

**A Specification for an Archaeological Excavation and Watching Brief
at**

M4 Junction 18 Eastbound Diverge

FOR CONSTRUCTION

NGR ST 730 778 and ST 757 782

produced by

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for

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on behalf of

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Summary

Birse Civils Ltd are building a climbing lane of some 2.4km in length between National Grid References (NGR) ST 730 778 and ST 757 782, located on the eastbound section of the M4 motorway approaching Junction 18 near Tormarton in South Gloucestershire. The proposed scheme begins south of Barleyclose Farm and runs eastwards following the existing alignment of the M4 motorway to the Tormarton Interchange (Junction 18 of the M4 motorway and the A46(T)). The work in connection with the scheme will mainly be undertaken within Highways Agency land, and the majority of the widening will occur within land that has already been disturbed by the construction of the original motorway.

Oxford Archaeology (OA) was commissioned by Hyder Consulting Limited (Hyder) to determine the cultural heritage implications of the climbing lane along the existing eastbound carriageway of the M4 motorway approaching Junction 18 near Tormarton in South Gloucestershire (formerly part of the County of Avon). They have identified four areas of potential impact on undisturbed land, where it is proposed to create two wetland treatment and attenuation facilities, an area where it is proposed to regrade a section of the existing climbing lane embankment, and the creation of a landscape mound.

It is proposed that the area in which the wetland treatment and attenuation facilities are to be constructed are the subject of an archaeological excavation, and the regrading of a section of the existing climbing lane embankment and landscape mound would be the subject of a watching brief.

This document has been written by John Samuels Archaeological Consultants, detailing the proposed methodology for undertaking the archaeological fieldwork. It is subject to consultation with the South Gloucestershire Archaeological Officer.

1.0 Introduction

1.1 Site Location and Description

- 1.1.1 Birse Civils Ltd, on behalf of the Highways Agency, are building a climbing lane of some 2.4km in length between National Grid References (NGR) ST 730 778 and ST 757 782, located on the eastbound section of the M4 motorway approaching Junction 18 near Tormarton in South Gloucestershire (formerly part of the County of Avon. The scheme begins south of Barleyclose Farm and runs eastwards following the existing alignment of the M4 motorway to the Tormarton Interchange (Junction 18 of the M4 motorway and the A46(T)).
- 1.1.2 The work in connection with the proposed scheme will be undertaken mainly within Highways Agency land, and the majority of the widening will occur within land that has already been disturbed by the construction of the existing motorway which was constructed during the 1970's (see Figure 1).
- 1.1.3 In an earlier stage of the project, Oxford Archaeology (OA) was commissioned by Hyder Consulting Limited (Hyder) to determine the cultural heritage implications of the proposed climbing lane along the existing carriageway of the M4 Junction 18.
- 1.1.4 They have identified four areas of potential impact on undisturbed land where it is proposed to create two wetland treatment and attenuation facilities (Areas A and B), an area where it is proposed to regrade a section of the existing climbing lane embankment (Area C), and the creation of a landscape mound (Area D) as follows:
- i. Area A: a proposed wetland treatment and attenuation facility between chainages c90 - 160;
 - ii. Area B: a proposed wetland treatment and attenuation facility between chainages c430 - 550; and
 - iii. Area C: regrading a section of the existing climbing lane embankment between chainages c2100 - 2800; and
 - iv. Area D: creation of a landscape mound between chainages 1460 - 1680.

1.2 Aims

- 1.2.1 The aims of this excavation and watching brief are:
- i. to identify, and make an appropriate record of, archaeological remains revealed by excavation;
 - ii. to ensure the long-term survival of the information contained in such remains through archaeological recording prior to their physical destruction; and
 - iii. to prepare a report and deposition of a project archive.

- 1.2.2 Should any significant remains be identified, an additional set of aims are in place to deal with them. These are:
- i. to assess the nature, date, density, extent, function and state of preservation of archaeological remains;
 - ii. to assess their potential for answering questions about the development of land use in the region; and
 - iii. where remains of are of sufficient importance, in liaison with the planning archaeologist, to formulate a strategy designed to determine the best method for mitigation.
- 1.2.3 This specification conforms to the requirements of *Planning Policy Guidance: Archaeology and Planning* (DoE 1990) (PPG16). It has been designed in accordance with current best archaeological practice and the appropriate national standards and guidelines including:
- i. *Management of Archaeological Projects* (English Heritage, 1991);
 - ii. *Model Briefs and Specifications for Archaeological Assessments and Field Evaluations* (Association of County Archaeological Officers, 1994);
 - iii. *Code of Conduct* (Institute of Field Archaeologists, 2000);
 - iv. *Standard and Guidance for Archaeological Field Evaluations* (Institute of Field Archaeologists, 1999, revised 2001); and
 - v. *Standard and Guidance for Archaeological Watching Briefs* (Institute of Field Archaeologists, 1999; rev. 2001).

