RoCAS

Ross & Cromarty Archaeological Services

Archaeological excavation on three Caulfeild Military Bridges in advance of conservation

Achlain, Invermoriston

Data Structure Report

National Grid Reference	**NH 284 120 (centred)**
Site Code	**ACH12**
RoCAS Report	**2013-08/ACH12**
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Author	**Mary Peteranna**
Client	**Forestry Commission Scotland**
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Ryefield Tore Ross-shire IV6 7SB Scotland
Email: rossandcromarch@gmail.com Website: www.rossandcromarch.co.uk
Mob: 07776 027306 Ph: 01463 811310

Contents

Cover photo: Bridge 009 facing SW, following conservation

List of Figures

List of Plates

Acknowledgements

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1 Summary

This report presents the results of a programme of recording and excavation in advance of conservation of three military bridges located by Achlain near Invermoriston during the second half of 2012. One small trench was excavated on Bridge 009 to identify a possible structural weakness of the bridge at the request of the conservation architect. On Bridge 008, the entire bridge arch and surrounding surface was excavated and a single small trench was excavated at the centre of the arch on Bridge 007, prior to conservation. The excavation allowed for recording of the bridges prior to any changes made by conservation work to the structures.

2 Introduction

Pre-conservation archaeological excavation and recording of three military bridges along a 1km-long stretch of military road near Achlain in Glen Moriston was undertaken over a period of four days in July, September and October 2012 on behalf of Forestry Commission Scotland. Prior to commissioning of the programme of conservation, archaeological measured surveys and laser scanning surveys of the bridges were undertaken by *AOC Archaeology* in 2011 in order to inform conservation methodology. The excavation and recording of the bridges by *Ross and Cromarty Archaeological Services* was undertaken in order to record the character of the bridge surfaces prior to any changes required during conservation work.

3 Location and background

3.1 Site location

The bridges are located approximately ½ km to the southeast of Achlain in Glen Moriston, on the hillsides to the south of River Moriston (Figure **1**). They are situated within Forestry Commission plantation along a forestry track, which once formed a section of 18th military road.

Bridge **009** crosses the Allt aôChaise Burn at NH 28160 12150. Bridge **008** crosses a burn at NH 28480 12060. Bridge **007** crosses the Allt Thomais Burn at NH 28570 12030.

