

Padholme Flood Protection (PFP'08)

An Archaeological Watching Brief



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Padholme Flood Protection (PFP'08); An Archaeological Watching Brief

Site 1: Padholme Drain (PFP'08-1)

Site 2: Parish Drain (PFP'08-2)

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CONTENTS

| | |
|--------------------------------------|--------------|
| List of Figures | i |
| List of Tables | i |
| Acknowledgements | i |
| <i>Summary</i> | <i>ii</i> |
| 1 INTRODUCTION | 1-2 |
| 1.1 Project Background | 1 |
| 1.2 Archaeological Background | 1 |
| 2. METHODOLOGY | 3 |
| 3. RESULTS | 3-6 |
| 3.1: Site 1, PFP'08-1 | 3 |
| 3.2: Site 2, PFP'08-2 | 5 |
| 4. DISCUSSION | 6-8 |
| 4.1: Site 1: Padholme Drain | 6 |
| 4.2: Site 2: Parish Drain | 7 |
| 5. APPENDICES | 9-13 |
| 5.1 Tables | 9 |
| 5.2 Feature Descriptions | 11 |
| <i>Site 1 (PFP'08-1)</i> | <i>11</i> |
| <i>Site 2 (PFP'08-2)</i> | <i>11</i> |
| 5.3 Context Descriptions | 12 |
| <i>Site 1 (PFP'08-1)</i> | <i>12</i> |
| <i>Site 2 (PFP'08-2)</i> | <i>13</i> |
| BIBLIOGRAPHY | 14 |
| FIGURES | 16-21 |

List of Figures

Figure 1: Location Map.

Figure 2: Photograph of widening of Padholme Drain (Site 1).

Figure 3: Photograph of Section at Parish Drain (Site 2).

Figure 4: Location of Excavated Dyke against Location of Flag Fen and Edgerley Drain Road.

Figure 5: Partial Section of Site 1.

Figure 6: Location of Site 2 against Location of Elliot Site.

Figure 7: Section of Site 2.

List of Tables

Table 1: Site 1 – Padholme Drain: Heights OD and Thicknesses of Layers

Table 2: Site 2 – Parish Drain Heights OD and Thicknesses of Layers

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Summary

This report presents the findings of an archaeological watching brief. Two flood-protection ditches, Padholme Drain and Parish Drain, were re-cut to increase their drainage capacity. The newly-exposed sections were recorded. The stratigraphical sequences and features revealed are discussed, and conclusions drawn, in the context of the archaeology and environmental history of the area.

The work carried out during this small project contributes further information to our understanding of the formation and use of the Fengate and Flag Fen area in prehistory. Site 1, the Padholme Flood Protection Drain, provides a detailed stratigraphical sequence for the formation of the fen in the heart of Flag Fen between Fengate and Whittlesea Island. Site 2, The Parish Drain, provides further information regarding the form of the Middle Bronze Age droveway and Iron Age features in the Elliot and Cat's Water sites, by the late Fen edge. This includes a detailed section through this area of considerable prehistoric human activity, providing further information about the formation of the land surfaces, and human responses to this, right on the cusp of the transforming Fen edge.

1. INTRODUCTION

This report presents the findings of an archaeological watching brief. Two flood-protection ditches, Padholme Drain and Parish Drain, were re-cut to increase their drainage capacity. The newly-exposed sections were recorded. The stratigraphical sequences and features revealed are discussed, and conclusions drawn, in the context of the archaeology and environmental history of the area.

1.1 Project Background

The PFP'08 project consisted of performing watching briefs at two sites (see Figure 1). The objective was to record (and excavate if required) archaeological traces of human activity revealed as a consequence of the work being carried out. At Site 1 a section of an existing dyke, Padholme Drain, was widened to allow it to fulfil the role of a flood drain should the need arise (see Figures 2 and 4). This process exposed a new base and side to the cut which was recorded (see Figure 5). At Site 2 an existing water course, known variously as 'Parish Drain' (e.g. Pryor 1991, 2001) or 'Racecourse Drain' (see Figures 3 and 6), was re-graded, vegetation removed from the sides, and the freshly-exposed east-southeast bank section recorded (see Figure 7).

1.2 Archaeological Background

Both sites 1 and 2 are located within an area of considerable historical interest, as demonstrated by extensive previous archaeological work in the region. Site 1, Padholme Drain, is located less than half a kilometre northwest of the internationally known Bronze Age site of Flag Fen, and spans land that was once the prehistoric fen edge between Flag Fen to the east and Fengate to the west. Site 2, Parish Drain, is in the heart of the Fengate area on the eastern edge of Peterborough, and approximately 1km west of the Flag Fen site (see Figures 1 and 4)

Flag Fen and Fengate are notionally separated from each other by the Cat's Water Drain (Pryor 1991); although this is a modern boundary and the sites in that area are all essentially part of the same landscape. The land to the west of Cat's Water is the higher ground, and the land to the east as far as Whittlesey 'island' is lower and waterlogged, constituting the old fen edge.

The wider area, as well as encompassing Flag Fen and Fengate, also includes numerous other important and related sites, such as Bradley Fen (Gibson & Knight 2006), Must Farm (Evans *et al.* 2005; Tabor 2008), King's Dyke (Gibson & Knight 2002), King's Delph and additional sites around the Whittlesey Island area (see Appleby 2008).

This area has produced extensive evidence of prehistoric and later use of the fen edge, including a Neolithic henge, Later Neolithic, Bronze Age and Early Iron Age settlement, a Bronze Age log boat, round barrows and burnt mounds, a deposit of later Bronze Age metal weaponry at the fen edge and an extensive network of prehistoric land division (Appleby 2008). The Fengate area includes a Neolithic circular feature identified as a henge monument by Pryor in the Cat's Water excavations (1974; 1978;

1980; 1984; 2001) and a Neolithic pit collection interpreted as a house and pits by Gibson (1998), as well as Bronze Age and Iron Age settlements, droveways and field systems (Gibson & Knight 2002, 2006; Evans *et al.*, forthcoming). Finds at Bradley Fen include Neolithic flint scatters and metalled surfaces, Early Bronze Age pits, postholes, burnt mounds and watering holes, a Middle Bronze Age field system, Later Bronze Age roundhouses, pits, granaries and fen edge deposits of metalwork, Iron Age settlement and metalworking, and a Roman road, field system and settlement (Appleby 2008, Gibson & Knight 2002, 2006).

Not only do these finds indicate the wealth of prehistoric (and later) activity around the fen edge, they also illustrate the remarkable preservation conditions in this area, with the recovery of superbly preserved wooden structures, tools and objects from these waterlogged contexts. In addition plant remains providing environmental information can be recovered, and actual prehistoric land surfaces have been preserved in places, sometimes including animal hoof prints, for example (Gibson & Knight 2006).

Examination of newly-cut ditch sides is a tried-and-tested method of identifying previously undiscovered archaeological contexts (Pryor 1991) and gaining more elaborate understandings of the sedimentary and environmental sequences in the different parts of the fenland environment, as the fresh cut exposes the stratigraphy of the landscape.

