

Barsham Water Treatment Works BRS 037

Archaeological Evaluation Report

SCCAS Report No. 2013/142

Client: Essex and Suffolk Water

Author: M. Sommers

November 2013

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HER Information

Report Number: 2013/142
Site Name: Barsham Water Treatment Works
Planning Application No: pre-determination
Date of Fieldwork: 11th to 14th November 2013
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Client/Funding Body: Essex and Suffolk Water
Client Reference: n/a
Curatorial Officer: Rachael Monk
Project Officer: M. Sommers
Oasis Reference: suffolkc1-164256
Site Code: BRS 037

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Disclaimer

Any opinions expressed in this report about the need for further archaeological work are those of the Field Projects Team alone. Ultimately the need for further work will be determined by the Local Planning Authority and its Archaeological Advisors when a planning application is registered. Suffolk County Council's archaeological contracting services cannot accept responsibility for inconvenience caused to the clients should the Planning Authority take a different view to that expressed in the report.

Prepared By: M. Sommers
Date: 18th November 2013

Approved By: Dr. R. Gardner
Position: Contracts Manager
Date: 18th November 2013
Signed:

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Summary

An archaeological evaluation was carried out on an area of land to the northeast of Barsham Water Treatment Works in advance of an expansion of the works. Twelve trenches were excavated but no significant archaeological deposits, features or artefacts were identified. An area in the northwest corner of the development area had been previously truncated in advance of the deposition of imported sand deposits. This truncation may have destroyed any earlier evidence although the remainder of the area appeared to be undisturbed. (Suffolk County Council Archaeological Service Field Team for Essex and Suffolk Water)

1. Introduction

An expansion of the existing Barsham Water Treatment Works, Bungay Road, Barsham has been proposed. The site owners, Essex and Suffolk Water, were advised by the Suffolk County Council Conservation Team that planning consent would be likely to attract an archaeological condition calling for an agreed programme of archaeological work to be in place in advance of development. In order to quantify the work required and to off-set any potential delays the site owners sought to undertake the programme prior to seeking planning consent.

The first stage of the programme of work was the undertaking of a Desk-Based Assessment of the development area (Sommers, 2013). Following this further work was stipulated in the form of a trenched evaluation in order to ascertain what levels of archaeological evidence may be present within the development area and to inform any mitigation strategies that may then be deemed necessary. For this work, a Brief was produced by Rachael Monk of the Suffolk County Council Conservation Team. This formed the basis for a Written Scheme of Investigation (Appendix 1), detailing the methods to be used; this was approved by the County Conservation Team.

The National Grid Reference for the approximate centre of the site is TM 4063 8962. Figure 1 shows a location plan of the proposed development area.

The archaeological evaluation was undertaken from the 11th to the 14th November 2013 by Suffolk County Council Archaeological Service's Field Team who were commissioned by the Conservation Advisor of Essex and Suffolk Water.

2. Geology and topography

The development area consists of an irregular shaped area to the northeast of the existing waterworks. It lies on an area of high ground that overlooks a small stream close to the base of steep slope to the west. The stream flows north crossing an area of marsh before draining into the River Waveney, which lies approximately 1km to the north. The development area slopes down from a high point of c. 18m OD at the northern tip down to c. 13m OD at the southern end. The land to the east of the

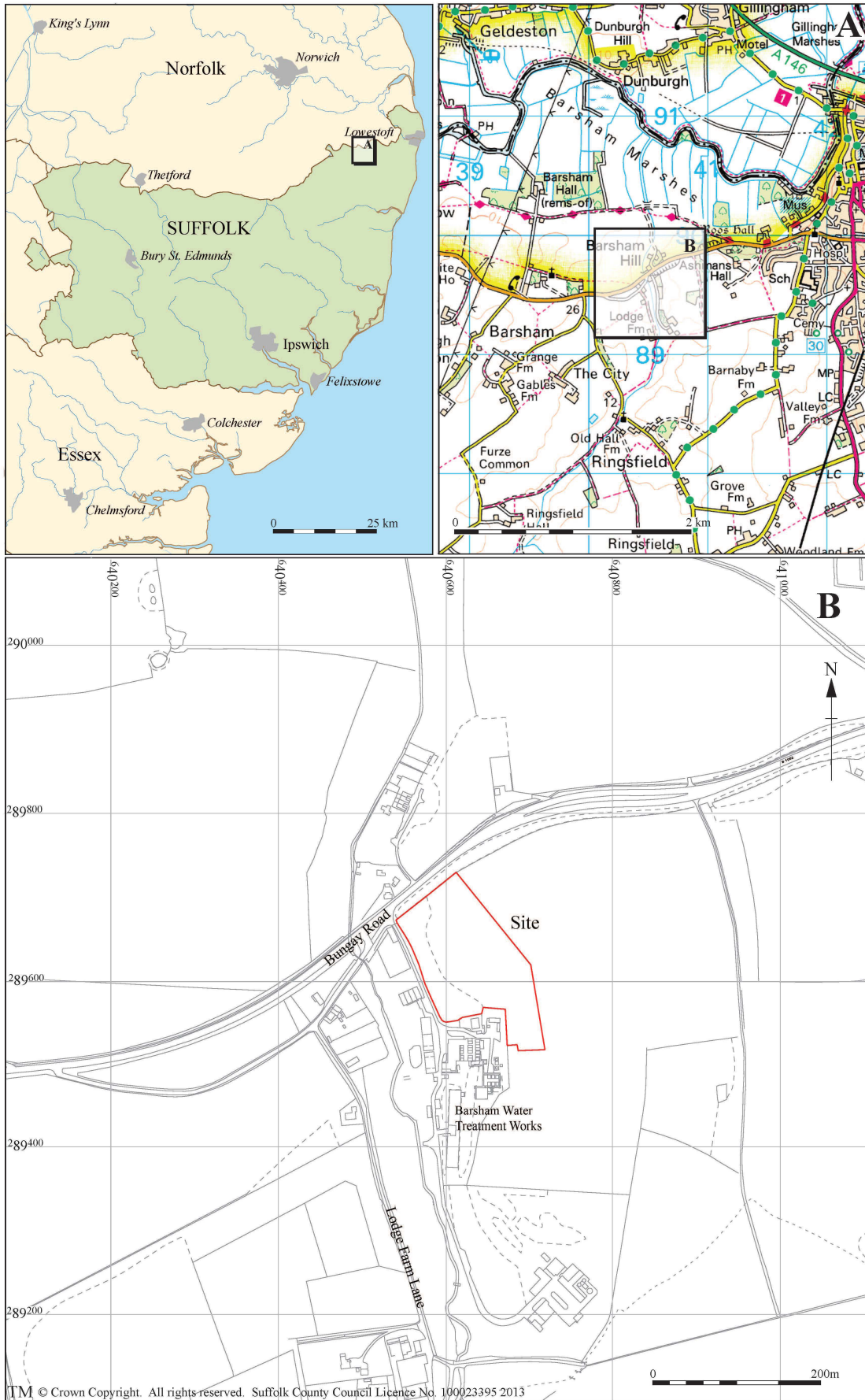


Figure 1. Location of site

development area rises to the north and east up to the top of Barsham Hill, at approximately 26m OD, some 200m to the east. Bungay Road, to the north, lies at the base of steep slope and runs down to the west before passing over the stream. The land on the opposite side of the road from the development area lies at a similar height, or is lower, than the roadway.