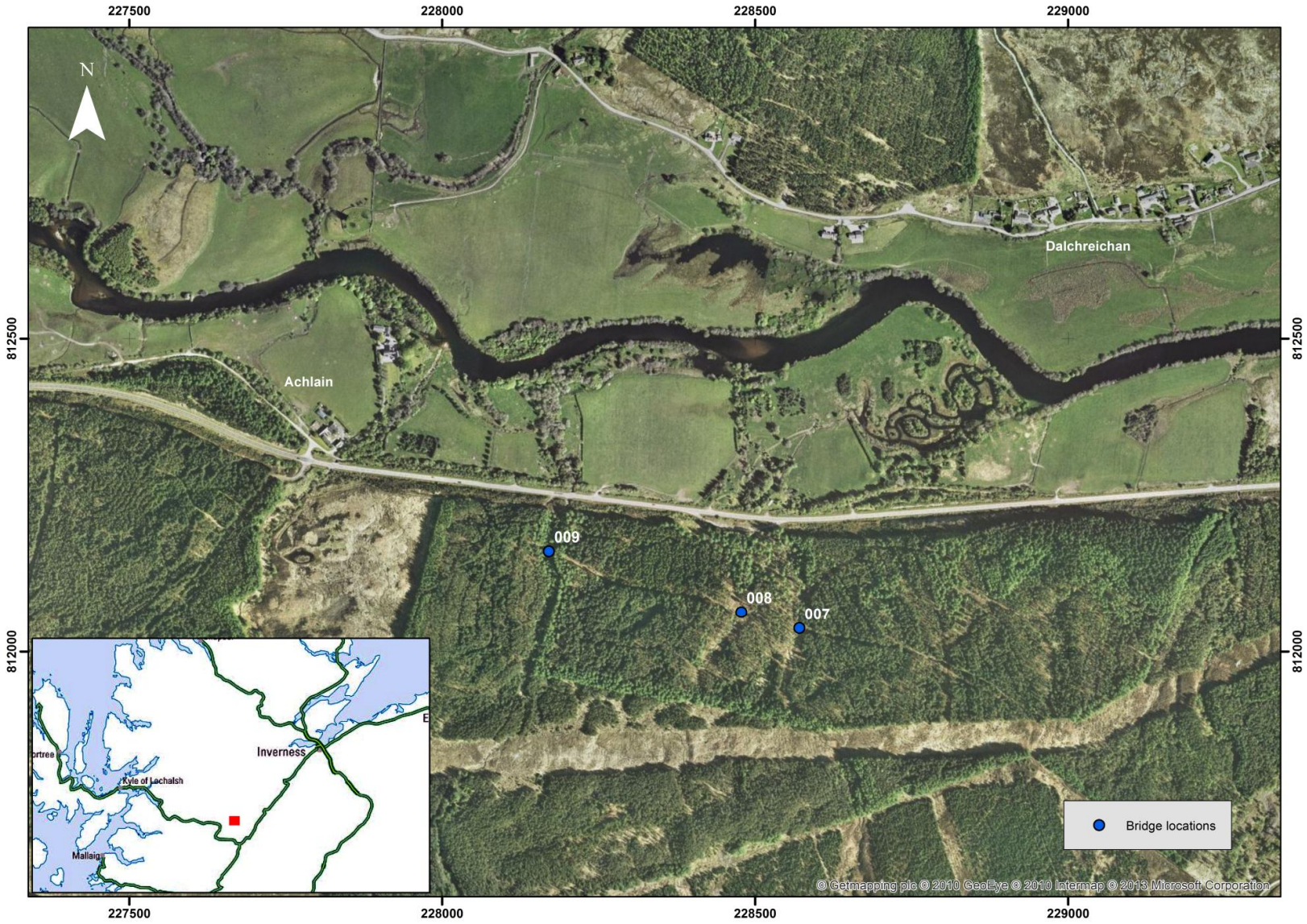

Figure 1 Location of Bridge 007, Bridge 008 and Bridge 009[1]

[1] Imagery supplied under ESRI licensing, courtesy of Microsoft Bing mapping

3.2 Archaeological and historical background

3.2.1 18th century military roads

A campaign for the construction of roads to access the Highlands and West Coast of Scotland began in the early 1720s under the direction of General Wade. In 1769, Thomas Pennant wrote of the work: ñThese roads, by rendering the highlands accessible contributed much to their present improvement and were owing to the industry of our soldiery; they were begun in 1723, under the directions of Gen. Wade, who, like another Hannibal, forced his way through rocks supposed to be unconquerable.ò The construction and improvement of roads by the military continued for fifty years beyond Wade, who was succeeded by Major William Caulfeild[2].

The Treasury reported that 858 miles of road had been completed by the late 1760s, with another 139 miles under construction. The military road campaign ceased not long after 1790 due to the cost of construction on top of repair and upkeep[3]. According to 18th century documentation, the military roads typically measured 16ft across, and were constructed using successive layers of stone of diminishing size, although there was much variation. Rivers and streams were crossed initially by fords and later bridges when floods washed out the fords. The soldiers were unskilled, using basic tools, and sometimes gunpowder in hard rock, and locally available construction material[4].

3.2.2 Fort Augustus-Bernera military road

The three military bridges survive within a 1km section of military road along the Fort Augustus-Bernera military road, Scheduled Monument 11483. The Historic Scotland monument is described ñas a grass- and moss-covered track that is approximately 340m long and an average width of 5.3m. There are two well-preserved single-arch masonry bridges which measure 3.5m by 11m and 3m by 6m respectively[5].ò

The road, linking the garrison at Fort Augustus to the barracks in Bernera, Glenelg, was built by Major Caulfeild from 1748-53 for travel by Hanoverian troops, carts and artillery- the army attempting to subjugate the Scottish Highlands[6]. The road is shown on Royôs *Military Survey of Scotland*, 1747-55 (Figure **2**). Further historical background on this section of military road is detailed in the 2011 conservation report, *Achlain Bridges, Fort Augustus: Conservation Plan*.[7]

Although only two bridges are referred to in the Historic Scotland documentation, three bridges survive on the route. They are well-built single-span, humped-back bridges using ôboulder and chipô rubble masonry that was typical of Caulfeild military construction. Although partial evidence still survives, the bridges probably had parapets and lime mortar which have been lost over time[8]. A survey by Colin Shepherd to assess the military road network with the National Forest Estate[9] located three road features near the sites of the three bridges (Figure **3**).

