Mapledurham Fish Pass, Mapledurham, Berkshire

Archaeological Watching Brief Report

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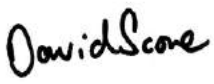
Signature:	

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Mapledurham Fish Pass, Mapledurham, Berkshire

Archaeological Watching Brief Report

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With contributions from Sharon Cook and Rebecca Nicholson and illustrations by Gary Nobles and Charles Rousseaux.

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Summary

Oxford Archaeology was commissioned by the Environment Agency to undertake a watching brief at the site of a new bypass channel around Mapledurham weir and lock to allow fish and eels to migrate along the river system. The fieldwork was undertaken on an intermittent basis between 26th July and 7th September 2021.

No features or artefacts of archaeological significance were revealed during the course of the construction work. However, a waterlogged peat deposit was revealed at the base of a deep alluvial sequence and was subsequently radiocarbon dated to the late Neolithic period. The peat represents the edge of a former channel that flowed to the south of the site and the present course of the river Thames.

Acknowledgements

Oxford Archaeology would like to thank the Environment Agency for commissioning this project. Thanks, are also extended to the Historic Environment team at West Berkshire Council who monitored the work.

The project was managed for Oxford Archaeology by Ben Ford. The fieldwork was carried out by Paul Murray. Survey and digitising were carried out by Gary Nobles and Charles Rousseaux. Thanks are also extended to the teams that processed the environmental remains under the management of Rebecca Nicholson, and prepared the archive under the management of Nicola Scott.

1 INTRODUCTION

1.1 Scope of work

1.1.1 Oxford Archaeology (OA) was commissioned by the Environment Agency to undertake a watching brief at the site of a new bypass channel around Mapledurham weir and lock to allow fish and eels to migrate along the river system.

1.1.2 The work was undertaken as a condition of Planning Permission (planning ref. 17/01765/FUL). A brief/specification was set by the Acting Archaeological Officer at West Berkshire Council and a written scheme of investigation (WSI) was produced (Young 2017) detailing the Local Authority's requirements for work necessary to discharge the planning condition. This document outlines how OA implemented the specified requirements.

1.2 Location, topography and geology

1.2.1 The site is located at Mapledurham Lock in the administrative district of West Berkshire Council. It is approximately 6km northwest of Reading, centred on NGR 466759 176806, and lies adjacent to the Berkshire/Oxfordshire border in between Purley on Thames and Mapledurham. The site is presently a field with an access track to the east. It has been used as grazing land for cattle.

1.2.2 Solid geology at the site is chalk, of the Seaford Chalk Formation And Newhaven Chalk Formation. Superficial deposits recorded at the site are Alluvium comprising clay, silt, sand, and gravel (BGS online).

1.3 Archaeological and historical background

1.3.1 The archaeological and historical background of the site was summarised in the WSI (Young 2017) and included the following key discoveries in the vicinity of the site.

1.3.2 Dredging works to the south of the lock have uncovered three Palaeolithic handaxes, two Bronze Age spearheads, a Mesolithic Tranchet axe and blade and a Roman coin hoard. To the north of the site a Neolithic pick has been recorded.

1.3.3 Mapledurham Weir is an operational paddle and rymer weir dating from 1923.

2 WATCHING BRIEF AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The project aims and objectives were outlined in the WSI as follows:

I. to monitor ground disturbance during the course of development

II. to ensure the recording of the extent, condition, character, quality and date of any archaeological deposits and features and ecofacts where they may not be left in-situ;

III. to further our understanding of the origins and development of Purley on Thames;

IV. to further our understanding of the historical development of the site

V. to report on the results of the fieldwork and place them within their Local, Regional or National context;

2.2 Methodology

2.2.1 The watching brief was maintained during all groundworks with the potential to disturb archaeological deposits or features. The excavations were monitored to the impact depth of the project or the surface of the natural geology, whichever was encountered first.

2.2.2 The groundworks were undertaken in two phases, with the deeper central channel machine excavated in the first instance (Plate 1). This was then enlarged with a sloped batter on either side (Plate 2).

2.2.3 Due to the nature of the works involving deep excavations and frequent flooding of the trench, it was not always possible to enter the excavations and carry out detailed recording of the deposits. When entry to the excavations was not possible a photographic record and accompanying sketch section was created from the edge of the channel.

