

British Waterways Scotland

Minor Archaeological Works 2010

**Union Canal, Redding:
Mooring Footings Watching Brief
October 2010**

Project Code: BW-UCR-2010-01



**19th-20th October 2010
Kirkdale Archaeology**

<u>Site</u>	Union Canal Towpath, Redding
<u>N.G.R</u>	NS 864 794 – NS 966 758
<u>Project Description</u>	Watching Brief during the excavation of two trenches to provide footings for a new mooring.

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1.0 INTRODUCTION

As part of the insertion of a new mooring on the Union Canal at Redding (see Figure 1), Kirkdale Archaeology was asked by British Waterways to undertake an archaeological watching brief during the excavation of the footings for the mooring.

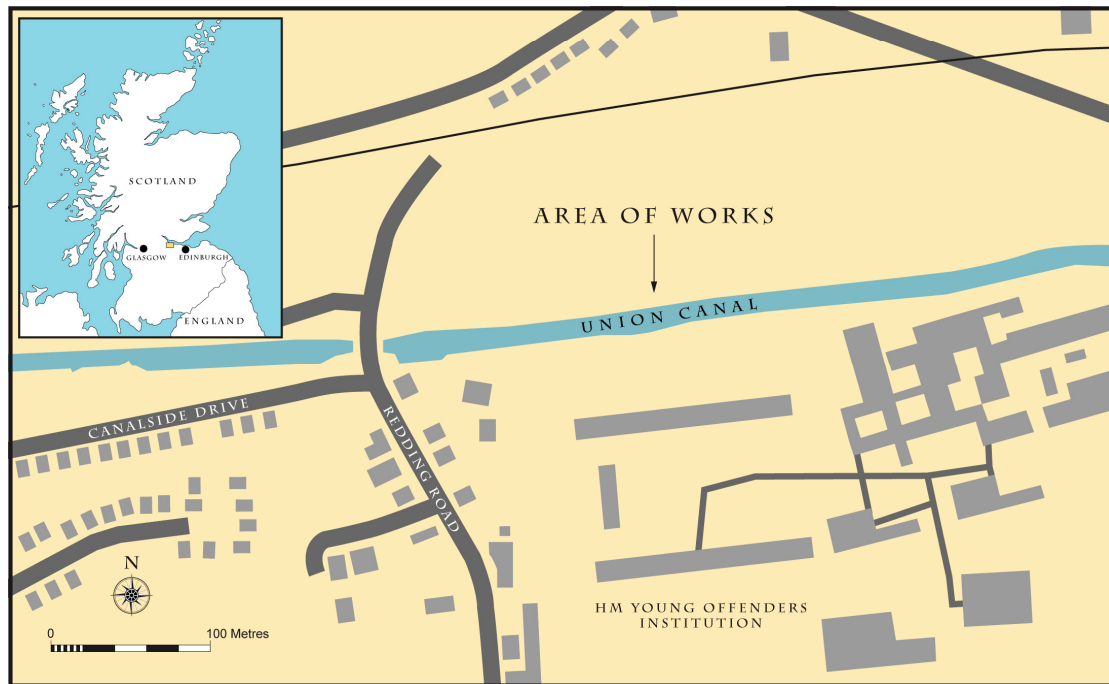


Figure 1: Location map of the works.

A pre-excitation photographic survey was conducted to capture the site prior to any ground-breaking works. The site was located on the N bank of the canal (the towpath side) where a large stretch of metal sheet piling with a timber fender had been installed. It was not clear whether this had been a reaction to a historic collapse of the canal wall, and the canal wall itself was heavily obscured by vegetation in this particular stretch. A stretch of wall could be seen a short distance to the W, although it was submerged. The use of formal cope stones is often restricted to areas of heavy activity on canals such as basins, docks *etc*, with quieter working areas often having only walled sections which are landscaped over onto the towpath. The excavations

presented an opportunity to possibly examine this construction methodology in detail.