[2] Haldene 1973: 4-8
[3] *Ibid*
[4] *Ibid*
[5] Historic Scotland 2013
[6] *Ibid*
[7] AOC Archaeology 2011
[8] Robin Kent Architecture & Conservation 2013
[9] Shepherd 2009

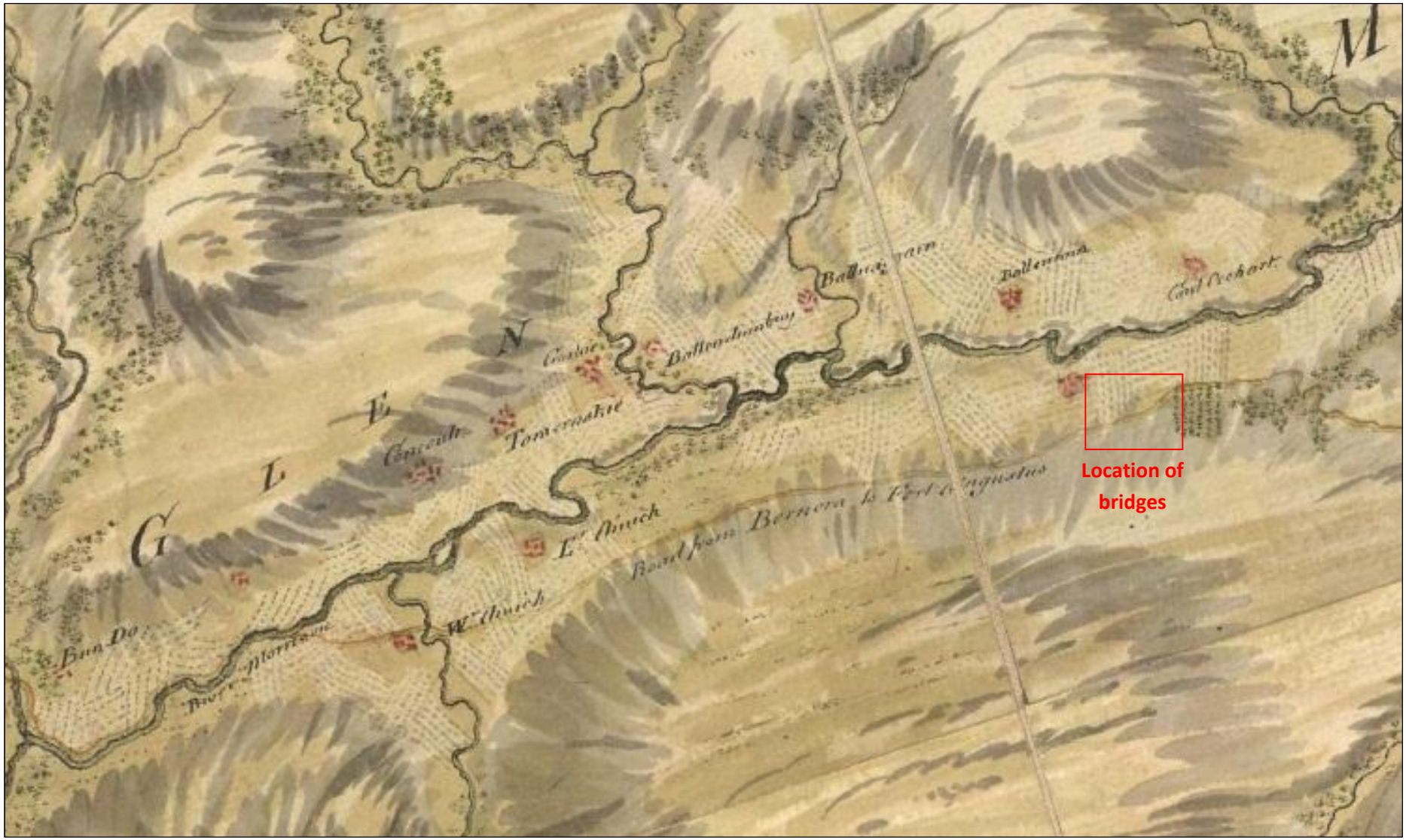

Figure 2 **Excerpt from William Roy's *Military Survey of Scotland* showing the Fort Augustus-Bernera military road in Glen Moriston**[10]