The underlying geology of the development area, as recorded by the British Geological Survey, is liable to comprise glacial sands and gravels with areas of glacial till (clay with chalk and flint).

3. Archaeology and historical background

The previously undertaken Desk-based Assessment report (Sommers, 2013) put the development area into its historical context.

In summary, the report revealed that the development area was topographically favourable for archaeological sites dating from the prehistoric period and that limited evidence for prehistoric activity, including a possible barrow cemetery, had been recorded to the south of the development area. The potential for medieval remains, associated with a possible settlement focussed on the nearby crossing of Bungay Road over the stream was also identified. Additionally, the crossing point formed part of a Second World War stop line and evidence for associated defences may be present within the development area.

Late 20th century aerial photography shows the entire development area was once ploughed land that formed part of a large arable field. At the time of the evaluation a large part of the development area, affecting Trenches 1 to 8, was overgrown and had clearly not been farmed for some years. The area of Trenches 9 to 12 was still part of the ploughed field, the most recent crop having been maize.

4. Methodology

The trial trenches were machine excavated down to the level of the natural subsoil using a tracked excavator fitted with a toothless ditching bucket. The location of the trenches was broadly in accordance with the trench plan approved by the County Conservation Team although some minor variations were made to avoid areas deemed to be ecologically sensitive, such as areas of dense vegetation, due to the possible presence of protected reptiles, and the root protection zone around mature trees. It was also necessary to slightly shorten two of the trenches due to the presence of overhead electricity cables.

The trenches were located on the ground prior to their excavation using GPS equipment. Any alteration to the marked trench location was recorded using steel measuring tapes.

The machining of the trenches was closely observed throughout in order to identify any archaeological features and deposits and to recover any artefacts that might be revealed. Excavation continued until undisturbed natural deposits were encountered, the exposed surface of which was then examined for cut features. Had any features or significant deposits been identified they would have been sampled through hand excavation in order to determine their depth and shape and to recover datable artefacts.

Each trench, and the resultant spoil was surveyed using metal detecting equipment but only modern debris was identified.

Following excavation of each trench, the nature of the overburden was recorded and the depths noted. Each trench was then backfilled.

A photographic record of the work undertaken was also compiled using a 14 megapixel digital camera with suitable scales in place.

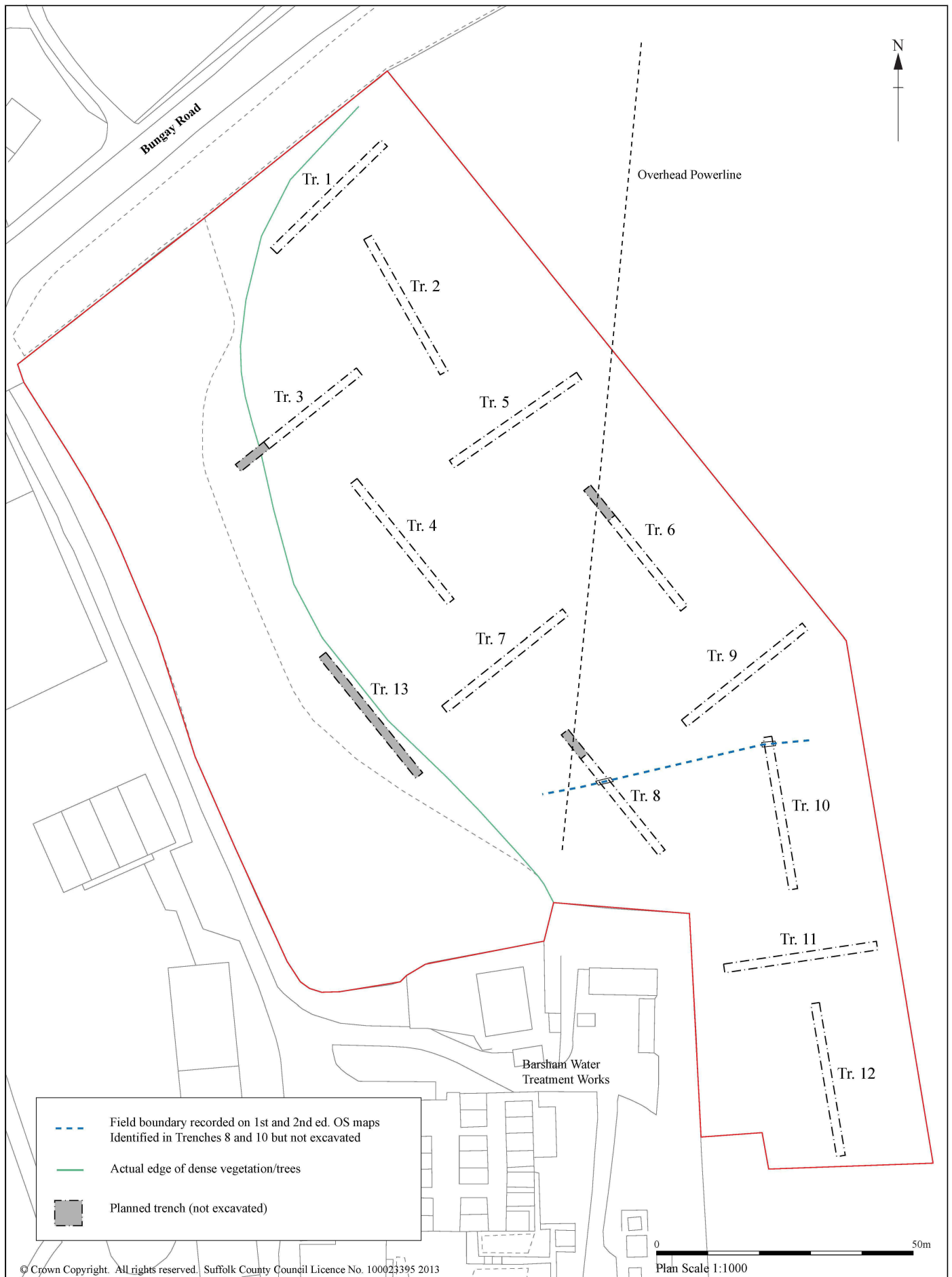


Figure 2. Trench plan

5. Results

Twelve evaluation trenches were excavated (fig. 2). A thirteenth trench was planned but its location placed it within the root protection area of a number of mature trees that are to be retained. The trenches were excavated on perpendicular alignments, being either northwest to southeast or southwest to northeast.

All trenches revealed a similar natural subsoil consisting of yellow to pale brown sand and gravel, occasionally silty and/or chalky, although a small area of stiff grey boulder clay was noted in trenches in the northwest corner of the development area (plate 1).

