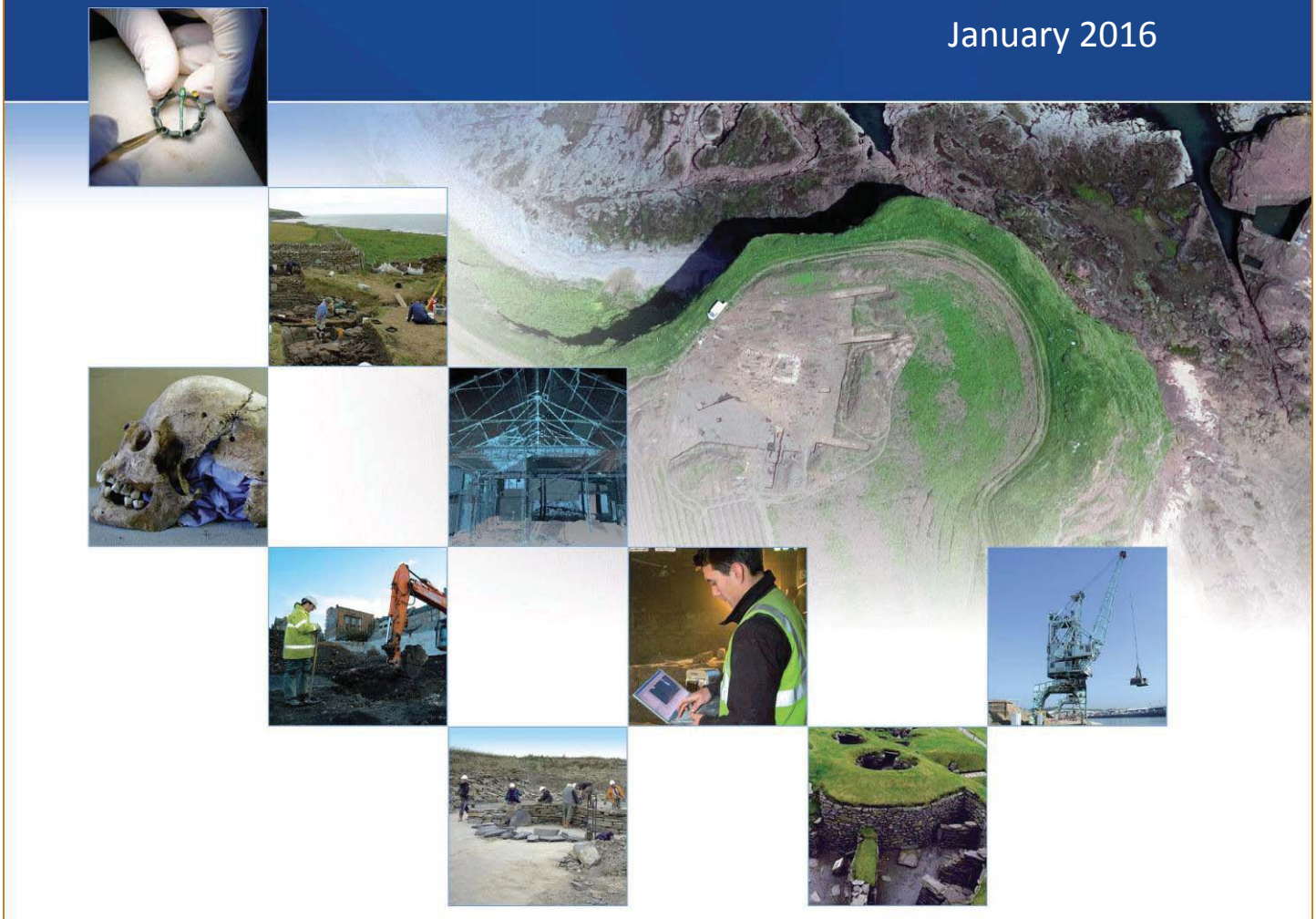
Bonnybridge to Greenhill Cable Archaeological Test-pitting Data Structure Report

AOC 23159

OASIS No. aocarcha1- 240428

January 2016



AOC Archaeology Group

ARCHAEOLOGY | HERITAGE | CONSERVATION

Bonnybridge to Greenhill Cable:

Archaeological Test-Pitting

Data Structure Report

On Behalf of:	**RSK Environment Ltd** 65 Sussex Street Glasgow G411DX
National Grid Reference (NGR):	**NS 82933 79721**
AOC Project No:	**23159**
Prepared by:	**Jamie Humble**
Illustration by:	**Jamie Humble**
Date of Fieldwork:	**26th January 2016**
Date of Report:	**January 2016**

This document has been prepared in accordance with AOC standard operating procedures.	
Author: Jamie Humble	**Date: 19/01/2015**
Approved by: Martin Cook	**Date: 20/01/2015**
Draft/Final Report Stage:	**Date: 20/01/2015**

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Contents

List of Illustrations

List of Plates

List of Appendices

Summary

AOC Archaeology Group undertook an archaeological watching brief on behalf of RSK Environment Ltd (RSK) ahead of the laying of a electric cable across the line of the Antonine Wall at Bonnybridge, Falkirk.