[10] NLS 2013

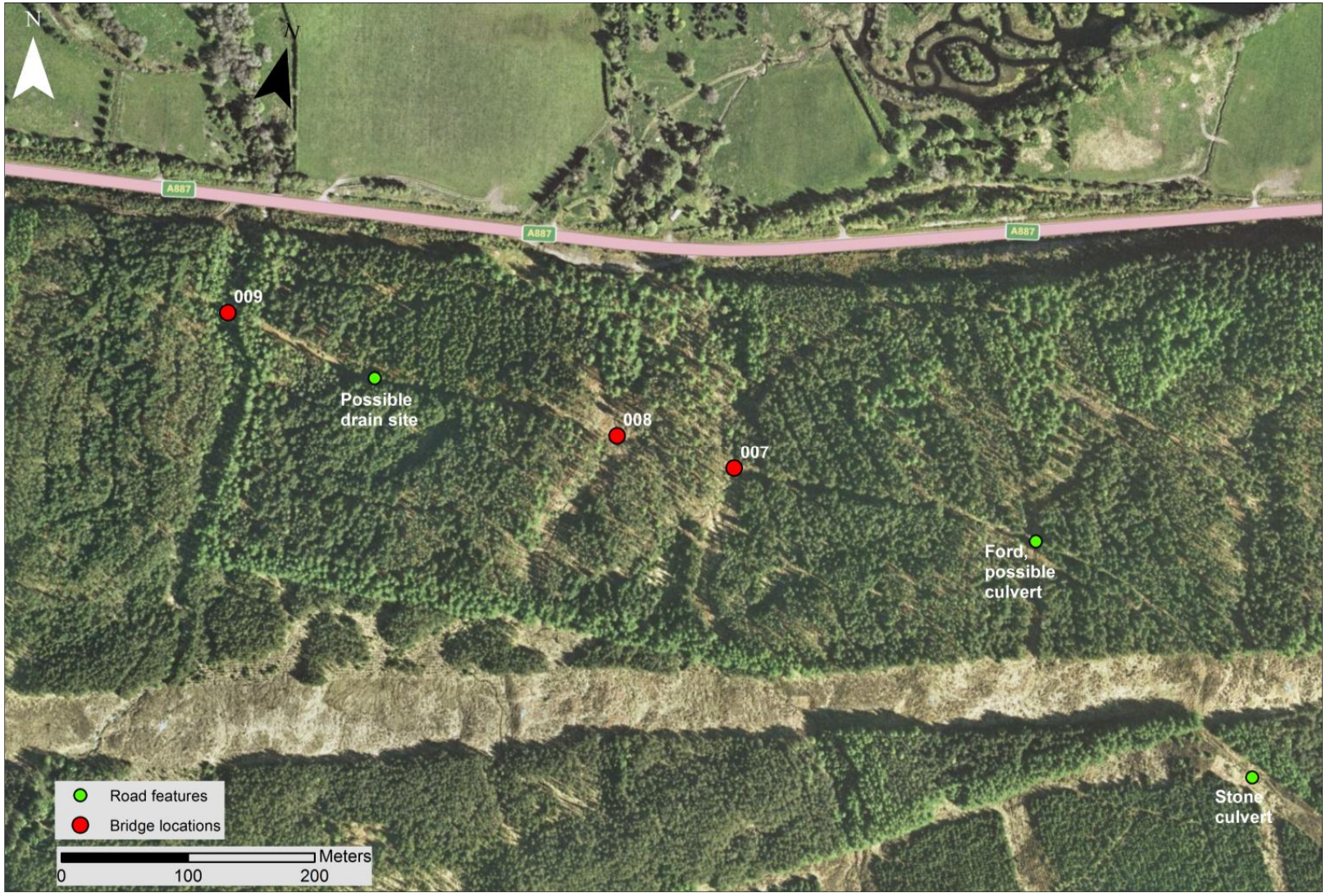

Figure 3 **Location of the bridges and nearby military road features identified by Shepherd**[11]

[11] Imagery supplied under ESRI licensing, courtesy of Microsoft Bing mapping

3.2.3 Highland HER Records

3.2.3.1 **Bridge 009**

MHG34946 Allt aô Chaise Burn Bridge NH 28160 12150
This military bridge spans 4.8m and is 4.2m wide.

3.2.3.2 **Bridge 008**

MHG34945 Creagan Mhartainn Bridge NH 28480 12060
This bridge over a burn heading up towards Creagan Mhartainn is of military construction. It is 4.1m wide with a span of 1.8m.