It transpired that the installation of the sheet piling had either necessitated the down-taking of the wall or that a deterioration or collapse in the wall fabric had required it to be replaced by the sheet piling. Either way, the absence of wall fabric precluded any recording of this element of the structure. The towpath (which the excavations would affect) was still an integral part of the monument, often containing the upcast of the original canal cutting, while even the modern sheet piling echoed the historical necessity of ongoing maintenance and repair of the canal's infrastructure.

The proposed mooring area and associated ramps are situated on the N bank of the Union Canal, between Blairlodge Bridge (No.55) and Redding Bridge (No.56). The bridges on the canal are numbered sequentially from E to W.

The Union Canal was designed & engineered by Hugh Baird (the resident engineer on the Forth and Clyde Canal) with the works being carried out between March 1818 and May 1822. The work proceeded from Port Hopetoun in the East to Port Downie in the West where the Union Canal joined the Forth and Clyde Canal at Lock 16 at Camelon. The bridges on the canal were largely constructed in 1820 while the fabric of this stretch of canal nearer the canal's W extreme probably dates to 1820-22. The canal was built chiefly to supply coal and lime quickly and at competitive prices to Edinburgh. Other commercial goods were transported by cargo vessels while day-trippers took advantage of the picturesque scenery on passenger boats.

It was known that a fibre optic cable buried by Easynet ran along the towpath of the canal. The first trench was excavated to locate and identify the cable to make sure that it would not be affected by the excavation of the footings.

The pre-emptive photographic survey was carried out on the 19th October 2010 and the footings were excavated on 20th October.

2.0 DESCRIPTION AND INTERPRETATION

Trench 1 (see Fig. 2 and 5) was a small investigative trench excavated to locate the Easynet fibre optic cable. This was found 450mm from the N edge of the towpath running E/W at a depth of 530mm. The trench itself was 250mm E/W x 600 mm N/S. To the N it was 400mm deep, to the S, 530mm deep. The section was composed of an upper layer of type 1 whin dust and finings (**101**) some 35mm thick forming the path which was bedded on a 205mm thick bed of mottled grey and brown mixed re-deposited silt and type 1 stone (**102**). Contexts (**101**) and (**102**) had been laid over the cable trench after the excavation and as such were layers of modern landscaping. Context (**102**) had been built up over a moderately compact layer of dark brown silt and clay containing moderate sub-rounded stone inclusions (**103**). This may have been part of the original up cast forming the 1820s towpath, however it is more likely to relate to re-deposition of material after the insertion of the sheet piling (see Trench 2, below). To the S it was truncated by the vertical cut (**104**) for the fibre optic cable. The cut was 290mm below the silt (**102**) and was only partially exposed, as the cable was located without the need for further expansion of the trench. The trench had been backfilled with re-deposited silt, stone and clay (**105**) after the insertion of the fibre optic cable (**106**). The towpath was then restored by the introduction of (**101**) and (**102**). After exposure of the cable, the trench was planned and backfilled.

Trench 2 (see Fig. 2, 3 and 5) was excavated to form the footing on the E side of the mooring. The trench's E end sat 2.80m W of the E end of the sheet piling. The trench itself measured 2.40m E/W x 1.20m N/S. The N portion of the trench was excavated to a depth of 1m, while to the S it was only 320mm deep – due to the shape of the concrete footing. To the N, the S side of the towpath was partially excavated showing its make-up. The Type 1 path (**201**) was 80mm thick and lay on a cloth terram (**202**).