2.0 Methodology

2.1 Excavation

- 2.1.1 It is intended that two areas be excavated (Areas A and B). Each area will be c80m by 12m, see Figure 2. The trenches will be excavated with a JCB, or 360 degree mechanical excavator fitted with a toothless ditching bucket, under continuous archaeological supervision.
- 2.1.2 Each of the areas will be excavated to the formation depth of the wetland treatment and attenuation facility (approximately 1.6m) or to the surface of the natural geology. Should there be deeply stratified natural deposits, it may be necessary to step or batter the sides of the trenches in order to reach the natural geology. The spoil generated during the excavation will be mounded at a safe distance from the edges of each trench. Excavation of archaeological features exposed will be undertaken to the formation depth of the wetland treatment and attenuation facility.
- 2.1.3 The base and sides of each trench will be cleaned sufficiently to show the soil profile and to define any archaeological features present. A strategy will then be resolved to deal appropriately with any features exposed. This will, in general, involve half-sectioning discrete features, such as pits and postholes and excavating sufficient of linear features to characterise their profiles and where possible to resolve their date and function. Variations from this scheme will only occur where remains are thought to be of national importance, or where they are of no or negligible importance.
- 2.1.4 The exposed areas will be recorded at an appropriate scale by measured drawing and photography, and the deposits encountered described fully on pro-forma individual context recording sheets. The excavations will normally be planned at 1:50 unless they contain significant or complex archaeology, where a larger scale might be more appropriate (1:10 or 1:20). The sections of excavated archaeological features will also be recorded by measured drawing at an appropriate scale (normally 1:20). The recording system is based on the Museum of London's *Archaeological Site Manual* (1994). All site drawings will be referenced to Ordnance Datum and the National Grid.
- 2.1.5 A photographic record will be maintained during the course of the excavation and will include:
- i. the site prior to commencement of fieldwork;
 - ii. the site during work, showing specific stages of fieldwork;
 - iii. the layout of archaeological features within each trench;
 - iv. individual features and, where appropriate, their sections; and
 - v. groups of features where their relationship is important.
- 2.1.6 A strategy to assess the palaeoenvironmental character and development of the site will

be developed on site. Until the areas have been excavated, the potential of the site is unknown and an appropriate response is difficult to gauge. This strategy will be developed in consultation with Vanessa Straker, English Heritage Science Adviser, if appropriate. Samples would usually be taken from:

- i. any securely dated deposits containing the following will be sampled at a minimum of 20 litres where possible:
 - charred plant remains;
 - large quantities of molluscs;
 - large quantities of bone;
 - hearths and other burnt features; and
 - other domestic features, e.g. house gullies, potentially containing the above.
- ii. charred plant samples will be wet sieved with flotation using a 0.5mm mesh. All residues will be checked; and
- iii. should waterlogged deposits be encountered, further consultation with an appropriate specialist will determine methods for recovery.

2.2 *Watching Brief*

2.2.1 In addition to the foregoing, it is proposed to undertake a continuous watching brief in the area of the site, as shown in Figure 3.

2.2.2 An archaeological watching brief has been defined as '*a programme of observation and investigation conducted during any operation carried out for non-archaeological reasons within a specified area or site... where there is the possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.*' (IFA, 2001)

2.2.3 The overall objective of the watching brief will be to monitor ground disturbance during the course of the regrading of the existing embankment (Area C) and the creation of a landscape mound (Area D), in order to establish whether any archaeological deposits survive within the site, and to ensure their further understanding through excavation, recording and sampling of material of any exposed sensitive areas. This may require limited excavation in order to define the date, extent and importance of any such remains.

2.3 *Watching Brief Methodology*

2.3.1 The watching brief will take the form of supervision by a suitably qualified professional archaeologist to monitor groundworks as they commence and proceed on a continuous basis. It includes the provision for the pausing of groundworks in order to allow for full

investigation of any significant archaeological remains. In practice, this will involve:

- i. inspection of subsoil for archaeological features;
- ii. recording of archaeological features in section and if possible in plan;
- iii. full excavation of features;
- iv. inspection of natural soils for archaeological features;
- v. cleaning/recording/excavation of features; and
- vi. sampling of deposits which warrant further investigation.