Three test pits were excavated along the line of the cable route where it crosses the route of the Antonine Wall. The test pits were excavated to the depth required for the cable installation. All four trenches revealed a similar sequence of modern deposits comprising dumps of spent foundry casting sands, redeposited natural clays and made ground deposits. The excavation of the test pits suggest that the topography of the area has been altered significantly in the recent past and that the proposed cable installation will have no effect on Roman archaeological deposits.

No significant archaeological features or deposits were identified in any of the test pits and natural subsoil was not reached in any test pit.

1 INTRODUCTION

1.1 Background

1.1.1 An archaeological watching brief was required by RSK Environment Ltd (RSK) on behalf of their client Iberdrola Engineering and Construction (IEC) during installation of a new 25kV cable between Bonnybridge and Greenhill substations, near Falkirk. The watching brief was centered on the stretch of the cable route that passes across the Roman fortification of the Antonine Wall in the yard of Central Demolition, off Broomhill Road in Bonnybridge (Figure 1).

1.1.2 IEC's client, Scottish Power, do not require planning permission from Falkirk Council to install and operate the underground cables. Underground cables constitute Permitted Development under the *Town and Country Planning General Permitted Development (Scotland) Order 1992,* Part 13, Class 40 Electricity Undertakings. As Transmission Licence Holders under the Electricity Act 1989 and in accordance with their Schedule 9 Commitments, Scottish Power is required:

> *(a) to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and,*
>
> *(b) to do what he reasonably canto mitigate any effects which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.''*

1.1.3 The scope of the work requiring an archaeological watching brief was discussed and agreed between IEC and Geoff Bailey, Keeper of Archaeology and Local History, Falkirk Community Trust, archaeological advisor to Falkirk Council. In order to comply with Scottish Power's Schedule 9 commitments, IEC consulted with Historic Scotland and Geoff Bailey, Keeper of Archaeology and Local History, Falkirk Community Trust regarding the project. The scope of the engineering works for which archaeological mitigation work is required is described in an email dated 22nd June 2015 from Falkirk Community Trust. Email correspondence noted the following:

> "The proposed line for the Bonnybridge-Greenhill Cable crosses the Antonine Wall obliquely at Broomhill Road and the Roman temporary camp at Milnquarter at Reilly Road. "The latter is of little concern as the temporary camp ditches were shallow and the preparations for the road in the 1970s were extensive enough to have removed any traces within its footprint. However, Broomhill Road was not as well engineered and it can be seen to ride the land contours. We would therefore ask for a watching brief in the vicinity of the Antonine Wall here. This should be conducted in such a manner that will allow the archaeologist to carefully monitor the work and to record any significant stratigraphy. "There are no other known archaeological sites on the route."

1.1.4 No archaeological mitigation was requested by Historic Scotland during discussions with IEC.

1.1.5 An archaeological written scheme of investigation (RSK 2015) was prepared in line with the above consultation. Subsequent to the agreement for a watching brief and WSI (RSK 2015), for engineering reasons the proposed route of the cable trench excavation along Broomhill Road and Bonnyside Road was modified, so that the revised route passed through Central Demolition's access road, crossing the recorded route of the Antonine Wall (see Figure 1). Historic Scotland confirmed to IEC that no mitigation would be required, but that consultation with the LPA archaeological advisor was recommended. Geoff Bailey, Keeper of Archaeology and

Local History, Falkirk Community Trust, archaeological advisor to Falkirk Council, agreed with IEC that 4 test pits be excavated under archaeological supervision along the line of the Antonine Wall as it passed through the access track to Central Demolition (Appendix 4).

1.2 Site Location

1.2.1 The test-pitting area, centered on NS 82933 79721 lies within the yard of Central Demolition, the test pits were excavated in the soft verge on the northwest side of the road into the yard (Figure 2). A railway line bound the site to the southeast, and by the demolition yard on all other sides. The site lies in an elevated position above the farmland beyond the demolition yard to the northwest, suggesting the area has been built up at some point in the recent past.