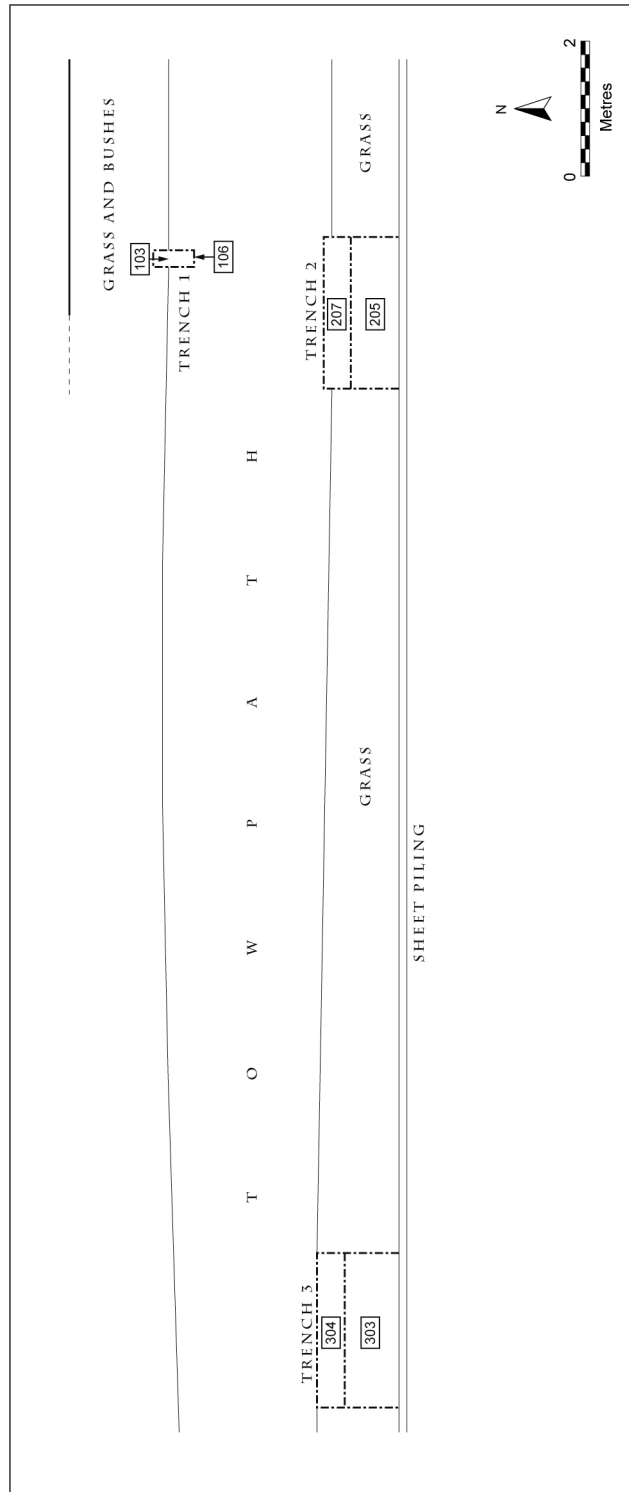


Figure 2: Plan showing the location of the trenches.

The terram covered a levelling layer of whin dust and gravel (**203**) which was at least 140mm thick over an undulating bed of Type 2 stone (**204**) some 100mm thick.

Context (204) covered an extremely compacted layer of mixed mottled re-deposited material (205) including stone, silt, clay, gravel and off-cuts of sheet pile. This showed that layers (201) to (205) post-dated the insertion of the sheet piles and revealed that when they were inserted, the towpath had to be cut back in order to facilitate their construction. A layer of yellowish brown highly compacted but quite clean silty clay (207) at the foot of the section is likely to represent the surviving original section of towpath up cast from the 1820's. As such, the layers above it sit within a cut (206) where the towpath was cut back in order to fit the sheet piling (208). As the S side of the trench was quite shallow, it was not possible to see any evidence of the original canal wall.

