. Also three bases and two rims. One rim has remains of (fired) clip adhering	6
011	<i>Sondage Cut Northwest corner</i>	
011	Miscellaneous/structural	
011	Containers. Includes one repaired rim	4
012	<i>Fill of 027 surrounding ditch northern end. Poss same as 005</i>	
012	Miscellaneous/structural.	427
012	Broken Pedestal	1
012	Probable platform. Flanged piece (shaped like a tegula) but with the surface on the opposite side to the tegula clearly the surface as it has white salt coating. Probably part of a flue	1
012	Container.	87
013	<i>Unstratified finds retrieval SW Corner</i>	
013	Miscellaneous/structural	30
013	Container, includes one rounded rim	47
014	<i>Fill of settling tank 016</i>	
014	Miscellaneous/structural	
014	Clip fragment	1
014	Containers including two rounded rims and four bases	
015	<i>Fill of settling tank 016</i>	
015	Small Miscellaneous and structural, some overfired	
015	Pedestal fragments. Heavily overfired	3
015	Clip fragments	6
015	Pedestal. Complete 50mm tall 35mm diam.	1

Cxt	Description	No
015	10 container bases. Includes 2 pieces sawn vertically pre-firing. These bases have very sharp change from vertical to horizontal at base. One is a rounded (in plan) corner piece and is more rounded at the break of slope from the vessel walls to base. One base fragment seems to have been repaired by adding a piece of a second container to the outside. Also three rims including two with repairs, presumably where clips were removed.	10
015	Container body sherds	161
017	<i>Not located</i>	
017	Miscellaneous/structural	11
017	Container	4
018	<i>Cut of Sondage 018 (Section 11) SE Corner</i>	
018	Miscellaneous/structural	13
018	Containers. All body sherds	20
019	<i>Fill of Settling tank 020</i>	
019	Miscellaneous/structural	13
019	Containers. Includes four bases including one rounded corner piece (in plan), three other straight sides and two pointed rims	198
021	<i>Unstratified Finds Retrieval</i>	
021	Container Fragments including one with distinctive grog. All body sherds	7
022	<i>Fill of 023 Surrounding Ditch North</i>	
022	Pedestal fragment	1
022	Miscellaneous/structural	35
022	Container fragments including one pointed rim and one base	102
024	<i>Unstratified Finds retrieval</i>	
024	Miscellaneous/structural	40
024	Container fragments including one rounded rim and one base sherd	70
025	<i>Dump deposit upper fill of surrounding ditch. South. Same as 099</i>	
025	Miscellaneous/structural including large pieces and platforms.	51
025	Platform piece.>200 x >100 x 35mm thick	1
025	Broken platform 29mm thick	1
025	Container fragments including four base sherds and one pointed rim. Also one sawn body sherd	97
026	<i>Unstratified Finds Retrieval</i>	
026	Miscellaneous/structural	2
026	Container fragments including one base	34
028	<i>Same as 115. Fill of Pit/ditch 029 at south end</i>	
028	Miscellaneous/structural	43
028	Containers. Includes one rim and one large base from straight sided vessel	59
029	<i>Cut of Ditch/Pit 029 at southern end</i>	
029	Miscellaneous/structural	23
029	Fragment of disc pedestal	1
029	Platform pieces (fragmentary)	2
029	Containers. All body sherds 6-11mm thick	29