The following table presents the recorded depths of each trench, with reference to their alignment, and includes pertinent notes regarding the revealed stratigraphy:

Trench No.	Recorded depths at trench ends				Notes
	SW	NE	NW	SE	
T1	0.9m	0.4m			Boulder clay present subsoil in the southwestern half of this trench, the surface of which appeared to have been truncated prior to the deposition of a layer of imported sand. This imported deposit measured 0.5m in thickness at the southwest end but had reduced to 0.1m at the northeast end of the trench.
T2			0.5m	0.5m	Boulder clay at extreme northwest end. c. 0.2m thick layer of imported sand below 0.3m of topsoil, underlying natural appeared to have been truncated.
T3	*1.2m	0.5m			Trench shortened to for ecological reasons. Thick deposit of made ground noted within the first 5m of trench at the southwest end with the natural subsoil being in excess of 1.2m in deep although it rapidly sloped up to a depth of c. 0.5m throughout the remainder of trench. Surface of the subsoil appeared to be truncated.

T4			0.5m	0.3m	The overburden consisted of topsoil only. Abrupt interface suggesting possible of truncation of the natural subsoil.
T5	0.5m	0.7m			Overburden comprised 0.4m of topsoil over a subsoil of pale brown silty sand which varied in thickness between 0.1m to 0.3m. No obvious indication of truncation.
T6			0.4m	0.4m	Topsoil over natural subsoil but no obvious truncation of natural subsoil. Trench shortened due to presence of an overhead powerline.
T7	0.4m	0.4m			Topsoil over natural subsoil with thin layer of pale brown silty subsoil between. No indication of truncation.
T8			0.4m	0.4m	Topsoil over natural subsoil, no obvious truncation of natural subsoil. Trench shortened due to presence of an overhead powerline. Linear feature (post-medieval ditch) noted in northwest end of trench.
T9	0.7m	0.8m			Overburden comprised 0.4m of topsoil over a layer of pale brown silty sand which varied in thickness between 0.3m to 0.4m. No obvious indication of truncation.
T10			0.6m	0.6m	Overburden comprised 0.4m of topsoil over 0.2m of pale brown silty sand. No obvious indication of truncation. Linear feature (post-medieval ditch) noted in northwest end of trench.
T11	0.3m	0.4m			Topsoil over natural subsoil. Sharp interface indicating probable truncation by modern ploughing.
T12			0.7m	0.7m	Overburden comprised 0.3m of topsoil over 0.4m of pale brown silty sand (plate 2). No obvious indication of truncation.
T13					Trench not excavated due to proximity of mature trees.

Table 1. Summary of trench results

In the northwest corner and along the western edge of the development area deposits of imported material, primarily clean yellow sand, had been dumped. The surface of the natural subsoil beneath this appeared to be truncated suggesting the topsoil had been stripped prior to the dumping of the imported material. The great depth of imported material noted in the southwest end of Trench 7 suggests a localised extension of the high ground to the west resulting in an artificial steepening of the west facing slope.

In areas not disturbed by the dumping of imported material the natural subsoil generally lay at a depth of 0.4m to 0.5m beneath an overburden of topsoil and a layer of pale brown silty sand (plate 2), which is probably a hill wash from the higher up Barsham Hill or a result of weathering of the surface of the natural subsoil.

A single linear feature, interpreted as a ditch, was identified in two of the trenches (Trenches 8 and 10). This feature is coincidental with a field boundary marked on 19th century Ordnance Survey maps. Its fill was a homogenous mass of brown sandy silt from which no finds were recovered. No other archaeological features were identified in any of the trenches and only infrequent 20th century artefacts were recovered within the excavated spoil.

6. Finds and environmental evidence

No significant artefacts of any period were recovered during the evaluation. Only very infrequent fragments of 20th century debris were noted and these were not retained.

7. Discussion

The results of evaluation suggest that no significant archaeological features or deposits are present within the site. The surface of the natural subsoil exposed in the trenches was cleanly cut and had any buried remains been present it is highly likely they would have been identified. The complete absence of any early artefacts recovered from the spoil would also suggest that no archaeological sites are located in the vicinity.

The truncation of the surface of the natural subsoil noted in the northwest corner of the development area could potentially destroyed any earlier evidence but it is likely that only topsoil was removed and that some evidence would remain, particularly that of deeper features.

8. Conclusions and recommendations for further work

The evaluation did not identify any archaeological deposits or features that could be deemed to be under threat from the proposed development.

Based on these results, no further work is recommended, although the final decision is at the discretion of the County Conservation Team.

9. Archive deposition

Historic Environment Record reference under which the archive is held: BRS 037.

Digital archive can be found on the SCC servers at the following location:

R:\Environmental Protection\Conservation\Archaeology\Archive\Barsham\BRS037 Evaluation (water works)

Digital photographs are held under the references HUI 78 to HUI 97

A summary has also been entered into OASIS, the online database, ref. suffolkc1-164256

10. Acknowledgements

The evaluation was carried out by Mark Sommers and Roy Damant from the Suffolk County Council Archaeological Service Field Team.

Ecological advice was provided by Colin Austin of Essex Ecology Services Limited who assisted on-site throughout much of the field work phase.

The project was directed by Mark Sommers and managed by Dr. Rhodri Gardner, who also provided advice during the production of the report.

11. Bibliography

Sommers, M., 2013, *Barsham Water Treatment Works: Desk-Based Assessment*, SCCAS (unpublished report)

12. Plates

(scales used are 1m in length divided into 0.5m sections; SCCAS photo archive reference numbers are in brackets)



Plate 1. General view of Trench 1, camera facing northeast (ref. HUI 78)



Plate 2. General stratigraphy of the site, as revealed in Trench 12 (ref. HUI 96)

Appendix 1. Written Scheme of Investigation

Barsham Water Treatment Works, Barsham, Suffolk

Archaeological Evaluation by Trial Trench

Written Scheme of Investigation

**Prepared by Suffolk County Council Archaeological Service
September 2013**

Document Control

Title: Barsham Water Treatment Works, Barsham, Suffolk
Date: 09/09/13
Issued by: Suffolk County Council Archaeological Service Field Team
Author: Rhodri Gardner
Issued to: Rachael Monk (SCCAS Conservation Team), Alex Mueller (Essex & Suffolk Water)

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1. Background

- 1.1 The Field Team of the Suffolk County Council Archaeological Service (SCCAS) have been asked to prepare documentation for a programme of archaeological evaluation by trial trench at the above site (Fig 1). This Written Scheme of Investigation (WSI) covers that work only. Any further stages of archaeological work that might be required in relation to the proposed development would be subject to new documentation.
- 1.2 The site is centred approximately on NGR TM 4064 8963.
- 1.3 The work has been requested at the pre-determination stage.
- 1.4 The archaeological investigation will be conducted in accordance with a Brief and Specification produced by Rachael Monk of the SCCAS Conservation Team (dated 2nd May 2013).
- 1.5 The site is in an area identified as having archaeological potential in the County HER, principally as it lies close to the location of a possible medieval road (BRS 024), a number of Bronze Age barrows (BRS 007) and a findspot of medieval pottery (BRS 007).
- 1.6 This WSI complies with the requirements of SCC's standard Requirements for a Trenched Archaeological Evaluation (2011 Ver 1.3), as well as the following national and regional guidance 'Standards and Guidance for Archaeological Excavation' (IFA, 1995, revised 2001) and 'Standards for Field Archaeology in the East of England (EAA Occasional Papers 14, 2003).