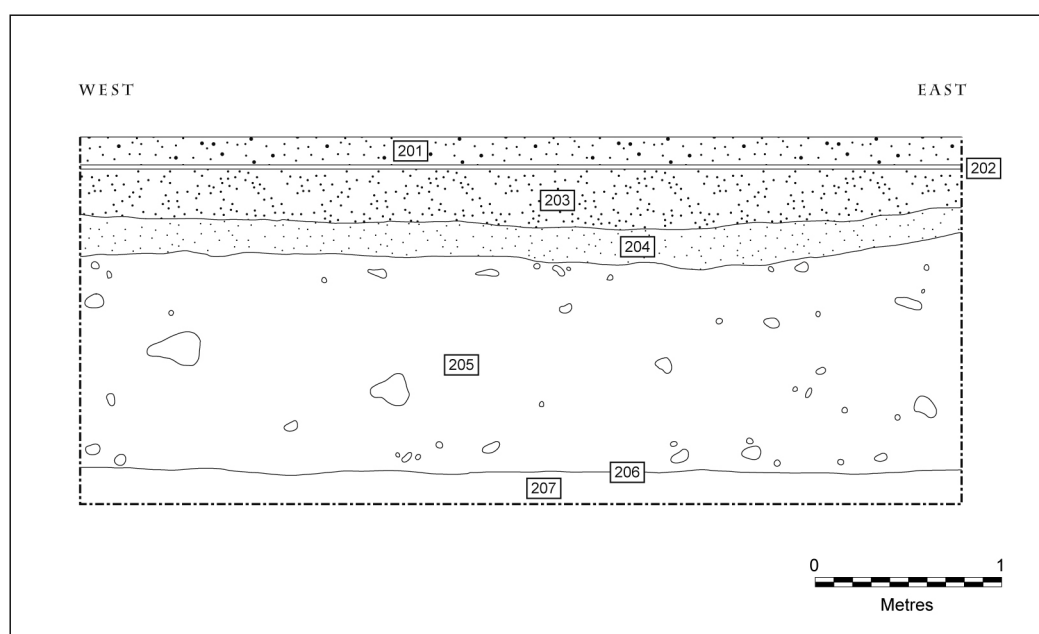


Figure 3: S-facing section in Trench 2.

Trench 3 (see Fig. 2, 4 and 5) was excavated to form the footing on the E side of the mooring. The trench's W end sat 27.30m E of the W end of the sheet piling. Centre to centre, Trenches 2 and 3 were 16m apart. The trench itself measured 2.40m E/W x 1.20m N/S. The N portion of the trench was excavated to a depth of 800mm, while to the S it was only 320mm deep – this was due again to the shape of the concrete footing. The Type 1 path (301) was 100mm thick and lay on a cloth terram (302). The

terram covered a 300mm thick layer of quite loose mixed re-deposited material (303) including silt, gravel, lead pipes, sweet wrappers and working debris throughout. This had been used as levelling material overlying a further re-deposited layer of mixed clay, silt and stones (304). Throughout (304) were lots of pieces of corroded metal and enough sheet-pile off-cuts to suggest that the layer was made up after the insertion of the sheet piles. None of the original towpath make-up was revealed in this trench – however the trench was 200mm shallower than Trench 2.