2.2.4 The work was undertaken in accordance with the CIfA Standard and Guidance for an Archaeological Watching Brief (CIfA 2014a), Management of Research Projects in the Historic Environment (HE 2015) and the CIfA Code of Conduct (CIfA 2014b).

3 RESULTS

3.1 Introduction and presentation of results

3.1.1 The results of the watching brief are presented below and include a stratigraphic description of the deposits revealed. The full table of contexts can be found in Appendix A. No finds were recovered during the course of this project.

3.2 Ground conditions

3.2.1 Ground conditions throughout the watching brief were varied. The weather was changeable during the period that the fieldwork too place and some heavy rain meant the work had to be postponed on occasion. Although the conditions were generally good, the high-water table meant that the deeper deposits were quicky inundated after being exposed.

3.3 Observations

3.3.1 No archaeological features or artefacts were observed during the course of the groundworks. The natural geology of sandy gravel (11) was only revealed at the northern end of the channel, at a depth of 2.45m below ground level (Figure 4; Section 1). At this point, a thin lens of humic material (10) was recorded overlying the gravels, to a maximum thickness of 0.1m. The gravels and peat were then overlain by a series of alluvial clay silt deposits (Plates 3 and 4). This sterile sequence of alluvial clay was revealed along the entire length of the channel (Plate 5, Figure 4; Sections 1-6).

3.3.2 Thicker deposits of humic, peat-like material (5) were revealed within the channel excavations, near to the northern and southern ends of the excavation (Plate 6, Figures 2 and 4; Section 6). An environmental sample was recovered from this layer to assess the deposit for waterlogged plant remains and artefacts. This revealed decayed wood fragments and a small quantity of plant seeds in mixed condition (Appendix B). Two Alder cones recovered from the sample were submitted for radiocarbon determination and produced a date of 2850-2480 cal BC (Beta-630972: 4070 +/- 30 BP).

4 INTERPRETATION AND CONCLUSION

4.1.1 The peat deposit revealed towards the base of the sequence indicates the presence of a former wetland environment that would have extended across the area covered by the site. Its absence from the central section of the excavations is presumed to reflect a greater depth of the deposit that was not exposed during these works.

4.1.2 The radiocarbon date on the peat shows that it had accumulated during the late Neolithic period. At which point, any movement of water must have been severely restricted for these peaty layers to have accumulated. The LIDAR image in Figure 3 shows that these waterlogged deposits would have been part of a broad channel to the south of the present course of the Thames and perhaps formed part of a braided channel.

4.1.3 Also evident from the LIDAR image are the series of field boundary ditches that traverse the former channel and drain into Scrace's Ditch. The alignment of which follows the contour carved out by the original channel, before connecting with the Thames to the east of the site.

4.1.4 A similar relict channel was previously recorded by OA during an excavation at Chazey Court Farm, *c* 3km to the south-east (Ford 2017). At this point, the remains of the channel were accompanied by a group of tree-throw holes which yielded mixed date flint assemblages from the Mesolithic to the Bronze Age. Adjacent to these were some shallow scrapes of potentially Neolithic date, one of which contained disarticulated fragments of human bone. Although no such discoveries were made during this project, it nevertheless highlights the potential for significant archaeological remains in this area. Any further work in the area of the palaeochannel would have a significant potential for recovering valuable environmental evidence about the surrounding landscape during the Neolithic period.

APPENDIX A DESCRIPTIONS AND CONTEXT INVENTORY

Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
1	Layer	-	0.25	Topsoil – Dark grey humic loam	-	-
2	Layer	-	0.3	Subsoil – mid brownish grey sandy silt	-	-
3	Layer	-	0.88	Alluvium – mid brown, clay silt	-	-
4	Layer	-	0.78	Alluvium – mid brown-grey mottling, clay silt	-	-
5	Layer	-	1.1	Peat – very dark grey silt, organic matter	-	L.Neo
6	Layer	-	0.7	Alluvium - Blue green silt	-	-
7	Layer	-	0.4	Alluvium - Mottled mid grey/ dark brown silt	-	-
8	Layer	-	0.2	Alluvium – mid brown silt, similar to (2)	-	-
9	Layer	-	0.3	Mid brown silt	-	-
10	Layer	-	<1	Peat – dark grey organic rich silt	-	-
11	Layer	-	>0.25	Mid brown sandy gravel	-	-
12	Layer	-	>0.3	Alluvium – pale grey silty sand	-	-

