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**Dr Tom Hill & Miss Christina Jolliffe**

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by

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**Summary**

*Birmingham Archaeo-Environmental were sub-contracted to assess the palaeoenvironmental potential of deposits encountered during trenching near the River Lark near West Row, Suffolk. The scheme of archaeological works was undertaken along a proposed Anglian Water pipeline route between Isleham and Mildenhall.*

*A number of excavation sites along the proposed route were visited during the fieldwork. Of these, only one site, on the floodplain immediately proximal to the contemporary River Lark, contained organic-rich sediments suitable for palaeoenvironmental assessment. Trial trenching had identified well-humified peat deposits overlying weathered chalk bedrock.*

*Samples were taken from the organic-rich units encountered and have been stored for palaeoenvironmental consideration. However, as the archaeological work being undertaken along the proposed route is still ongoing, any recommendations for palaeoenvironmental assessments should be considered and suggested upon completion. This will ensure a suitable palaeoenvironmental assessment will be undertaken which will take into account and complement the complete scheme of works.*

**KEYWORDS:** Anglian Water, River Lark, West Row, Suffolk, peat.

Contact address for authors:

Birmingham Archaeo-Environmental
Institute of Archaeology and Antiquity
University of Birmingham
Edgbaston
Birmingham
B15 2TT

Prepared for:

NAU Archaeology
85 Mountergate
Norwich
NR1 1 LY

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## 1. INTRODUCTION

An archaeological desk based study on land affected by the route of a proposed Anglian Water Pipeline from Isleham to Mildenhall, was prepared by NAU Archaeology (Davies, 2007), in order to assess the archaeological and palaeoenvironmental potential of the area. The route was shown to cut across a fen edge landscape which has been a valuable focus for human occupation and land-use since the Palaeolithic period. Lowland areas immediately proximal to water courses were shown to contain especially high archaeological potential. As a consequence, it was concluded that an initial stratigraphic survey of the floodplain and fen edge deposits was required in order to establish the palaeoenvironmental potential of the sedimentary archive. Due to an abundance of finds along the proposed pipeline route proximal to the River Lark and Lee Brook, a programme of window sampling was undertaken to collect sedimentary sequences for stratigraphic and palaeoenvironmental assessment (Hill, 2007).

Trial trenching at regular intervals along the route was then undertaken by NAU Archaeology, during which deposits of palaeoenvironmental potential were encountered. As a consequence, Birmingham Archaeo-Environmental were subcontracted to assess the sedimentary sequences present. This report presents the results of the palaeoenvironmental investigations associated with this scheme of work.

The aim of the work was twofold:

- To identify, record, characterise and sample organic deposits and where applicable, assess this material for biological preservation. In addition, identify suitable samples for radiocarbon dating where relevant.

- To provide an understanding of the subsurface stratigraphy of the deposits encountered to aid in the development of future archaeological prospection strategies.

## 2. METHODS

*2.1 Stratigraphic Analysis*

Stratigraphic assessments of the sedimentary sequences encountered during the site visit were undertaken to assess for palaeoenvironmental potential. Of the three trial trenches inspected by Birmingham Archaeo-Environmental (Figure 1), two contained deposits typified by light grey-brown gravely sands and silts, believed to be of colluvial origin (T1 & T2). As a consequence, the potential for the deposits to preserve material of palaeoenvironmental importance was concluded to be very low. Only one trench contained organic-rich deposits suitable for further consideration (T3). Located proximal to the northern floodplain of the River lark, near West Row (TL 68198 BNG 74872), the south-facing trench face exposed a *c*. 0.70m sequence of peat deposits underlain by weathered chalk bedrock (Figures 2 and 3).

Sediments were recorded using the Troels-Smith (1955) classification scheme. The scheme breaks down a sediment sample into four main components and allows the inclusion of extra components that are also

present, but that are not dominant. Key physical properties of the sediment layers are also identified according to darkness (Da), stratification (St), elasticity (El), dryness of the sediment (Dr) and the sharpness of the upper sediment boundary (UB). A summary of the sedimentary and physical properties classified by Troels-Smith (1955) and the nomenclature used is provided in Table 1.