2.3.2 Adequate facilities shall be provided by the developer or agent for archaeological staff to observe earth-moving operations in progress and to facilitate the recording of features, as detailed in paragraphs 2.1.1 and 2.2.3 above.

2.3.3 Where identified, excavated archaeological features will be recorded by measured drawing at appropriate scales (normally 1:20).

2.3.4 Excavated archaeological features will be recorded by single context on standard forms; the system is based upon the Museum of London's *Archaeological Site Manual* (1994).

2.3.5 A photographic record, primarily in colour print, but supplemented by colour slide and black and white print where appropriate, will be maintained during the course of the Watching Brief and will include:

- i. the site during work, showing specific stages of fieldwork;
- ii. individual features and, where appropriate, their sections; and
- iii. groups of features, where their relationship is important.

2.3.6 Any material considered suitable for environmental analysis will be sampled in 20-30 litre quantities, where possible.

2.3.7 Every effort will be made to implement the watching brief without affecting the construction timetable.

2.3.8 If extensive archaeological remains, which are potentially of regional or national significance, be identified, it may be necessary to pause groundworks until a strategy designed to fully establish their character, distribution, extent, condition, dating and further treatment has been formulated, in consultation with the South Gloucestershire Archaeological Officer. If such remains are discovered, the developer, if deemed necessary, will make reasonable contingency arrangements.

2.3.9 The South Gloucestershire Archaeological Officer will be given notice of when work is

due to commence and will be free to visit the site by prior arrangement.

- 2.3.10 Any human remains encountered will be cleaned and recorded with minimal disturbance and left *in-situ* and covered over. Such remains will only be removed if necessary and only once the South Gloucestershire Archaeological Officer has been informed. The contractor will comply with all statutory consents and licences under the Disused Burial Grounds (Amendment) Act, 1981 or other Burial Acts regarding the exhumation and interment of human remains. The archaeological contractor will comply with all reasonable requests of interested parties as to the method of removal, re-interment or disposal of the remains or associated items. Every effort will be made, at all times, not to cause offence to any interested parties.
- 2.3.11 Archaeological staff and visitors will respect Health and Safety provisions and site safety regulations (see Section 5.0).
- 2.3.12 All artefacts will be treated in accordance with UKIC guidelines, *First Aid for Finds* (Watkinson & Neale 1998). All finds will be bagged and labelled according to the individual deposit from which they were recovered, ready for later cleaning, marking and analysis.
- 2.3.13 The project archive will follow the guidelines contained in *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990) and *Standards in the Museum Care of Archaeological Collections* (Museums and Galleries Commission 1992).

2.4 *Post Excavation - Excavation and Watching Brief*

- 2.4.1 Post excavation work will comprise the following:
- i. checking of drawn and written records during and on completion of fieldwork;
 - ii. production of a stratigraphic matrix of the archaeological deposits and features present on the site, if appropriate;
 - iii. cataloguing of photographic material and labelling of slides which will be mounted on appropriate hangers; and
 - iv. cleaning, marking, bagging and labelling of finds according to the individual deposits from which they were recovered. Any finds requiring specialist treatment and conservation will be sent to an appropriate Conservation Laboratory. Finds will be identified and dated by appropriate specialists.
- 2.4.2 Following completion of fieldwork, a report detailing the project will be produced within a timescale to be reviewed at the end of the fieldwork in line with Map 2 guidance. The reports' final format and level of specialist work will depend upon the nature and significance of any archaeology recorded within the site. As a minimum, however, it will contain:

- i. a title page, detailing site address, site code and accession number, NGR, author/originating body, client's name and address;
- ii. full contents listing;
- iii. a non-technical summary of the findings of the excavation;
- iv. a description of the archaeological background;
- v. a description of the topography and geology of the excavation area;
- vi. a description of the methodologies used during the excavation;
- vii. a description of the findings of the excavation;
- viii. plans of each of the trenches/areas showing the archaeological features exposed;
- ix. sections of the excavated archaeological features;
- x. interpretation of the archaeological features exposed and their context within the surrounding landscape;
- xi. specialist reports on the artefactual/ecofactual remains from the site;
- xii. appropriate photographs of specific archaeological features; and
- xiii. a consideration of the importance of the archaeological remains present on the site in local, regional and national terms.