APPENDIX B ENVIRONMENTAL REPORTS

B.1 Environmental Samples

By Sharon Cook

Introduction

B.1.1 A single bulk sample was taken from a peaty palaeochannel fill (5) during the watching brief. The bulk sample was taken to ascertain the potential for the survival and condition of anaerobically preserved organic remains, including seeds, and to provide materials for radiocarbon dating.

B.1.2 Two alder cones (*Alnus glutinosa*) from the sample provided a date of 2850-2480 cal BC (Beta-630972: 4070 +/- 30 BP) which means the deposit is of late Neolithic date.

Method

B.1.3 A 1 litre subsample was processed at Oxford Archaeology using the wash over method with both flot and residue being processed to 250µm and kept wet to facilitate preservation. The flot material was sorted using a low power (x10) binocular microscope to extract seeds and other plant material potentially suitable for dating.

B.1.4 Identifications were carried out with reference to the Digital Seed Atlas of the Netherlands (Cappers & Bekker 2013; Cappers *et al*. 2012) for identification of wild plant remains, as well as comparison with modern reference material. Classification and nomenclature of plant material follows Stace (2010).

The Waterlogged Plant Remains

B.1.5 The one litre subsample produced a large flot, 500ml in volume. Of this 125ml was sorted (25%).

B.1.6 The peat was fairly well humified and much of the sample floated: the flot has a peaty appearance and is rich in decayed wood with occasional fine root/stem fragments. Insect fragments are present and many of the fragments are large and potentially identifiable although the quantity observed was small. Very rare *Daphnia* (water flea) ephippia are also present indicating the former presence of standing water.

B.1.7 Plant seeds are not common, and their condition is mixed. Most species are represented by low numbers of individuals. The majority of seeds are from plants indicative of damp ground, streams, and riverbanks such as gypsywort (*Lycopus europaeus*), water crowfoot (*Ranunculus* subgenus *Batrachium*) and spike rush (*Eleocharis* sp.). The remaining seeds are from plants found in a wider range of habitats such as docks (*Rumex* sp.) and goosefoots (*Chenopodium* sp.) which are likely to have been growing close by, while nettles (*Urtica dioica*) are typically found on nutrient-rich soils. Due to the poor condition of some seeds, many could not be identified beyond genus. The presence of several alder cones (*Alnus glutinosa*) suggest that these trees were growing on or around the banks of the channel.

		Sample No.	1
		Context No.	5
		Date	Neolithic
		Sample Vol	1L
		Flot Vol	500ml
		% Sorted	25%
Trees/shrubs			
Alnus glutinosa (L.) Gaertn	European alder	cone	5
Plants of waste, cultivated or open ground			
Urtica dioica L.	common nettle	seed	13
Stellaria media (L.) Vill.	common chickweed	seed	2
Wet ground and aquatic plants			
Ranunculus subgenus Batrachium	crowfoot	seed	7
Ranunculus sceleratus L.	celery-leaved buttercup	seed	1
Lycopus europaeus L.	gypsywort	seed	7
Alisma plantago-aquatica L.	water-plantain	seed	2
Cyperaceae	sedge family	seed	15
Eleocharis palustris	common spike-rush	seed	6
Carex sp.	sedge	seed	3
Plants from broad ecological groupings			
Ranunculus acris/repens/bulbosus	meadow/creeping/ bulbous buttercup	seed	6
Rubus sp.	bramble	seed	1
Persicaria sp.	knotweed	seed	2
Rumex sp.	dock	seed	1
Rumex sp.	dock	seed with perianth	1
Chenopodium sp.	goosefoots	seed	1
Mentha sp.	mint	seed	3
Sambucus sp.	elder	seed	1
Apiaceae	carrot family	seed	1
Oenanthe aquatica	carrot family	seed	1
Poaceae	grass (medium)	seedcoat only	2
Indet		seed	4

Table 1: The Waterlogged plant assemblage

B.2 Radiocarbon Dating

By Rebecca Nicholson

B.2.1 A single sample, comprising two uncharred alder (*Alnus glutinosa*) cones was submitted for AMS radiocarbon determination to the Beta Analytic laboratory. The samples came from channel fill (5). The reported results (Table X) are conventional radiocarbon ages (Stuiver and Polach 1977).

