

**Project code:** FRCE10  
**Client:** Transport Scotland  
**Date:** 5<sup>th</sup> April 2011

## **The Results of an Archaeological Field Evaluation by Trial Trenching at Land Parcel 21, near Kirkliston**

**Archaeological Consultant:** Jacobs Arup  
**Report Authors:** Elizabeth Jones  
**Report Status:** Approved



## **Executive Summary**

*Headland Archaeology conducted an archaeological evaluation by trial trenching on the Forth Replacement Crossing at Land Parcel 21, near Kirkliston NGR: NT 11983 74026 (centred). The aim of the evaluation was to determine the presence or absence of archaeological remains or deposits and to record the nature, character and extent of any remains or deposits encountered. The work was commissioned by Transport Scotland, managed by Jacobs Arup and undertaken in advance of the proposed commencement of construction works.*

*Five trenches totalling 304m<sup>2</sup> comprising a 5% sample were excavated across the field, which had been recently ploughed. No archaeological remains or deposits were identified within the area evaluated.*

## ARCHAEOLOGICAL EVALUATION

Forth Replacement Crossing: Land Parcel 21, near Kirkliston

### PROJECT SUMMARY SHEET (FRCE10)

<i>Client</i>	Transport Scotland
<i>Consultant</i>	Jacobs Arup
<i>National Grid Reference</i>	NT 1200 7398
<i>Project Manager</i>	Edward Bailey
<i>Senior Archaeologist</i>	Kirsty Dingwall
<i>Text</i>	Elizabeth Jones
<i>Illustrations</i>	Julia Bastek
<i>Evaluation Team</i>	Samira Ben Mohammed Jamie Humble Elizabeth Jones
<i>Schedule</i>	
Fieldwork	24 <sup>th</sup> – 25 <sup>th</sup> March 2011
Report	April 2011

## CONTENTS

<b>1</b>	<b>Introduction</b>	<b>423</b>
1.1	<i>General</i>	423
1.2	<i>Project Background</i>	423
1.3	<i>Aims and Objectives of the Archaeological Works</i>	423
<b>2</b>	<b>Site Background</b>	<b>424</b>
2.1	<i>Archaeological and Historical Background</i>	424
2.2	<i>Site Topography and Land Use</i>	424
2.3	<i>Site Geology</i>	424
<b>3</b>	<b>Methodology</b>	<b>425</b>
<b>4</b>	<b>Results of Fieldwork</b>	<b>425</b>
4.1	<i>Trial Trenching</i>	425
<b>5</b>	<b>Conclusions</b>	<b>426</b>
<b>6</b>	<b>References</b>	<b>427</b>
6.1	<i>Bibliographic References</i>	427
6.2	<i>Cartographic References</i>	427
<b>7</b>	<b>Appendices</b>	<b>428</b>
	<i>Appendix 1: Trench Register</i>	428
	<i>Appendix 2: Context Register</i>	428
	<i>Appendix 3: Trench Matrices</i>	428
	<i>Appendix 4: Photographic Register</i>	428
	<b>Illustrations</b>	<b>429</b>

## **1 Introduction**

### *1.1 General*

1.1.1 This draft Data Structure Report reports on a programme of archaeological investigation in respect of the proposed Forth Replacement Crossing (hereinafter 'FRC'), and in accordance with the mitigation measures recommended in the FRC Environmental Statement Chapter 14 (Cultural Heritage; Jacobs Arup 2009a) wherein a programme of trial trenching was recommended. The report was initially submitted to Jacobs Arup and Transport Scotland.

1.1.2 Between the 24<sup>th</sup> and 25<sup>th</sup> March 2011, Headland Archaeology (UK) Ltd. undertook a programme of archaeological evaluation by trial trenching on Land Parcel 21 in advance of the M9 Junction 1a improvements for the FRC (Illus 1). The project was managed by Edward Bailey (Project Manager), the fieldwork and reporting was overseen Elizabeth Jones. Three further staff assisted during the fieldwork.

### *1.2 Project Background*

1.2.1 In December 2007, following the completion of the FRC Study as part of the Strategic Transport Project Review (hereinafter 'STPR'), the Scottish Government confirmed the intention to provide a new cable-stayed bridge to the west of the existing Forth Road Bridge. Jacobs Arup (as a joint venture) was commissioned in January 2008 to assist Transport Scotland to develop the FRC proposals, to undertake an Environmental Impact Assessment (hereinafter 'EIA') and to prepare an Environmental Statement (hereinafter 'ES') (Jacobs Arup, 2009a).

