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Totnes Flood Defence Improvements Geotechnical Investigation Works Totnes, Devon

Archaeological Watching Brief

Ref: 112830.01
May 2015

wessexarchaeology

Totnes Flood Defence Improvements
Geotechnical Investigation Works
Totnes, Devon

Archaeological Watching Brief

Prepared for:
Bam Nuttall Mott MacDonald JV
Mott MacDonald
10 Temple Back
Bristol
BS1 6FL

On behalf of:
Environment Agency

Prepared by:
Wessex Archaeology
Unit 9, Filwood Green Business Park
1 Filwood Park Lane
Bristol
BS4 1ET

www.wessexarch.co.uk

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* I = Internal Draft; E = External Draft; F = Final

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Summary

Wessex Archaeology was commissioned by Bam Nuttall Mott MacDonald Joint Venture, acting on behalf of the Environment Agency, to undertake an archaeological watching brief during Ground Investigations (GI) associated with the Totnes Flood Defence Improvements Works, in Totnes, Devon (between National Grid Reference SX 80350 61104 and SX 80604 59990).

The archaeological watching brief was undertaken between the 21st and 30th of March 2016 and comprised monitoring the excavation of eight hand-excavated test pits and two mechanically excavated test pits in and around Totnes town centre. GI borehole and window sample logs were also examined, to provide information on the more deeply buried deposits.

The GI works revealed deposits of alluvium between 4.5 m and 11 m thick, overlain by varying depths of made ground and modern surfaces. In Broad Marsh Industrial Estate, the made ground is modern and approximately 2 m thick. The made ground in the town centre, which is between 2.1 m and 3.1 m deep, is of unknown date, but may be of archaeological interest. A window sample to the east of New Walk was terminated when it encountered a timber stake 1.5 m below ground level; this object could potentially form part of a buried quayside structure.

A borehole in Steamer Quay car park identified a layer of sandy silt and peat at depths of between 6.5 m and 11.8 m below ground level (3.17-9.83 m below Ordnance Datum). Given the depth of this layer in relation to past sea levels, it is probable that it was deposited during or prior to the Mesolithic marine transgression into the Dart Estuary.

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Acknowledgements

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The watching brief was undertaken by Liam Powell. This report was compiled by Cai Mason. The illustrations were produced by Karen Nichols. The project was managed for Wessex Archaeology by Andy King.

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Archaeological Watching Brief

1 INTRODUCTION

1.1 Project background

1.1.1 Wessex Archaeology (WA) was commissioned by Bam Nuttall Mott MacDonald Joint Venture (BMMJV), acting on behalf of the Environment Agency (EA), to undertake an archaeological watching brief during Ground Investigations (GI) associated with the Totnes Flood Defence Improvements (FDI) scheme.

1.1.2 The archaeological watching brief was undertaken between the 21st and 30th of March 2016 and comprised monitoring the excavation of eight hand-excavated test pits (HP01-05 and HP07-08) and two mechanically excavated test pits (TP01-02) in and around Totnes town centre. A further planned hand-excavated test pit (HP06) to the south of Totnes Bridge was cancelled due to on-site constraints.

1.2 The Site

1.2.1 The Site is situated along a 2.4 km stretch of the River Dart, in Totnes, Devon. The archaeologically monitored GI works were spread across a zone that extended from the South Devon Main Line in the north (National Grid Reference (NGR) SX 80350 61104), to St Peter's Quay in the south (NGR SX 80604 59990). The locations of the GI works are presented in **Table 1** and **Figure 1**.

Table 1: Locations of the archaeologically monitored GI works

Location	Archaeologically monitored GI works
Broad Marsh Industrial Estate	HP01, HP02, HP03, HP04 and HP05.
Town Centre (west bank)	TP01, HP07 and HP08
Steamer Quay car park	TP02

1.2.2 The solid geology comprises Devonian mudstones, siltstones, limestones and sandstones of the Nordon Formation, which are overlain by superficial deposits of Quaternary alluvium (BGS 2016). Ground levels ranged between approximately 0.5 m and 4.75 m above Ordnance Datum (aOD).