B.2.2 The Conventional Radiocarbon Ages were corrected for total fractionation effects and calibration was performed using BetaCal4.20 and the High-Probability Density Range Method INTCAL20 (Bronk Ramsey 2009, Reimer et al. 2020). Reported results are accredited to ISO/IEC 17025:2005 Testing Accreditation PJLA #59423 standards and all chemistry was performed in the Beta Analytic laboratory. Conventional Radiocarbon

Ages and sigmas are rounded to the nearest 10 years following the recommendations of the 1977 International Radiocarbon conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result. The reported δ13C values were measured separately in an IRMS (isotope ratio mass spectrometer) and are not the AMS δ13C which would include fractionation effects from natural, chemistry and AMS induced sources. The results are within the acceptable range for the material.

B.2.3 The dates are provided in full in Table 2 but are cited in the text at 95% confidence and quoted in the form recommended by Mook (1986), with the end points rounded outwards to 10 years quoted in the form which equates to a calibrated date range of 2850-2480 cal. BC.

Lab. reference	Sample	Context	Material	$\delta^{13}C$ (‰)	Radiocarbon Age (BP)	Calibrated date (at 95.4%)
Beta - 630972	1	5	Two uncharred alder cones	-27.9	4070±30	2698 - 2556 cal BC (64.0%) 2543 - 2488 cal BC (18.5%) 2850 - 2810 cal BC (10.4%) 2746 - 2727 cal BC (2.5%)

Table 2. Radiocarbon sample detail and calculated age range

APPENDIX C BIBLIOGRAPHY

British Geological Survey, 2022 Geology of Britain viewer, http://mapapps.bgs.ac.uk/geologyofbritain/home.html [accessed August 2022]

Bronk Ramsey, C., 2009 Bayesian analysis of radiocarbon dates, Radiocarbon 51(1), 337–360

Cappers, R T J, Bekker R M, and Jans, J E A 2012 *Digital Seed Atlas of the Netherlands*. Groningen Archaeological Studies **4**, 2nd Edition, Barkhuis Publishing, Eelde, The Netherlands

Cappers R T J, and Bekker, R M 2013 *A Manual for the Identification of Plant Seeds and Fruits*, Groningen Archaeological Studies, **23,** Barkhuis Publishing, Eelde, The Netherlands

CIfA, 2014a *Standard and guidance for an archaeological watching brief*, updated June 2020, Chartered Institute for Archaeologists, Reading

CIfA, 2014b *Code of conduct*, revised October 2021, Chartered Institute for Archaeologists, Reading

HE, 2015, *Management of Research Projects in the Historic Environment*, Historic England

Ford, B, and Leech, S, 2017, Excavations of a Medieval Manorial Complex at Chazey Court Farm: An Interim Note. Oxoniensia, Volume **82** LXXXII

Mook, W G, 1986 Business Meeting: recommendations/resolutions adopted by the twelfth international radiocarbon conference, Radiocarbon 28, 799

Reimer, P., Austin, W., Bard, E., Bayliss, A., Blackwell, P., Bronk Ramsey, C., Butzin, M., Cheng, H., Edwards, R., Friedrich, M., Grootes, P., Guilderson, T., Hajdas, I., Heaton, T., Hogg, A., Hughen, K., Kromer, B., Manning, S., Muscheler, R., Palmer, J., Pearson, C., van der Plicht, J., Reimer, R., Richards, D., Scott, E., Southon, J., Turney, C., Wacker, L., Adolphi, F., Büntgen, U., Capano, M., Fahrni, S., Fogtmann-Schulz, A., Friedrich, R., Köhler, P., Kudsk, S., Miyake, F., Olsen, J., Reinig, F., Sakamoto, M., Sookdeo, A., & Talamo, S. (2020). The IntCal20 Northern Hemisphere radiocarbon age calibration curve (0–55 cal kBP), Radiocarbon, 62.

