



YORK ARCHAEOLOGICAL TRUST



**AREA B6, OFF LOW LANE
HESLINGTON EAST, YORK**

EVALUATION REPORT

by Bryan Antoni

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YORK ARCHAEOLOGICAL TRUST

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CONTENTS

	page
ABSTRACT	1
1. INTRODUCTION.....	1
2. METHODOLOGY	3
3. LOCATION, GEOLOGY AND TOPOGRAPHY	3
4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	5
5. RESULTS.....	5
6. LIST OF SOURCES.....	26
7. ACKNOWLEDGEMENTS	26
APPENDIX 1: Context descriptions	26
APPENDIX 2: Wood & C14 data by context.....	27

Figures

1. Site location.....	2
2. Trenches and sections locations	4
3. Trench 18, Sections 1 – 3.....	6
4. Trench 19, Sections 4 – 6.....	10
5. Trench 20, Section 7	15
6. Trench 21, Sections 8 – 10.....	19

Plates

Cover: Area B6 looking west (Trench 19 in centre)

1. Section 1	7
2. Section 2	8
3. Section 3	9
4. Section 4	11
5. Section 5	12

6.	Section 6	14
7.	Section 7 (bottom tier).....	16
8.	Record shot of Post 28007 in situ.....	17
9.	Section 7 (top two tiers)	18
10.	Section 8	21
11.	Section 9	22
12.	Section 10	23

Abbreviations

YAT York Archaeological Trust

AOD Above Ordnance Datum

BGL Below Ground Level

ABSTRACT

Between 8th and 10th December 2009, York Archaeological Trust undertook an archaeological evaluation within a field (designated Area B6), located at the eastern-most end of Kimberlow Hill, Heslington, York, North Yorkshire. The results of the excavations gave little insight into the development of a sequence of well defined and complex palaeochannels. One of these contained well preserved root material which provided a C14 date of 2910 – 2880 BC (Middle Neolithic). The fills of the channels are the result of natural and human interaction, attested to by a pair of posts which had been inserted into the top of the later channel sequence in the middle Iron Age (400 – 200 BC). These may have formed a part of an east-west alignment in the landscape. The results also showed a high probability of the survival of a sealed, well preserved Holocene landscape.

1. INTRODUCTION

Between 8th and 10th December 2009, York Archaeological Trust undertook an archaeological evaluation within a field (designated Area B6) located at the eastern-most end of Kimberlow Hill, Heslington, York, North Yorkshire (NGR SE 6465 5110; Figure 1). The evaluation was undertaken in response to a proposal to quarry Area B6 for the provision of sand to protect the lining of a lake, currently under construction as part of the University of York, Heslington East Campus development. The work was commissioned by the University of York, in compliance with a planning condition imposed by City of York Council at the instigation of their Principal Archaeologist, John Oxley. The placement of the trenches (Figure 2; Trench 18 - 21) was decided by University of York's Archaeological Consultant, Dr Patrick Ottaway (PJO Archaeology), on the basis of the results obtained from earlier archaeological trial trenching (Figure 2; 51-4 and 97).

Trench 18 was located to test for the presence and/or the extents of any activity associated with the cut features observed in Trenches 51 and 52 of the previous excavations (Macnab 2004), whereas Trench 19 was placed to discover if any features continued across the distance between them. Trenches 20 and 21 were used to investigate the possibility of any other archaeological features or deposits being present in the southern half of B6 as much of this area, with the exception of Trenches 53 and 54, had not been previously investigated. Trenches 18 – 19 and 21 covered an area of some 50m x 2m. Trench 20 was initially set out the same but had to be extended to provide a safe working area when it became clear that its depth would have to be increased. To allow for this, a north-west – south-east aligned 6m long x 5m wide machine excavated extension was added to the northern trench edge, some

13.7m east of its western end. The greater depth of excavation was needed to investigate and sample a clearly defined palaeochannel(s) and the organic materials contained within it.



Figure 1 Site location

2. METHODOLOGY

All the groundworks were undertaken by a tracked, 360° excavator fitted with a toothless ditching bucket, under archaeological supervision. As Area B6 had been previously stripped of its topsoils, the groundworks initially involved the machine removal of a thick carpet of plant growth to expose a fresh surface for archaeological inspection. As there were no obvious archaeological features present, it was decided to remove a thick layer of colluvium and/or aeolian sand which covered the majority of B6 and had the potential to conceal much earlier archaeological features. This was excavated down to the top of 'clean' natural sub soils or, in the case of Trench 20, the top of archaeology. Due to the complexity of the natural substrate, limited areas in the base of the trench, in the centre and at each end, were machine excavated to a greater depth, to verify that undisturbed natural had been reached. These areas were then chosen for the locations of the drawn sections. Recording the sections in Trenches 20 and 21 was rendered difficult due to a constant inrush of groundwater, exacerbated by a recent prolonged spell of wet weather, which rapidly filled the trenches and could only be controlled by the constant use of a diesel water pump.

York Archaeological Trust's single context recording system was used throughout. Archaeological features and deposits were recorded as drawn sections at a scale of 1:10, and described using pro-forma context recording sheets. A series of digital photographs was taken. The site archive is currently stored with York Archaeological Trust under the Yorkshire Museum accession number YORYM: 2007.6006.

3. LOCATION, GEOLOGY AND TOPOGRAPHY

The site (Figure. 1) lies close by the eastern edge of the Heslington East development, c. 0.50 km south-west of the junction between the A1079 Hull road and the A64 dual carriageway at Grimston Bar interchange. Area B6 is located on a steep, south facing slope at the eastern-most end of a glacial moraine of boulder clay which, at this location, is known as Kimberlow Hill. The northern-most edge of B6 is located on a 20m contour. The ground then falls steeply towards the south-east before it gradually flattens out to join with the base of the Vale of York at c.12m AOD. Natural deposits in the southern half of the site (below c. 14m AOD) comprised a mix of alluvial sands, silts and clays which proved to be filling a sequence of braided palaeochannels.

The solid geology of the area comprises Bunter and Keuper sandstones (Geological Survey of England and Wales, Sheet 63).