2 ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

2.1.1 The archaeological and historical background to the Site is drawn from a *Written Scheme of Investigation* (Mott MacDonald 2016), a *Desk-Based Assessment* (AC Archaeology 2014) and other secondary sources.

2.2 Romano-British

2.2.1 The only evidence of Romano-British activity in the immediate vicinity of the Site is a Roman coin that was found at St Peter's Quay.

2.3 Saxon and Medieval

2.3.1 Totnes was a substantial settlement in the Saxon period and it is recorded the Domesday Survey (AD 1086) as a Royal borough with 100 burgesses (Williams and Martin 1992, 307). After the Norman Conquest, the Barony of Totnes was granted to Juhel de Totnes, who constructed the first timber fortifications at Totnes Castle (Gatehouse 2016). St Peters Chapel, which was located on St Peters Quay, was in existence by AD 1066.

2.3.2 The earliest records of a quay in the town date from 1275, but the riverside is likely to have been a focus of activity from a much earlier date. The New Quay was constructed in 1451.

2.3.3 Between the 13th and late 18th centuries, there was a pottery production site on the east bank of the Dart, immediately to the south of Totnes Bridge, the products of which are known as 'Totnes Ware'.

2.4 Post Medieval and modern

2.4.1 During the post-medieval and modern periods, the town's quaysides became increasingly built up with residential, commercial and industrial premises, particularly after the River Dart was dredged to improve navigation for larger vessels in the 19th century.

2.4.2 The east bank of the Dart was developed as a quayside shortly after 1825 and by 1841 warehouses had been constructed alongside the new quay.

2.4.3 In the 20th century, there were further developments along the west bank of the Dart, including the gradual extension of a GWR goods line along the length of Marsh Quay and the construction of the Baltic Wharf, which was used to fit out wooden minesweepers in the Second World War (CgMs 2013, 14).

2.4.4 Late 19th- and 20th-century Ordnance Survey plans show that the Broad Marsh was used as a race course and golf course until the present industrial estate was constructed from the 1960s onwards.

3 METHODOLOGY

3.1 Introduction

3.1.1 The following methodology is drawn from the approved WSI (Mott MacDonald 2016).

3.2 Aims and objectives

3.2.1 The aim of the watching brief was to identify, record and assess any significant archaeological remains that may be disturbed by the GI works. The subsequent report (this document) will inform future archaeological mitigation works for the proposed flood defence

improvement scheme. Archaeological recording will preserve the archaeological resource 'by record' and offset the loss of the historic resource caused by the proposed development.

3.2.2 Specific research aims for the investigation are as follows;

- Establish the presence and extent of modern truncation or disturbance across the development area;
- Determine the stratigraphy across the development area and establish the presence and nature of archaeological remains, specifically in relation to potential wharf/quay structures which may be associated with the various quays know to have existed; and
- Identify areas with potential for anaerobic preservation of organic materials and the depths at which these occur.

3.3 Fieldwork methodology

3.3.1 All works were undertaken in accordance with the methodology set out by the *Written Scheme of Investigation* (Mott MacDonald 2016) and in compliance with the standards outlined in the CIfA's Standard Guidance for archaeological watching brief (CIfA 2014b).

3.3.2 The test pits were excavated under constant archaeological supervision. All excavated material was visually examined for archaeological finds.

3.4 Recording

3.4.1 All features and deposits were assigned a unique number and recorded using WA's standard methods and *pro forma* recording system. The Ordnance Datum (OD) height of all principal features and levels was calculated, and annotated onto plans and sections. The feature locations were accurately surveyed by GPS and tied into the OS National Grid.

3.4.2 A full photographic record was maintained using digital cameras equipped with 16 megapixel image sensors. The digital images will be subject to managed quality control and curation processes to embed appropriate metadata within the image and ensure long term accessibility of the image set.