Stace, C 2010 *New Flora of the British Isles*, 3rd Edition, Cambridge: CUP

Stuiver, M, and Polach, H A, 1977 Reporting of 14C data, Radiocarbon 19, 355–363

Young, 2017, *Archaeological Written Scheme of Investigation: On land at Mapledurham Lock, Mapledurham Drive, Purely on Thames, Reading Berkshire, RG8 8BE,* Unpublished document, Young Heritage

APPENDIX D SITE SUMMARY DETAILS

Site name:	Mapledurham Fish Pass, Mapledurham, Berkshire
Site code:	MADUFP20
Grid Reference	SU66577701
Type:	Watching Brief
Date and duration:	July to September, 2021
Area of Site	0.23ha
Location of archive:	The archive is currently held at OA, Janus House, Osney Mead Industrial Estate, and will be deposited with West Berkshire Museum in due course, under the following accession number: NEBYM:2020.24.
Summary of Results:	Oxford Archaeology was commissioned by the Environment Agency to undertake a watching brief at the site of a new bypass channel around Mapledurham weir and lock to allow fish and eels to migrate along the river system. The fieldwork was undertaken on an intermittent basis between 26th July and 7th September 2021. No features or artefacts of archaeological significance were revealed during the course of the construction work. However, a waterlogged peat deposit was revealed at the base of a deep alluvial sequence and was subsequently radiocarbon dated to the late Neolithic period. The peat represents the edge of a former channel that flowed to the south of the site and the present course of the river Thames.

Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -27.9 o/oo)

Laboratory number **Beta-630972**

Conventional radiocarbon age **4070 ± 30 BP**

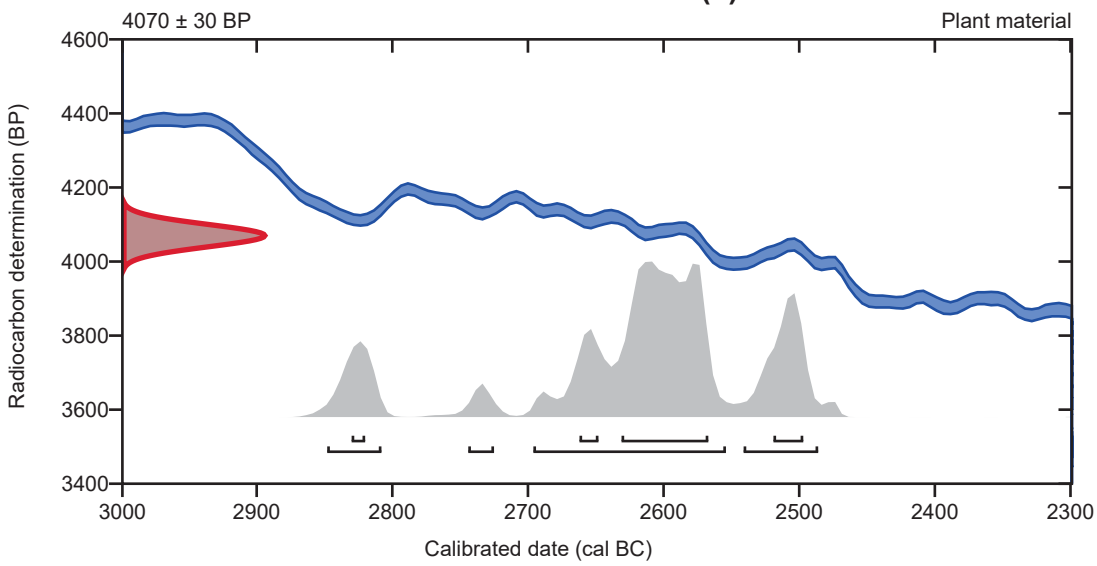
95.4% probability

(64%)	2698 - 2556 cal BC	(4647 - 4505 cal BP)
(18.5%)	2543 - 2488 cal BC	(4492 - 4437 cal BP)
(10.4%)	2850 - 2810 cal BC	(4799 - 4759 cal BP)
(2.5%)	2746 - 2727 cal BC	(4695 - 4676 cal BP)

68.2% probability

(46.4%)	2633 - 2569 cal BC	(4582 - 4518 cal BP)
(12.2%)	2521 - 2499 cal BC	(4470 - 4448 cal BP)
(5.8%)	2664 - 2650 cal BC	(4613 - 4599 cal BP)
(3.7%)	2832 - 2822 cal BC	(4781 - 4771 cal BP)

MADUFP20 <1> (5)



Database used

INTCAL20

References

References to Probability Method

Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. Radiocarbon, 51(1), 337-360.