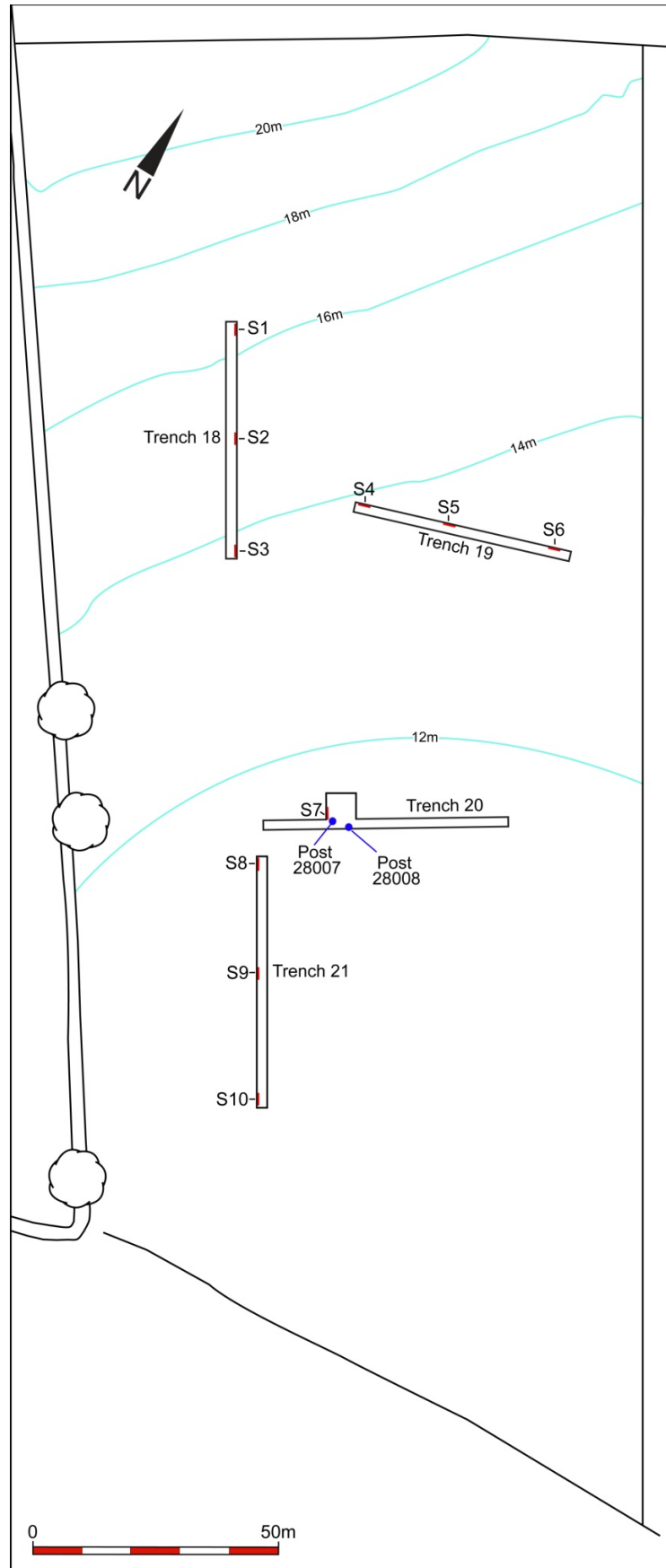


Figure 2 Location of trenches and sections

4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

A review of the archaeological and historical background for the site was compiled at an earlier stage of evaluation at the Heslington East development, by N. Macnab 2004, 12-21 (York Archaeological Trust, Report Number 2004/23).

5. RESULTS

5.1 TRENCH 18

Trench 18 (Figure 2) was located in the north-west quadrant of Area B6, some 70m east-south-east of its western corner. The trench was north-west – south-east aligned and was machine excavated to a depth of between 1.30 – 0.62m BGL. As the base of this trench was cut level into the slope of Kimberlow Hill, the variation in depth reflected the falling ground level as it dropped away towards the south-east and the base of the Vale of York. In this trench the south-west facing section was chosen for recording (Figure 2; Sections 1 – 3).

SECTION 1 (FIGURE 3, PLATE 1)

Section 1 was 2.50m wide and was located at the northern-most end of Trench 18, where it had been machine excavated to a maximum depth of 1.30m BGL. The earliest deposit observed (28014) continued beyond the northern trench edge. It was up to 0.43m thick and comprised a stiff, weathered, purple brown, pebble rich boulder clay. Its surface fell steeply towards the south-east, for c. 1.20m, where it continued beneath the base of the trench. The southern end of 28014 was sealed beneath a small deposit of a compacted, red grey sand (28013). This was thought to represent an accumulation of degraded boulder clay, up to 0.05m thick, formed through the surface erosion of 28014. The surface of 28013 fell steeply towards the south-east, for 0.82m, before it also continued beyond the base of the trench.

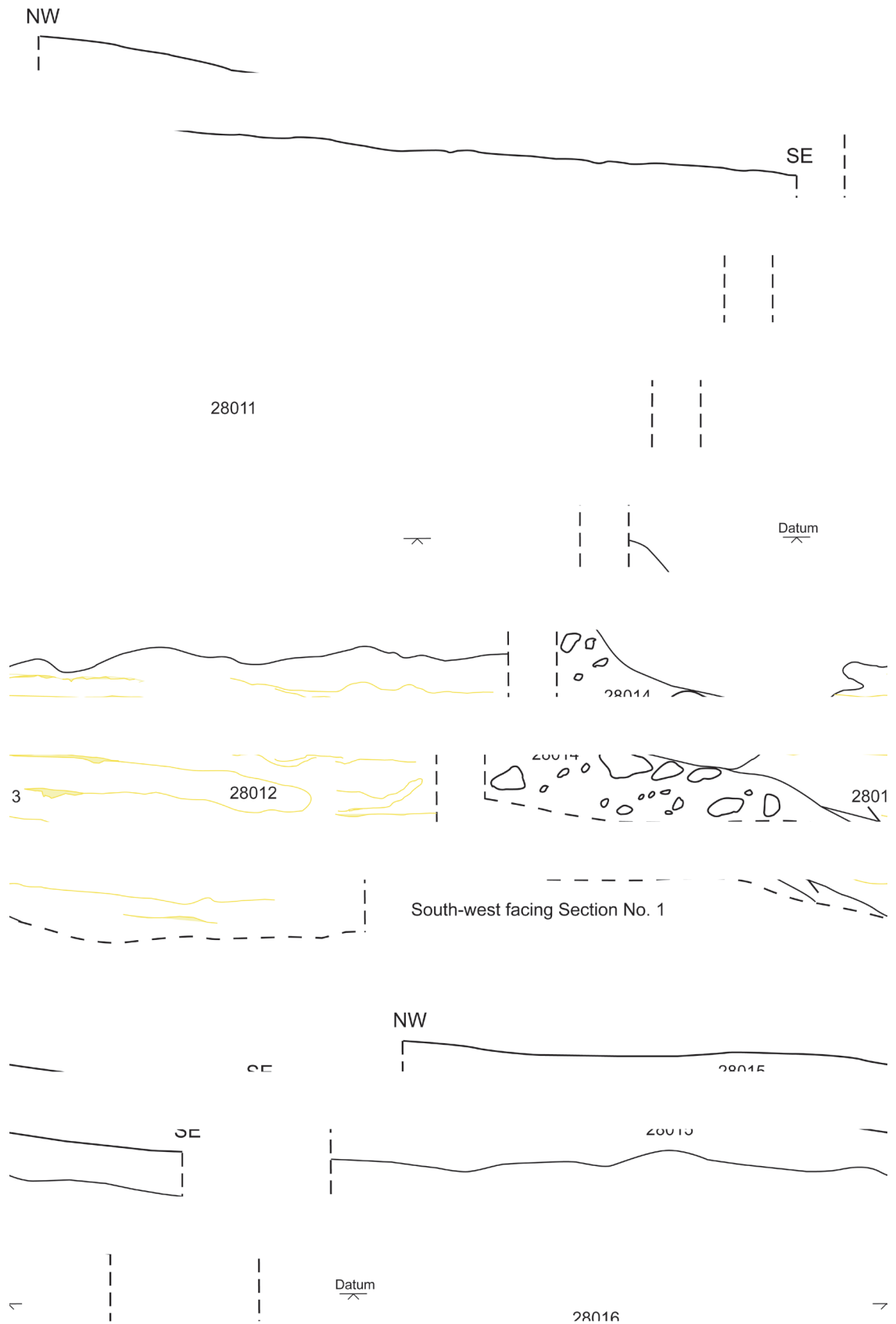


Figure 3 Trench 18, Sections 1-3



Plate 1 Section 1 looking north-east. Scale unit 0.10m

SECTION 2 (FIGURE 3, PLATE 2)