2 HISTORICAL BACKGROUND

2.1 The proposed line for the Bonnybridge to Greenhill cable crosses the Antonine Wall obliquely through the Central Demolition Yard off Broomhill Road adjacent to the scheduled monument of Antonine Wall (SM No. 12606). The groundworks due to take place are outside of the scheduled area.

2.2 The Antonine Wall is a 60km long fortification which was started by Emperor Antonius Pius in 142 AD as a line of defence and a marker of Roman territory. It marks the most northern frontier of the Roman Empire, stretching between Bo'ness on the Firth of Forth to Old Kilpatrick on the River Clyde. The importance of the site is recognised by UNESCO, who added it to the list of World Heritage Sites in 2008 (http://whc.unesco.org/en/list/ accessed 17/07/15). This means it is a designated heritage asset, which forms part of the *Frontiers of the Roman Empire*.

2.3 The Antonine Wall consists of four parts: the rampart, the ditch, with the earth from it tipped out to the north to create an outer or upcast mound (a glacis in military terms) and the Military Way Roman road running behind (Breeze 2006; 71). Most of the wall was constructed from squared blocks of turf on top of the foundations of a single course of stonework. This consisted of large cobbles edged by two rows of kerbstones. The width along the wall varies between 14 and 16 ft (4.27 to 4.87m). At Bonnybridge the base width of the wall is 14 ft and the ditch width is 42 ft (12.80m) with a turf superstructure (Keppie 1974). The ditch from Bantaskine to Bar Hill through which the cable route crosses along Broomhill Road is usually 4m deep (Breeze 2006: 77).

2.4 The material from the ditch was tipped out onto the north side, spread out and levelled to form a mound tupilcally 18m in width. The berm, the space between the rampart and the ditch, was typically about 20m wide (*Ibid*). Occasionally, rows of pits – presumably defensive pits known as *ilia* – were excavated into the berm. Finally, the Military Way, a Roman road, ran the length of the Wall. It was usually located between 15 and 40m south of the rampart, and constructed of stones and gravel. It was usually just over 5m wide, with ditches on either side to help drainage (*Ibid*, 78). There was a large volume of Roman military activity along the Antonine Wall: this included forts, fortlets, camps, and other structures such as religious altars. Roman artefacts are commonly found in the area. The wall is therefore associated with a large number of additional archaeological sites.

2.5 The proposed line for the Bonnybridge to Greenhill cable crosses the location of a Roman temporary camp at Milnquarter at Reilly Road. This camp is positioned to the south of the Antonine wall (Feachem 1955). The elements of the Roman camp either side of Reilly Road are scheduled (SM No. 3242). According to Falkirk Community Trust (Bailey *pers comm.* 2015), there is now little trace of the Roman camp due to the construction of a road in the 1970s which removed its shallow ditches.

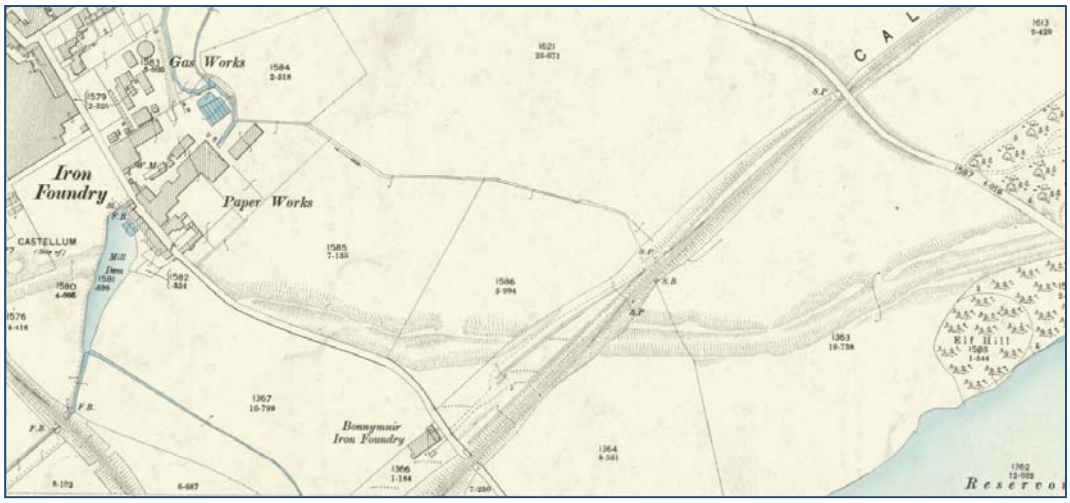


Plate 1: Extract from Ordnance Survey 1898

2.6 The Ordnance Survey 1st edition of 1864 shows the Caledonian railway running on its current alignment northeast to southwest immediately to the southeast of the watching brief area. By the time of the 2nd edition in 1898 (Plate 1) a railway siding has been constructed in the watching brief area. The wider industrial landscape of Bonnybridge can be seen with a number of Iron Foundries in the surrounding area.

