

**Project code:** FRCE10  
**Client:** Transport Scotland  
**Date:** 11<sup>th</sup> April 2011

## **The Results of an Archaeological Field Evaluation by Trial Trenching on the Forth Replacement Crossing at Dundas Castle Farms (Land Parcel 9)**

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**Report Authors:** Ian Hill  
**Report Status:** Approved



## **Executive Summary**

*Headland Archaeology conducted an archaeological evaluation by trial trenching on the Forth Replacement Crossing at Dundas Castle Farms (Land Parcel 9), NGR: NT 11901 77124 (centred), to establish the presence/absence of archaeological remains or deposits in an area identified as having good archaeological potential in the Forth Replacement Crossing Environmental Statement (Jacobs Arup, 2009a). The work was commissioned by Transport Scotland, managed and monitored by Jacobs Arup and undertaken in advance of the proposed commencement of construction works.*

*Four trenches totalling 351m<sup>2</sup> were excavated comprising a 5% sample of the Parcel. Trenches were sited to ensure good spatial coverage. No archaeological remains or deposits were identified during the evaluation.*

**ARCHAEOLOGICAL EVALUATION**  
**Forth Replacement Crossing: Land Parcel 9, Dundas Castle Farms**

**PROJECT SUMMARY SHEET (FRCE10)**

<i>Client</i>	Transport Scotland
<i>Consultant</i>	Jacobs Arup
<i>National Grid Reference</i>	NT 11901 77124
<i>Project Manager</i>	Edward Bailey
<i>Senior Archaeologist</i>	Kirsty Dingwall
<i>Text</i>	Ian Hill
<i>Illustrations</i>	Julia Bastek
<i>Evaluation Team</i>	Samira Ben Mohammed Kirsty Dingwall
<i>Schedule</i>	
Fieldwork	4 <sup>th</sup> – 5 <sup>th</sup> April 2011
Report	April 2011

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## **1 Introduction**

### *1.1 General*

1.1.1 This Data Structure Report is submitted as a report on a programme of archaeological trial trenching to Jacobs Arup and Transport Scotland 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 the requirement for a programme of trial trenching was identified.

1.1.2 Between the 4<sup>th</sup> and the 5<sup>th</sup> April 2011, Headland Archaeology (UK) Ltd. undertook a programme of archaeological evaluation by trial trenching on Land Parcel 9 in the grounds of Dundas Castle Farms on the southern side of the landfall for the FRC (Illus 1). The project was managed by Edward Bailey (Project Manager), the fieldwork and reporting was overseen by Ian Hill. Two additional staff members were involved throughout the evaluation.

### *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 purpose of the cultural heritage component of the EIA 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 The ES recommended that a programme of invasive and non-invasive archaeological works be undertaken to 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 A number of archaeological sites were identified by the ES in and around South Queensferry. These include prehistoric, Roman and early historic activity, with the Royal Burgh of South Queensferry originating in the medieval period.

2.1.3 Land Parcel 9 lies near Dundas Castle, the present keep of which dates to the 15<sup>th</sup> century, although the castle may originate as early as the 12<sup>th</sup> century (Jacobs Arup 2009a, 32).

### 2.2 *Site Topography and Land Use*

2.2.1 The site comprised of the western end of an arable field. The field had been recently ploughed. The site is under the ownership of AWG Residential Ltd & Taylor Wimpey Development Ltd.

### 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 of firm to very stiff boulder clay deposits with occasional granular till deposits.

- 2.3.2 The solid geology 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 6,638 m<sup>2</sup>, of which a 5% sample (351 m<sup>2</sup>) was investigated by trial trenching. An indicative trench plan was agreed with the consultant archaeologists, Jacobs Arup. Trenches were sited to provide good spatial coverage of the entire site. Two trenches were slightly adjusted during excavation; Trench 3 was extended and Trench 4 was shortened.
- 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 13 ton 360° tracked mechanical excavator, fitted with a 2m 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 Four trenches were excavated across Land Parcel 9 (Illus 2) with a combined total area of 351 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 [003] seen in the trenches was largely orange and red clay with stone inclusions. In general this was overlain by between 0.10 m and 0.20 m of subsoil [002] that varied from brownish-red clayey silt to blackish-grey clayey silt. Topsoil [001] was between 0.13 m and 0.25 m deep and contained little in the way of recent ceramic material.
- 4.1.3 A number of rubble and ceramic drains were encountered throughout the trenches. Any damaged ceramic drains were repaired prior to backfilling.
- 4.1.4 No archaeological remains or deposits were identified during the evaluation.

## 5 Conclusions

- 5.1 The evaluation established that no archaeological remains are present within the 5% sample of the land parcel investigated and only evidence of modern land use was present within the trial trenches.
- 5.2 Based on the results of the fieldwork in which no finds or environmental samples 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

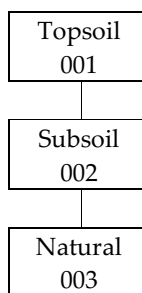
Trench No	Length (m)	Depth (m)	Description
1	12.2	0.64	N-S running. No features.
2	25.7	0.64	N-S running. No features.
3	20.5	0.66	SW-NE running. No features.
4	13.7	0.8	SW-NE running. No features.

### Appendix 2: Context Register

Context no.	Trench no.	Description
001	All	Topsoil. Greyish brown silt loam, 0.13 – 0.25 m.
002	All	Subsoil. Brownish red to blackish grey clayey silt, 0.1 – 0.2 m.
003	All	Natural. Orange/Reddish clay.

### Appendix 3: Trench Matrices

#### All Trenches



### Appendix 4: Photographic Register

Photo No.	Direction	Description
559	S	General shot of Trench 1
560	SW	General shot of Trench 2
561	W	General shot of Trench 3
562	W	General shot of Trench 4