Section 2 was 2.12m wide and was located midway along Trench 18, some 20m to the south-east of Section 1, where it had been machine excavated to a maximum depth of 0.87m BGL. The earliest deposit in this location comprised a horizontally bedded, friable light yellow sand with occasional fine gravel and small pebbles (28017). It was observed at 0.77m BGL, was up to 0.33m thick and continued beneath the base of the trench. This was sealed beneath a 0.65m thick deposit of a friable, light yellow brown, slightly silt sand with occasional pebbles (28016). Directly above this was a 0.12m thick build-up of a friable, mid grey brown, sand silt (28015). The top of this formed the ground surface when the excavations were undertaken and was thought to have represented a remnant of plough-soil, left behind when the field was initially stripped of overburden.



Plate 2 Section 2 looking north-east. Scale unit 0.10m

SECTION 3 (FIGURE 3, PLATE 3)

Section 3 was 2.40m wide and was machine excavated to a depth of 0.63m BGL. It was located at the southern end of the trench, 21m to the south-east of Section 2. The earliest deposit at this location was observed at 0.57m BGL, was up to 0.03m thick and comprised a firm, yellow brown silt clay (28020). The top of 28020 fell slightly towards the north and it was exposed for a length of 0.59m before it ran beneath the base of the trench. Directly above this was a 0.39m thick, horizontally bedded deposit of a friable, orange mottled whitish yellow sand with occasional pebbles (28019). The top of it was very uneven and rutted. The profile of these 'ruts' was irregular and rounded which suggested that, if 28019 was not entirely formed by alluviation, it had probably been subjected to water erosion at the culmination of its deposition. It was sealed beneath a 0.35m thick deposit of a friable, light yellow brown, slightly silty sand with occasional small to medium pebbles (28018) which was, in turn, sealed beneath a 0.06m thick deposit of relict plough-soil (28015). This was also observed at the top of Section 2 (above) and similarly formed the ground level at the time the excavations were undertaken.



Plate 3 Section 3 looking north-east. Scale unit 0.10m

5.2 TRENCH 19

Trench 19 (Figure 2) was located c. 100m south of the north-east corner of B6, some 22m east-south-east of Trench 18. It was aligned west-north-west – east-south-east and was machine excavated to a depth of between 0.42 - 0.84m BGL and, at 45m x 2m, was the shortest of the trenches. It was in this location that evidence for the formation of braided palaeochannels first appeared. The south-south-west facing section was chosen for recording (Figure 2, Sections 4 – 6).

SECTION 4 (FIGURE 4, PLATE 4)

Section 4 was located c. 0.5m east-south-east of the western-most end of the trench, was machine excavated to a maximum depth of 0.42m BGL and was 2.5m wide. The earliest deposit (28022) was observed at 0.40m BGL, was up to 0.05m thick and continued beyond the base of the trench. It comprised a build-up of a firm, pale grey clay streaked, red - brown clay. This deposits make - up and colour suggested it was a water eroded boulder clay, probably scoured from Kimberlow hill (located to the north / north-west) and transported down-slope to settle out in the top of a palaeochannel. Alternatively, it may have represented a water abraded slurry overlying the surface of an in situ boulder clay, forming the top of the western-most edge of a channel (see sections 5 and 6). The top of 28022 was sealed beneath a 0.37m thick build-up of a friable, slightly silt sand, with occasional small – medium pebbles (28021), which was itself overlaid by the relict plough-soil (28015) mentioned above (Section 2 and 3). It was up to 0.05m thick and formed the ground surface at the time the excavations were undertaken.

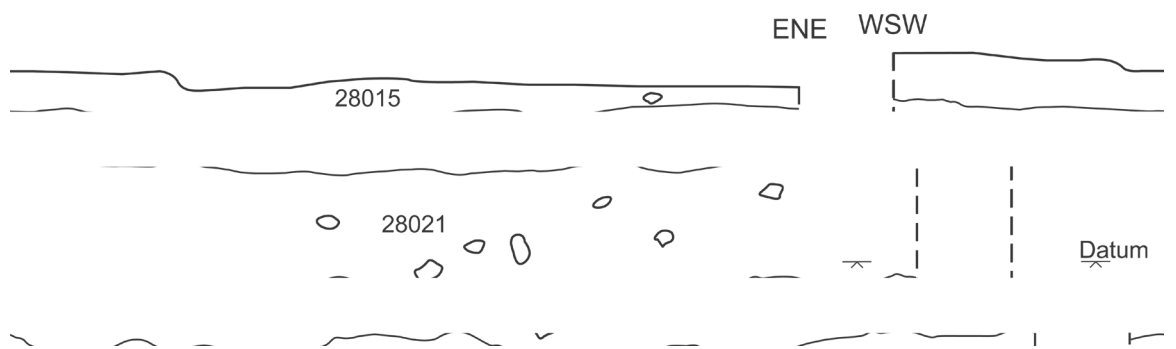
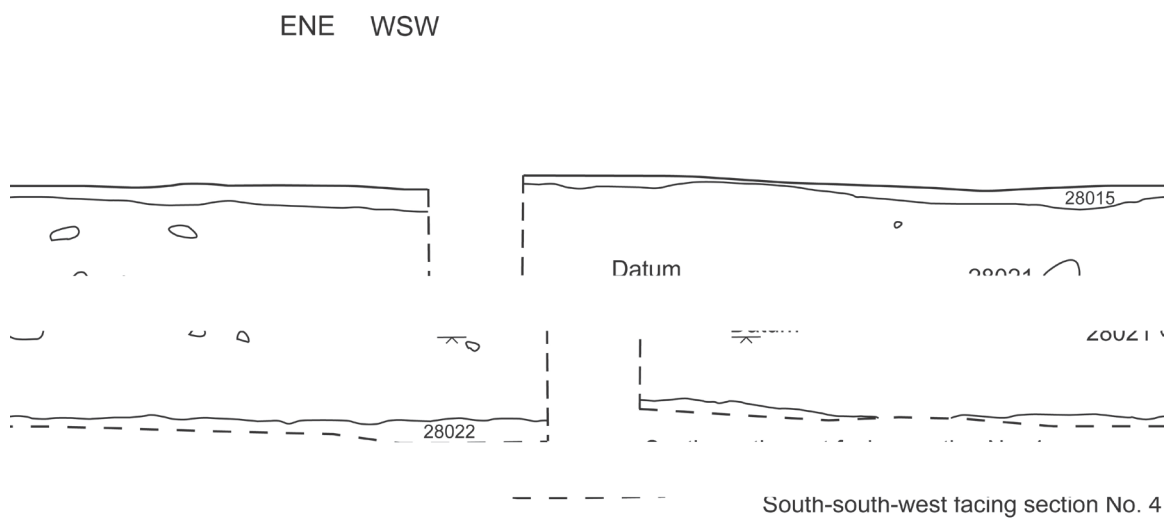