3 OBJECTIVES

3.1 The aim of the archaeological test-pitting was to identify, then preserve, either by record or *in situ*, archaeological remains that may be altered, damaged or destroyed by the cable installation works.

3.2 The objectives of the test-pitting survey were to provide data on the date, character, quality, survival and extent of archaeological deposits within the area of the Antonine Wall where crossed by the altered cable route. This information will clarify whether any remains encountered are of national or international importance and thus warrant consideration for preservation *in situ;* or alternatively form the basis of mitigation measures that may seek to limit damage to significant remains.

3.3 The specific aims of the test-pitting were:

- To allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works; and
- To provide the opportunity for the archaeologist on site to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the test-pitting itself are not sufficient to support treatment to a satisfactory and proper standard.

The specific objectives of this test-pitting survey were to:

- Establish the presence/absence, character and preservation state of any archaeological remains prior to the intrusive ground works,
- Make a competent record of the location and character of any such remains.
- Recover any archaeologically significant artefacts disturbed for specialist examination and reporting.
- Recover samples of any material which has potential for the survival of palaeoenvironmental evidence from secure archaeological context.
- Prepare a report on the findings and material recovered for the Client and local authority Historic Environment Record.
- Address the research questions noted in the WSI, and
- Deposit the archive with an appropriate repository

4 METHODOLOGY

4.1 Prior to the work being undertaken a *Written Scheme of Investigation* (RSK 2015) was agreed. The WSI proposed the monitoring of the excavation of the cable trenches along Broomhill Road, however an alternate route through the premises of Central Demolition and Chatton Industrial Estate was taken. Geoff Bailey, Keeper of Archaeology and Local History, Falkirk Community Trust, archaeological advisor to Falkirk Council, agreed with IEC that 4 test pits be excavated under archaeological supervision along the line of the Antonine Wall as it passed through the access track to Central Demolition (Appendix 4).

4.2 The test pits were excavated machine excavated using a flat bladed bucket operating under the constant supervision of an experienced field archaeologist. Machine excavation was conducted in shallow units/spits through topsoil/overburden to the upper surface of the underlying geological deposits or significant archaeological deposit or required depth, whichever was reached first. The test pit trenching was undertaken according to AOC Archaeology Group's standard operating procedures. Each trench was recorded using AOC *pro forma* trench record sheets and any potential features investigated further to assess their character and date.

4.3 The trenches were placed to ensure comprehensive coverage of the development area and to investigate areas of potential better survival of archaeological deposits.

5 RESULTS

5.1 The various data gathered from the test pitting are presented as a series of appendices:

Appendix 1: Test pit descriptions;
Appendix 2: Photographic Register;
Appendix 3: reproduces the '*Discovery and Excavation in Scotland'* entry

5.2 The works were conducted on the 26th January 2016. The weather conditions during the evaluation were consistently heavy rain however archaeological visibility was good.

Plate 2: Location of the Test Pits, facing north

5.3 The pitting comprised the excavation of four test pits each originally 1.5m by 0.5m in size and

all excavated to a depth of 1.5m. Test pit 4 was subsequently extended to 3m in length to clarify the nature of the deposits. The location of the test pits is shown in Figure 2. The test pits were excavated to the depth required for the installation of the electric cables.

5.4 A similar stratigraphic sequence was observed in all the excavated test pits with an upper deposit of modern made ground relating to the construction of the road. This overlay various dump deposits of spent foundry casting sands, along with re-deposited natural clays. The natural subsoil was not reached in any of the test pits.

Plate 3: Test Pit 3 showing made ground overlying redeposited natural overlying spent foundry casting sands, facing west

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 No significant archaeological features or finds were observed during the evaluation. The deposits and stratigraphy of the site suggests that there has been significant build up of the landscape, probably relating to the construction of the railway siding in the mid to late 19th century. The source of these layers of build up is most likely to be waste from the various iron foundries in the vicinity of the site.

6.2 No further archaeological works are considered necessary. The recommendation will require confirmation by Mr Geoff Bailey on behalf of Falkirk Council Archaeology Service.