3.2.3.3 **Bridge 007**

MHG34943 Allt Thomais Burn Bridge NH 28570 12030
This bridge over the Allt Thomais Burn is of military construction, measures 4.5m wide and spans 2.5m.

4 Objectives

4.1 The overall aims of the archaeology programme were to record any archaeological deposits and bridge features associated with the military bridges that would be uncovered during conservation work, whilst minimising delays and disruptions to the programme of conservation. The work would also comply with Scheduled Monument Consent for the protection of this monument, of national importance because of its potential to significantly add to the understanding of the Jacobite-Hanoverian era in Scotland.

4.2 The specific objectives were:

- To establish the presence or absence of archaeological deposits in any areas that would be uncovered during conservation, prior to commencement of the programme of work
- To remove by hand any overburden in areas to be uncovered during conservation in order to expose the archaeological deposits
- To record all archaeological deposits and recover any artefacts prior to their damage or loss during conservation
- To record plans of bridge surfaces that would be exposed during conservation, prior to the commencement of works

5 Methodology

5.1 Site visit

Prior to the commencement of works, a site visit was conducted on the 9th of July 2012 to discuss the programme of works with the conservation architects and stonemasons.

5.2 Pre-conservation photographic survey

A detailed photographic survey was undertaken of each bridge prior to the commencement of conservation work and excavation. Photographs of the bridges from all angles were taken from recorded camera positions, based on the 1:100 sketch plans provided by the

conservation architects. The survey recorded the condition of the bridges immediately prior to the commencement of conservation. A detailed condition and measured survey and recording had been conducted in 2011 by AOC Archaeology[12], providing a full description and record of the sites prior to the 2012 fieldwork.

5.3 Excavation

5.3.1 One trench, measuring 2m by 1m was excavated on Bridge **009,** to investigate an area of a possible structural weakness on the surface of the bridge on behalf of the conservation architect. The architect designated a specific area for the archaeologist to excavate, reducing the initial size of the trench down to 1m by 1m, which was considered an adequate area to provide information required for the architect. Excavation of the trench was imperative prior to undertaking the programme of conservation to the bridge. The trench was backfilled immediately following excavation and recording.

5.3.2 The entire surface of Bridge **008** was excavated by hand to an extent, measuring 4.3m WNW-ESE by 4.2m, designated by the conservation stonemason, in order to uncover the area to be exposed and repaired by the stonemasons. The turf was left aside for reinstating following conservation. Weather conditions during the final day of excavation were very wet with frequent rain showers, and this affected the final clean-back of the surface.

5.3.3 One trench, measuring 1.65m NNW-SSE by 1.0m, on Bridge **007** was excavated to an extent designated by the conservation stonemason, in order to uncover the area to be exposed and repaired by the stonemasons. The rest of the bridge would be repaired from the underside of the soffit, which would minimise surface disturbance to the structure.

5.3.4 The trench locations were sited by the conservation team, placed at the site of where any invasive work might be required during conservation. All trench plans were drawn at a scale of 1:20 and section drawings were made at a scale of 1:10.

6 Results

6.1 Bridge 009

6.1.1 Pre-restoration survey

The largest bridge, Bridge 009, has a large, single arch measuring 4.7m wide between abutments (Plate **1**). It crosses the southwest to northeast-running Allt aôChaise Burn at the base of a triple-stepped waterfall within conifer plantation.

The grass- and moss-covered bridge surface measures approximately 10m long WNW-ESE by 4.1m wide and stands approximately 2.4m above the burn course. The stonework visible in the NE and SW faces comprises mostly sandstone slab voussiers (up to 0.7m in length) with smaller pinning stones forming the arch, and sandstone slabs with a small proportion of large stone cobbles forming the spandrels and abutments. Slipped voussiers were visible on the underside of the soffit and appeared to be partially displaced.

[12] AOC Archaeology 2011

Plate 1 North arch of bridge, pre-conservation, showing eastern abutment, facing SW (CP7)