Parish Drain in its entirety runs from Fourth Drove southwest through the 'Cat's Water' and 'Site Q' sites (see Pryor 2001; Cutler 1998) before crossing Third Drove, turning and continuing to the west-southwest. This area between Fourth Drove and Third Drove includes a Neolithic 'henge monument' identified by Pryor in the Cat's Water excavations (Pryor 1974; 1978; 1980; 1984; 1991; 2001) and the Neolithic 'house' and pits identified by Gibson (1998), excavating the 'Co-Op Site'. It also encompasses the excavation sites of 'Elliott Site' (Beadsmoore 2006), 'TK Packaging Site' (Pryor & Trimble 2000) and 'Third Drove Site' (Gdaniec 1998.). The focus of the present excavation (re-cutting) was two sections of Parish drain in this area between Fourth Drove and Third Drove, adjacent to the Elliott Site. The Parish Drain follows the line of the fen edge of the Iron Age and Roman periods, forming an approximate boundary between the drier and wetter ground. The Iron Age and Roman field systems in this area appear to have been orientated to this line, whilst the earlier Bronze Age field systems were not (Pryor, 2001).

Previous work in the vicinity of the Padholme Drain was undertaken by 'Archaeological Project Services' (Peachey, 2006) as an evaluation for the flood protection works reported here. The series of test-pits excavated at this time exposed alternating layers of peat and silty deposits, with the topmost peat layers containing bog oak preserved from the flooding of woodland in the area in the 3rd Century AD. These excavations revealed no archaeological material, however. Further exploratory work was also carried out by Northamptonshire Archaeology (Meadows *et al.* 2007) in the fields adjacent to and in which the Padholme drain is situated. No anthropogenic material was produced from these trenches. Tree throws and areas of buried wood were discovered, probably indicating trees' falling in situ as the wooded environment was increasingly inundated in the Bronze Age, as well as driftwood accumulating in the inundated environment.

2. METHODOLOGY

At Site 1, Padholme Drain (PFP'08-1), two sections of the existing dyke (285.94m and 44.84m long, separated by a gap of 24.44m – giving a total dyke length of 355.23m and exposed section length of 330.79m) running ESE to WNW (OS GB coordinates: 522572/ 299212 – 522235/ 299330) was widened by approximately 10.50m to allow it to fulfil the role of a flood drain should the need arise (see Figure 2). The material was removed from the SSW side of the existing dyke by a 20-ton tracked 360° excavator using a toothless bucket, exposing a new base and side to the cut. The new base consisted of a step in the slope of the SSW side of the drain, designed to increase the water-holding capacity of the drain in the event of a flood, without affecting the current level of the water-table by increasing the normal holding-capacity of the ditch. Any affect on the normal level of the water-table would have had detrimental effects upon the Flag Fen site nearby. The exposed section was split into two parts by the intervening presence of a gas main near the WNW end of the dyke (see Figure 4).

At Site 2 (PFP'08-2) an existing water course, known variously as 'Parish Drain' (e.g. Pryor 1991, 2001) or 'Racecourse Drain' (see Figure 3), which runs NNE to SSW (OS GB coordinates: 521648/ 298790 – 521519/ 298590), was re-cut, increasing the angle of the banks to create a shallow V-section with a 2-in-1 gradient. A 7 ton tracked 360° excavator with a toothless bucket was used. The width of the ditch cut was increased by between <0.1m and 1.5m as required to create the desired V-section. The freshly-exposed bank section on the ESE side of the culvert was described and illustrated, and then digitally recorded (see Figure 7). The re-cutting was split into two sections, 100.58m (of which 83.38m featured newly-exposed layers) and 94.43m long, separated by a gap of 42.40m (see Figures 4 and 6).

In both cases the process was observed by the Site Supervisors from Cambridge Archaeological Unit (CAU), Kerry Murrell and Mark Knight who described the contexts and material exposed. The new section and locations of materials were then 3-D digitally recorded by Donald Horne of the CAU.

3. RESULTS

3.1: Site 1, PFP'08-1

The entire 330.79m (355.23m total minus 24.44m gap) extent of the newly-exposed section at Padholme Drain had a very consistent stratigraphic form. The base of the new cut consisted of natural mid-orange sandy gravels, which were variable, mainly loose/ friable but compact on impact, with varying sized stones (2mm-50mm). The top of the natural gravels had an average height of -0.29m OD (Ordnance Datum, above sea level), with a range of -0.60m to -0.17 OD. Detailed measurement data for Site 1 are presented in Table 1.

This natural layer was overlain by water-borne deposits [15], averaging 0.28m thick (0.11m to 0.43m range). This layer constituted a mid-bluish-green marly mix with hints of red, yellow and darker blue degraded stone. The deposit was variable and was occasionally paler with white flecks, and in places a spongy, buttery mix of clayey silt

with patches of moderate/ rare quantities of sand. It was occasionally mixed (particularly at depth) with gravel of the same colour (presumably the base of the channel deposit). The top of this layer had an average height of -0.01m OD (-0.31m to 0.16m range). Well-preserved specimens of natural (un-modified) 'bog oak' wood were found at this level as the 'step' base of the ditch was exposed; this material would have been carried here as floating matter from nearby wooded areas in the earliest stages of the inundation.

Above these deposits was a layer of reed peat, [14], of variable character, averaging 0.27m thick (0.10m to 0.42m range). It was variously wet or moist, soft to moderately firm, and mostly mottled yellow and greenish brown. The layer was matted and carpet-like, with the reeds occasionally in discrete layers. It contained rare/ occasional rounded stone inclusions and flecks of black organic remains. The basal boundary was moderately diffuse but occasionally clear. The top of the reed peat had an average depth of 0.26m OD (0.05m to 0.43m range). One piece of 'bog oak' was found at this level (0.31m OD) on the newly-exposed 'step' of the drain.

The reed peat was in turn overlain by a laminated thick layer of peat, [13], averaging 0.50m thick (0.11m to 0.67m range). This initially appeared to be two layers but was in fact simply drier towards the top, causing the appearance of lamination. The upper portions were mid-greyish and more compacted and friable, blending to dark blackish-brown/ reddish-brown towards the base with occasional flecks of silica. The basal boundary was mostly clear but sometimes diffuse. The top of the peat layer averaged 0.78m OD (0.19m to 1.00m range).

A layer of desiccated peat [12] overlay this, consisting of compacted lumps mixed with friable loose flakes of peat, mottled grey in colour (almost black) with orangey-brown patches. The layer had a fibrous consistency but with no woody element remaining, or other inclusions. The layer had an average thickness of 0.31m (with a range of 0.15m to 0.59m). The basal boundary varied along the length exposed, but was generally sharp. The top of the layer had an average height of 1.09m OD (ranging from 0.60m to 1.40m OD).

The whole sequence was topped by an alluvial layer [11], with a sharp basal boundary. This was a compact/ very compact yellowy-greyish-brown sandy clay with moderately frequent, very small (1mm-4mm) rounded pea grits, rare small (5mm-30mm) rounded stones and occasional small rooting. The top of this layer had been truncated by the excavation machine, so its original thickness and height OD were not possible to determine.

In only three places was this sequence interrupted. Between 224.8m and 228.6m, 231.5m and 237.8m, and 257.7 and 266.7, along the length of PFP08-1 (measuring from east to west) the reed peat layer [14] became thin and patchy, and was accompanied by the presence of patches of isolated peat deposits [16]. These were dark, almost black, wet, soft and spongy. The deposits were very organic, being rich in woody fragments, but with no other inclusions. These patches had apparently been isolated because they were drier and higher than the surrounding reedy peat depressions. They had an average thickness of 0.05m (0.0 to 0.25m range) and were on average 0.19m OD (with a 0.02m to 0.46m OD range).