7 REFERENCES

7.1 Bibliographic References

Breeze, D. 2006, *The Antonine Wall*. John Donald, Edinburgh

Feacham, R. W. 1955, 'Six Roman Camps Near the Antonine Wall'. *Proc Soc Ant Scot*, 89 (329-339)

Keppie, L. J. F. 1974, 'The Building of the Antonine Wall: Archaeological and Epigraphic Evidence', *Proc Soc Ant Scot*, 105, (151-164)

RSK Environment Ltd. 2015, *Bonnybridge to Greenhill Cable Written Scheme of Investigation for an Archaeological Watching Brief*, Unpublished report.

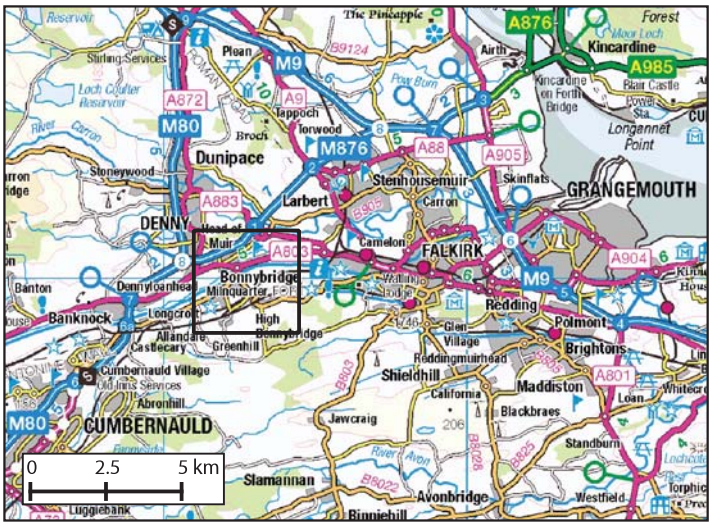
Iberdrola Engineering and Construction, 2015, *Bonnybridge Network Rail Transit Supply Connection, Minutes/Actions*, Unpublished record of meeting of 19/01/2016