References to Database INTCAL20

Reimer, et al., 2020, Radiocarbon 62(4):725-757.

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Figure 1: Site location

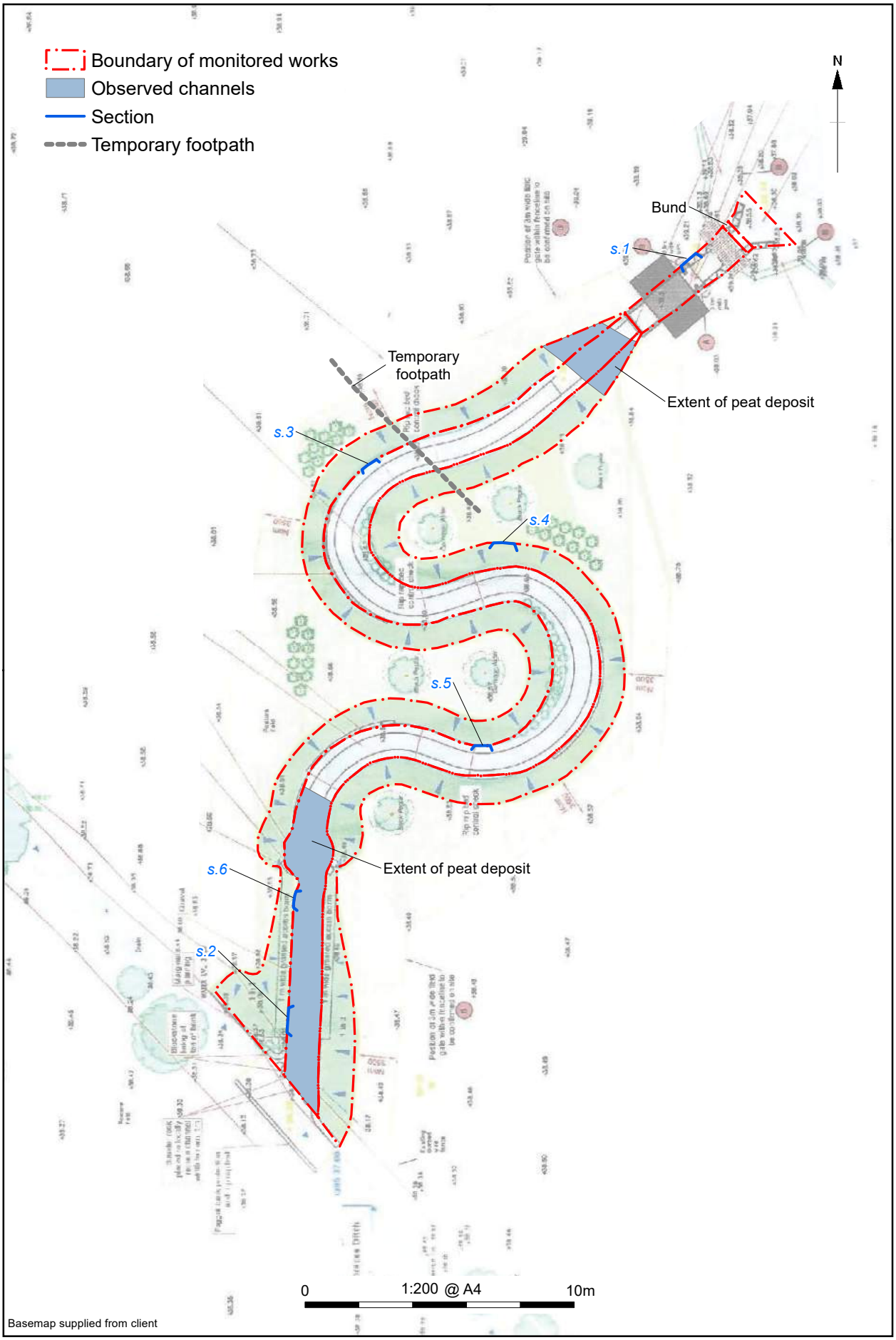