# 3. PRELIMINARY RESULTS OF FIELDWORK

Stratigraphic analysis of the southern face of Trench 3 was undertaken and is summarised below:

**0.00-0.34m**

| Da | St | El | Dr | UB |
|---|---|---|---|---|
| 3 | 0+ | 2 | 4 | - |

Dg2, Sh1, Th1, Dh+, Ga+, Ptm+, Ggmin+
*Dark brown ploughed organic topsoil*

**0.34-0.46m**

| Da | St | El | Dr | UB |
|---|---|---|---|---|
| 3+ | 1 | 2 | 3 | 1 |

Sh2, Dg2, Th+, Dh+, Ptm+, Ga+
*Dark brown-black well humified peat*

**0.46-0.71m**

| Da | St | El | Dr | UB |
|---|---|---|---|---|
| 2+ | 0+ | 1+ | 2+ | 1 |

Sh2, Dg1, Ag1, Ptm++, As+, Th+, Dh+
*Light grey-brown shell-rich silty peat*

**>0.71m**
*Weathered chalk bedrock*

(refer to Table 1 for classification scheme)

Fine-grained silts and sands were encountered at the base of the trench. These were overlain by a *c*. 0.25m thick unit comprising a light grey-brown silt-rich peat with abundant shell fragments. There is a relatively gradational upper sedimentary boundary into the overlying well humified dark brown-black peat, which is in turn overlain by a rooty peat topsoil.

# 4. CONCLUSIONS

Fine-grained pale white silts and sands were encountered on the floor of the trench. Whilst these may be partly colluvial in origin, it is suggested that much of these deposits have been derived through the direct weathering of the underlying chalk bedrock. The shallow gradient of the valley side (Figure 2) however would have ensured hillwash would have contributed some of the silts and sands prior to the onset of in-situ biogenic sedimentation.

The organic deposits that immediately overly the weathered bedrock are initially silt-rich and contain an abundance of well-preserved shell remains. The presence of both very fine minerogenic deposits combined with the well-preserved shells in the peat is indicative of deposition in slow moving or stagnant water. The timescale for the onset of biogenic sedimentation is however unknown.

The transition from the silt-rich shelly peat into the overlying well humified peat is gradational. The level of humification present however is indicative of deposition within a dryer environment when compared to the underlying peat unit. The upper topsoil must be considered with caution as ploughing is likely to have resulted in the reworking of the organic sediments over time.

Monolith tins and bulk samples from each of the organic-units encountered were taken for palaeoenvironmental consideration.

# 5. RECOMMENDATIONS FOR FURTHER ANALYSIS

There is considerable palaeoenvironmental potential within the organic sequence encountered within Trench 3. However, it is recommended that no further palaeoenvironmental assessments are undertaken on the samples taken during this assessment. This is due to the ongoing nature of the archaeological excavations within the Lark Valley, combined with the

recommendations for palaeoenvironmental assessment made by Hill (2007) relating to the borehole survey undertaken along the proposed pipeline route. Further archaeological and palaeoenvironmental investigations may indeed be required during this scheme of works, resulting in the potential duplication of palaeoenvironmental recommendations. Once excavations are completed along the remaining stretch of the pipeline route between West Row and Mildenhall, a clear understanding of the spatial distribution of deposits of palaeoenvironmental potential will be possible, from which recommendations for further assessment can be made.

## 6. ARCHIVE

All samples taken during fieldwork are currently stored by Birmingham Archaeo-Environmental, University of Birmingham, Edgbaston, Birmingham, B15 2TT. In addition, stratigraphic logs, site location plans, photographs and associated material are stored within Birmingham Archaeo-Environmental.

## ACKNOWLEDGEMENTS

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## REFERENCES

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| Degree of Darkness | |
|---|---|
| nig.4 | black |
| nig.3 | |
| nig.2 | |
| nig.1 | |
| nig.0 | white |

| Degree of Stratification | |
|---|---|
| strf.4 | well stratified |
| strf.3 | |
| strf.2 | |
| strf.1 | |
| strf.0 | no stratification |

| Degree of Elasticity | |
|---|---|
| elas.4 | very elastic |
| elas.3 | |
| elas.2 | |
| elas.1 | |
| elas.0 | no elasticity |

| Degree of Dryness | |
|---|---|
| sicc.4 | very dry |
| sicc.3 | |
| sicc.2 | |
| sicc.1 | |
| sicc.0 | water |

| | Sharpness of Upper Boundary |
|---|---|
| lim.4 | < 0.5mm |
| lim.3 | < 1.0 & > 0.5mm |
| lim.2 | < 2.0 & > 1.0mm |
| lim.1 | < 10.0 & > 2.0mm |
| lim.0 | > 10.0mm |