1.2.2 The cultural heritage component of the FRC EIA was largely completed in 2008. The purpose of the assessment was to identify the cultural heritage baseline, evaluate the likely significant impacts that the proposed development would have on this resource, and provide mitigation measures to ameliorate any impacts.

1.2.3 The cultural heritage baseline data for the EIA was obtained via a desk-based assessment and walkover survey undertaken in 2008-2009 in accordance with the principles set out in DMRB Volume 11, Section 3 Part 2 'Cultural Heritage' (HA 208/07; Highways Agency 2007). Further information was also gathered during archaeological watching briefs on Ground Investigations for the proposed scheme carried out during 2008 and 2009 by variously Jacobs Arup, Glasgow University Archaeology Research Division and Headland Archaeology Ltd in accordance with the requirements of Historic Scotland to whom the results were reported (Transport Scotland 2010, 30).

1.2.4 Based on the results of the EIA the ES recommended that a programme of invasive and non-invasive archaeological works be undertaken. This would include resistivity survey and evaluation by trial trenching (Jacobs Arup 2009a).

### *1.3 Aims and Objectives of the Archaeological Works*

1.3.1 The general objectives of the programme of archaeological works (Transport Scotland 2010) were to:

- ensure that significant archaeological or palaeoenvironmental remains shall be neither needlessly destroyed, nor destroyed without record;
- identify any unknown archaeological remains that may be affected by the scheme;
- enable a more confident assessment of the impact of construction of the proposed scheme on archaeological remains;
- enable the identification and design of any measures that may be necessary to mitigate the impact of the proposed scheme on newly identified archaeological remains, and
- enhance available information about known archaeological remains, where existing information is insufficient to enable a full assessment of impact or the design of mitigation measures.

## 2 Site Background

### 2.1 *Archaeological and Historical Background*

2.1.1 Within a study area ranging in extent from 500m from the proposed route to 6km from the proposed main crossing a total of 356 cultural heritage sites were identified by the ES, whilst a desk-based assessment of a wider study area undertaken at route selection stage, identified a total of 1200 cultural heritage sites (Transport Scotland 2010, 30). The results from these studies show that the scheme is located in a landscape containing archaeological evidence dating from the Mesolithic period, through the prehistoric and medieval periods, up to post-medieval and modern times.

2.1.2 Within the vicinity of the of the M9 Junction 1a improvements (Illus 1) prehistoric activity has been recorded in the form of a Late Bronze Age socketed axe found near Kirkliston. Latterly there are written records from 1513 that refer to a Kirliston House acquired by the Commandery of Torphichen although the exact location of the house is not recorded. Based on the coordinates provided by the Royal Commission on the Ancient and Historic Monuments of Scotland both these sites are located within 1 km of Land Parcel 21 and indicate the potential for prehistoric and medieval settlement in the area.

### 2.2 *Site Topography and Land Use (Illus 1)*

2.2.1 The site was located south of the village of Kirkliston and was bounded by Niddry Burn to the north-east, the M9 motorway to the north-west and fields to the south. At the time of the trial trenching the field had recently been ploughed. The site is under the ownership of C E Maclachlan.

### 2.3 *Site Geology*

2.3.1 The results of geotechnical investigations (Jacobs Arup 2009b) carried out demonstrate that the subsurface stratigraphy generally constitutes glacial till deposits of varying thickness; these are predominantly comprised firm to very stiff boulder clay deposits with occasional granular till deposits.

- 2.3.1 The solid geology of the site is typified by igneous alkali dolerite (British Geological Survey 2008). The alkaline nature of the bedrock geology has the effect of breaking up the structure of clays within the soil matrix which negatively affects its water holding capacity, similar to the effect agricultural lime has on arable soils.