Between c.330.0m and the end of the cut at 355.22m, a further buried layer, [17], was preserved between the reed peat, [14], and the peat, [13], layers. This was a compact, slightly desiccated layer firmer than the reedy peat below, and not present along the entire length of recorded layers. The deposit was slightly mottled in places but generally light greyish brown (creamy coloured) with rare flecks of sand/ silica and very rare organic/ woody elements. The layer formed an interface between the reedy peat and main layer of peat, and had a diffuse basal boundary with the reedy peat. This probably represented a sedimentary layer created by a period of intermittent brackish water pooling caused by freshwater backing up due to raised seawater levels further away. This would create areas of water-meadow with pooling of riverine sands and silts and shallow water over the flag fen basin. After this period the fresh water levels evidently rose to fully inundate the land again, and peat formation resumed.

3.2: Site 2, PFP'08-2

The re-cutting of the banks of the Parish Drain, which runs north-northeast to south-southwest, exposed a fresh section of stratigraphic layers with a total length of 177.82m. The ditch re-cut existed in two halves, divided by a gap of 59.68m (see Figures 6 and 7). The southern half of the section (94.44m long) included no features or archaeological material. The northern half (83.38m long, plus 17.20m of unexposed section) included three features (see Figure 7; these are also just visible in Figure 3). The newly-cleaned eastern section of the ditch was recorded (see Figure 7). Detailed measurement data for this cut are presented in Table 2.

At the base of the section were natural gravels, context [04], bright mid-orange in colour (though darker and lighter in places), occasionally sandy, and moderately firm. The top of this layer was not always visible above the level of the water-table in the bottom of the ditch; where it was it had an average height of 2.01m OD. These were overlain for most of the extent of the ditch cut by a layer of dark blackish-brown firm peaty soil with a small percentage of silt and sand, context [03]. This had an average thickness of 0.37m (ranging from 0.23m to 0.71m), and the top of the layer was an average of 2.2m OD (1.47m to 2.70m OD range); however, for approximately 20m at the southern end of the northern half of the ditch section, this context [03] was absent. The next layer was a pale/ mid-orangey firm silty clay sub-soil, context [02], with an average thickness of 0.21m (varying from 0.10 to 0.56m). The top of this sub-soil layer was at an average height of 2.41m OD (2.00m to 2.84m OD range). Where there was no peaty soil [03], context [02] directly overlaid the gravels [04]. This in turn was capped by the top-soil, context [01], which was a dark blackish-grey moderately firm peaty clay with frequent bioturbation from roots, and rare/ occasional small rounded stones. This was, on average, 0.36m thick (ranging from 0.20m to 0.45m), and the top of the top-soil (i.e. the current ground-level) had an average height OD of 2.77m (ranging from 2.30 to 3.18m OD).

It should be noted that the above measurements refer to both the northern and southern portions of the ditch cut; when the northern and southern portions are examined individually it is clear that all layers average around 0.5m higher relative to OD in the southern portion than the northern. When considered as a whole, the levels are highest at either end of the drain section exposed (i.e. the north end of the northern

portion and south end of the southern portion), with a distinct dip in the middle of around a metre towards OD.

Feature 1 (F.1) consisted of cut [06] and fill [05], and represented an uneven spread/dump of modern waste material, of unknown total dimensions, cut slightly into the peaty soil [03] but mostly through the topsoil [01] and subsoil [02]. The fill [05] was a soft and friable deposit made up mostly of coal, with hints of sand and clay, frequent glass and broken pottery, and rare small fragments of pottery.

Feature 2 (F.2) consisted of cut [08] and fill [07]. It appears to be a ditch-cut, which was cut into the natural gravels [04], and capped with the peat layer [03]. The cut had an oblique width of 4.2m, with moderately steep break of slope at the top, and a moderately steep top half of the slope. The base and lower levels of the cut remained below the level of the water. The fill was a mid-brownish silty clay with rare small rounded stones. This feature would appear to be the northernmost of a pair of droveway ditches, dated to the Middle Bronze Age (Beadsmoore 2006) that run from Fengate towards the fen edge. The lower-lying, peatier soil of the droveway delineated by these ditches is visible as a cropmark in an aerial photograph of the area prior to the development (see Pryor 1991 Fig. 12, p.26), although it has not previously been noted as such. The droveway ditches diverge just to the northwest of the area of Site 2, to enclose a large rectilinear area which is spanned by the Parish Drain cut of Site 2 (see Figure 6). This area including both ditches immediately to the northwest of Site 2, known as the ‘Elliott Site’, was excavated by Cambridge Archaeological Unit in 2005 (Beadsmoore 2006) (see below). The southernmost of the pair of ditches unfortunately falls just outside of the range of the northern PFP’08-2 cut.

Feature 3 (F.3) was another ditch-like feature, possibly two adjacent and re-cut ditches, although, unlike F.2, it is not visible as such as a cropmark, being masked by alluvial deposits above. F.3 consisted of fill [09] in cut [10]. Like F.2, this was cut into the natural gravels [04] and capped with peat layer [03]. The cut had an oblique width slightly in excess of 8m, a moderately steep break of slope and moderately steep sides (although gentler than those of F.2), and the fill consisted of mid-brownish-grey soft silty clay with rare small rounded stones (see Figure 7). No datable material was recovered from this feature, although see below for a discussion of its probable relationship with Iron Age features revealed during the ‘Elliott Site’ excavations to the northwest (Beadsmoore 2006).

4. DISCUSSION

4.1: Site 1: Padholme Drain

The stratigraphic sequence revealed at Padholme Drain represents an excellent record of the formation of the fenland environment: a classic inundation sequence, with alternating layers of freshwater peat formation ([12], [13], and [14]) and silty sedimentation ([15], [17]) in-washing with brackish water. The ‘bog oak’ wood deposits found below the earliest reed-peat layers would have been carried here as floating matter from nearby wooded areas in the earliest stages of the inundation.

As outlined in the introductory section, the surrounding environment features abundant evidence of human presence throughout post-glacial prehistory and the Roman period, including burnt mounds, houses, metalled surfaces and field boundaries. The Padholme Drain, though in the centre of this landscape, is in an area which would have been amongst the earliest to be inundated during the Early Bronze Age; prior to this time human activity could have been more widely dispersed over a landscape that was more extensive, being dryer than in the later periods. Indeed, archaeological evidence for use of the landscape at contours as low as -0.80m OD is now quite abundant (e.g. Bradley Fen: Gibson & Knight 2006; Must Farm: Evans *et al.* 2005; Tabor 2008). The Padholme Drain section has confirmed the height of the natural gravels within the Flag Fen basin to be well within this range, so placing them firmly within the landscape that was being used in earlier post-glacial prehistory (Neolithic and Early Bronze Age); the fact that no human activity in this larger landscape at that time. As inundation increased, human activity in the area would have become progressively concentrated on the higher contours, as increasingly frequent and more extensive inundation events caused the fen edge to ascend the contours, through the line of the Cat's Water Drain to the level of the Parish Drain in the Iron Age and Roman periods.

4.2: Site 2: Parish Drain

The Parish drain sequence is shorter than that of the Padholme drain; being on the higher ground in the Fengate area to the west of Flag Fen, it was subject to only the very latest of the inundation and peat-formation events. Indeed, the Parish Drain lies at the boundary of the Fen edge in the Iron Age and Roman periods. Unlike Site 1, however, Parish Drain did provide evidence of human activity, with features that correspond with the known archaeology of the immediate area.