Figure 2: Plan of monitored works

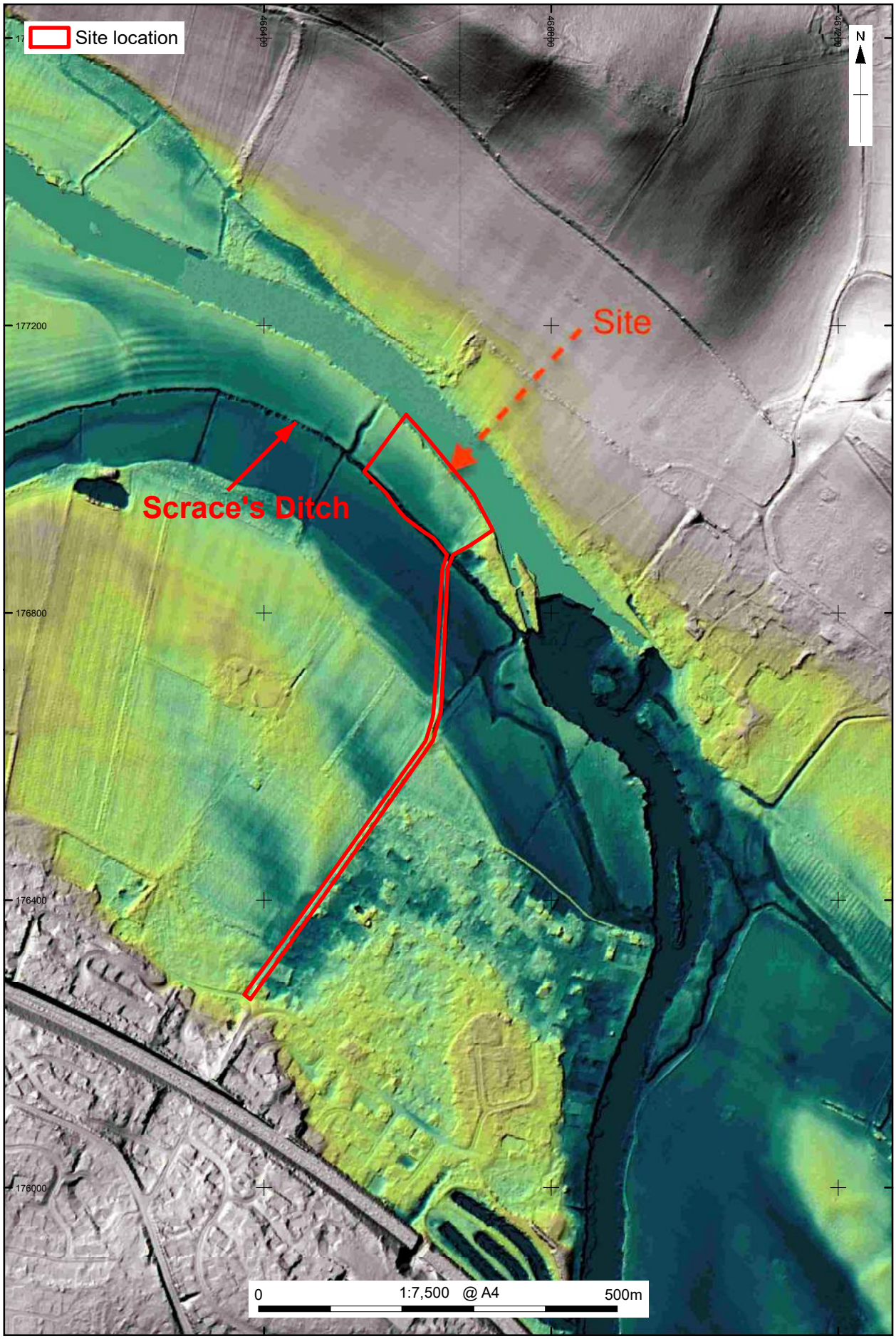

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Figure 3: Enhanced LIDAR image of the site