Figure 4 Trench 19, Sections 4 - 6



Plate 4 Section 4 looking north-north-east. Scale unit 0.10m

SECTION 5 (FIGURE 4, PLATE 5)

Section 5 was located 15m east-south-east of Section 4, was machine excavated to a maximum depth of 0.75m BGL and was 2.5m wide. The earliest deposit comprised friable, orange yellow mottled light brown sands (28023). They were observed at 0.36m BGL, were up to 0.34m thick and continued beyond the base of the trench. The lower 0.27m of it was shot through with lenses of rusty brown staining (Fe?), with black Manganese lenses below. The manganese lenses were only present in the bottom of the east-north-east corner of the section, where they overlaid a thin band of lensed, pale grey and orange yellow clay. The lack of continuous horizontal definition between the lenses and the bulk of 28023 suggested that they had been laid down during a sequence of brief flood events which had occurred during the earlier part of its formation. The lack of similar lenses in the upper third of Deposit 28023 inferred that this part of it represented final episode of silting within the top of a rapidly drying and/or dried out palaeochannel. The top of 28023 was sealed beneath Deposit 28021 (see above, Section 4), 0.29m thick, which was overlaid by a 0.11m thick relict plough-soil (28015, above) which constituted the ground surface at the time the excavations were undertaken.



Plate 5 Section 5 looking north. Scale unit 0.10m

SECTION 6 (FIGURE 4, PLATE 6)

Section 6 was located 19m east-south-east of Section 5, some 4.0m from the eastern end of the trench. It was excavated to a maximum depth of 0.84m BGL and was 2.30m wide. The earliest deposit in this section (28030) was observed at 0.40m BGL and at over 0.44m thick, continued beneath the base. It comprised a loosely friable, coarse grained, orange brown sand and gravel, shot through with a sequence of thin lenses of manganese, fine white sand and orange brown staining (Fe?). Its eastern end continued beyond the section, whereas the western end, some 1.62m distant, was cut away by later activity.

The lenses were incorporated into the main body of Deposit 28030 and were observed 0.13m below the top of it, with the lenses of manganese at the top and base of the sequence. The presence of the lenses within 28030 was indicative of periods of variable water-flow within a palaeochannel. As the upper 0.13m of Deposit 28030 was the same as the sands and gravels preceding the lenses, it would appear that the water flow had reduced and stabilised after they had been formed. The marked fall-off of the lenses at either end of 28030 suggested that the water-borne silts had in-filled and over-topped two earlier palaeochannels. When these channels were fully silted, the area between them then appeared to have been cut down and/or overlaid by the same process. Deposit 28029, a 0.05m thick band of fine, pale grey sand and gravel, sealed the top of Deposit 28030 and also fell steeply at its westward end. The presence of the larger particulates in this deposit suggested there was an increased energy of water which had, probably, gone on to scour a new channel-bed slightly further to the west.

Deposit 28031 was located in the lower west-south-west corner of the section. It was observed at 0.51m BGL and comprised loose orange brown sands, up to 0.19m thick, which

also continued beneath the base of the trench. The marked difference between this deposit and 28030 suggested that it was the in-fill of a new palaeochannel bed, located slightly to the west of the original (above). A pair of 0.32m tall, up to 0.05m wide, near vertical 'U' shaped lenses of loose, yellow orange sand (28032), noted in the body 28031, are thought to have represented a secondary cut-down event which had occurred towards the end of its formation. Part of this cut-down had removed the relationships between 28031 and 28032 and all that can be noted with any certainty is that the above sand lenses (and therefore 28031?) were later than 28030. After this had occurred, the water flows slowed and stabilised enough to allow the formation of 28031 to continue.

The top of Deposit 28031 was cut by Palaeochannel 28042. Initially it appeared to have carried a restricted, high energy water flow, as attested to by the formation of a narrow, 0.60m wide, 0.35m deep 'U' shaped gully which had cut into the eastern edge of Deposit 28031 and the western end of deposit 28029. After the initial down cutting, the water flow appeared to have lost energy, gained greater volume and increased the width of the channel, to take in the remainder of the recorded section and beyond. The energy loss was evinced by the presence of a thin band of stiff, pale grey clay (28028), 0.03m thick, which had settled out on the flat base of the channel and down the western side of the gully. The slower, sluggish water flow appeared to have continued for sufficient time to allow the build-up of a 0.40m thick (max.) deposit of a mixed, orange brown mottled, pale grey and grey brown clay sand (28027). This sealed the top of 28028, in-filled the remainder of the gully and continued beyond both ends of the section. The western end of 28027 was truncated by erosion gully 28043, which continued beyond the western edge of the section. The recorded part of it was over 0.67m wide, 0.22m deep and had a wide angled 'U' shaped profile with steep sides and a gently rounded base. Its primary fill (28026) comprised a 0.08m thick deposit of pebbles in a matrix of a friable ginger brown clay sand. The presence of the pebbles suggested a brief but severe period of wet weather had been necessary to provide the energy to scour out the gully and transport the pebbles to this location before they settled out. When the energy of the water had diminished, a 0.18m thick build-up deposit of white flecked, pale creamy brown silt clay (28025), settled out to seal the top of 28026 and fill the gully to the top. Deposit 28025 was sealed beneath a 0.13m thick layer of colluvium or sub-soil (28024) comprised a loosely friable mid grey brown silt sand. This extended the full width of the recorded section and was sealed by plough-soil 28015, 0.04m thick, which formed the ground surface at the time the work was undertaken.



Plate 6 Section 6 looking north. Scale unit 0.10m

5.3 TRENCH 20

Trench 20 (figure 2) was located some 60m to the south-south-east of Trench 19, its eastern end c.27m west-south-west of the eastern site boundary. Only the east – north – east facing section (7) of an extension to the northern edge of the trench was chosen for recording. The extension (Figure 2) was located 13.7m east of the western end of the trench, was 6m long, 5m wide and had been machine excavated to a maximum depth of 1.50 m BGL. To provide safe access to the deeper parts of the trench the recorded side of the extension was cut down in three 0.50m deep, 0.40m wide stepped terraces whereas the rest of the sides were sloped in towards the base. Despite these precautions the constant in-rush of ground and surface water was an ever present threat to the stability of the section, rendering it liable to collapse in rapid succession. The areas containing the two timber posts (Figure 2) were so unstable that only a brief note was able to be made as regards their location and the approximate level that they were inserted from.