Feature 2 would seem to represent a continuation of the Middle Bronze Age droveway ditch which delineates the northern boundary of a droveway identified during the excavation of the Elliott Site (Beadsmoore 2006), to the west of the Parish Drain. This droveway ran from the northwest of the Parish Drain to the southeast and the Bronze Age fen edge. The ditches that defined the droveway were bracketed in age by Early Bronze Age pits that predated them and by Late Bronze Age pits that post-dated and cut into them. The droveway ditches and the drove itself were thus of Middle Bronze Age date, and the presence of Late Bronze Age pits in the centre of the droveway itself indicated that it was out of use by this point (Beadsmoore 2006).

The northern droveway ditch (called F.66 in the Elliott site excavations) varied in width from 1.1m-3.42m wide, and 0.3m-1.1m deep, with moderately steep sides and a rounded base (Beadsmoore 2006 p.16). This contained between one and six silty sand fills created by silting-up and weathering, showing that the ditch was exposed throughout its life and not deliberately back-filled. These fills included finds of cattle and sheep/ goat bones, burnt clay and stones and 17 lithic artefacts. The latest of these were Middle/ Late Bronze Age in type. This section of the ditch actually terminated in a butt-end just to the west of the Parish Drain, although it did also continue to the east of the Parish Drain as F.353 in Elliott Site C.

The southern droveway ditch (called F.102 in the Elliott Site excavations) would have run through the Parish Drain and appeared in the section which was unfortunately not exposed by the re-cutting. The droveway itself between the two ditches retained areas of metalling in places, the remaining fragments of a compacted gravel surface about 4cm thick (Beadsmoore 2006).

As is clearly visible on Figure 7 the droveway itself, between the droveway ditches (the northernmost of which is represented by F.2), actually occupied the lowest-lying ground in the immediate area, and would have resulted in an embayment at the fen edge, at the end of the droveway, at which livestock could be watered. This land formation would have been the first to be inundated with rising water levels in the Early Iron Age.

It can be seen from the Parish Drain section (Figure 7) that the northern ditch (F.2) was cut through now-absent soils into the natural gravels; following the erosion of the upper soil layer(s) during inundation, these were replaced with a layer of peat, context [03]. Interestingly, this peat layer is absent from the central part of the Parish Drain section, which corresponds with the slightly lower-lying droveway itself. Although being one of the first areas to be inundated, and to experience the formation of the peat layer, it is evident that the droveway was subsequently subject to greater erosion which removed the peat from this lower-lying part of the land surface. Subsequently a subsoil formed over the entire area [02].

It is most likely that F.3, interpreted as perhaps representing two cuts, constitutes the crossing-point of the two Iron Age ditches identified in the Elliott Site excavation Area A/ B (F.230 and F.233; Beadsmoore 2006) running northwest to southeast towards the Parish Drain (see Figure 6). Like the Middle Bronze Age droveway ditch, these were evidently cut into the natural gravels through soils that are now absent, and then capped by the later peat formation [03]. This dates the peat formation to after their construction in the Iron Age. The two ditches do not appear in Elliott Site C, to the East of the Parish Drain, which is to be expected; Area C in fact contained no features later than the Late Bronze Age, as this area was inundated by the time of the Iron Age. If F.3 represents a part of these ditches (Elliott Site F.230 and F.233) it would seem likely that they terminated not far to the SE of the Parish Drain.

The work carried out during this small project has contributed further information to our understanding of the formation and use of the Fengate and Flag Fen area in prehistory. Site 1, the Padholme Flood Protection Drain, has provided a detailed stratigraphical sequence for the formation of the fen in the heart of Flag Fen between Fengate and Whittlesea Island. Site 2, the Parish Drain, has provided further information regarding the form of the Middle Bronze Age droveway and Iron Age features in the Elliott and Cat's Water sites, by the late Fen edge. This has provided a detailed section through this area of considerable prehistoric human activity, providing further information about the formation of the land surfaces, and human responses to this, right on the cusp of the transforming Fen edge.

5 APPENDICES

5.1 Tables

| Padholme Drain - eastern portion (285.9416m long; followed by 24.4369m gap) | | | | | | | | | | | | | | | |
|--|-----------------------------|------------------|------------------|------------------|-----------------------|------------------|----------------------------------|------------------|------------------|------------------|-------------------------------|------------------|-----------------------------|------------------|------------------|
| | Desiccated Peat [12] | | Peat [13] | | Reed Peat [14] | | Water-Borne Deposits [15] | | NATURAL | | Proto Buried Soil [17] | | Isolated Peat [16] | | |
| | OD height | Thickness | OD height | Thickness | OD height | Thickness | OD height | Thickness | OD height | Thickness | OD height | Thickness | | OD height | Thickness |
| 0m | 1.0779 | 0.2503 | 0.8276 | 0.5922 | 0.2354 | 0.2063 | 0.0291 | 0.2309 | -0.2018 | Na | na | na | | na | na |
| 20m | 1.0606 | 0.2106 | 0.85 | 0.5332 | 0.3168 | 0.2769 | 0.0399 | 0.2089 | -0.169 | Na | na | na | | na | na |
| 40m | 1.0335 | 0.2009 | 0.8326 | 0.5006 | 0.332 | 0.2941 | 0.0379 | 0.2234 | -0.1855 | Na | na | na | | na | na |
| 60m | 1.0978 | 0.3835 | 0.7143 | 0.4182 | 0.2961 | 0.2483 | 0.0478 | 0.2138 | -0.166 | Na | na | na | | na | na |
| 80m | 1.1747 | 0.5956 | 0.5791 | 0.3045 | 0.2746 | 0.2702 | 0.0044 | 0.1977 | -0.1933 | Na | na | na | | na | na |
| 100m | 1.2411 | 0.3156 | 0.9255 | 0.6252 | 0.3003 | 0.2591 | 0.0412 | 0.2538 | -0.2126 | Na | na | na | | na | na |
| 120m | 1.1663 | 0.2715 | 0.8948 | 0.53 | 0.3648 | 0.2 | 0.1648 | 0.4273 | -0.2625 | Na | na | na | | na | na |
| 140m | 1.2588 | 0.3 | 0.9588 | 0.55 | 0.4088 | 0.32 | 0.0888 | 0.3385 | -0.2497 | Na | na | na | | na | na |
| 160m | 1.3998 | 0.49 | 0.9098 | 0.55 | 0.3598 | 0.19 | 0.1698 | 0.4235 | -0.2537 | Na | na | na | 1: beginning (224.8) | 0.0419 | 0 |
| 180m | 1.2724 | 0.3334 | 0.939 | 0.5756 | 0.3634 | 0.33 | 0.0334 | 0.3283 | -0.2949 | Na | na | na | middle (226.0) | 0.1337 | 0.0645 |
| 200m | 1.2891 | 0.2866 | 1.0025 | 0.6672 | 0.3353 | 0.3505 | -0.0152 | 0.2459 | -0.2611 | Na | na | na | end (228.6) | 0.2848 | 0 |
| 220m | 1.3334 | 0.3389 | 0.9945 | 0.6408 | 0.3537 | 0.3129 | 0.0408 | 0.3049 | -0.2641 | Na | na | na | 2: beginning (231.5) | 0.2557 | 0 |
| 240m | 1.1815 | 0.3754 | 0.8061 | 0.6335 | 0.1726 | 0.0981 | 0.0745 | 0.2845 | -0.21 | Na | na | na | Middle (234.8) | 0.461 | 0.1684 |
| 260m | 0.9495 | 0.189 | 0.7605 | 0.3267 | 0.4338 | NA | 0.1106 | 0.3401 | -0.2295 | Na | na | na | end (237.8) | 0.1324 | 0 |
| 280m | 0.9905 | 0.2391 | 0.7514 | 0.6249 | 0.1265 | 0.1302 | -0.0037 | 0.1952 | -0.1989 | Na | na | na | 3: beginning (257.7) | 0.0306 | 0 |
| Average | 1.16846 | 0.318693 | 0.849767 | 0.538173 | 0.311593 | 0.249043 | 0.057607 | 0.281113 | -0.22351 | Na | na | na | middle (262.1) | 0.3867 | 0.2493 |
| | | | | | | | | | | | | | end (266.7) | 0.0198 | 0 |
| | | | | | | | | | | | | | Average | 0.194067 | 0.053578 |
| Padholme Drain - western portion (44.8425m long) | | | | | | | | | | | | | | | |
| | Desiccated Peat [12] | | Peat [13] | | Reed Peat [14] | | Water-Borne Deposits [15] | | NATURAL | | Proto Buried Soil [17] | | | | |
| | OD height | Thickness | OD height | Thickness | OD height | Thickness | OD height | Thickness | OD height | Thickness | OD height | Thickness | | | |
| 0m | 0.5999 | 0.4128 | 0.1871 | 0.1108 | 0.0763 | 0.2815 | -0.2052 | 0.3832 | -0.5884 | Na | na | na | | | |
| 20m | 0.861 | 0.3034 | 0.5576 | 0.3862 | 0.1086 | 0.4155 | -0.3069 | 0.3002 | -0.6071 | Na | 0.1714 | 0.0628 | | | |
| 40m | 0.8911 | 0.2001 | 0.691 | 0.4227 | 0.0598 | 0.326 | -0.2662 | 0.2807 | -0.5469 | Na | 0.2683 | 0.2085 | | | |
| End | 0.8443 | 0.1514 | 0.6929 | 0.4557 | 0.0883 | 0.3957 | -0.3074 | 0.1197 | -0.4271 | Na | 0.2372 | 0.1489 | | | |
| Average | 0.799075 | 0.266925 | 0.53215 | 0.34385 | 0.08325 | 0.354675 | -0.27143 | 0.27095 | -0.54238 | Na | 0.225633 | 0.140067 | | | |
| All Average | 1.090695 | 0.307795 | 0.7829 | 0.497263 | 0.263521 | 0.272517 | -0.01166 | 0.278974 | -0.29064 | Na | 0.225633 | 0.140067 | | | |