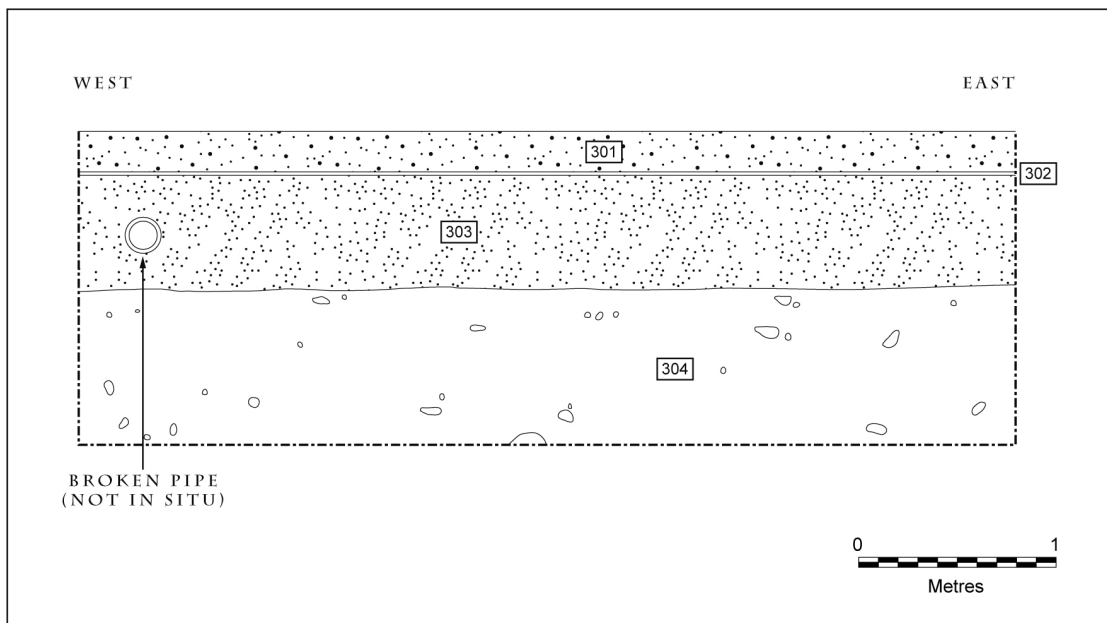


Figure 4: S-facing section in Trench 3.

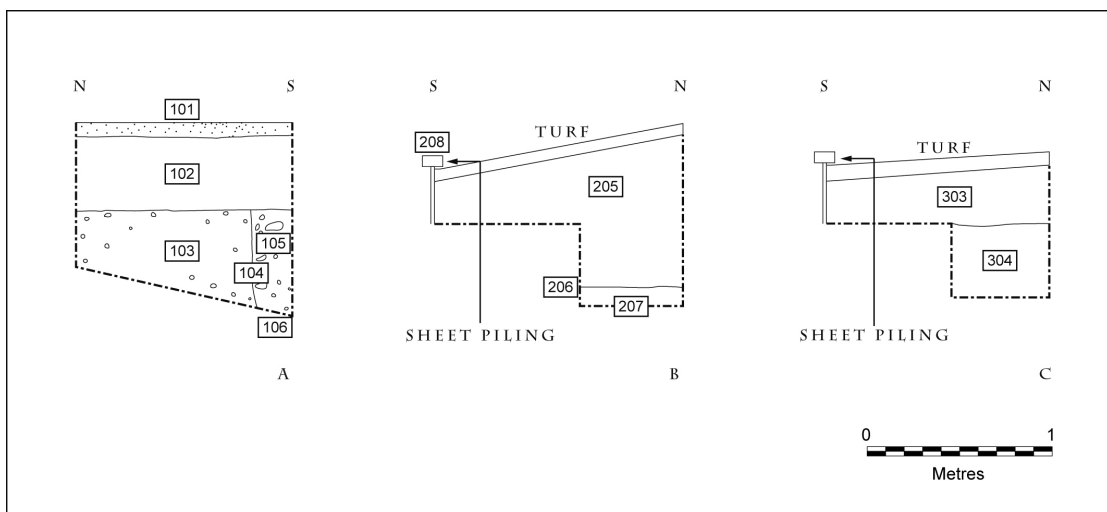


Figure 5: (A) W-facing section in Trench 1, (B) E-facing section in Trench 2, and (C) E-facing section in Trench 3.

3.0 CONCLUSIONS

The excavations have shown that a considerable amount of work went into the insertion of the sheet piling, requiring the grading of the towpath bank (to allow an appropriate level of access), the insertion of the piles and the re-instatement of the bank and towpath. As a result, much of the original fabric has been affected or removed. It is common on the Crinan Canal to see large sections of wall which have been protected by sheet piles, wooden poles and corrugated iron, although there is usually a crumbling or partially surviving section of original wall behind. It would appear, although this could not be confirmed, that at this section of the Union Canal it was deemed more prudent to remove what must have been a section of wall, perhaps in a state of poor repair.