SECTION 7 (FIG 5, PLATE 7 AND 9)

Section 7 was 2.50 m wide and up to 1.50m deep. The earliest deposit (28006) was observed at 1.30m BGL, was 0.04m thick and continued beyond the base of the trench. It comprised a mix of fine gravel and rounded manganese fragments, shot through with a moderate amount of decayed Willow roots (*Salix* spp.). A C14 sample (901) of the root matter returned a date of Cal BC 2910 – 2880 (Middle Neolithic). The surface of 28006 fell moderately, to c. 1.48m BGL, before joining with the base of the trench some 1.07m from its west-north-west edge, inferring that it had accumulated up the northern side of a north-west

– south-east aligned palaeochannel. The particulate size of the gravels suggested that this had occurred during a period of high energy water flow.

The top of the gravels were sealed beneath an up to 0.23m thick deposit of a loose, grey lensed, pale – light grey brown medium grained sand (28005) with occasional decayed plant roots. The presence of 28005 suggested that the water flows had lost energy and became sluggish; the lack of gravel and/or coarse grained sand lenses within in it also inferred that the water flows were stable and had varied little throughout its formation. It was observed at 1.04m BGL and its surface contour remained relatively unchanged until a point c.1m to the east-south-east of the north-north-west trench edge was reached. From here it fell steeply for a distance of 1.10m, down to 1.50m BGL, before a collapse in the trench section was reached.

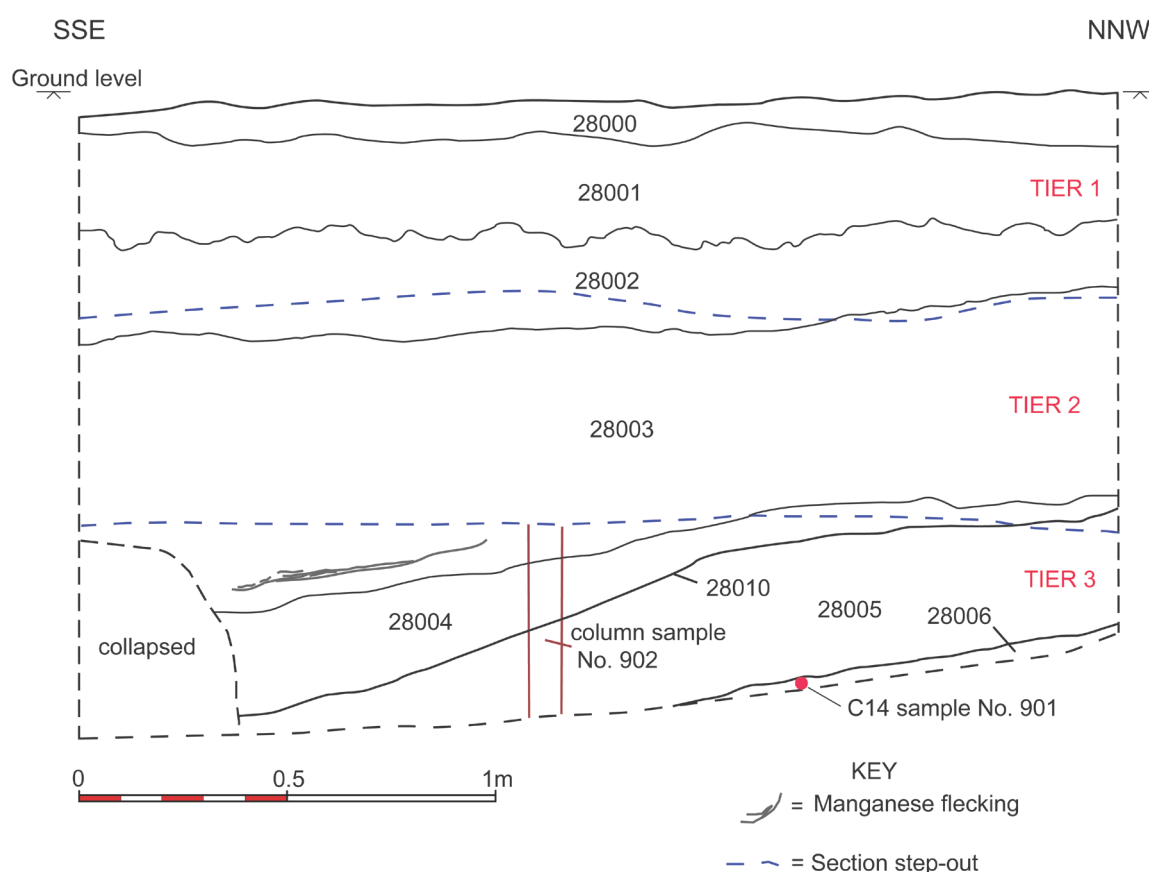


Figure 5 Trench 20, Section 7

The top of the eastern half of 28005 was cut into by Palaeochannel 28010 (Plate 7). It was up 0.90m deep, over 2.50m wide and ran beyond the eastern and western-most trench edges. Its shape in profile matched the surface contours of Deposit 28005, above. Its primary fill (28004) comprised many laminations of a loose mid grey medium to coarse

grained sand and slightly clay sand, 0.25m thick, which also continued beyond the trench edges. It is currently thought that timbers 28007 and 28008 (Figure 2) had been dug and/or driven into the top of Deposit 28004, at c. 1.04m BGL. As the trench sides were so unstable that they rapidly collapsed, both timbers had to be recovered by the machine and could only be safely observed and directed from the top of the trench. The recovered post fragments were inspected and assessed by our wood specialist and a brief summary of his findings can be found in Table 1 (below). It is currently thought that timbers 28007 and 28008 (Figure 2) had been dug and/or driven into the top of Deposit 28004, at c.1.04m BGL. As the trench sides were so unstable that they rapidly collapsed, both timbers had to be recovered by the machine and could only be safely observed and directed from the top of the trench. The recovered posts were inspected and assessed by our wood specialist and a brief summary of his findings can be found in Table 1 (below). Although there is no doubt that 28007 was the tip of a Willow pile point, it could be argued that Wood 28008 may have been the trunk of an Oak tree grown in that location. This would seem highly unlikely as, during excavation, the archaeologist was able to observe that it had been de-barked, was lacking roots or side branches and had, therefore, been worked and/or trimmed before being placed in the ground. Originally the post had a greater length but fragments were lost in the glutinous mud that was loosely termed as a spoil heap.



Plate 7 Section 7 (Tier 3) looking south-west. Channel 28010 slopes down from top right to bottom left. Column sample 902 taken immediate left of scale. Scale unit 0.10m

The machine removed a greater part of Post 28007 before the faceted tip of it was recovered. An inverted cone of organic material, located directly above it, may have represented the back-fill of a post-hole cut (Plate 8). This would, however, seem highly unlikely as it was very soft and would not have had the tenacity to hold the post in place once

it was packed around it. It could also be postulated that the organic filled hollow was related to the scouring action of water running around the post with (if the area had been inundated after the post was inserted) the organics accumulating within the hollow, after the water subsided. A noticeable organic filled post-pipe, rising vertically from the post stub (Plate 6), may also infer that this had been the case. In this instance the upper elements of the post would need to have rotted away to leave behind a void which had, subsequently, been in-filled with a similar organic material as the inverted cone shaped 'cut'. Also there was the hint of a second, in-filled sloping post-pipe c. 0.30m to the right of the vertical scale, some 0.30m up from the base of the trench section (Plate 8). Whether or not this had been the location of a second post, or was just a naturally formed feature, is currently uncertain. A C14 sample (900) of Post 28007 returned a date of Cal BC 400 – 200 (Middle Iron Age).