Cxt	Description	No
030	<i>Fill of 031 Late ditch cutting Surrounding ditch at southern end</i>	
030	Miscellaneous/structural. Including one Misc piece that has heavily vegetated fabric unlike the remainder	27
030	Pedestal fragment c25mm diam x minimum height 35mm	1
030	Pedestal fragment	
030	Pedestal or bar fragment. Highly/over- fired. Min. 75mm tall	1
030	Pedestal fragment	1
030	Clip. Space between vessels = 20mm	1
030	Containers. Includes two from bases, one of them a corner (in plan). One large Sawn piece 15mm thick at base. Body sherds chiefly around 10mm thick	19
031	<i>Cut of later ditch 030 southern end</i>	
031	Miscellaneous/structural	11
031	Containers. All body sherds 8-9mm thick	19
032	<i>Unstratified Finds retrieval</i>	
032	Containers. Body sherds. 8-10mm thick	2
034	<i>Not located</i>	
034	Miscellaneous/structural	1
034	Containers. All body sherds. All body sherds between 6 and 10mm thick	11
035	<i>Same as 083 Dumped deposit Section 6</i>	
035	Miscellaneous/structural	3
035	Large Pedestal/Brick fragment. Heavily fired. 55 x 53 x 84mm tall	1
036	<i>Fill of cut 038 Surrounding ditch North end</i>	
036	Miscellaneous/structural	26
036	Containers. Body sherds from vessels 6-10mm thick. One base sherd straight-sided (in plan) vessel	33
041	<i>Fill of settling tank 016</i>	
041	Containers. All body sherds 6-9mm thick. One curving (in plan) base from corner	6
042	<i>Fill of gully 043 extending from settling tank</i>	
042	Miscellaneous/structural includes heavily/over-fired pieces	6
042	Clip. 60 x 35 x 30mm tall	1
042	Possible pedestal fragment	1
042	Containers. Includes one base. All sherds from vessels 5-9mm thick	69
044	<i>Fill of 023 Surrounding ditch north end</i>	
044	Miscellaneous/structural. Includes piece with white salt coating that is heavily overfired	5
044	Containers. All body sherds. 6-7mm thick	25
046	<i>Same as 025/099. Dumped upper fill of S ditch Section 11 south</i>	
046	Miscellaneous/structural.	7
046	Platform fragment	1
046	Fragment of Disc pedestal	1
046	Containers. Unusual collection with some 'typical' container pieces but other (including large fragments) that are briquetage fabric but generally thicker (9-13mm) and with little or no white salt 'coat'	73
047	<i>Fill of gully 048 between settling tanks</i>	

Cxt	Description	No
047	Miscellaneous/structural. Including four heavily fired/vitrified pieces	8
047	Possible pedestal or clip	1
047	Containers. 1 rim, the remainder body sherds	31
048	<i>Cut of gully between settling tanks</i>	
048	Containers. One rounded rim (6mm thick)	3
049	<i>Fill of gully 050 east of settling tanks</i>	
049	Miscellaneous/structural. One piece with joining horizontal and vertical face. Possible edge (rim) of hearth/oven	1
049	Container. All body sherds	6
051	<i>Fill of gully 052 east of settling tanks</i>	
051	Container. All body sherds	8
052	<i>Cut of gully east of settling tanks</i>	
052	Miscellaneous/structural includes four highly vitrified pieces	18
052	Containers. All body sherds 6-10mm thick except for one base	91
054	<i>Fill of 055 surrounding ditch Section 18</i>	
054	Miscellaneous/structural. Includes large structural piece 120 x 130 x 65mm with one smoothed side with white salt coat. Other smaller fragments that are of similar form. Generally, where all exists the 'surface' is finger-smoothed and with white salt coat and beneath that the clay goes purple then to buff and becomes less solid. Where all the thickness is present it measures c65mm thick	212
054	Pedestal fragments	2
054	?Platform piece	1
054	Containers. Generally 8-12mm thick. Contains 14 bases one of which is sawn and five rims, these chiefly rounded.	348
056	<i>Dumped deposit. Not located</i>	
056	Miscellaneous/structural. Includes one over-fired piece with salt glaze	26
056	Container. Contains three bases and one highly vitrified piece of probable container	41
058	<i>Buried soil. Same as 134. In sondage 057</i>	
058	Miscellaneous/structural	13
058	Container. All body sherds	18
059	<i>Unstratified finds retrieval</i>	
059	Miscellaneous/structural	15
059	Container. All body sherds	10
072	<i>Dumped deposit Section 6 surrounding ditch east side</i>	
072	Structural. Large pieces of hearth/oven structure one piece has smoothed and yellow coated surface, the remainder have no surfaces	20
085	<i>Dumped deposit. Not located</i>	
085	Miscellaneous/structural.	12
085	Fragment of pedestal or clip. 25mm tall (or if clip the distance the containers were kept apart)	1
085	Container. Includes one base sherd	26
086	<i>Dumped deposit. Not located</i>	
086	Miscellaneous/structural. Includes one very large piece	212