| | | | |
|---|---|---|---|
| | *Sh* | *Substantia humosa* | Humous substance, homogeneous microscopic structure |
| *I Turfa* | *Tb* | *T. bryophytica* | Mosses +/- humous substance |
| | *Tl* | *T. lignosa* | Stumps, roots, intertwined rootlets, of ligneous plants |
| | *Th* | *T. herbacea* | Roots, intertwined rootlets, rhizomes of herbaceous plants |
| *II Detritus* | *Dl* | *D. lignosus* | Fragments of ligneous plants >2mm |
| | *Dh* | *D. herbosus* | Fragments of herbaceous plants >2mm |
| | *Dg* | *D. granosus* | Fragments of ligneous and herbaceous plants <2mm >0.1mm |
| *III Limus* | *Lf* | *L. ferrugineus* | Rust, non-hardened. Particles <0.1mm |
| *IV Argilla* | *As* | *A.steatodes* | Particles of clay |
| | *Ag* | *A. granosa* | Particles of silt |
| *V Grana* | *Ga* | *G. arenosa* | Mineral particles 0.6 to 0.2mm |
| | *Gs* | *G. saburralia* | Mineral particles 2.0 to 0.6mm |
| | *Gg(min)* | *G. glareosa minora* | Mineral particles 6.0 to 2.0mm |
| | *Gg(maj)* | *G. glareosa majora* | Mineral particles 20.0 to 6.0mm |
| | *Ptm* | *Particulae testae molloscorum* | Fragments of calcareous shells |