3.4.3 All artefacts from excavated contexts have been retained. All retained artefacts were, as a minimum, washed, weighed, counted and identified.

3.4.4 WA follows the guidelines set out in the document *Selection, Retention and Dispersal of Archaeological Collections* (SMA 1993) with regard to the retention of artefacts and samples. This allows for the discard of selected artefact categories and sample products which are not considered to warrant further analysis.

4 ARCHAEOLOGICAL RESULTS

4.1 Introduction

4.1.1 The following section presents the results of the on-site archaeological recording integrated with results of the borehole and window sample logs produced by Quantum Geotechnical. Full context descriptions are provided in **Appendix 1**.

4.1.2 The different GI works are identified by the following prefixes:

- *BH – borehole;*

- *HP – hand-excavated test pit;*
- *TP – mechanically-excavated test pit; and*
- *WS – window sample.*

4.2 Town Centre

4.2.1 TP02, which was located on the Ashford Slipway, was abandoned after it became clear that the paving slabs were bedded on reinforced concrete. The adjacent borehole, BH01 (**Cover**), encountered solid geology 6.5 m below ground level (bgl), at a height of 3.17 m below Ordnance Datum (bOD). The solid geology was overlain by an alluvial sequence comprising a 1.1 m thick layer of dark purple clay, overlain by 2.9 m of pale brown sand and gravel, which was sealed by a 1 m thick layer of soft black ashy silt with clinker inclusions. This layer, described in the GI log as 'made ground', was overlain by a 1.2 m thick layer of angular gravel that formed a bed for the modern concrete surface.

4.2.2 BH02 (**Plate 1**), which was located closer to the river, recorded a similar deposit sequence, but in this instance natural geology was encountered at 5.5 m bgl (4.01 m bOD), whilst the made ground extended down to a depth of 3.1 m bgl (1.61 m bOD).

4.2.3 HP07 (**Plate 2**) and WS09, which were situated along the quayside to the east of New Walk, revealed made ground deposits in excess of 1.5 m thick. WS09 was terminated 1.5 m bgl, (0.97 m aOD), due to encountering a wooden stake; this object, which was left n-situ, could potentially form part of a buried quayside structure.

4.2.4 HP08 and WS10, which were situated in a grassed area to the north of the Steam Packet Inn, uncovered deposits dark brown alluvial sand and gravel, overlain by a 1 m thick layer of made ground. WS10 was excavated to a maximum depth of 3 m bgl (0.16 m bOD); the upper surface of the alluvium was recorded at 1.84 m aOD. A short length of railway track which was part of a 20th-century GWR goods line servicing the quayside was visible within the grassed area.

4.3 Steamer Quay

4.3.1 TP01 and BH03 were both located in Steam Quay car park. TP01 was excavated to a maximum depth of 3.2 m bgl (0.39 m bOD), whilst the borehole was driven to a depth of 12.6 m bgl (9.83 m bOD). Weathered solid geology, which was recorded at 11.8 m bgl (9.03 m bOD), was overlain by a 2.3 m thick layer of grey sandy silt and peat (upper surface at 6.73 m bOD), which was sealed by an 8.1 m thick sequence of brown and grey sands and gravels (upper surface at 1.47m aOD). The natural alluvial sequence was overlain by a 0.8 m deep dump of stone rubble that formed a base for the modern car park.

4.4 Broad Marsh Industrial Estate

4.4.1 HP01/WS01A, which was situated immediately to the south of the South Devon Main Line, was excavated to a maximum depth of 5 m bgl (0.36 m bOD). The window sample revealed deposits of alluvial sand and gravel (upper surface at 2.34 m aOD), which were overlain 2.3 m of modern made ground.

4.4.2 Various deposits of sand, gravel, silt and clay were recorded in HP02, HP03, WS03, HP04 WS04, HP05 and WS05, all of which appear to form part of the natural alluvial sequence. A few fragments of organic material were noted at depths of between 1.2 m and 2.7 m bgl (0.66-2.16 m aOD) in WS05, but in general there was little evidence for buried organic remains in this area.