The very nature of canals means that they will require periodic attention to ensure their structural and aesthetic integrity. However, these repairs are all part of the historical narrative of the canal - and as such should be documented archaeologically.

Thus, any further ground-breaking works should be similarly monitored, with at least an archaeological watching brief, so that an appropriate record can continue to be made of the canal's structure.

4.0 APPENDIX 1: LIST OF DIGITAL PHOTOGRAPHS

No.	Description	From	Date
01	Section of submerged canal wall	NW	19/10/2010
02	Towpath	W	19/10/2010
03	Towpath	E	19/10/2010
04	Towpath and reset cope stones	NW	19/10/2010
05	General shot of the canal	SE	19/10/2010
06	Metal sheet piling	SE	19/10/2010
07	Metal sheet piling	SE	19/10/2010
08	Metal sheet piling E end	S	19/10/2010
09	Metal sheet piling	SE	19/10/2010
10	Metal sheet piling W end	S	19/10/2010
11	Detail of metal sheet piling and reset cope stones	SE	19/10/2010
12	Representative section of overgrown canal bank	S	19/10/2010
13	Metal sheet piling and towpath	SW	19/10/2010
14	Detail of metal sheet piling and towpath	SW	19/10/2010
15	Metal sheet piling W end	S	19/10/2010
16	Ramps to towpath from Tesco's car park	N	19/10/2010
17	Revetment to N of towpath	N	19/10/2010
18	General Shot of overgrown area to N of towpath	NW	19/10/2010
19	Trench 1 (to locate fibre optic cable)	-	20/10/2010
20	Trench 1 (to locate fibre optic cable)	W	20/10/2010
21	Trench 2 work in progress	NE	20/10/2010
22	Trench 2 work in progress	W	20/10/2010
23	Trench 2 work in progress (sheet pile in fill)	W	20/10/2010
24	Trench 2 post-excavation shot	W	20/10/2010
25	Trench 2 post-excavation shot	E	20/10/2010
26	Trench 2 shot of S-facing section	SW	20/10/2010
27	Trench 2 shot of S-facing section	SE	20/10/2010
28	Trench 2 post-excavation shot	NE	20/10/2010
29	Trench 3 work in progress	W	20/10/2010
30	Trench 3 work in progress	W	20/10/2010
31	Trench 3 shot of E-facing section	E	20/10/2010
32	Trench 3 post-excavation shot	W	20/10/2010
33	Trench 3 shot of S-facing section	SW	20/10/2010
34	Trench 3 shot of S-facing section	SE	20/10/2010
35	Trench 3 post-excavation shot	NW	20/10/2010
36	Trench 3 post-excavation shot	NW	20/10/2010

5.0 APPENDIX 2: LIST OF CONTEXTS

No.	Description
101	Type 1 path.
102	Re-deposited silt and clay bed for 001.
103	Possible original towpath up cast.
104	Cut of cable trench.
105	Backfill of cable trench.
106	Fibre optic cable.
201	Type 1 path.
202	Cloth terram.
203	Whin dust and gravel levelling.
204	Type 2 stone layer.
205	Re-deposited material over 207.
206	Cut through 207.
207	Heavy yellowish-brown clay.
208	Sheet piling.
301	Type 1 path.
302	Cloth terram.
303	Loose re-deposited levelling material.
304	Re-deposited mixed silt, clay and stone.

6.0 APPENDIX 3: LIST OF DRAWINGS

No.	Description	Scale
001	W-facing section of Trench 1.	1:20
002	Plan of Trenches 1-3.	1:50
003	S-facing section of Trench 2.	1:20
004	S-facing section of Trench 3.	1:20
005	E-facing section of Trench 2.	1:20
006	E-facing section of Trench 3.	1:20