2.4.3 The report shall also contain a suitable list of contents and a cover page detailing:

- i. Site Address;
- ii. Site Code and Accession No.;
- iii. National Grid Reference;
- iv. Author/Originating Body; and
- v. Report Date.

2.4.4 The report will be submitted in both paper copy and digital form.

2.5 *Publication and Dissemination*

2.5.1 Deposition of the developer report with the South Gloucestershire Sites and Monuments Record will be taken as placing the information within the public domain.

2.5.2 Notes or articles describing the results of the excavation will be submitted for publication

in an appropriate local journal. A copy of any such works will be sent to the South Gloucestershire Archaeological Officer and to the County SMR.

2.6 *Copyright*

- 2.6.1 *John Samuels Archaeological Consultants* shall retain full copyright of any commissioned reports, tender documents or other project documents, under the *Copyright, Designs and Patents Act 1988* with all rights reserved, excepting that it hereby provide exclusive licence to the client for use of such documents by the client in all matters directly relating to the project as described in the project design.

2.7 *Archive*

- 2.7.1 Following the completion of fieldwork and acceptance of the report by the Local Planning Authority, an ordered archive of both object and paper elements will be prepared by *John Samuels Archaeological Consultants*. This will conform to 'Site Archive' level, as defined in *Management of Archaeological Projects* (English Heritage 1991) and guidelines contained in *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990) and *Standards in the Museum Care of Archaeological Collections* (Museums and Galleries Commission, 1992), and will be deposited by *John Samuels Archaeological Consultants* with an appropriate local museum. This excludes items of gold and silver which by law must be reported to Her Majesty's Coroner and any finds that individual landowners may wish to retain.
- 2.7.2 Should significant remains be discovered during the course of the excavation and watching brief, and post-excavation assessment identifies the need for fuller publication, then a secondary research archive will also be prepared.

3.0 Timetable and Personnel

- 3.1 CVs of key personnel will be supplied to the South Gloucestershire Archaeological Officer on request.
- 3.2 It is expect that the excavation will commence: 12 April (topsoil strip), 18 April (excavation of Pond 2), 20 April (excavation of Pond 1) and 20 April (excavation of cutting), with the watching brief commencing at the same time. Confirmation of the start has been provided to the South Gloucestershire Archaeological Officer.
- 3.3 Specialist assistance where required will be provided by appropriate persons.

Details to be provided on appointment of a fieldwork contactor.

4.0 Insurance

- 4.1 The archaeological contractor will produce evidence of Public Liability Insurance to the minimum value of £5m and Professional Indemnity Insurance to the minimum of £2m.

5.0 Health and Safety

- 5.1 It is the policy of John Samuels Archaeological Consultants ('the Employer') to conform fully with the requirements of the Health and Safety at Work etc. Act (1974).
- 5.2 It is accepted that it is the duty of the Employer to ensure, so far as is reasonably practical, the health and safety of all his employees at work.
- 5.3 The employer also has a duty to ensure that his employees are aware of their responsibility for their own health and safety, and for the health and safety of others, including the general public, who might be affected by their work.
- 5.4 Where employees are temporarily engaged at other workplaces, they are to respect relevant local regulations, both statutory and as imposed by other employers within the Health and Safety at Work etc. Act (1974).
- 5.5 In furtherance of the duty of care imposed by the Health and Safety at Work etc. Act (1974), the Employer shall make available to his employees whatever reasonable facilities are required by particular circumstances, eg. appropriate protective clothing, safety equipment, rest breaks for specialised tasks, etc.
- 5.6 Attention is paid to the requirements of more recent legislation, including the provision and use of *Work Equipment Regulations 1992*, the *Management of Health and Safety at Work Regulations 1992* and the *Construction (Design and Management) Regulations 1994*. A risk assessment will be undertaken by the contractor, with copies to *John Samuels Archaeological Consultants*, a safety officer appointed and all aspects of health and safety nominated during work. It may be necessary for the archaeological contractor to liaise with the main contractor over aspects of health and safety, depending on start dates of contracts etc.

6.0 Figures

Figure 1: Site Location

Figure 2: Area of Wetland Treatment and Attenuation Facilities (Areas A and B)

Figure 3: Area of Watching Brief (Area C)

Figure 4: Area of Watching Brief (Area D)