5 ARTEFACTUAL EVIDENCE

5.1.1 The only finds recovered during the watching brief were a post-medieval iron horse-shoe and a bent iron bar from made ground layer **3003** and a single sherd of modern transfer-printed whiteware from service trench **703**. It is proposed that these finds be discarded once all phases of archaeological fieldwork have been completed.

6 DISCUSSION AND CONCLUSIONS

6.1.1 The GI investigations revealed a relatively consistent sequence of solid geology, at depths of between 6.5 m and 11.8 m bgl (3.17 m to 9.83 m bOD), overlain by alluvium (mostly sand and gravel), which was in turn sealed by made ground or modern estuarine alluvium.

6.1.2 A peat layer was identified between 9.4 m and 11.8 m bgl (6.73-9.03 m bOD) in Steamer Quay car park. The date of the peat is unknown. However, given its depth in relation to past sea levels, it is probable that it was deposited during or prior to the Mesolithic marine transgression into the Dart Estuary. A small quantity of organic material was also noted in the alluvial sequence, which suggests that anaerobic conditions are present in some parts of the site; these conditions are favourable for the preservation of paleo-environmental remains.

6.1.3 There is little evidence of modern truncation within the proposed development area, however much of the Site is covered by deposits of made ground of varying character and depth.

6.1.4 The investigations at the northern end of Broad Marsh Industrial Estate demonstrated that the natural alluvial sequence in this location is buried beneath 2.3 m of modern made ground, which was probably dumped prior to the construction of the industrial estate in the 20th century. GI investigations closer to the river revealed only natural alluvial deposits. There is no evidence for any significant archaeological remains in this area.

6.1.5 The made ground deposits in the town centre are of unknown date, but may be of archaeological interest. However, the limited scope of the GI investigations precludes any further discussion as to the nature or date of these deposits. The presence of a timber stake 1.5 m below the quayside to the east of New Walk could indicate that there are buried timber structures in this area.

7 STORAGE AND CURATION

7.1 Museum

7.1.1 The project archive will eventually be deposited with Royal Albert Memorial Museum. This museum is not currently accepting archives. The Site archive will therefore be temporarily stored at WA's Salisbury office under Site Code 112830. Deposition of any finds with the Museum will only be carried out with the full agreement of the landowner.

7.2 Archive

7.2.1 The complete site archive, which may include paper records, photographic records, graphics, artefacts, ecofacts and digital data, will be prepared following the standard conditions for the acceptance of excavated archaeological material by Royal Albert Memorial Museum, and in general following nationally recommended guidelines (SMA 1995; CIfA 2014b; Brown 2011; ADS 2013).

7.2.2 An OASIS online record http://ads.ahds.ac.uk/projects/oasis/ has been initiated **wessexar1-250727** and key fields completed on Details, Location and Creators Forms. All appropriate parts of the OASIS online form will be completed for submission to the Devon HER.

7.2.3 All archive elements will be marked with the Site Code, and a full index will be prepared.

7.3 Discard policy

7.3.1 WA follows the guidelines set out in *Selection, Retention and Dispersal* (Society of Museum Archaeologists 1993), which allows for the discard of selected artefact and ecofact categories which are not considered to warrant any future analysis.

7.4 Copyright

7.4.1 The full copyright of the written/illustrative archive relating to the Site will be retained by WA under the *Copyright, Designs and Patents Act* 1988 with all rights reserved. On receipt of the archive, the Royal Albert Memorial Museum, will however, be granted exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use shall be non-profit making, and conforms to the *Copyright and Related Rights Regulations* 2003.

7.5 Security Copy

7.5.1 In line with current best practice (e.g. Brown 2011) on completion of the project a security copy of the written records will be prepared, in the form of a digital PDF/A file. PDF/A is an ISO-standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill-suited to long-term archiving.