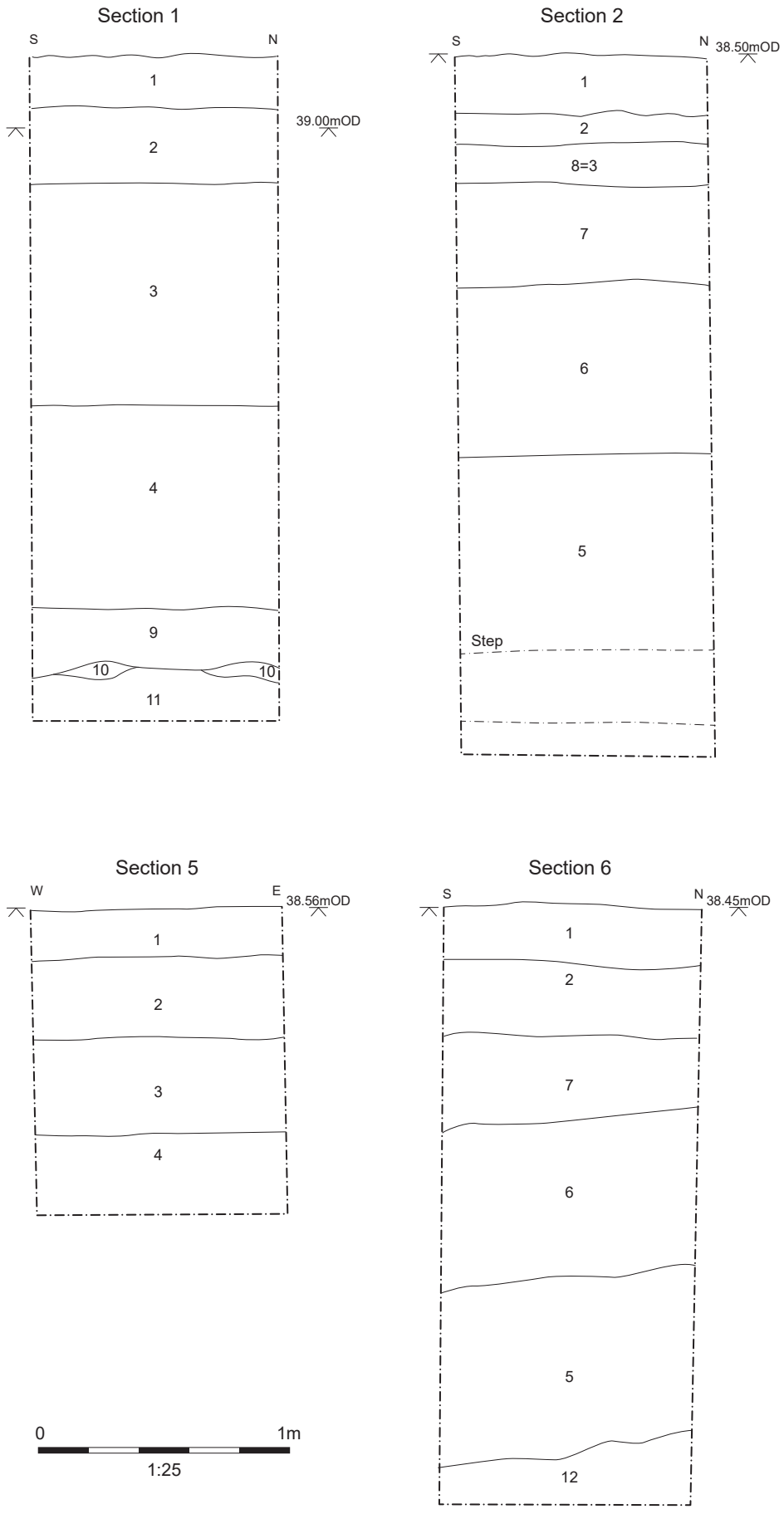

Figure 4: Section 1, 2, 5 and 6

Plate 1: General view of works showing central channel excavation

Plate 2: General view of works showing excavation of battered slope

Plate 3: General sequence of deposits in Section 1 (looking west)

Plate 4: Sondage at base of Section 1 showing lens of peat and gravels (looking north-east)

Plate 5: Detailed view of Section 5 (looking north)

Plate 6: Section 6, showing peat deposit (5) towards base (looking west)

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