1.1 Research aims

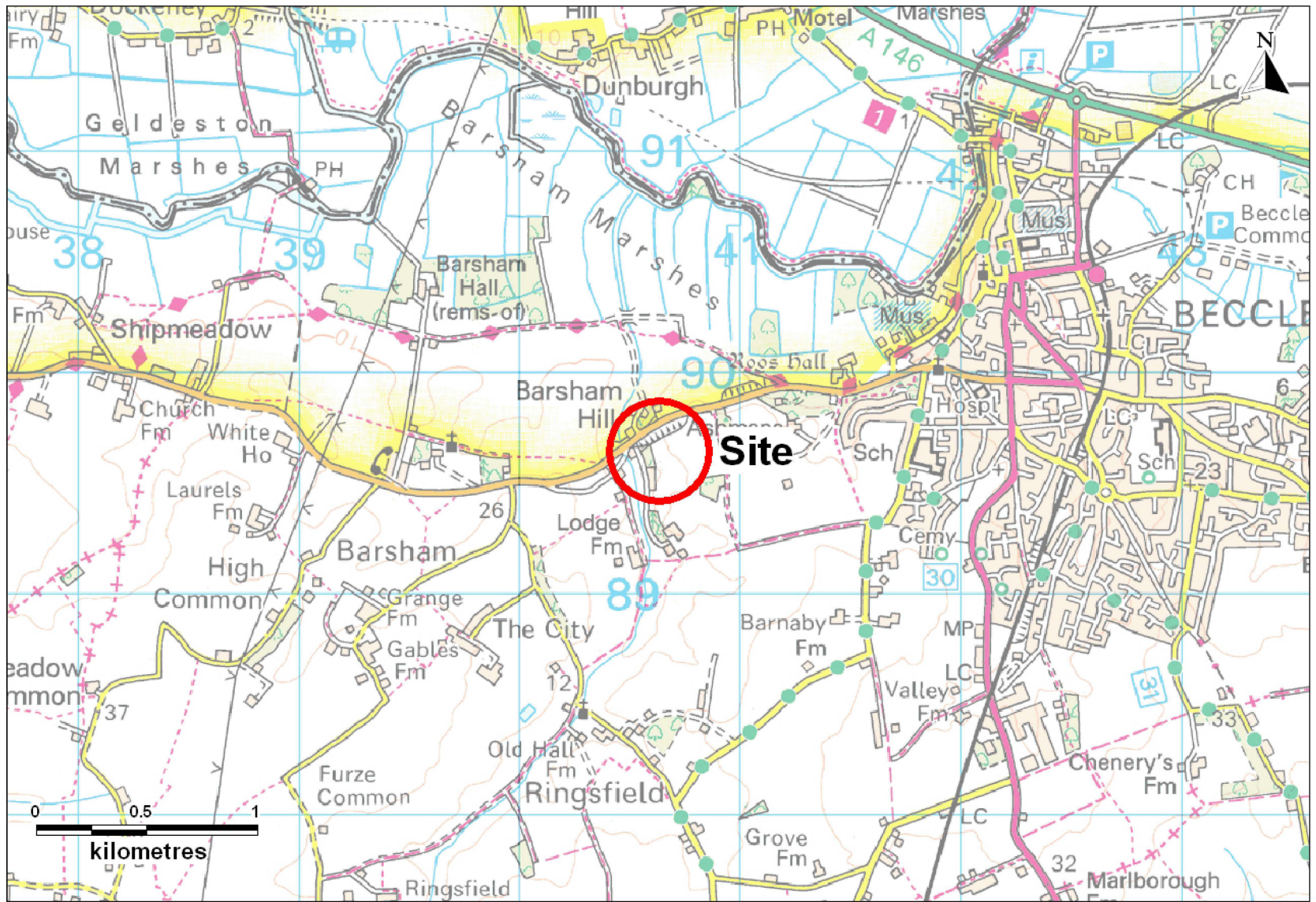
The research aims of this trial trench evaluations are as identified in Section 2.2 of the Brief and Specification:

RA1: Identify the date, approximate form and purpose of any archaeological deposit within the application area, together with its likely extent, localised depth and quality of preservation.

RA2: Evaluate the likely impact of past land uses, and the possible presence of masking colluvial/alluvial deposits.

RA3: Establish the potential for the survival of environmental evidence.

RA4: Provide sufficient information to construct an archaeological conservation strategy, dealing with preservation, the recording of archaeological deposits, working practices, timetables and orders of cost.



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Figure 1. Site Location

2 Project details

Site Name	Barsham Water Treatment Works
Site Location/Parish	Barsham
Grid Reference	TM 4064 8963
Access	TBA
Planning No	Pre-determination
HER code	Not yet allocated
OASIS Ref	Not yet allocated
SCCAS Job Code	Not yet allocated
Type:	Trial trench evaluation
Area	c. 1.49ha
Project start date	TBA
Fieldwork duration	c. 3 days
Number of personnel on site	Up to 3

Personnel and contact numbers

Contracts Manager	Rhodri Gardner	01473 581743
Project Officer (first point of on-site contact)	TBA	TBA
Finds Dept	Richenda Goffin	01284 352447
Sub-contractors	Holmes Plant	01473 890766
Curatorial Officer	Jess Tipper	01284 741225
Consultant		
Developer		
Site landowner		

Emergency contacts

Local Police	Beccles Police	01986 835300
Location of nearest A&E	James Paget Hospital Lowestoft Road Gorleston-on-Sea Great Yarmouth Norfolk NR31 6LA	01493 452452
Qualified First Aiders	SCC Project Officer attending	