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9 APPENDICES

9.1 Appendix 1: GI test pit summaries

HP01				
Dimensions: 0.35 m x 0.4 m		**Max Depth:** 1.1 m	**Ground Level**	4.64 m aOD
Context	**Description**			**Depth bgl (m)**
101	Tarmac			0-0.08
102	Base for 101	Mid pink angular gravel		0.08-0.13
103	Made ground	Pale greyish-pink gravel		0.13-0.22
104	Made ground	Re-deposited mid yellow mudstone		0.22-1.1+

HP02				
Dimensions: 0.6 m x 0.3 m		**Max Depth:** 1.3 m	**Ground Level**	3.44 m aOD
Context	**Description**			**Depth bgl (m)**
201	Topsoil	Mid greyish-brown sand with limestone inclusions and modern refuse		0-0.14
202	Structure	Concrete wall		0-0.3
203	Cut	Construction cut for wall 202		0-0.3
204	Alluvium	Mid yellowish brown sand with small stone inclusions		0.14-1.3+

HP03				
Dimensions: 0.35 m x 0.35 m		**Max Depth:** 1.2 m	**Ground Level**	3.26 m aOD
Context	**Description**			**Depth bgl (m)**
301	Topsoil	Very dark brown sand		0-0.08
302	Alluvium	Mid greyish brown silty sand		0.08-1.2+

HP04				
Dimensions: 0.35 m x 0.35 m		**Max Depth:** 1 m	**Ground Level**	3.34 m aOD
Context	**Description**			**Depth bgl (m)**
401	Topsoil	Mid reddish-brown sand		0-0.08
402	Made ground	Mid reddish-brown silty sand		0.08-0.4+

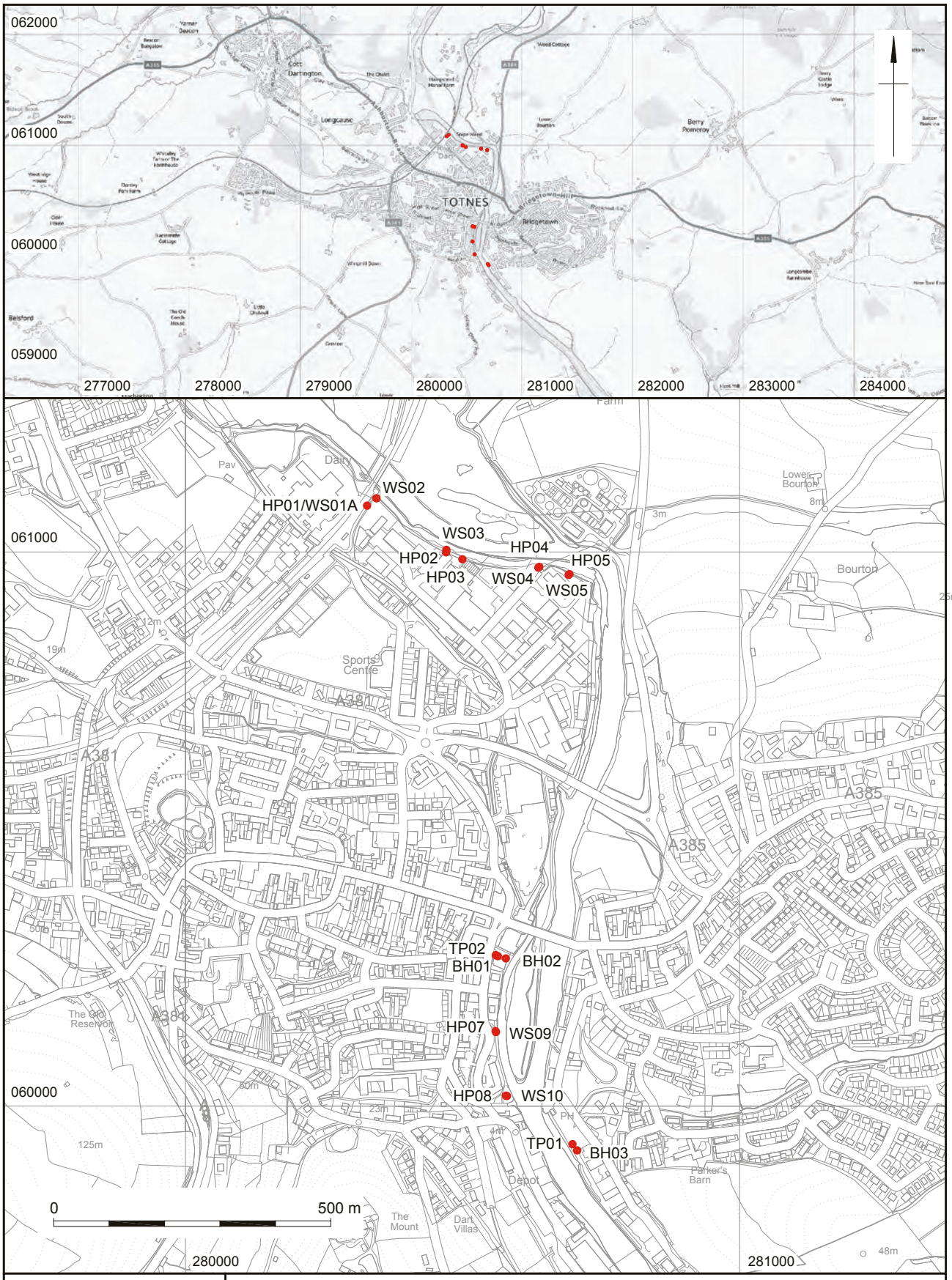
HP05				
Dimensions: 0.9 m x 0.35 m		**Max Depth:** 0.75 m	**Ground Level**	3.46 m aOD
Context	**Description**			**Depth bgl (m)**
501	Made ground	Mid reddish-brown sand		0-0.42
502	Structure	Concrete foundations		0.42-0.5
503	Made ground	Mid reddish-brown silty sand		0.42-0.75+