Table 1: Site 1 – Padholme Drain: Heights OD and Thicknesses of Layers

| Parish Drain - northern portion (83.3843m exposed, followed by 17.2021m unexposed portion; total length 100.5864m; then a 42.4019m unexcavated gap) | | | | | | | | |
|--|---------------------|------------------|---------------------|------------------|------------------|------------------|---------------------|------------------|
| | Topsoil [01] | | Subsoil [02] | | Peat [03] | | NATURAL [04] | |
| | OD height | Thickness | OD height | Thickness | OD height | Thickness | OD height | Thickness |
| 0m | 2.8788 | 0.2018 | 2.677 | 0.0956 | 2.5812 | 0.43 | 2.1512 | na |
| 10m | 2.9019 | 0.3496 | 2.5546 | 0.1718 | 2.3788 | 0.2743 | 2.1054 | na |
| 20m | 2.7057 | 0.4179 | 2.2844 | 0.1818 | 2.1046 | 0.3309 | 1.7736 | na |
| 30m | 2.5623 | 0.3798 | 2.1832 | 0.165 | 2.0184 | 0.2899 | 1.7295 | na |
| 40m | 2.4763 | 0.399 | 2.0773 | 0.1002 | 1.9771 | 0.2321 | 1.745 | na |
| 50m | 2.403 | 0.4128 | 1.9902 | 0.1897 | 1.8005 | 0.3107 | 1.4898 | na |
| 60m | 2.296 | 0.2636 | 2.0324 | 0.5624 | 1.47 | na | under | na |
| 70m | 2.3804 | 0.3575 | 2.0229 | 0.4091 | 1.6138 | na | under | na |
| 80m | 2.4264 | 0.4541 | 1.9723 | 0.2381 | 1.7342 | na | under | na |
| End | 2.408 | 0.4281 | 1.9799 | 0.2521 | 1.7278 | na | under | na |
| Average | 2.54388 | 0.36642 | 2.1774 | 0.2366 | 1.9406 | 0.3113 | 1.8324167 | |
| Parish Drain - southern portion (94.4396m long) | | | | | | | | |
| | Topsoil [01] | | Subsoil [02] | | Peat [03] | | NATURAL [04] | |
| | OD height | Thickness | OD height | Thickness | OD height | Thickness | OD height | Thickness |
| 0m | 2.7163 | 0.2727 | 2.4436 | 0.4148 | 2.0288 | na | under | na |
| 10m | 2.7799 | 0.4467 | 2.3332 | 0.2034 | 2.1298 | na | under | na |
| 20m | 2.7917 | 0.4062 | 2.3855 | 0.1477 | 2.2378 | 0.7092 | 1.5286 | na |
| 30m | 2.8505 | 0.3484 | 2.5021 | 0.1584 | 2.3437 | 0.4061 | 1.9376 | na |
| 40m | 2.869 | 0.2469 | 2.6221 | 0.191 | 2.4311 | 0.4556 | 1.9755 | na |
| 50m | 3.1139 | 0.399 | 2.7149 | 0.1997 | 2.5152 | 0.3316 | 2.1836 | na |
| 60m | 3.1189 | 0.3346 | 2.7843 | 0.1488 | 2.6355 | 0.3284 | 2.3071 | na |
| 70m | 3.1235 | 0.3336 | 2.7899 | 0.172 | 2.6179 | 0.4131 | 2.2048 | na |
| 80m | 3.1784 | 0.3944 | 2.784 | 0.0958 | 2.6882 | 0.3525 | 2.3357 | na |
| 90m | 3.1164 | 0.306 | 2.8104 | 0.0967 | 2.7137 | 0.3518 | 2.3619 | na |
| End | 3.1547 | 0.3106 | 2.8441 | 0.1444 | 2.6997 | 0.3424 | 2.3573 | na |
| Average | 2.9830182 | 0.34537 | 2.6376 | 0.1793 | 2.4583 | 0.4101 | 2.1324556 | |
| All Average | 2.7739048 | 0.3554 | 2.4185 | 0.2066 | 2.2118 | 0.3706 | 2.01244 | |

Table 2: Site 2 – Parish Drain Heights OD and Thicknesses of Layers

5.2 Feature Descriptions

Site 1: None

Site 2

F.1: Modern spread consisting of fill [05] in cut [06]. [05] black waste fill composed mostly of coal with hints of sand and clay; soft and friable with frequent glass and broken pottery, plus rare small fragments of plastic. [06] cut is uneven in form, with unknown total dimensions, representing a spread/ dump of material, cut slightly into peaty soil but mostly through topsoil and subsoil.

F.2: Possible ditch consisting of fill [07] in cut [08]. [07] mid-brownish-grey soft silty clay with rare, small rounded stones. [08] cut has moderately steep top break of slope and moderately steep top half of slope; the rest of the feature remains underwater and under the topsoil. Oblique width 4.2m; depth, orientation and length unknown. No datable material.