Hire details

Plant:	Holmes Plant	01473 890766
Toilet Hire		
Tool hire:	N/A	

Other Contacts

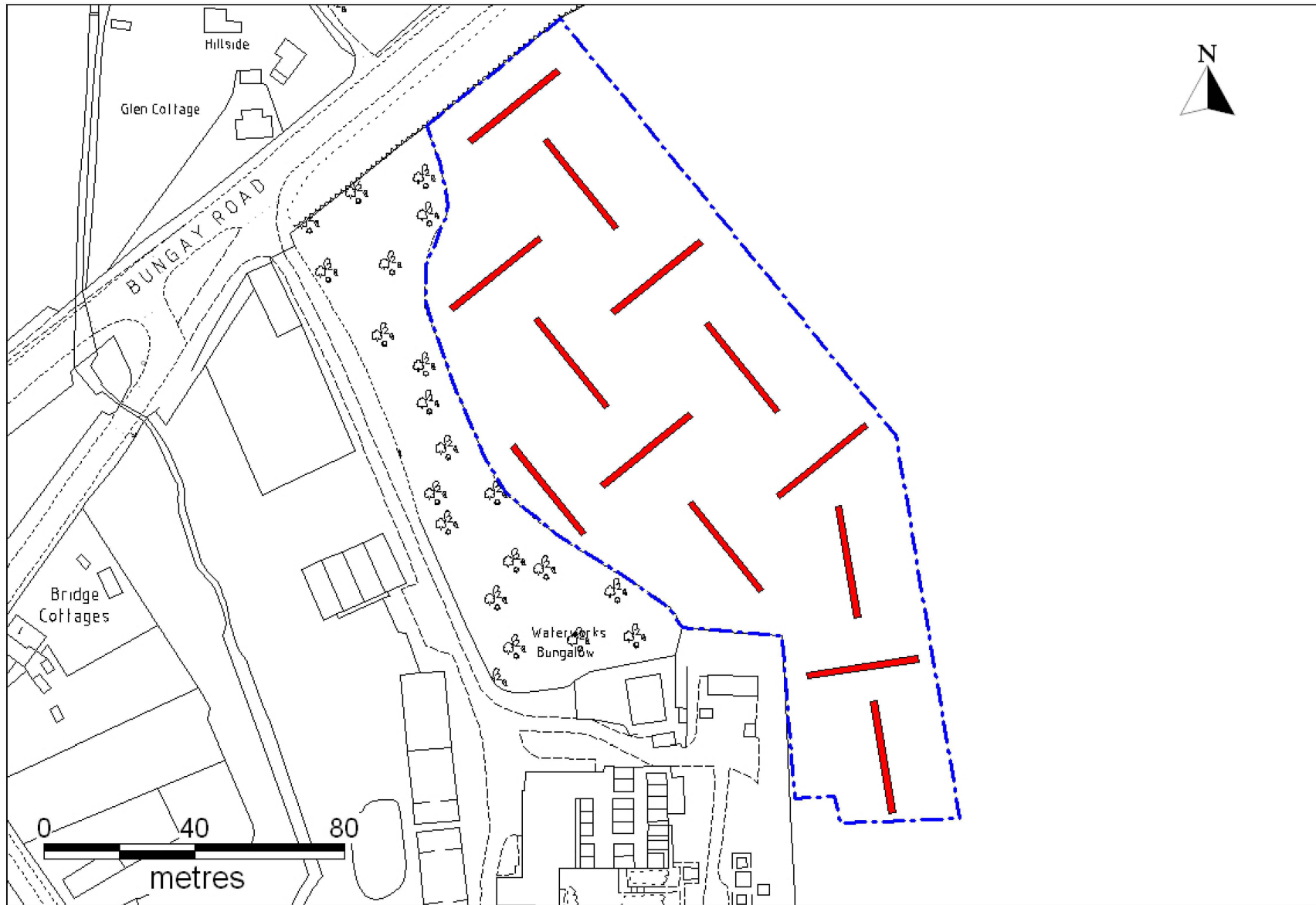
Suffolk Fleet Maintenance		01359 270777
Suffolk Press Office		01473 264395
SCC EMS (Jezz Meredith)		01473 583288
SCC H&S (Stuart Boulter)		01473 583290

3 Archaeological method statement

3.1 Evaluation by trial trench

- 3.1.1 The archaeological fieldwork will be carried out by members of the SCCAS field team led in the field by an experienced member of staff of Project Officer Grade. The excavation team will comprise up to 3 experienced excavators and surveyors from a pool of suitable staff at SCCAS.
- 3.1.2 Evaluation of the development area will employ trial trenches to cover approximately 5% of the proposed development area (PDA).
- 3.1.3 In this case this requires c. 390m of 1.8m wide trench. This would be broken up into thirteen (13) individual 30m long trenches spread out to give as even coverage as possible. The proposed trench layout is shown in Figure 2.
- 3.1.4 If previously unknown services or similar restrictions are encountered during work on site then trench layout will be amended accordingly.
- 3.1.5 *General trial trench methodology*
- 3.1.6 All trenches will be cut using a tracked mechanical excavator equipped with a toothless ditching bucket, under the constant supervision of an archaeologist. All overburden (topsoil and subsoil) will be removed stratigraphically until either the first archaeological horizon or natural deposits are encountered. Spoil will be stored adjacent to each trench and topsoil, subsoil and concrete/overburden will be kept separate for sequential backfilling.
- 3.1.7 Archaeological deposits and features will be sampled by hand excavation and the trench bases and sections cleaned as necessary in order to satisfy the project aims.
- 3.1.8 Trenches requiring access by staff for hand excavation and recording will not exceed a depth of 1.2m. Any trench in which this depth is not sufficient to meet the archaeological requirements of the Brief and Specification will be brought to the attention of the client or their agent and the Archaeological Advisor to the LPA so that further requirements can be discussed (and costed).
- 3.1.9 Deeper excavation can be undertaken provided suitable trench support is used or, where practicable, the trench sides are stepped or battered.
- 3.1.10 A site plan, which will show all trench locations, feature positions and levels AOD will be recorded using an RTK GPS or TST, depending on the specific requirements of the project. A minimum of two sections per trench will be recorded at 1:20. Feature sections and plans will be recorded at 1:20 and trench and feature plans at 1:20 or 1:50 as appropriate. Normal Field Team conventions, compatible with the County HER, will be used during the site recording.
- 3.1.11 The site will be recorded under an HER site code acquired from the Suffolk HER Office and archaeological contexts will be recorded using standard SCCAS Context Recording sheets and associated database.

- 3.1.12 A digital photographic record will be made throughout the evaluation.
- 3.1.13 All pre-modern finds will be kept and no discard policy will be considered until all the finds have been processed and assessed.
- 3.1.14 All finds will be brought back to the SCCAS Bury St Edmunds office for processing, preliminary conservation and packing. Much of the archive and assessment preparation work will be done in house, but in some circumstances it may be necessary to send some categories of finds to specialists working in other parts of the country.
- 3.1.15 Bulk environmental soil samples (40 litres each) will be taken from suitable archaeological features and retained until an appropriate specialist has assessed their potential for palaeo-environmental remains. Decisions will be made on the need for further analysis following this assessment. If necessary advice will be sought from English Heritage's Regional Advisor in Archaeological Science on the need for specialist environmental sampling.
- 3.1.16 In the event of human remains being encountered on the site, guidelines from the Ministry of Justice will be followed. The evaluation will attempt to establish the extent, depth and date of burials whilst leaving remains *in situ*. During the evaluation any exposed human remains will be securely covered and hidden from the public view at all times when they are not attended by staff. At the conclusion of the work backfilling will be carried out in a manner sensitive to the preservation of such remains.
- 3.1.17 If circumstances dictate that the lifting of human remains is unavoidable then a Ministry of Justice Licence for their removal will be obtained prior to their removal from site.