7.2 Cartographic References

Ordnance Survey 1898 Stirlingshire sheet XXX.1

7.3 Websites

http://whc.unesco.org/en/list/ Accessed 17/09/15



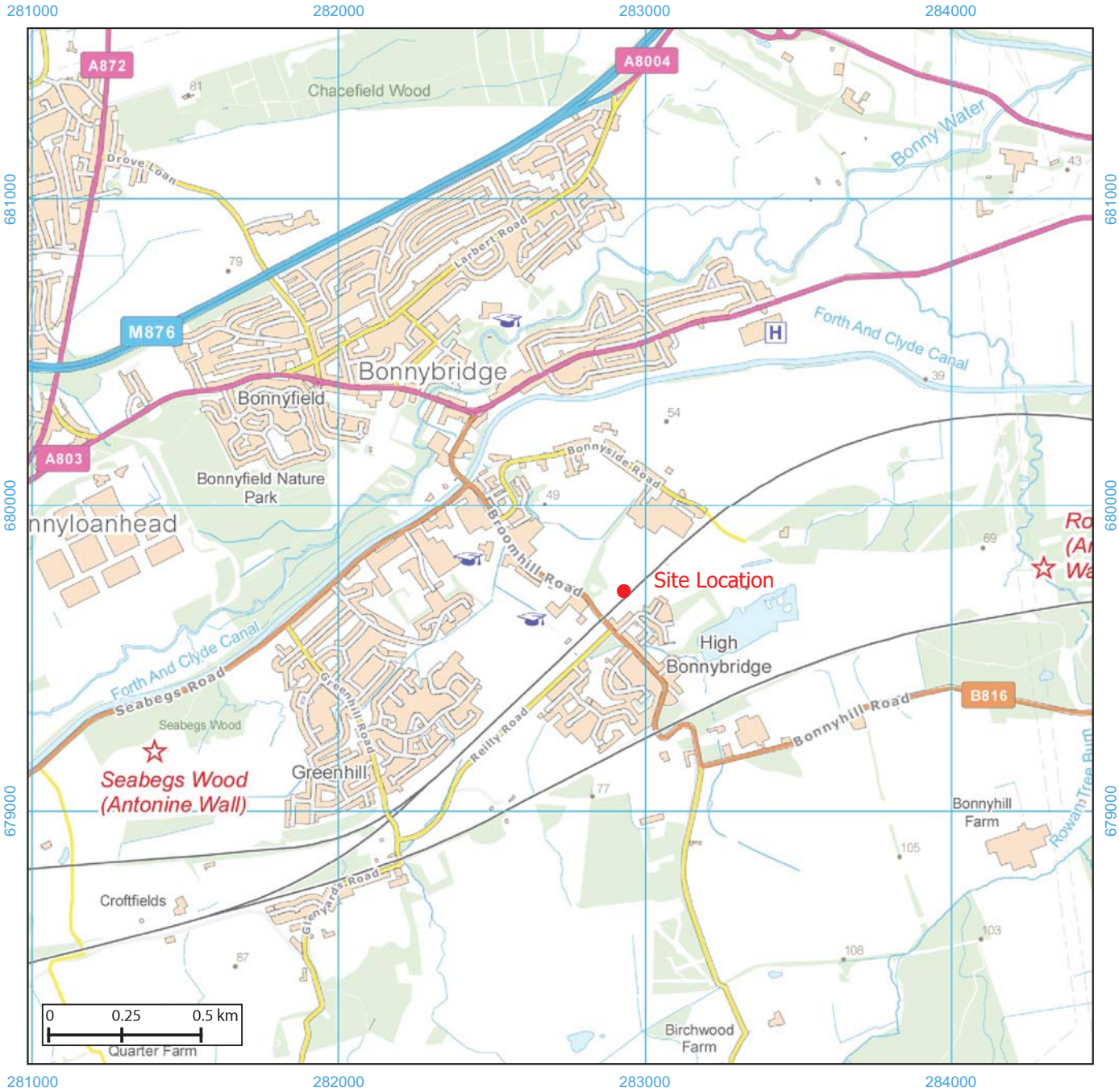


Figure 1: Site Location

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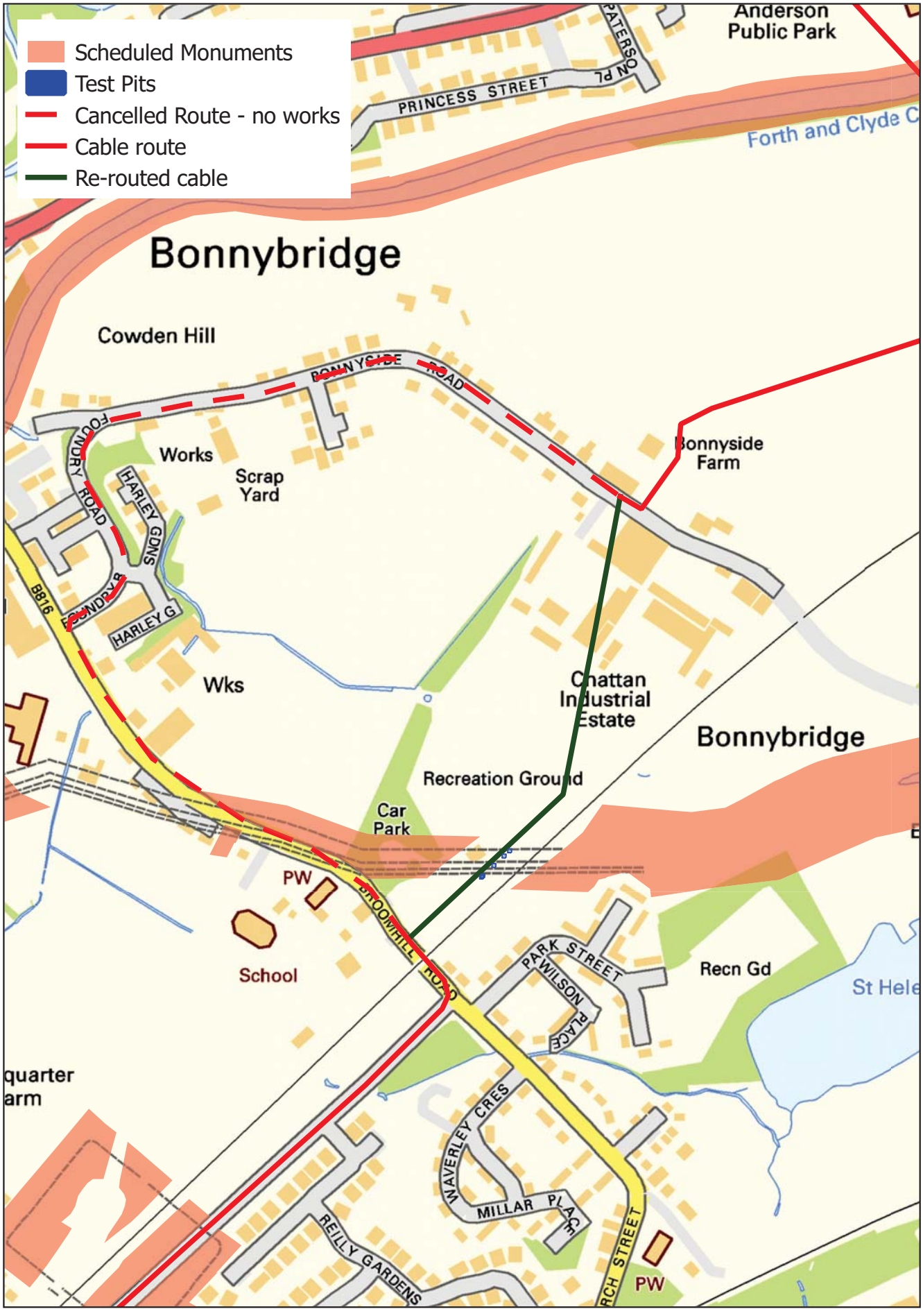