**Table 1** Physical and sedimentary properties of deposits according to Troels-Smith (1955)

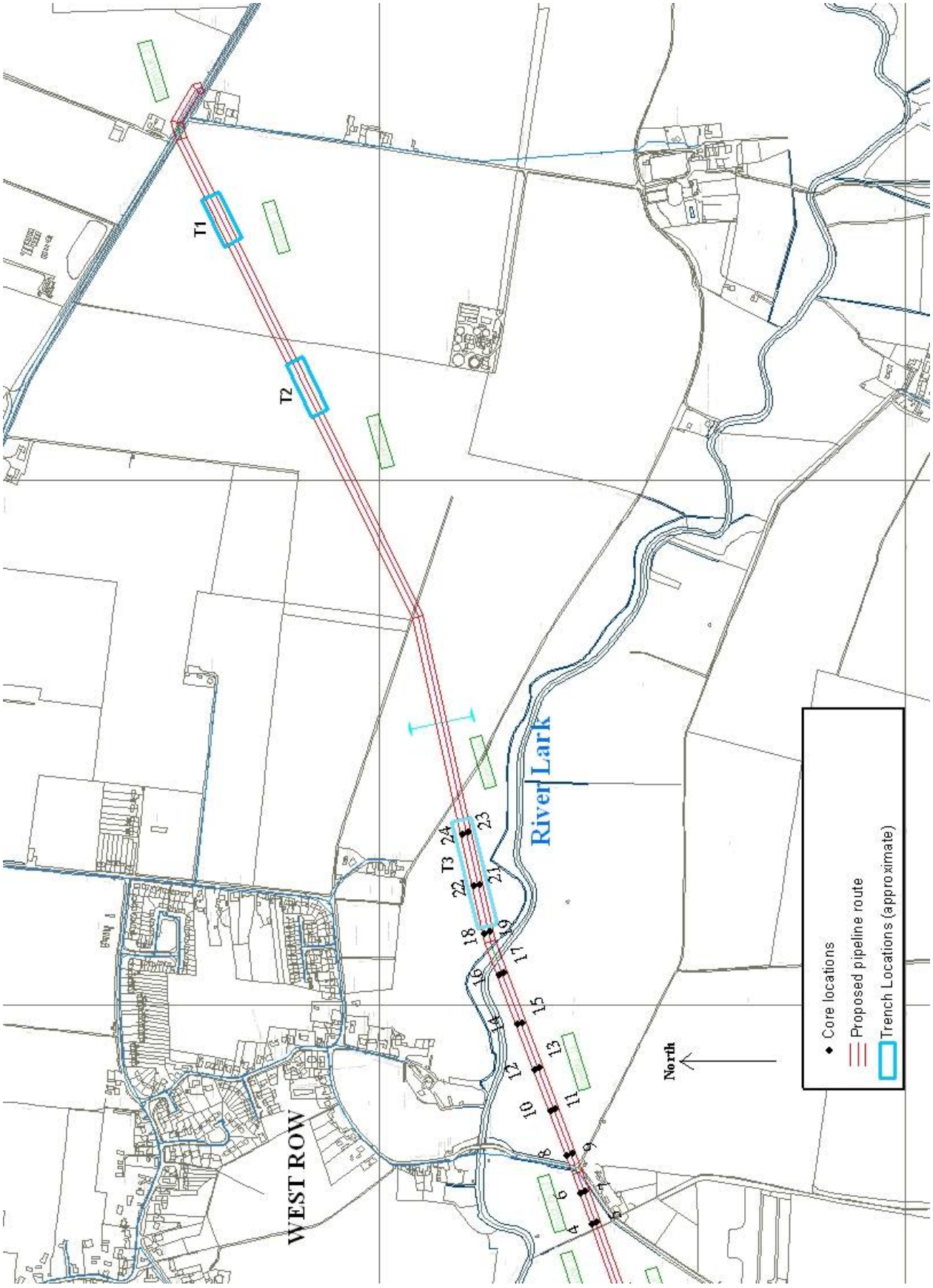


**Figure 1:** Proposed Anglian Water pipeline route between West Row and Mildenhall, identifying borehole and trench locations

**Figure 2:** Trench 3, looking ENE towards Mildenhall. Sample location of organic-rich deposits can be seen on the trench face to the right of the photograph.

**Figure 3:** Trench 3, looking WSW towards the River Lark (located beyond the trees). Sample location of organic-rich deposits can be seen on the trench face to the left of the photograph.

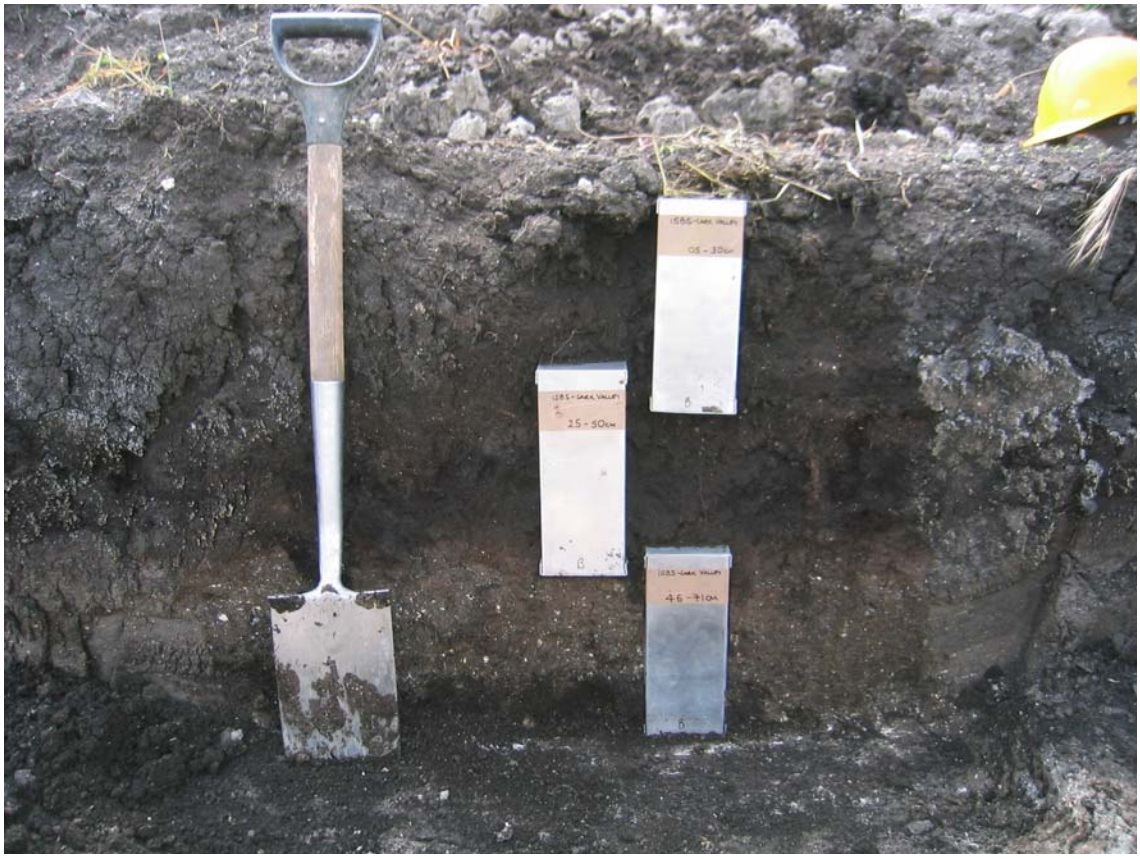


**Figure 4:** Sampling of organic sequence from southern face of Trench 3.