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Figure 2. Proposed trench locations (red)

3.3 Reporting, archive and OASIS record

- 3.3.1 A unique HER number will be acquired from the Suffolk HER prior to the start of the fieldwork. This will be clearly marked on all documentation relating to the project.
- 3.3.2 All artefactual material recovered will be held by the SCC Contracting Team until their analysis of the material is complete. Ownership of all such archaeological finds will then be given over to the relevant authority. There is a presumption that this will be SCCAS/CT, who will hold the material in suitable storage to facilitate future study and ensure its proper preservation.
- 3.3.3 In the event that artefacts of significant monetary value are discovered separate ownership arrangements may be negotiated, provided they are not subject to Treasure Act legislation.
- 3.3.4 The project archive shall be compiled in accordance with the guidelines issued by the SCCAS/CT (2010). The client is aware of the costs of archiving and provision has been made to cover these costs in our agreement with them.
- 3.3.5 Specialist finds staff will be used, who are experienced in local and regional types and periods for their field.
- 3.3.6 All site data will be entered on a computerised database compatible with the County HER. All site plans and sections will be copied to form a permanent archive on archivally stable material. Ordnance Datum levels will be on the section sheets. The photographic archive will be fully catalogued within the County HER photographic index.
- 3.3.7 All finds will be processed, marked and bagged/boxed to County HER requirements. Where appropriate finds will be marked with a site code and a context number.
- 3.3.8 Bulk finds will be fully quantified on a computerised database compatible with the County HER. Quantification will fully cover weights and numbers of finds by OP and context with a clear statement for specialists on the degree of apparent residuality observed.
- 3.3.9 Metal finds on site will be stored in accordance with ICON guidelines, initially recorded assessed for significance before dispatch to a conservation laboratory within 4 weeks of the end of the excavation. All pre-modern silver, copper alloy and ferrous metal artefacts will be x-rayed and coins will be x-rayed if necessary for identification. Sensitive finds will be conserved if necessary and deposited in bags/boxes suitable for long term storage to ICON standards. All coins will be identified to a standard acceptable to normal numismatic research.
- 3.3.10 The site archive will meet the standards set by 'The Guideline for the preparation of site archives and assessments of all finds other than fired clay vessels' of the Roman Finds Group and Finds Research Group AD700 - 1700 (1993).

- 3.3.11 The pottery will be recorded and archived to a standard consistent with the Draft Guidelines of the Medieval Pottery Research Group and Guidelines for the archiving of Roman Pottery, SGRP (ed. M.G. Darling, 1994).
- 3.3.12 Environmental samples will be processed and assessed to standards set by the Regional Environmental Archaeologist with a clear statement of potential for further analysis.
- 3.3.13 Animal and human bone will be quantified and assessed to a standard acceptable to national and regional English Heritage specialists.
- 3.3.14 An industrial waste assessment will cover all relevant material (i.e. fired clay finds as well as slag).
- 3.3.15 A report on the results of the evaluation will be completed c. 6 weeks after the completion of the fieldwork. A draft of the report will be submitted to SCCAS/CT for approval.
- 3.3.16 On receipt of approval of the report from SCCAS/CT hard and digital copies will be sent to the Suffolk HER.
- 3.3.17 Because of the phased nature of this evaluation it is proposed that a full report only be compiled on completion of *both* phases. However, in order to inform the LPA's decision (due mid July) as fully as possible an interim report will be produced following the completion of the Phase 1 fieldwork. This will comprise a plan of all features encountered, along with spot dating information where required.
- 3.3.18 The Suffolk HER is registered with the Online Access to Index of Archaeological Investigations (OASIS) project. The SCCAS Contracting Team will provide appropriate details relating to this project by completing the OASIS form at <http://ads.ahds.ac.uk/project/oasis>. The completed form will be included as an appendix to the final report.

4 Risk assessment

4.1 General

4.1.1 The project will be carried out in accordance with the Suffolk County Council statement on Health and Safety at all times. Particular hazards to SCCAS staff and subcontractors identified with this project are as follows:

Outdoor working – hazards to staff from weather conditions and uneven ground.

Manual excavation – the main hazards are to staff from the use of tools, shallow holes and the resultant trip hazards, live services and ground contamination.

Mechanised excavation, site stripping etc. – the most significant hazard from this activity is working in close proximity with plant machinery.

4.1.2 Specific risk assessments for each are provided in Appendix 3.

4.1.3 All SCCAS staff are experienced in working under similar conditions and on similar sites to the present site and are aware of all SCCAS H&S policies. All staff will be issued with a copy of the project's risk assessment and will receive a safety induction from the Project Officer. All permanent SCCAS excavation staff are holders of CSCS cards.

4.1.4 From time to time it may be necessary for site visits by external specialists, SCCAS Conservation Team members and other SCC staff. All such staff and visitors will be issued with the appropriate PPE and will undergo the required inductions. PPE is not restricted to the list below – additional items will be provided if circumstances require it.

4.1.5 PPE required in this case includes:

- Hard Hat (to EN397)
- High Visibility Clothing (EN471 Class 2 or greater)
- Safety Footwear (EN345/EN ISO 20346 or greater – to include additional penetration-resistant midsole)

4.1.6 Other PPE that may be deployed as necessary includes:

- Gloves (to EN388)
- Eye Protection (safety glasses to at least EN 166 1F)

4.1.7 Site staff, official visitors and volunteers are all covered by Suffolk County Council insurance policies (see Appendix 2).

4.1.8 Due to the short duration of the job welfare facilities will comprise a single portaloos with staff otherwise working from the vehicle.

4.2 Environmental controls

- 4.2.1 Suffolk County Council is firmly dedicated to following an EMS policy. All our preferred providers and subcontractors have been issued with environmental guidelines. Holmes Plant and Construction, who are providing plant in this instance, are one such provider.
- 4.2.2 On site the SCCAS Project Officer will police environmental concerns. In the event of spillage or contamination EMS reporting and procedures will be carried out in consultation with Jez Meredith (SCCAS EMS Officer). All rubbish will be bagged and removed either to areas designated by the client or returned to SCC property for disposal.

4.3 Plant and equipment details

- 4.3.1 A 360⁰ tracked mechanical excavator equipped with a full suite of buckets will be required for the trial trenching. The sub-contracted plant machinery will be accompanied by a fully qualified operator who will hold an up-to-date Construction Plant Competence Scheme (CPCS) card (approved by the Construction Industry Training Board).
- 4.3.2 The plant machinery will be well serviced and be as quiet a model as is practicable. It will come equipped with appropriate spill kit and drip trays. It will only refuel in a single designated area, as defined by the SCCAS. If required all refuelling, will be carried out using electrically operated pumps and will only be done when drip trays are deployed.
- 4.3.3 Other plant details and appropriate certification can be supplied by our preferred sub-contractor: B&A Holmes Plant Hire, Hall Farm, Hall Lane, Otley, Ipswich (Tel: 01473890766).

4.4 Hazardous substances

- 4.4.1 No hazardous substances are specifically required in order to undertake the archaeological works.