HP07				
Dimensions: 0.8 m x 0.4 m		**Max Depth:** 0.85 m	**Ground Level**	2.39 m aOD
Context	**Description**			**Depth bgl (m)**
701	Tarmac			0-0.25
702	Made ground	Mid reddish-brown sand		0.25-0.85
703	Modern service	Iron pipe encased in concrete		0.85+

HP08				
Dimensions: 0.33 m x 0.33 m		**Max Depth:** 1 m	**Ground Level**	2.87 m aOD
Context	**Description**			**Depth bgl (m)**
801	Topsoil			0-0.15
802	Made ground			0.15-0.18
803	Made ground	Red sand and angular gravel		0.18-0.28
804	Made ground	Mid brown sand with gravel inclusions		0.28-1

TP01				
Dimensions: 2 m x 0.6 m		**Max Depth:** 3.2 m	**Ground Level**	2.81 m aOD
Context	**Description**			**Depth bgl (m)**
3001	Tarmac			0-0.08
3002	Tarmac			0.08-0.14
3003	Made ground	Mid reddish-brown sand with large sandstone and chert inclusions		0.14-0.93
3004	Alluvium	Dark greyish-brown sandy silt. Possibly redeposited.		0.93-3.2
3005	Alluvium	Gravel		3.2+

TP02				
Dimensions: 1.8 m x 0.6 m		**Max Depth:** 3.2 m	**Ground Level**	2.95 m aOD
Context	**Description**			**Depth bgl (m)**
1001	Paving slabs			0-0.12
1002	Concrete			0.12+



● Ground Investigation

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Site plan showing Ground Investigation locations

Figure 1

Plate 1: BH02 on Ashford Quay, looking south-east

Plate 2: HP02 on the quayside to the east of New Walk, looking north

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Wessex Archaeology Ltd registered office Portway House, Old Sarum Park, Salisbury, Wiltshire SP4 6EB
Tel: 01722 326867 Fax: 01722 337562 info@wessexarch.co.uk www.wessexarch.co.uk