Plate 8 Record shot of Post 28007 in place (bottom left centre). Scale unit 0.10m

The top of Deposit 28004 was sealed beneath an up to 0.68m thick deposit (28003) of a plastic, pale orange yellow clay sand, with sparse lenses of Manganese flecking towards the base (Plate 9). The top of it, observed at 0.55m BGL, dropped away very gently towards the south-south-east. (Posts 28007 and 28008 were also probably sealed by this deposit. A trace of it can be seen at the top of the trench section in Plate 8, where it partially covers the organic material sealing in the top of Post 28007).

A column sample (902) was taken through Deposits 28003 – 28005 (Figure 5), with a view to assess the flow rates, depositional processes and environmental forces that had influenced the development of the palaeochannel(s). The results are incorporated in this report (Appendix 1)

Deposit 28003 was sealed beneath an up to 0.25m thick deposit (82002) of a soft, loose medium grained pale grey – white sand which appeared to have been alluvial in origin. The top of this deposit was observed at 0.28m BGL and had been abraded by a sequence of shallow, uneven and generally rounded water abraded ruts, suggesting that the area was inundated once again. Directly above it was a 0.30m thick deposit (28001) of a friable, pale grey brown silt sand which was, in turn, sealed beneath a 0.13m thick deposit (28000) of a friable light – mid brown silt sand. Although uncertain, it would appear that these two deposits represented the sedimentation of channel as it was gradually drying out. The top of Deposit 28000 formed the ground surface at the time the excavations were undertaken.

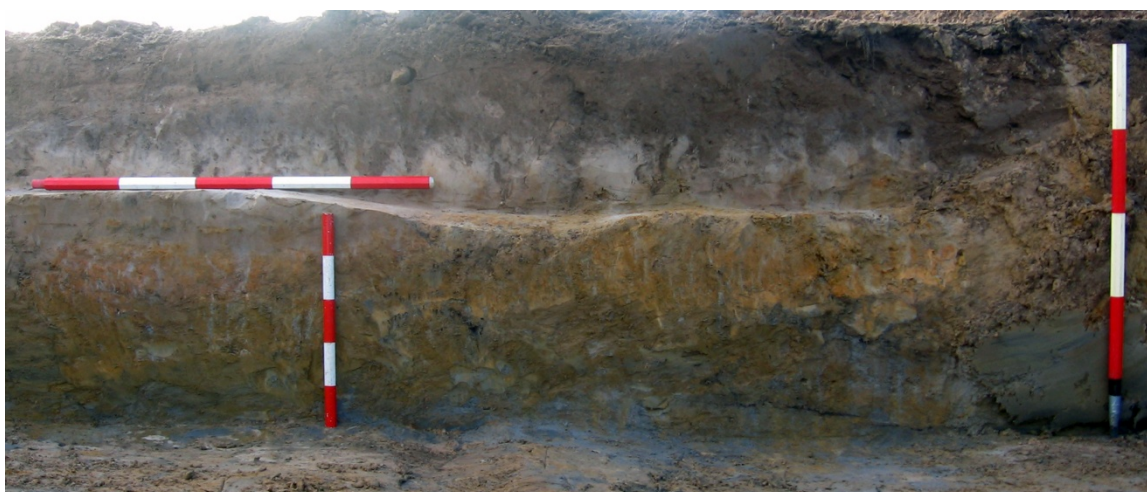


Plate 9 Section 7 (Tiers 1 and 2) looking south-west.

5.4 TRENCH 21

Trench 21 (Figure 2) was located 2.5 m south-east of the westernmost end of Trench 20. It was north-west – south-east aligned and was machine excavated to a maximum depth of 0.88m BGL. The north-east facing section was chosen for recording (Figure 2, Sections 8 – 10).

SECTION 8 (FIGURE 6; PLATE 10)

Section 8 was 2.20m wide and was located at the northern end of the trench where it was machine excavated to a maximum depth of 0.72m BGL. The earliest deposit (28035) was observed at 0.68m BGL and, at 0.04m thick, continued beneath the base of the trench. It comprised a moist, fine – medium grained silver grey sand. Directly above it was an up to 0.44m thick deposit (28034) of a friable, fine grained, orange yellow sand with occasional fine grained silver white sand patches. The top of it was sealed beneath a 0.25m thick deposit (28033) of a friable, mid brown grey silt sand with occasional small pebbles, one of which was burnt. Although there is no doubt that Deposits 28035 and 28034 represented the

upper fills of a silt choked palaeochannel, there is some uncertainty about 28033. This could have represented a fill of the palaeochannel or, more likely, a build-up of colluvium that had settled in the top of the channel once it had dried out. The burnt pebble inclusion in 28033 suggested that the latter was most likely as it was, however scant, indicative of human presence in an area that would previously have been very wet and inhospitable during the life of the palaeochannel(s). The top of 28033 was sealed by plough-soil 28015, 0.10m thick, which formed the ground surface at the time the work was undertaken.