4.5 Services

- 4.5.1 A full services survey had not been provided at the time of writing this document. Appropriate measures will be taken to avoid previously unidentified services.

4.6 Lighting

- 4.6.1 No trenches are to be excavated indoors and no special requirements are necessary.

4.7 Access/Egress

- 4.7.1 All movements to and from site will respect any existing perimeter fencing/hoarding with all points of entry returned to their locked condition (if applicable), with the site kept secure via any existing means at all times.

Site induction sign off sheet

Name	Signature	Date

Appendix 1. Suffolk County Council Health and Safety Policy

Health & Safety Policy – HS01



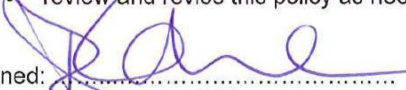
Health and Safety Policy Section 1 - General Statement of Policy

Suffolk County Council is fully committed to comply with the Health and Safety at Work Act etc 1974 and associated legislation.

We recognise that good health, safety and wellbeing is integral to our organisational and business performance by reducing injuries and ill health, protecting the environment and reducing unnecessary losses and liabilities. Our service delivery decisions will always consider the impact on health, safety and wellbeing.

We aim to be exemplary in all matters relating to the health, safety and welfare of our staff and all those who may be affected by our activities. To this end we will:

- benchmark our health & safety performance against other similar organisations;
- provide adequate control of the health and safety risks arising from our work activities;
- consult with our employees on matters affecting their health and safety;
- provide and maintain safe plant and equipment;
- ensure safe handling and use of substances;
- provide information, instruction and supervision with adequate professional advice;
- ensure all employees are competent to do their tasks, and give them adequate training;
- prevent incidents, injuries and cases of work-related ill health;
- maintain safe and healthy working conditions;
- commit to progressive improvement in health & safety performance using current recognised good practice such as 'HSG65' and similar models of continuous improvement;
- review and revise this policy as necessary at regular intervals.

Signed:  Chief Executive.

Date: *27th January 2012*

Signed:  Leader.

Date: *31st January 2012*

Review date: Date: January 2014

If you need help to understand this information in another language or would like this information in another format, including audio tape or large print, please call **08456 066 067**.

Specific Risk Assessments for Archaeological Evaluation: Barsham Water Treatment Works

- 1 Working with plant machinery
- 2 Physical work in an outdoor setting
- 3 Deep excavations
- 4 Use of hand tools
- 5 Damage to services

1-5 = Low risk

6-12 = Medium risk

20-25 = High risk

Risk Assessment 1 Working with plant machinery

Activity	Location	Hazard	Risks	Persons affected	Initial risk	Control measures	Residual risk	Name	Date	Rescue procedures
Direction and supervision of tracked 360 ^o excavator.	Various.	Staff in close proximity to excavation (operation of bucket & manoeuvre of boom).	Accidental contact with boom or bucket or unexpected movement of machine.	Principally SPO/PO, but at times may involve others.	10	Only PO to supervise machinery. No personnel to be within radius of boom. All staff to wear high visibility clothing, hard hats and safety footwear at all times.	5	R V Gardner	09/09/13	Call emergency services. First Aid if required.

Severity	Likelihood				
	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

Initial Risk
Residual Risk

Likelihood	Severity	Risk (likelihood x severity)
1. Highly unlikely	1. Slight inconvenience	1-5 Low
2. May occur but very rarely	2. Minor injury requiring first aid	
3. Does occur but only rarely	3. Medical attention required	6-12 Medium
4. Occurs from time to time	4. Major injury leading to hospitalisation	
5. Likely to occur often	5. Fatality or serious injury leading to disablement	13-25 High

Risk Assessment 2 Physical work in an outdoor setting

Activity	Location	Hazard	Risks	Persons affected	Initial risk	Control measures	Residual risk	Name	Date	Rescue procedures
Hand excavations of archaeological features.	Various.	Extremes of heat, cold and wet weather. Trip hazards.	Hypothermia, heat stroke, sunburn. Minor injuries.	All field staff.	9	All staff provided with appropriate clothing for weather conditions. No staff to work alone in extreme conditions. Regular sweep for trip hazards.	2	R Gardner	09/09/13	First Aid if required. Call emergency services if necessary.

	Likelihood				
Severity	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

Initial Risk
Residual Risk

Likelihood	Severity	Risk (likelihood x severity)
1. Highly unlikely	1. Slight inconvenience	1-5 Low
2. May occur but very rarely	2. Minor injury requiring first aid	
3. Does occur but only rarely	3. Medical attention required	6-12 Medium
4. Occurs from time to time	4. Major injury leading to hospitalisation	
5. Likely to occur often	5. Fatality or serious injury leading to disablement	13-25 High

Risk Assessment 3 Deep excavations

Activity	Location	Hazard	Risks	Persons affected	Initial risk	Control measures	Residual risk	Name	Date	Rescue procedures
Excavation of trial trenches and archaeological features within.	Various.	Trench collapse, falls, and work in confined spaces.	Physical injury (minor to rare major examples), suffocation.	All field staff.	12	No excavation beyond safe depth in any circumstances (not necessary for evaluation stage of works). No excavation of trenches beyond depth of 1.2m (or shallower where there is risk of collapse in the judgement of the PO if deposits are unconsolidated).	2	R Gardner	09/09/13	Call emergency services. First Aid if required.

Severity	Likelihood				
	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

Initial Risk
Residual Risk

Likelihood	Severity	Risk (likelihood x severity)
1. Highly unlikely	1. Slight inconvenience	1-5 Low
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4. Occurs from time to time	4. Major injury leading to hospitalisation	
5. Likely to occur often	5. Fatality or serious injury leading to disablement	13-25 High

Risk Assessment 4 Use of hand tools

Activity	Location	Hazard	Risks	Persons affected	Initial risk	Control measures	Residual risk	Name	Date	Rescue procedures
Excavation of archaeological features using shovels, mattocks, forks, wheelbarrows and small tools	Various.	Splinters from poorly maintained equipment, trip hazards from unused equipment, accidental striking of personnel in close proximity, some heavy lifting.	Minor injuries.	All field staff.	8	Ensure all tools in serviceable condition. Careful policing of temporarily unused equipment (e.g. no discarded hand tools near trench edges). Ensure all tools carried appropriately.	4	R Gardner	09/09/13	First Aid if required.

Severity	Likelihood				
	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

Initial Risk
Residual Risk

Likelihood	Severity	Risk (likelihood x severity)
1. Highly unlikely	1. Slight inconvenience	1-5 Low
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3. Does occur but only rarely	3. Medical attention required	6-12 Medium
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5. Likely to occur often	5. Fatality or serious injury leading to disablement	13-25 High

Risk Assessment 5 Damage to services

Activity	Location	Hazard	Risks	Persons affected	Initial risk	Control measures	Residual risk	Name	Date	Rescue procedures
Machine cutting of trial trenches.	Various.	Accidental damage to cables or services (water, electrical etc.).	Electrocution, environmental damage/pollution, cost implications.	Machine operator and PO.	6	Client to provide survey of any known services. Carefully observed machine excavation under full supervision. Use of CAT scanner.	2	R Gardner	09/09/13	Call emergency services. First Aid if required. Any pollution to be reported to Environmental Manager immediately.