F.3: Possible ditch or ditches consisting of fill [09] in cut [10]. [09] mid-brownish-grey soft silty clay with rare, small rounded stones. [10] cut has moderately steep top break of slope and moderately steep top half of slope; the rest of the feature remains underwater and under the topsoil. Oblique width 8m+; depth, orientation and length unknown. No datable material.

5.3 Context Descriptions:

Site 1 (PFP'08-1)

[11] – Layer – **Alluvium** – Compact/ very compact yellowy greyish brown sandy clay with moderately frequent, very small (1mm-4mm) rounded pea grits, rare small (5mm-30mm) rounded stones and occasional small rooting, is a massive fill with a sharp basal boundary.

[12] – Layer – **Top Desiccated Peat** – compacted lumps mixed with friable loose flakes of peat, mottled grey (almost black) with orangey brown patches. No woody element remaining, no other inclusions, is fibrous. Basal boundary varies along length but is generally sharp.

[13] – Layer – **Thick Peat** – thick laminated peat layer appears to be two layers however is just drier towards to top, starts mid greyish more compacted and friable at the top blending to dark blackish brown/ reddish brown towards the base with occasional flecks of silica. Basal boundary is mostly clear but sometimes becomes diffuse.

[14] – Layer – **Reedy Peat** – wet moist soft/ moderately firm, changeable but mostly mottled yellow and greenish brown, moderately organic peat, which is matted and feels like carpet. Contains rare/ occasional rounded stone inclusions and flecks of black organic remains, occasionally the reeds are in nice layers. Basal boundary is moderately diffuse but occasionally clearer.

[15] – Layer – Water-borne **Channel Deposit** – mid-bluish-green marly mix with hints of red, yellow and darker blue degraded stone, is a changeable deposit and occasionally paler with white flecks, spongy, buttery mix of clayey silt with patches of moderate/ rare quantities of sand. Is occasionally mixed (particularly at depth) with gravel of the same colour (presumably the base of the channel deposit).

[16] – Layer – **Isolated Peat** – dark almost black, wet, soft, very organic spongy peat layer, isolated because it was drier and higher than the surrounding reedy peat depressions. Rich in woody fragments with no other inclusions.

[17] – Layer – Thin **Band over Reedy Peat (in places) (proto buried soil)** – compact, slightly desiccated firmer layer than the reedy peat below, is not present along entire length of recorded layers, slightly mottled in places but generally light greyish brown (creamy coloured) with rare no organic/ woody elements remaining and rare flecks of sand/ silica. Has formed an interface between reedy peat and main layer of peat at a dryer time. Has a diffuse basal boundary.

Natural – Variable, mainly loose/ friable but compact on impact, mid orange sandy gravel with varying sized stones (2mm-50mm).

Site 2 (PFP'08-2)

[01] – Layer – **Topsoil** – Dark blackish-grey moderately firm peaty clay with frequent bioturbation from roots, and rare/ occasional small rounded stones.

[02] – Layer – **Subsoil** – Pale/ mid orangey firm silty clay, sterile.

[03] – Layer – **Peaty soil** – Dark blackish-brown firm peaty soil with small percentage of silt and sand.

[04] – Layer – **Natural** – Bright mid-orange (darker and lighter in places) gravel, occasionally sandy, moderately firm.

[05] – Fill – **Rubbish fill of modern dump** – Black waste fill composed mostly of coal, with hints of sand and clay, soft and friable with frequent glass and broken pottery, and rare, small fragments of pottery.

[06] – Cut – **Cut of modern dump** – An uneven spread/ dump of material, cut slightly into peaty soil [03] but mostly through topsoil [01] and subsoil [02].

[07] – Fill – **Silty clay fill of possible ditch** – Mid brownish silty clay with rare small rounded stones.

[08] – Cut – **Cut of possible ditch** – Moderately steep top break-of-slope and moderately steep top half of slope; the lower levels remain under water.

[09] – Fill – **Silty clay fill of two possible ditches** – Mid brownish-grey soft silty clay with rare small rounded stones.

[10] – Cut – **Cut of two possible ditches** – moderately steep top break of slope and moderately steep top half of slope; the lower levels remain under water.

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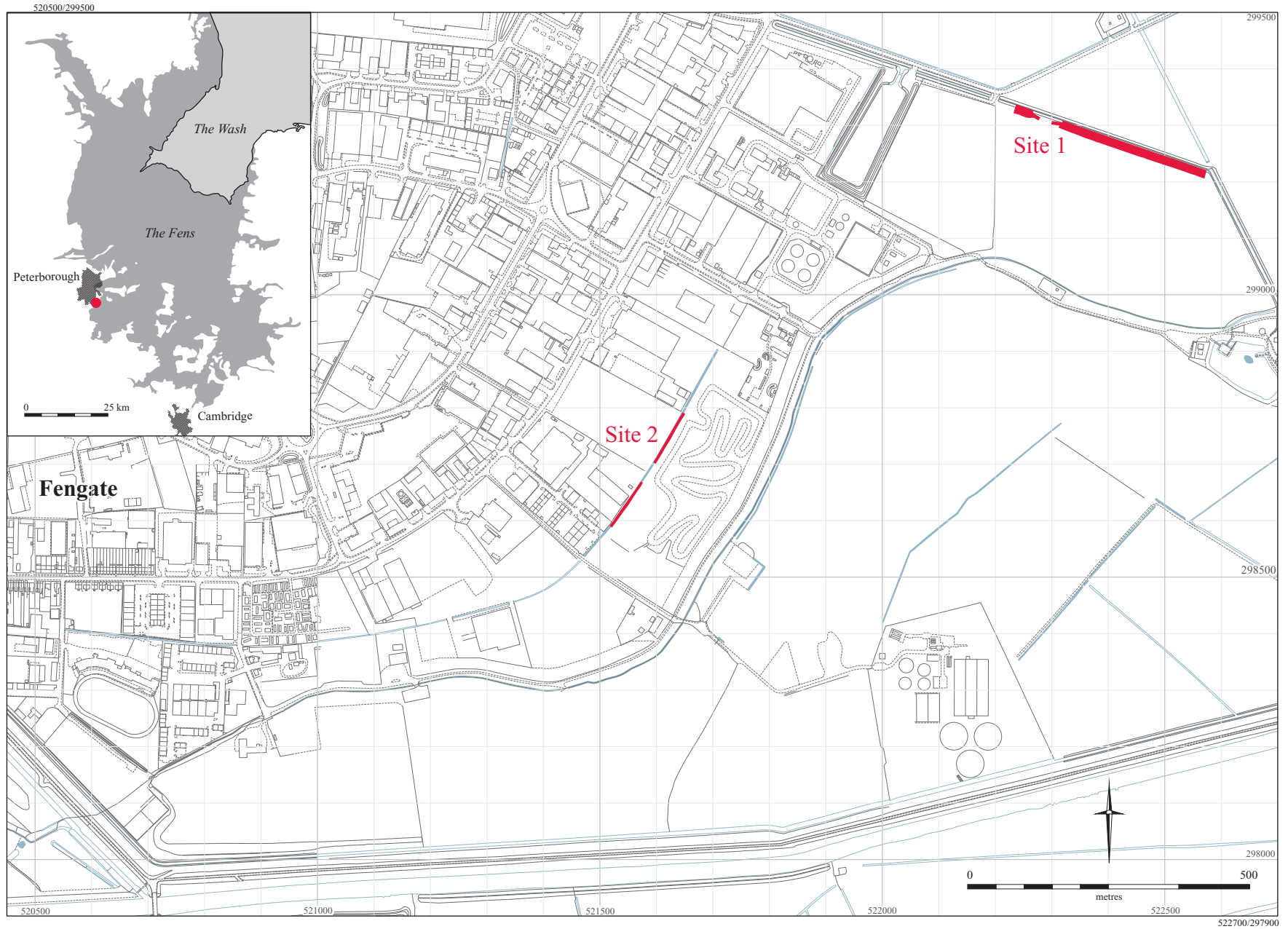