Figure 2: Location of cable re-route and test pits

Bonnybridge to Greenhill Cable:
Archaeological Watching Brief
Data Structure Report

Section 2: Appendices

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APPENDIX 1: TEST PIT DESCRIPTIONS

Test Pit 1

Dimensions	1.5m by 0.5m
Depth of Excavation	1.5m
Significant Features	None
Non-Significant features	None
Soil make-up	*0m to 0.7m depth* – Made ground of hardcore gravel *0.7m to 1.2m depth* - Mid brown silty fine sand with occasional angular stone, spent foundry casting sand *1.2m to 1.5m depth* – Mid grey silty fine sand with occasional angular stone, spent foundry casting sand.
Natural	Not reached
Finds	None

Test Pit 2

Dimensions	1.5m by 0.5m
Depth of Excavation	1.5m
Significant Features	None
Non-Significant features	None
Soil make-up	*0m to 0.7m depth* – Made ground of hardcore gravel *0.7m to 1.2m depth* – Orange grey compact clay with occasional rounded stone, redeposited natural glacial till. *1.2m to 1.5m depth* – Mid grey silty fine sand with occasional angular stone, spent foundry casting sand.
Natural	Not reached
Finds	None

Test Pit 3

Dimensions	1.5m by 0.5mm
Depth of Excavation	1.5m
Significant Features	None
Non-Significant features	None
Soil make-up	*0m to 0.7m depth* – Made ground of hardcore gravel *0.7m to 1.1m depth* – Orange grey compact clay with occasional rounded stone, redeposited natural glacial till. *1.1m to 1.5m depth* – Mid grey silty fine sand with occasional angular stone, spent foundry casting sand.
Natural	Not reached
Finds	None

Test pit 4

Dimensions	3.5m by 0.5m
Depth of Excavation	1.5m
Significant Features	None
Non-Significant features	None
Soil make-up	*0m to 0.4m depth* – Made ground of hardcore gravel *0.4m to 0.7m* Mid brown silty fine sand with occasional angular stone, spent foundry casting sand. *0.7m to 1.2m depth* – Orange grey compact clay with occasional rounded stone, redeposited natural glacial till. *1.2m to 1.5m depth* – Pale grey silty fine sand with occasional angular stone, spent foundry casting sand.
Natural	Not reached
Finds	None

APPENDIX 2: PHOTOGRAPHIC REGISTER

Digital Photographs

Frame	Description	From
1	Test pit 1 post-excavation	E
2	Test pit 1 post-excavation	NE
3	Test pit 1 post-excavation	SW
4	Test pit 2 post-excavation	N
5	Test pit 2 post-excavation	NE
6	Test pit 3 post-excavation	E
7	Test pit 3 post-excavation	SE
8	Test pit 3 post-excavation	S
9	Test pit 4 post-excavation	NE
10	Test pit 4 post-excavation	NE
11	Test pit 4 post-excavation	E
12	Test pit 4 post-excavation	E
13	General view of site	NE
14	General view of site	SW
15	Test pit 4 after extension post-excavation	SW
16	Test pit 4 after extension post-excavation	S