Severity	Likelihood				
	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
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Initial Risk
Residual Risk

Likelihood	Severity	Risk (likelihood x severity)
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5. Likely to occur often	5. Fatality or serious injury leading to disablement	13-25 High

Appendix 3. SCC Liability Insurance Certification



To Whom It May Concern

Our ref: SR/B'HAM

9 July, 2013

Zurich Municipal Customer: Suffolk County Council

This is to confirm that Suffolk County Council have in force with this Company until the policy expiry on 31 July 2014 Insurance incorporating the following essential features:

Policy Number: QLA-19A004-0013

Limit of Indemnity:

Public Liability:	£ 50,000,000	any one event
Products Liability:	£ 50,000,000	for all claims in the
Pollution:)	aggregate during any one period of insurance
Employers' Liability:	£ 50,000,000	any one event inclusive of costs

Zurich Municipal
Zurich House
2 Gladiator Way
Farnborough
Hampshire
GU14 6GB

Excess :

Public Liability/Products Liability/Pollution: £ 313,500 any one event
Employers' Liability: £ 313,500 any one claim

Telephone 0870 2418050
Direct Phone 0121 697 4594
Direct Fax 0121 697 8585
E-mail Sally.rose@uk.zurich.com

Communications will be monitored
regularly to improve our service and
for security and regulatory purposes

Zurich Municipal is a trading name of Zurich
Insurance plc.

A public limited company incorporated in
Ireland. Registration No. 13460.
Registered Office: Zurich House, Ballsbridge
Park, Dublin 4, Ireland.
UK Branch registered in England and Wales.
Registration No. 887585.
UK Branch Head Office: The Zurich Centre,
3000 Parkway, Whiteley, Fareham,
Hampshire PO15 7JZ.

Zurich Insurance plc is authorised by the
Central Bank of Ireland and subject to
limited regulation by the Financial Conduct
Authority. Details about the extent of our
regulation by the Financial Conduct
Authority are available from us on request.

These details can be checked on the FCA's
Financial Services register via their website
www.fca.org.uk or by contacting them on
0800 111 6768.
Our FCA Firm Reference Number is 203093.

Yours faithfully

Sally Rose
Underwriting Services
Zurich Municipal

To Whom It May Concern

Our ref: SR/BHAM

15 August, 2013

Zurich Municipal Customer: Suffolk County Council

This is to confirm that Suffolk County Council have in force with this Company until the policy expiry on 31/07/2014 Professional Negligence Insurance incorporating the following essential features:

Policy Number: QLA-19A004-0013

Services covered: Archaeology

Limit of Indemnity: £ 1,000,000 any one claim and *in the aggregate for all claims* first made against the Insured and notified to Zurich Municipal during the period of insurance

Excess : £ 313,500 any one claim

Retroactive Date: 01/08/2006

Exclusions

Standard insurance market exclusions apply, notably exclusion of Pollution other than sudden and accidental; punitive or exemplary damages; express warranties or guarantees; claims the cause of which occurred prior to the Retroactive Date.

This is a brief summary and the full policy should always be referred to for exact details of cover.

Yours faithfully

Sally Rose
Underwriting Services
Zurich Municipal

Zurich Municipal
Zurich House
2 Gladiator Way
Farnborough
Hampshire
GU14 6GB

Telephone 0870 2418050
Direct Phone 0121 697 4594
Direct Fax 0121 694 8585
E-mail sally.rose@uk.zurich.com

Communications will be monitored regularly to improve our service and for security and regulatory purposes

Zurich Municipal is a trading name of Zurich Insurance plc.

A public limited company incorporated in Ireland. Registration No. 13460.
Registered Office: Zurich House, Ballsbridge Park, Dublin 4, Ireland.
JK Branch registered in England and Wales. Registration No. BR7985.
UK Branch Head Office: The Zurich Centre, 3000 Parkway, Whiteley, Fareham, Hampshire PO15 7JZ.

Zurich Insurance plc is authorised by the Central Bank of Ireland and subject to limited regulation by the Financial Conduct Authority. Details about the extent of our regulation by the Financial Conduct Authority are available from us on request.

FCA registration number 203093. These details can be checked on the FCA's register by visiting their website

www.fca.org.uk or by contacting them on 0845 606 1234.

Appendix 2. OASIS data collection form

OASIS ID: suffolkc1-164256

Project details

Project name	BRS 037 - Barsham Water Treatment Works
Short description of the project	Trenched evaluation in advance of site expansion did not identify any significant archaeological evidence
Project dates	Start: 11-11-2013 End: 15-11-2013
Previous/future work	Yes / Not known
Any associated project reference codes	suffolkc1-154035 - OASIS form ID
Type of project	Field evaluation
Current Land use	Cultivated Land 4 - Character Undetermined
Monument type	NONE None
Significant Finds	NONE None
Methods & techniques	"Sample Trenches"
Development type	Service infrastructure (e.g. sewage works, reservoir, pumping station, etc.)
Prompt	National Planning Policy Framework - NPPF
Position in the planning process	Pre-application

Project location

Country	England
Site location	SUFFOLK WAVENEY BARSHAM BRS 037 - Barsham Water Treatment Works
Study area	1.90 Hectares
Site coordinates	TM 4063 8962 52 1 52 27 03 N 001 32 30 E Point

Project creators

Name of Organisation	Suffolk County Council Archaeological Service
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	Suffolk County Council Archaeological Service, Field Team

Project director/manager	Rhodri Gardner
Project supervisor	Mark Sommers
Type of sponsor/funding body	Developer

Project archives

Physical Archive Exists?	No
Digital Archive recipient	Suffolk County SMR
Digital Archive ID	BRS 037
Digital Media available	"Images raster / digital photography", "Text"
Paper Archive recipient	Suffolk County SMR
Paper Archive ID	BRS 037
Paper Media available	"Correspondence", "Plan", "Report"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Archaeological Evaluation Report: Barsham Water Treatment Works
Author(s)/Editor(s)	Sommers, M.
Other bibliographic details	SCCAS 2013/142
Date	2013
Issuer or publisher	SCCAS
Place of issue or publication	Ipswich
Description	printed sheets of A4 paper in card covers with comb binding

Entered by	Mark Sommers (mark.sommers@suffolk.gov.uk)
Entered on	14 November 2013

Archaeological Services Field Projects Team

Delivering a full range of archaeological services

- Desk-based assessments and advice
- Site investigation
- Outreach and educational resources
- Historic Building Recording
- Environmental processing
- Finds analysis and photography
- Graphics design and illustration

Contact:

Rhodri Gardner

Tel: 01473 265879

rhodri.gardner@suffolk.gov.uk

www.suffolk.gov.uk/Environment/Archaeology/