Figure 1. Location Map



Figure 2. Photograph of widening of Padholme Drain (Site 1)



Figure 3. Photograph of section at Parish Drain (Site 2)

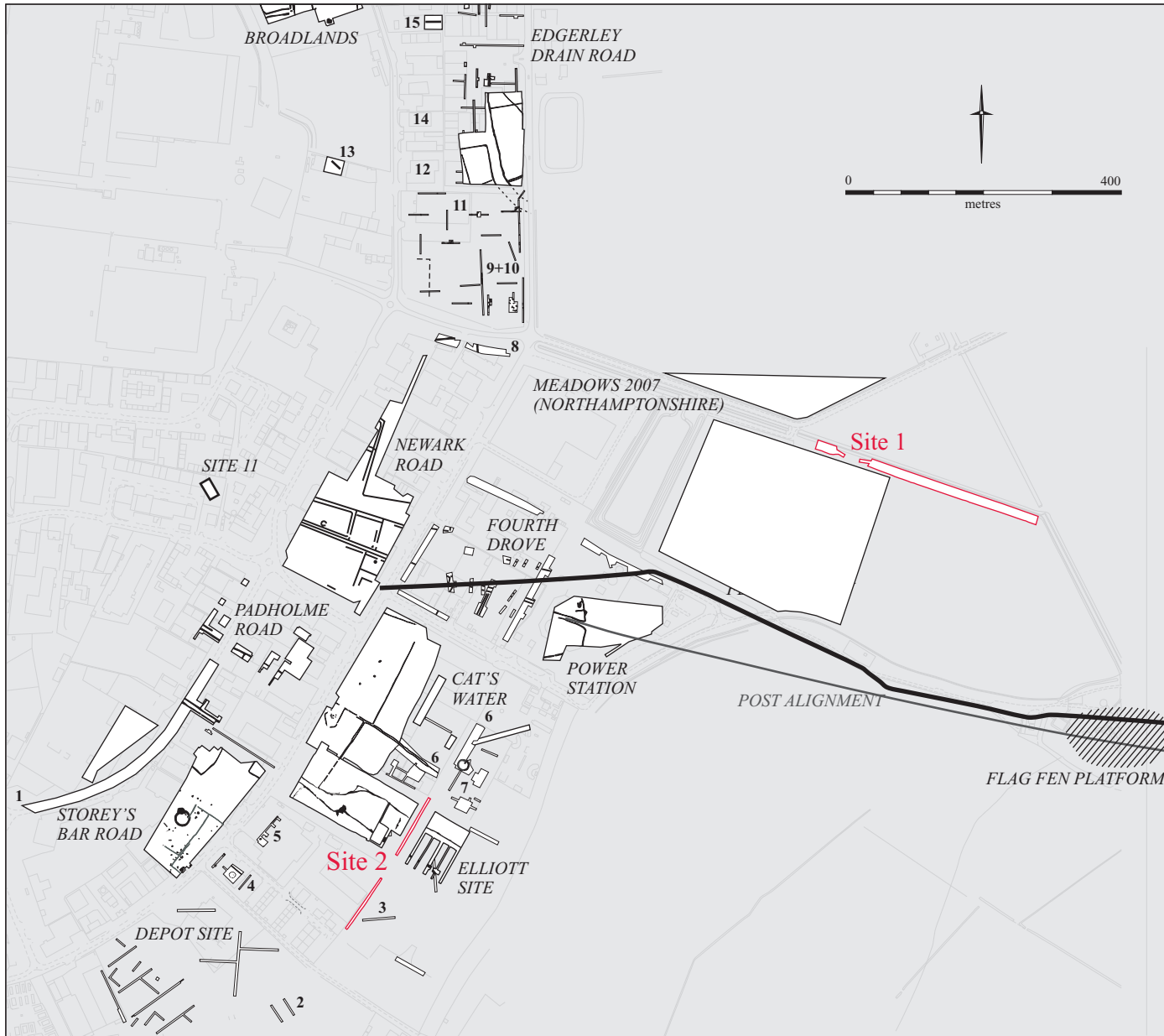


Figure 4. Location of Excavated Dyke against Location of Flag Fen and Edgerley Drain Road