Cxt	Description	No
086	Possible platform piece	1
086	Fragments of pedestals	5
086	Container. Includes four base sherds and two rounded rims, one 11mm thick and one 5mm thick. Also repaired rim. Two vessel fragments heavily over-fire	165
087	<i>Fill of 088 surrounding ditch southern end</i>	
087	Miscellaneous/structural. Includes very heavily fired pieces	147
087	Platform fragment	1
087	Pedestal fragment	1
087	Container. A number of sherds have rough (scraped) insides. 13 bases (higher than average percentage). Two bases had rounded joins between wall and base and show little evidence for the usual white salt coat (bleach) that is prevalent in others. One other sherd severely over-fired on base. Two rims, one 4mm thick and over-fired, the other 13mm thick	65
102	<i>Dumped deposit Section 11</i>	
102	Miscellaneous/structural. including platform pieces	39
111	<i>Fill of sondage 012. Poss surrounding ditch north end</i>	
111	Clips – each holds vessel c20mm apart	4
111	Clip fragment broken	1
111	Miscellaneous/structural	15
111	Container includes four bases, three of these from curving corners and one from straight part of vessel (in plan)	40
113	<i>Fill of ditch 114. Location not traced</i>	
113	Miscellaneous/structural	167
113	One broken pedestal	1
113	One broken Platform piece. Slightly wedge-shaped. White salt coating on one flat surface	1
113	Container	4
122	<i>Primary fill of ditch/pit 029 (See C14 date)</i>	
122	Container	1
	<i>Finds from machining</i>	
	Container, including one base	39
	<i>Gully Fill. Unlocated</i>	
	Container, including one base	20
	<i>Hearth Area . Prob surrounding ditch north end</i>	
	Miscellaneous/structural	13
	Clip with 27mm gap between vessels	1
	Broken clip or pedestal	1
	Pedestal fragment	1
	Broken object - possible bar	1
	Pedestal fragments	2
	Broken Brick	1
	Disc pedestal 20mm tall	1
	Containers including six bases from straight sided (in plan) vessels and one corner vessel. Also two rims, one pointed the other rounded	122
	<i>Ashy Slot. Prob in Section 6</i>	

Cxt	Description	No
	Miscellaneous/structural	53
	Fragmentary pedestals/clips	4
	Stabiliser support (PL11a)	1
	Container including one base	20
	<i>Cleaning SE Corner</i>	
	Miscellaneous/structural	34
	Piece with pre-firing perforation. No other complete surfaces. Poss loomweight fragment but more likely structural or platform	1
	Container, including one base	24
	<i>'Special Pieces' accidentally removed from bags bearing context numbers</i>	
	1 – Broken clip	1
	2 - Complete clip Vessels would have been 70mm apart	1
	3 – Broken clip	1
	4 – Broken pedestal	1
	5 – Broken pedestal	1
	6 – Platform fragment	1
	7 – Structural piece	1
	8 – Small heavily fired structural piece	1
	9 – Broken clip	1
	10 – Perforated structural piece. Pre-fired perforation c18mm diam	1
	11 – Broken pedestal	1
	12 – Container - repaired	1
	13 – Container base. Re-lined	1
	14 – Container - repaired	1

Appendix 4

RADIOCARBON DATING CERTIFICATE *Scottish Universities Environmental Research Centre*