APPENDIX 3: *'DISCOVERY AND EXCAVATION IN SCOTLAND'* REPORT

LOCAL AUTHORITY:	Falkirk Council
PROJECT TITLE/SITE NAME:	Bonnybridge to Greenhill Cable: Archaeological Test Pitting
PROJECT CODE:	23159
PARISH:	Falkirk
NAME OF CONTRIBUTOR:	Jamie Humble
NAME OF ORGANISATION:	AOC Archaeology Group
TYPE(S) OF PROJECT:	Watching Brief
NMRS NO(S):	n/a
SITE/MONUMENT TYPE(S):	None
SIGNIFICANT FINDS:	None
NGR (2 letters, 6 figures)	NS 8293 7972
START DATE (this season)	26th January 2016
END DATE (this season)	26th January 2016
PREVIOUS WORK (inc DES)	None
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	*AOC Archaeology Group undertook an archaeological watching brief on behalf of RSK Environment Ltd ahead of the laying of a electric cable across the line of the Antonine Wall at Bonnybridge, Falkirk.* *Three test pits were excavated along the line of the cable route where it crosses the route of the Antonine Wall. The test pits were excavated to the depth required for the cable installation. All four trenches revealed a similar sequence of modern deposits comprising dumps of spent foundry casting sands, redeposited natural clays and made ground deposits. The excavation of the test pits suggest that the topography of the area has been altered significantly in the recent past and that the proposed cable installation will have no effect on Roman archaeological deposits.* *No significant archaeological features or deposits were identified in any of the test pits and natural subsoil was not reached in any test pit.*
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRATIONS:	N/A
SPONSOR OR FUNDING BODY:	RSK Environment Ltd
ADDRESS OF MAIN CONTRIBUTOR:	AOC Archaeology Group, Edgefield Road Industrial Estate, Loanhead, Midlothian, EH20 9SY
EMAIL ADDRESS:	admin@aocarchaeology.com
ARCHIVE LOCATION	Archive to be deposited in NMRS

APPENDIX 4: *Minutes of Iberdrola meeting of 19/01/2016*

IBERDROLA
Engineering & Construction

Minutes/Actions

Bonnybridge Network Rail Transit Supply Connection

Date: 19/01/2016
Location: Seabegs Road, Construction Compound, Bonnybridge
Attendees: (JT) Jon Treacher – IEC Environmental Advisor
(AK) Alan Kennedy – IEC Site Manager
(RE) Roy Easton – IEC Site Manager
(SMcC) Steven McChristie – SPEN Wayleaves

Geoff Bailley – Falkirk Community Trust Archaeologist
Distribution List: Attendee, Sathya Giridhara Gopalan; Willie Doherty (both IEC)

Minutes

1. Meeting

Item	Description	Individual	Action
1.1	Introductions	All	-
1.2	Short background to the project.	JT	-
1.3	Explanation of the new route proposal and its interaction with the Antonine Wall	JT	-
1.4	Construction details of new route proposal. 900mm x 1300mm trench head north-south through Chattan Industrial Estate and the premises of Central Demolition. Cable route proposed within the footprint of the existing yard and road structures.	AK	-
1.5	Confirmation of the requirement of Trial pits across the area of the Antonine Wall. The number of trial should be representative of the area of the Antonine Wall	GB	-
1.6	Trial pits should be dug to the depth of the proposed excavation (1300mm) OR until an archaeological feature is discovered; whichever comes first. Suggested dimensions of trial pits 1000mm x 2000mm.	GB	-
1.7	Discussions regarding the location of the trial pits. Should they be within the access road or within the soft ground along the fence line of the road. IEC preference would be to locate the TP within the verge side along the fence line.	AK / RE / GB	-
1.8	Location of the Trial pits can be agreed during site walkover	GB	-
1.9	Not necessary for trial pits to be dug by hand. Use of a small excavator permitted.	GB	-
1.10	Trial pits would have to be dug in the presence of a qualified archaeologist whose role it would be to record archaeological features. Archaeologist to be given authorisation to stop the dig and investigate archaeological features should they be	GB	**JT**

	discovered. GB to be notified of when the trial pits are to be excavated and given the option of attendance		
1.11	Not necessary for a Written Scheme of Investigation (WSI) to be produced prior to the trial pits being dug.	GB	
1.12	An investigation report is to be produced. This should be concise and detail a brief project description; a brief explanation of the proposed route change; methods of site investigation; results including photographs; conclusions; and recommendations. This is to be forwarded and will prompt further discussion.	GB	**JT**
1.13	The Investigation Report will be shared with Historic Environment Scotland.	GB	**GB**

2. Site Visit

Item	Description	Individual	Action
2.0	Site visit to Central Demolition, Broomhill Road, Bonnybridge (JT, AK, SMcC & GB only	-	
2.1	Walkover of proposed cable route on access road to Central Demolition.	ALL	
2.2	x4 Trial Pit locations were marked along the verge side of the access road with green marker. Locations were chosen in consultation with drawing / plans provided to GB by IEC. All parties agreed upon their location.	ALL	

3. Summary of actions

- **Archaeologist resource to be booked to oversee excavation of trial pits (JT)**
- **GB to be invited to excavation of trial pits. His attendance is optional. (JT)**
- **Investigation Report to be provided to GB for comment. (JT)**
- **Historic Environment Scotland to be informed of Investigation. (GB)**









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