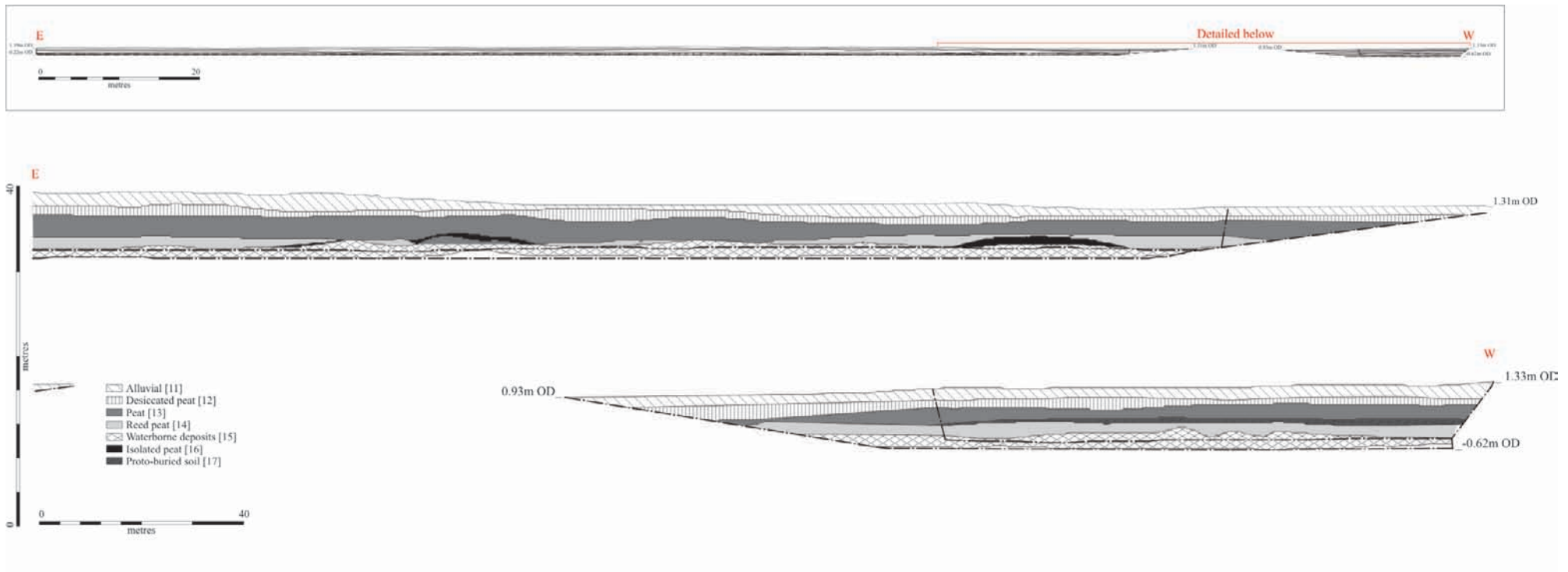


Figure 5. Partial Section of Site 1



Figure 6. Location of Site 2 against Location of Elliott site

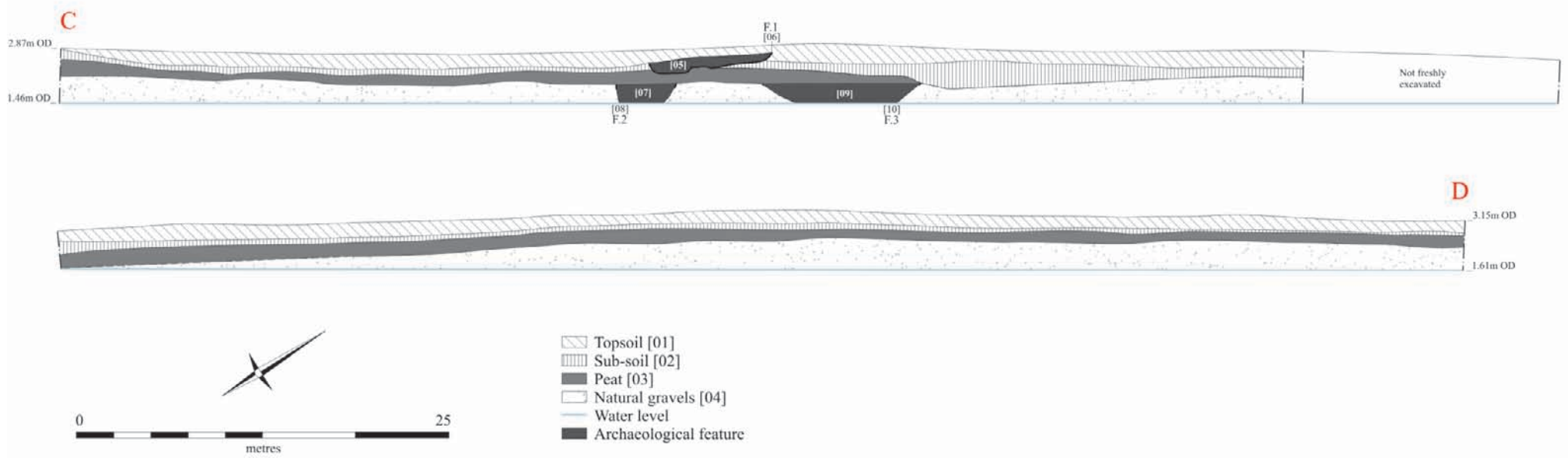
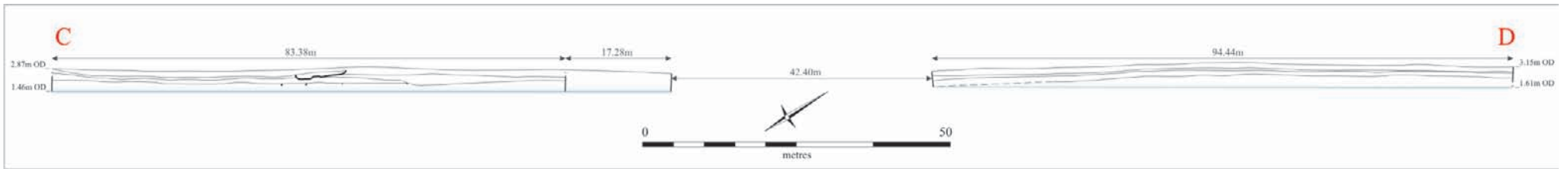


Figure 7. Section of Site 2

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OASIS ID: cambridg3-74747

Project details

| | |
|--|---|
| Project name | Padholme Flood Protection (PFP'08); An Archaeological Watching Brief |
| Short description of the project | The report presents the findings of an archaeological watching brief. Two flood-protection ditches, Padholme Drain and Parish Drain, were re-cut to increase their drainage capacity. The newly-exposed sections were recorded. The stratigraphical sequences and features revealed are discussed, and conclusions drawn, in the context of the archaeology and environmental history of the area. The work carried out during this small project contributes further information to our understanding of the formation and use of the Fengate and Flag Fen area in prehistory. Site 1, the Padholme Flood Protection Drain, provides a detailed stratigraphical sequence for the formation of the fen in the heart of Flag Fen between Fengate and Whittlesea Island. Site 2, The Parish Drain, provides further information regarding the form of the Middle Bronze Age driveway and Iron Age features in the Elliot and Cat's Water sites, by the late Fen edge. This includes a detailed section through this area of considerable prehistoric human activity, providing further information about the formation of the land surfaces, and human responses to this, right on the cusp of the transforming Fen edge. |
| Project dates | Start: 21-04-2008 End: 28-05-2008 |
| Previous/future work | Yes / Not known |
| Any associated project reference codes | PFP08 - Sitecode |
| Type of project | Field evaluation |
| Site status | None |
| Current Land use | Other 15 - Other |
| Monument type | DITCH? Middle Bronze Age |
| Monument type | DITCH? Iron Age |
| Significant Finds | NONE None |

| | |
|----------------------------------|---|
| Methods & techniques | 'Measured Survey','Visual Inspection' |
| Development type | Estate management (i.e. maintenance of existing structures and landscape by capital works and on-going maintenance) |
| Prompt | Direction from Local Planning Authority - PPG16 |
| Position in the planning process | After full determination (eg. As a condition) |

Project location

| | |
|-------------------|---|
| Country | England |
| Site location | CAMBRIDGESHIRE PETERBOROUGH PETERBOROUGH Padholme Flood Protection |
| Postcode | PE1 5 |
| Study area | 4837.80 Square metres |
| Site coordinates | TL 22572 99212 52.5765210434 -0.190970306036 52 34 35 N 000 11 27 W Point |
| Site coordinates | TL 22235 99330 52.5776574368 -0.195897836322 52 34 39 N 000 11 45 W Point |
| Site coordinates | TL 21648 98790 52.5729366469 -0.204755186709 52 34 22 N 000 12 17 W Point |
| Site coordinates | TL 21519 98590 52.5711682499 -0.206731260885 52 34 16 N 000 12 24 W Point |
| Height OD / Depth | Min: -0.60m Max: 0.71m |

Project creators

| | |
|------------------------------|---|
| Name of Organisation | Cambridge Archaeological Unit |
| Project brief originator | Local Authority Archaeologist and/or Planning Authority/advisory body |
| Project design originator | Robin Standring |
| Project director/manager | Robin Standring |
| Project supervisor | Kerry Murrell |
| Type of sponsor/funding body | Developer |
| Name of sponsor/funding body | Atkins and Jackson Civil Engineering |

Project archives

| | |
|----------------------------|-------------------------------|
| Physical Archive recipient | Cambridge Archaeological Unit |
| Physical Archive ID | PFP08 |
| Physical Contents | 'Ceramics','other' |
| Digital Archive recipient | Cambridge Archaeological Unit |
| Digital Archive ID | PFP08 |

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|-------------------------|--|
| Digital Contents | 'none' |
| Digital Media available | 'Images raster / digital photography','Spreadsheets','Survey','Text' |
| Paper Archive recipient | Cambridge Archaeological Unit |
| Paper Archive ID | PFP08 |
| Paper Contents | 'none' |
| Paper Media available | 'Context sheet','Notebook - Excavation',' Research',' General Notes','Photograph','Plan','Report','Section','Survey ','Unpublished Text' |

Project bibliography

1

| | |
|-------------------------------|--|
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