### **3 Methodology**

- 3.1 All works were undertaken in accordance with the specification in the contract documents (Transport Scotland 2010), which had been agreed with Historic Scotland and Transport Scotland. The total area of the Land Parcel measured 6013 m<sup>2</sup>, of which a 5% sample (304 m<sup>2</sup>) was investigated by trial trenching. An indicative trench plan was agreed with the consultant archaeologists, Jacobs Arup. It was ensured that no trenches were placed close to overhead power lines running along the north-west of the site, parallel to the M9. As a result of the presence of the power lines and the location of Niddry Burn the locations of some of the trenches were moved from the original trench plan and an additional trench was excavated to complete the required area of trenching.
- 3.2 All trenches were individually numbered and located using a pole-mounted Trimble G6 differential GPS programmed with the trench coordinates. The trenches were excavated using a JCB back actor fitted with a 1.6 m wide flat-bladed ditching bucket. The machine operated under continuous archaeological supervision and topsoil and subsoil were removed down to the first archaeological horizon or clean geological deposits, whichever was encountered first. Topsoil and subsoil were stored separately. Any potential features identified were hand cleaned and investigated appropriately. Archaeological features and deposits were hand excavated and recorded using standard archaeological methods and pro-forma record sheets. The excavated trenches and any archaeological contexts were recorded using a Trimble G6 differential GPS, as well as hand drawing where appropriate. Photographs were taken using colour slide film, black and white film, and digital.

### **4 Results of Fieldwork (Illus 2)**

#### *4.1 Trial Trenching*

- 4.1.1 Five trenches were excavated across Land Parcel 21 (Illus 2) with a combined total area of 304 m<sup>2</sup> comprising a 5% sample of the Parcel. Full detailed descriptions of each trench are provided in Appendix 1 and individual contexts are presented in Appendix 2. The results of the evaluation are summarised below.
- 4.1.2 The natural geology seen in the trenches was orange brown – grey clay and gravel [003], with outcrops of broken bedrock in places. The deposits in Trench 1 consisted of 0.30 – 0.40m of topsoil [001], overlying 0.20 – 0.30m of subsoil [002] a dark greyish brown clayey silt, overlying natural [003]. The deposits in Trenches 2 – 5 consisted of 0.30 – 0.40m of topsoil [001], overlying 0.10 – 0.20m of subsoil [002], overlying natural [003]. The topsoil [001] contained occasional fragments of modern ceramic material, which was not collected.
- 4.1.3 No archaeological remains or deposits were identified during the evaluation.

4.1.4 Ceramic field drains were encountered in Trenches 2 and 5.

## **5 Conclusions**

5.1 The evaluation has established that there are no archaeological remains or deposits within the 5% sample evaluated of Land Parcel 21.

5.2 Based on the results of the fieldwork in which no environmental samples or finds were retrieved, the archaeological archive is assessed as having no potential and therefore no further works are recommended.



## 6 References

### 6.1 *Bibliographic References*

Highways Agency *et al* 2007 *DMRB Volume 11 Cultural Heritage, Section 3, Part 2, Revision HA 208/07*. The Highways Agency, Transport Scotland, Welsh Assembly Government and the Department for Regional Development Northern Ireland, August 2007.

Jacobs Arup 2009a *Forth Replacement Crossing: Environmental Statement*. November 2009.

Jacobs Arup 2009b *Transport Scotland Forth Replacement Crossing: Network Connections – South Ground Investigations Report*. Jacobs Arup November 2009.

Transport Scotland 2010 *Forth Replacement Crossing*. ‘Competition for the Land Based Invasive and Non-Invasive Archaeological Survey and Evaluation Contract Volume 2: Tender Document.’

### 6.2 *Cartographic References*

British Geological Survey 2008 *Linlithgow, S032W*, (version B&Sup), 1: 50 000.

## 7 Appendices

### Appendix 1: Trench Register

Trench	Dimensions (m)	Maximum depth (m)	Description
1	1.6 x 40	0.7	Runs E –W along S side of land parcel. Shortened at W end due to overhead lines.
2	1.6 x 50	0.6	Runs NW-SE along E edge of land parcel.
3	1.6 x 30	0.6	Runs NE-SW. Shortened at W end due to overhead lines.
4	1.6 x 50	0.5	Runs N-S along W edge of land parcel. Shortened at N end due to burn.
5	1.6 x 20	0.9	Runs parallel to Trench 2, additional trench added to compensate for shortfall due to shortening of other trenches.

### Appendix 2: Context Register

Context	Location	Description
001	All	Topsoil. Dark brown clayey silt loam.
002	All	Subsoil. Reddish brown silty clay.
003	All	Natural.

### Appendix 3: Trench Matrices

#### All trenches

001
002
003

### Appendix 4: Photographic Register

Photo	Direction	Description
1	-	ID shot film 1
2	W	LP 21 General shot of Trench 1
3	W	LP 21 General shot of Trench 2
4	S	LP 21 General shot of Trench 3
5	S	LP 21 General shot of Trench 4
6	S	LP 21 General shot of Trench 5