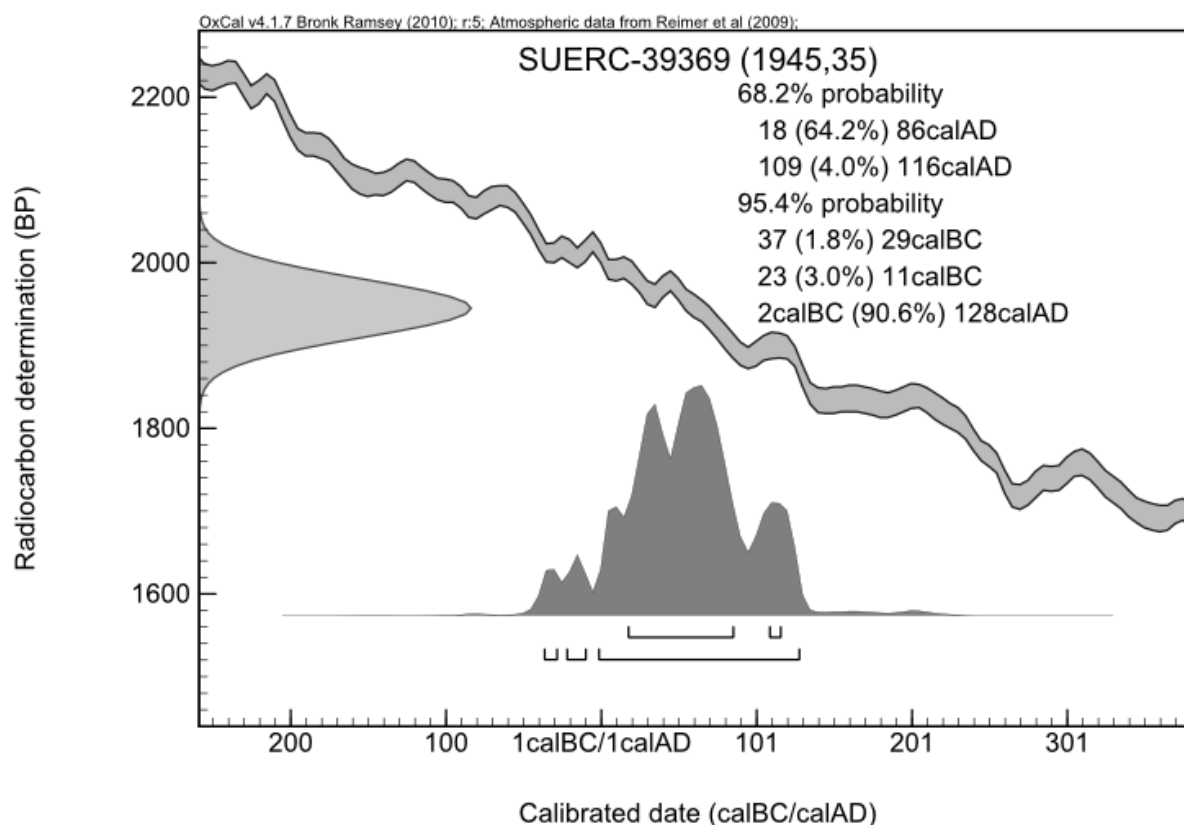
Laboratory Code	SUERC-39369 (GU26757)
Site Reference	Willow Tree Farm Community Excavation
Context Reference	029
Sample Reference	4
Material	Wood :-
$\delta^{13}\text{C}$ relative to VPDB	-26.7 ‰
Radiocarbon Age BP	1945 ± 35

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standards, background standards and the random machine error.

The calibrated age ranges are determined using the University of Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.1 (Bronk Ramsey 2009). Terrestrial samples are calibrated using the IntCal09 curve while marine samples are calibrated using the Marine09 curve.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or Telephone 01355 270136 direct line.

Calibration Plot



Appendix 5

GLOSSARY

Alluvium	A deposit (usually clay, silts or sands) laid down in water. Marine alluvium is deposited by the sea and freshwater alluvium by streams, rivers or within lakes.
Briquetage	A term given to fragments of ceramic equipment and hearth/oven remains from the processing of salt.
Context	An archaeological context represents a distinct archaeological event or process. For example, the action of digging a pit creates a context (the cut) as does the process of its subsequent backfill (the fill). Each context encountered during an archaeological investigation is allocated a unique number by the archaeologist and a record sheet detailing the description and interpretations of the context (the context sheet) is created and placed in the site archive. Context numbers are identified within the report text by brackets, <i>e.g.</i> (004).
Cropmark	A mark that is produced by the effect of underlying archaeological features influencing the growth of a particular crop.
Cut	A cut refers to the physical action of digging a posthole, pit, ditch, foundation trench, <i>etc.</i> Once the fills of these features are removed during an archaeological investigation the original 'cut' is therefore exposed and subsequently recorded.
Dumped deposits	These are deposits, often laid down intentionally, that raise a land surface. They may be the result of casual waste disposal or may be deliberate attempts to raise the ground surface.
Fill	Once a feature has been dug it begins to silt up (either slowly or rapidly) or it can be back-filled manually. The soil(s) which become contained by the 'cut' are referred to as its fill(s).
Foraminifera	Microscopic organisms that are particular to certain marine environments, thus enabling the salinity to be determined as well as intertidal and sub-tidal depositional environments to be established.
Geophysical Survey	Essentially non-invasive methods of examining below the ground surface by measuring deviations in the physical properties and characteristics of the earth. Techniques include magnetometry and resistivity survey.
Iron Age	A period characterised by the introduction of Iron into the country for tools, between 800 BC and AD 50.
Layer	A layer is a term to describe an accumulation of soil or other material that is not contained within a cut.
Medieval	The Middle Ages, dating from approximately AD 1066-1500.
Natural	Undisturbed deposit(s) of soil or rock which have accumulated without the influence of human activity.
Post-medieval	The period following the Middle Ages, dating from approximately AD 1500-1800.
Prehistoric	The period of human history prior to the introduction of writing. In Britain the prehistoric period lasts from the first evidence of human occupation about 500,000 BC, until the Roman invasion in the middle of the 1 st century AD.