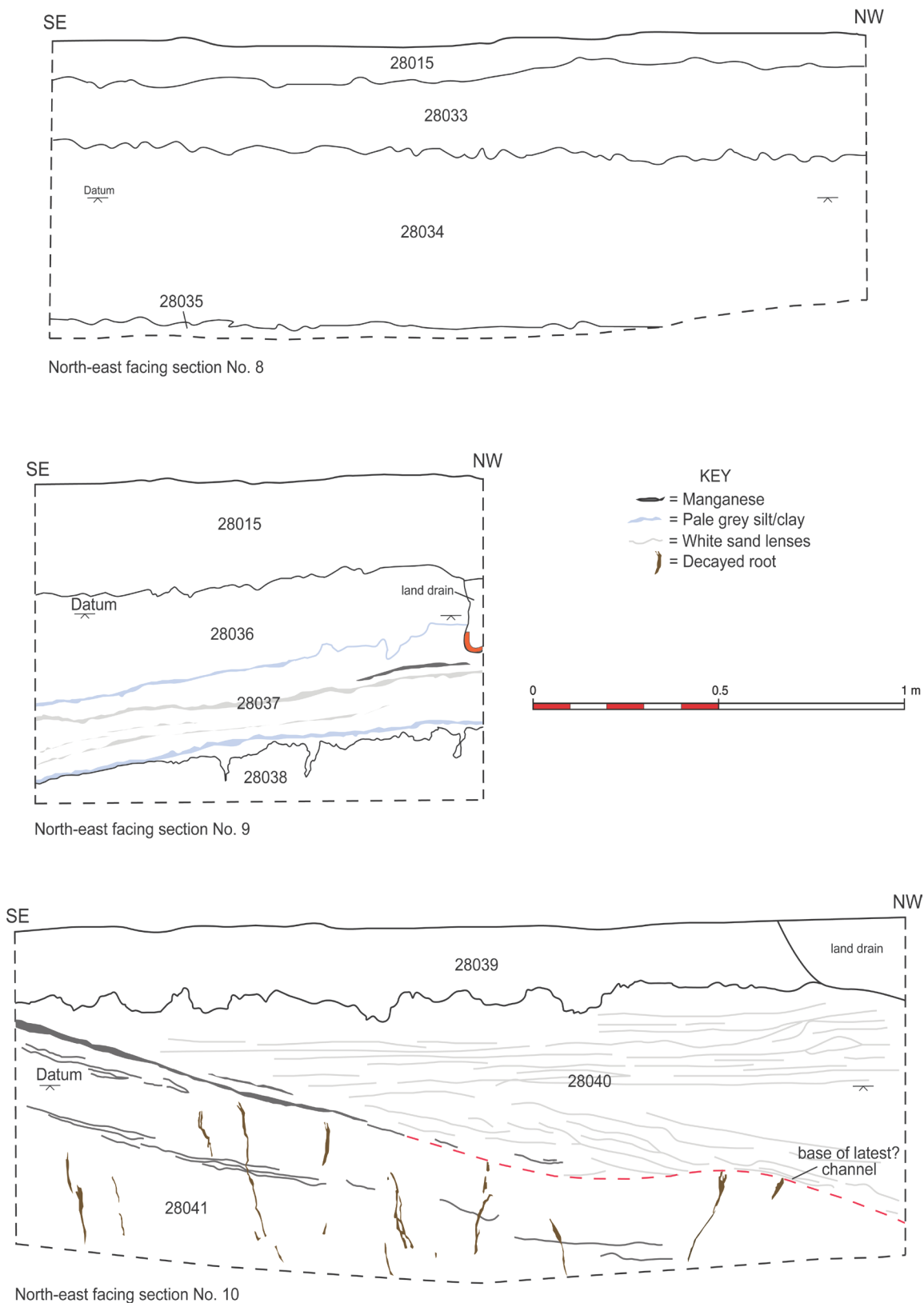


Figure 6 Trench 21, Sections 8 - 10



Plate 10 Section 8 looking south-west. Scale unit 0.10m

SECTION 9 (FIGURE 6; PLATE 11)

Section 9 was located midway along the trench, some 20m south-east of Section 8, where it was machine excavated to 0.82m BGL and was 1.20m wide. The earliest deposit (28308), a loose, fine grained, purplish brown micaceous silt sand, was observed at 0.62m BGL and at 0.18m thick, ran beneath the base of the trench. The top of deposit 28308 sloped down gently towards the south-east, to 0.74m BGL, where it was 0.05m thick and also continued beyond the base of the trench. The surface of it was pierced by several irregular, steep sided 'V' shaped hollows that may have represented voids left behind by the decay of a plant root mass. The top of 28308 was sealed beneath a 0.26m thick deposit (28037) of a friable pale brown and red brown spotted, yellow clay sand. The top and bottom of it was delineated by two single pale grey, silt clay sand lenses with white sand lenses (and one manganese) in between. As the lenses sloped gently down towards the south-east, from 0.38 – 0.54m BGL and mirrored the surface of 28308 it would suggest that the section was located inside the northern edge of a west-north-west – east-south east aligned palaeochannel. Directly above this was a 0.37m thick build-up of a friable, brown (Fe?) mottled, orange yellow micaceous sand silt (28036). As the top of it was almost horizontal, it suggested that it represented the final episode of silting as the channel was filled and then eventually dried out. The top of it was sealed beneath a 0.28m thick layer of plough soil (28015) which formed the ground surface at the time the excavations were undertaken.



Plate 11 Section 9 looking south-west. Scale unit 0.10m

SECTION 10 (FIGURE 6; PLATE12)

Section 10 was located at the southern end of the trench, some 23m south-east of section 9, where it had been machine excavated to a maximum depth of 0.89m BGL, was 2.4m wide and illustrated the well defined morphology of a palaeochannel(s). The earliest deposit (28041) comprised a wet, medium grained, pale grey brown sand with occasional manganese lenses and vertical decayed root systems throughout. It was observed at 0.22m BGL and it was, at the southern end of the section, 0.55m thick and continued beyond the base of the trench. The top of it fell gently towards the north-west, to 0.75m BGL, where it was 0.08m thick and also ran below the base of the trench. Directly above this was a deposit (28040) of a friable, orange yellow sand shot through with many white and pale grey sand lenses. The top of it was observed at c. 0.25m BGL and it was horizontal. The bottom of it followed the surface contours of Deposit 28041 and varied between 0.04m thick in the south-east and 0.55m thick in the north-west. It was sealed beneath the upper fill of the channel (28039), 0.24m thick, which comprised a friable medium grained silver orange sand and formed the ground surface at the time the excavations were undertaken.



Plate 12 Section 10 looking south-west. Scale unit 0.1m

5.5 DISCUSSION

The results of the excavations showed that the site could be separated into two approximate geomorphic zones, divisible by a 14m contour at the base of a glacial moraine known as Kimberlow Hill (Figure 2). Heights shown as m AOD should be read as an approximation, they were extrapolated from the contour heights shown on the survey map of the area, replicated in Figure 2.

Trench 18 was located above the 14m contour and, although currently uncertain, it would appear that it contained the earliest depositional sequence observed in this set of trial trenches. At the northern end of the trench (Section 1) the top of boulder clay (28014) fell steeply towards the south-east, from c.15.13m AOD, before it ran beneath the bottom of the trench, inferring that the moraine had been either glacially scoured or, more likely, incised by a short lived, high energy palaeochannel. If a channel, then it is proposed that it was cut by meltwaters running off the top of Kimberlow hill when the glacier front retreated from the moraine. The lack of a secondary cut down sequence in the top of its fill, a wind-blown sand (28012), suggested that it had either rapidly dried out or had shifted down slope to occupy a new bed. The presence of the thin, orange brown sand lenses within 28012, however, suggested that its formation had been interrupted by water flows on several occasions, probably attributable to flood water run-off from Kimberlow hill. The build-up of colluvium deposits 28011, 28016 and 28018 suggested that this was followed by a long period of relative stability.

Below the 14m contour the sequence becomes much more complex. A series of palaeochannels and/or their fills were observed in both trenches. In trench 19, located just below the 14m contour, the channels observed in sections 4 – 6 appeared to have cut down from c. 13.58m AOD. They were north-south aligned and would, in all probability, have drained down from the eastern end of Kimberlow hill and then joined with a channel system in the base of the vale. Trenches 20 and 21 were located on the floor of the vale, just below the 12m contour, with both showing a complex sequence of well defined and distinct re-cutting channels. In this instance they appeared to have been cut down from the higher ground in the west and/or north-west and then drained towards the south-east. Apart from the shared alignment of the channels in these two trenches, their development and morphology is markedly different. In trench 21, sections 8 – 10 show a simple progression whereby the fills (28041, 28038 and possibly 28035) of the earliest channel(s) in the sequence were cut into by a later, single channel represented by fills 28040, 28036 -7 and 28040. The marked difference between the fills of each suggested that three different channels were represented rather than a single unit. In each case the latest channels appeared to have been cut down from a level not much different than the present ground surface, from c. 12m AOD. The relict plough-soil (28015) observed in Sections 8 and 9 had probably survived because it had built-up in the top of a slump-hollow, formed over the top of the palaeochannel fills after they had shrunk and settled.

In Trench 20 (Section 7) the development of the channels was much more complex. The earliest of these was represented by Deposits 28006 and 28005 (Section 7; Figure 5). Deposit 28005 was observed at 1.30m BGL (c.10.70m AOD) and may have represented the initial cut down event for this particular channel. This was thought to have been the case as it comprised a gravel which would have needed a relatively high energy water flow to transport it to this location. The presence of root material within it suggested that the water flows had then abated sufficiently to allow for the area to be colonized by willow. A sample of the root material was submitted for C14 dating and it suggested that this occurred at c.2910 – 2880 BC (Middle Neolithic). Deposit 28005 may have formed at this time. It comprised a medium grained sand which had built-up to c.10.95m AOD before it was cut into by a second channel (28010). Its fill (28004) comprised many thin sand lenses formed under conditions of variable, low–medium energy water flows. These had built-up to c.11.02m AOD.

Posts 28007 and 28008 were almost certainly driven into the ground at this level (11.02m AOD) although it could not be ascertained if they had been inserted through the top of Deposit 28004, after channel 28010 had become silted, or through the top of Deposit 28005 before it was cut into by the above (28010). Whichever was the case, a C14 date on a

fragment of Post 28007 suggests it was placed in the ground at some time between middle Iron Age (400 – 200 BC).

The function the posts had served is still uncertain. If they are regarded as being paired, then they would most likely have formed an integral part of an east – west aligned run of posts. The 3.5m distance between them (and the lack of intervening posts and/or stakes) inferred that this would have been in the form of a boundary marker or post-row, instead of a closed structure such as a palisade and/or fence for the control of livestock. If a post row, then the east – west alignment suggested that it may have been erected for ritual observance. In both cases the posts appeared to have rotted off at a level contemporary with the top of Deposits 28004/28005 (above), at c.10.95 – 11.20m AOD.

Deposit 28004 and Posts 28007/08 were sealed beneath a 0.68 m thick build-up of a clay rich sand (28003) which appeared to have been formed in a mass of standing water. What it represented is currently unclear, the make-up of it would suggest a pool of standing and/or sluggish water had formed in this area of the site. The water-logging of the ground may have also been responsible for bringing about the decay of Posts 28004/28005. How the pool had evolved is open to question, yet it probably signified a change to a wetter climate and/or a natural remodelling of the land-form outside the confines of the trench, possibly resulting in the formation of a localised feature such as an ox-bow lake or water scoured hollow. The presence of Deposit 28003 was suggestive of a time of relative stability, long enough to allow for its formation, before the climate appeared to change once more. The top of it was sealed by accumulations of sand (28002, 28001 and 28000; respective) which showed that variable, higher energy water flows had returned. These had built-up to c.12.00 m AOD and formed the ground surface at the time the excavations were undertaken.

In conclusion, below the 14m contour there is a great potential for the preservation of very early prehistoric archaeological features. The Holocene deposits were complicated, extensive, well defined and may possibly contain deeply stratified and well preserved archaeological materials of national significance. Geoarchaeological sampling of the deposit sequence may also provide evidence for climatic change and the effects that both it and man had on the environment throughout the evolution of the channel systems. C14 dating of organic materials present within the channel fills would provide a relatively secure chronology to enable comparisons to be made with similar sites in this region and beyond.

6. LIST OF SOURCES

Macnab, N., 2004. *Heslington East, Heslington, York, A report on an Archaeological Evaluation*, YAT report number 2004/23

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APPENDIX 1: CONTEXT DESCRIPTIONS

Context No.	Description
28000	Friable light - mid brown slightly silty sand
28001	Friable very pale greyish brown slightly silty sand
28002	Soft, loose pale grey-white medium grained sand
28003	Plastic pale orange yellow clay sand
28004	Laminations of loose mid grey, medium – coarse grained sand and slightly clay sand
28005	Loose, grey lensed pale – light grey brown medium grained sand
28006	Mixed fine gravel and manganese (root material present)
28007	Facetted roundwood pile point
28008	Shattered Oak roundwood
28009	NOT USED
28010	Palaeochannel cut
28011	Friable, red tinged pale – mid brown clay silt sand
28012	Loose, orange brown spotted and marbled fine grained, pale whitish brown
28013	Red grey sand (degraded boulder clay)
28014	Plastic, coarse grained purple brown sand clay with frequent pebbles and degraded sandstone
28015	Friable mid grey brown sand silt (relict ploughsoil)
28016	Friable light yellow brown slightly silt sand with occasional pebbles
28017	Friable light yellow sand with occasional fine gravel and pebbles
28018	Friable light yellow brown slightly silty sand with occasional pebbles
28019	Friable orange mottled whitish yellow sand with occasional pebbles
28020	Firm yellow brown silty clay
28021	Friable pale yellow brown slightly silty sand with occasional small – medium pebbles

28022	Firm pale grey clay streaked reddish brown clay
28023	Friable orange yellow mottled light brown sand
28024	Loosely friable mid grey brown silt sand
28025	Plastic, white flecked pale creamy brown silt clay
28026	Pebbles in a matrix friable, ginger brown clay sand
28027	Mixed, orange brown mottled pale grey and mid grey brown clay sand
28028	Stiff pale grey clay
28029	Fine grained pale grey brown sand and fine gravel
28030	Loosely friable coarse grained orange brown sand and gravel
28031	Loose orange brown sand
28032	Loose yellow orange sand
28033	Friable mid brown grey silt sand and small pebbles (1 burnt)
28034	Friable fine grained orange yellow sand with occasional patches of fine grained silver white sand
28035	Moist fine – medium grained silver grey sand
28036	Friable brown mottled (Fe?) orange yellow micacious silt sand
28037	Friable pale brown and red brown spotted yellow clay sand
28038	Loose fine grained purplish brown micacious silt sand
28039	Friable medium grained silver orange sand
28040	Friable orange yellow sand with fine (up to 0.01m thick) creamy white and pale grey sand lenses
28041	Wet medium grained pale grey brown sand
28042	Palaeochannel cut
28043	Palaeochannel cut

APPENDIX 2: WOOD & C14 DATA

Context No.	Wood Species	Length x Diameter	Description	C14 Sample number	C14 date
28006	Salix spp.	Various	Root fragments	901	Cal BC 2910 - 2880
28007	Salix spp.	343mm x 82mm	Facetted roundwood pile point	900	Cal BC 400 – 200
28008	Quercus spp.	618mm x 230mm	Shattered roundwood	N/A	N/A

Table 1 Wood and C14 data by context