Romano-British	Pertaining to the period dating from AD 43-410 when the Romans occupied Britain.
Saltern	Salt producing site typified by ash, derived from fuel needed to evaporate sea water, and briquetage.
Saxon	Pertaining to the period dating from AD 410-1066 when England was largely settled by tribes from northern Germany.

Appendix 6

THE ARCHIVE

The archive consists of:

159	Context records
8	Context register sheets
3	Photographic record sheets
1	Section record sheet
1	Plan record sheet
25	Sheets of scale drawings
1	Sample record sheet
5	Sample sheets
1	Stratigraphic matrix
3	Boxes of finds

All primary records and finds are currently kept at:

Archaeological Project Services
The Old School
Cameron Street
Heckington
Sleaford
Lincolnshire
NG34 9RW

The ultimate destination of the project archive is:

The Collection
Art and Archaeology in Lincolnshire
Danes Terrace
Lincoln
LN2 1LP

Accession Number:	LCNCC: 2011.339
Archaeological Project Services Site Code:	WTCE 11
OASIS Record Number:	archaeo11-148514

The discussion and comments provided in this report are based on the archaeology revealed during the site investigations. Other archaeological finds and features may exist on the development site but away from the areas exposed during the course of this fieldwork. *Archaeological Project Services* cannot confirm that those areas unexposed are free from archaeology nor that any archaeology present there is of a similar character to that revealed during the current investigation.

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Appendix 7

OASIS SUMMARY RECORD

OASIS ID: archaeo11-148514	
Project details	
Project name	Willow Tree Fen
Short description of the project	Community excavation of a 1st - mid 2nd century saltern (salt-making site) with agricultural features of the 3rd century. Numerous dumped deposits associated with the saltern were revealed which produced a significant amount of briquetage.
Project dates	Start: 20-09-2011 End: 04-10-2011
Previous/future work	Yes / Not known
Any associated project reference codes	WTCE11 - Sitecode
Any associated project reference codes	LCNCC: 2011.339 - Museum accession ID
Any associated project reference codes	3012 - Contracting Unit No.
Type of project	Recording project
Site status	None
Current Land use	Cultivated Land 4 - Character Undetermined
Monument type	SALTERN Roman
Monument type	DITCH Roman
Monument type	DUMPED DEPOSIT Roman
Significant Finds	POTTERY Roman
Significant Finds	BRIQUETAGE Roman
Significant Finds	WORKED BONE Roman
Investigation type	"Open-area excavation"
Prompt	Voluntary/self-interest
Project location	
Country	England
Site location	LINCOLNSHIRE SOUTH HOLLAND DEEPING ST NICHOLAS Willow Tree Fen
Study area	510.00 Square metres
Site coordinates	TF 1779 2211 52 0 52 47 00 N 000 15 11 W Point
Project creators	
Name of Organisation	Archaeological Project Services
Project brief originator	None
Project design originator	Tom Lane

Project director/manager	TOM LANE
Project supervisor	Tom Lane, Dale Trimble
Type of sponsor/funding body	Other Charitable Trust
Name of sponsor/funding body	Lincolnshire Wildlife Trust
Project archives	
Physical Archive recipient	The Collection
Physical Archive ID	LCNCC: 2011.339
Physical Contents	"Animal Bones","Ceramics","Environmental","Glass","Worked bone"
Digital Archive recipient	Archaeological Project Services
Digital Contents	"Animal Bones","Ceramics","Environmental","Glass","Stratigraphic","Survey","Worked bone"
Digital Media available	"Geophysics","Images raster / digital photography","Images vector","Spreadsheets","Survey","Text"
Paper Archive recipient	The Collection
Paper Archive ID	LCNCC: 2011.339
Paper Contents	"Animal Bones","Ceramics","Environmental","Glass","Stratigraphic","Survey","Worked bone"
Paper Media available	"Context sheet","Correspondence","Matrices","Photograph","Plan","Report","Section","Survey "
Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	Archaeological Excavation at Willow Tree Fen, Deeping St Nicholas, Lincolnshire (WTCE 11)
Author(s)/Editor(s)	Cope-Faulkner, P.
Other bibliographic details	48/13
Date	2013
Issuer or publisher	Archaeological Project Services
Place of issue or publication	Heckington, Sleaford
Description	A4 comb-bound, 1 A3 fold-out