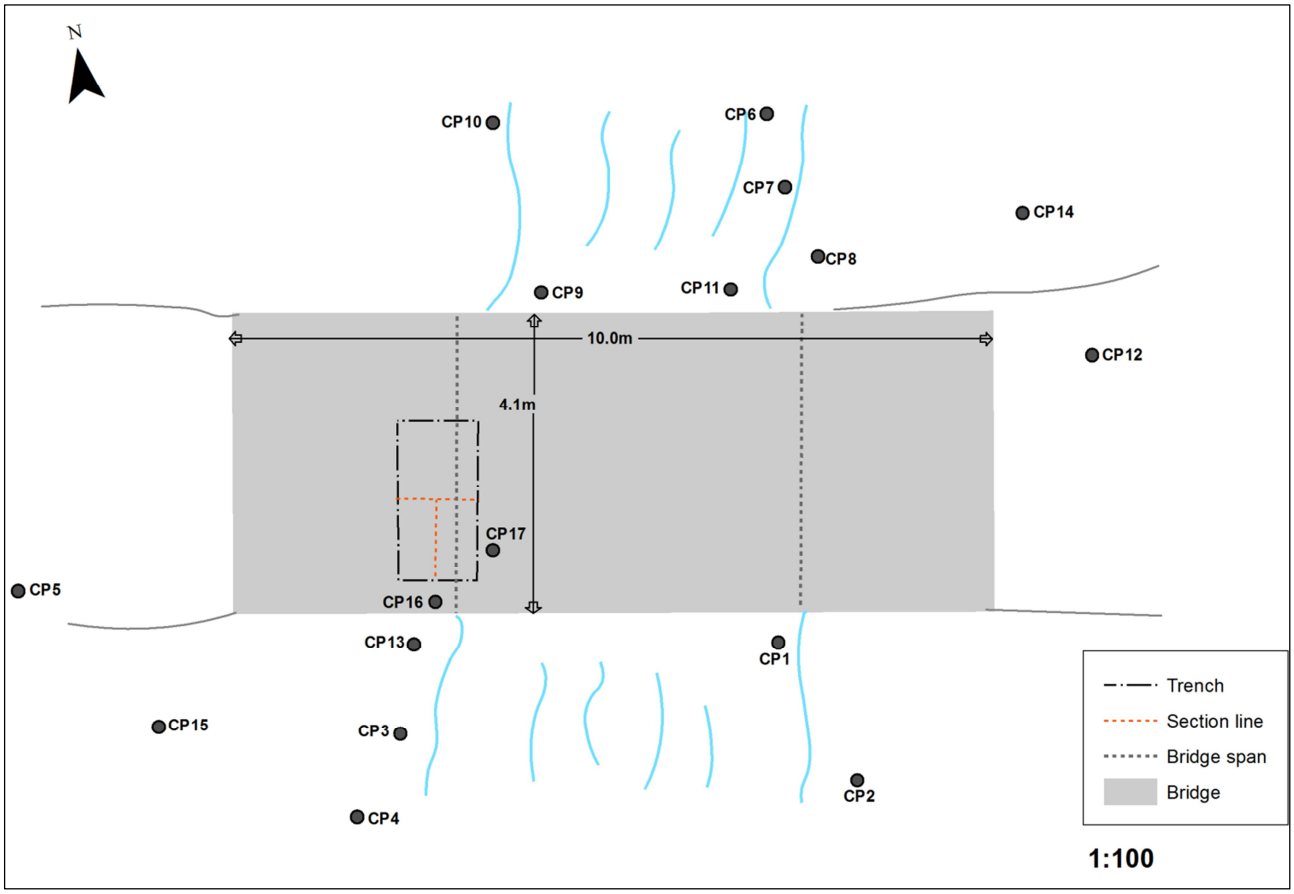

Figure 4 Sketch plan of Bridge 009 showing trench location and camera positions marked by "CP"

6.1.2 Excavation

A small trench was excavated on the southwest edge of the bridge (Figure **4**) to target what appeared to be a crack in the bridge surface, as identified by the conservation architect. Although initially an area 2.0m long was de-turfed, the trench was shortened to 1m by 1m per request of the architect. At its base, the trench revealed the decaying remains of a timber beam (Figure **5**, Plate **2**) marking the edge of the bridge, inside of which gravel fill would have been packed over the structure to form its surface. The crack visible in the surface of the bridge appeared to be where material had eroded away from the fill of the timber beam cut. Two possible iron rivets were found over the beam within the ditch fill.

The deposits overlying the bridge surface showed that there were at least two separate periods of surfacing of the bridge, possibly the latest (Context **9.02**) during a later period after it ceased to be used as a military road. The most substantial deposit, Context **9.03** is probably contemporary with the bridge and road construction, as it surrounded the timber beam (section **S2**, Figure **6**). At the same time, at the base of this deposit, a different type of sandy fill (Context **9.04**) was visible running out of the opposing trench section (**A-B**). Further different gravel and soil fills were also identified at the base of the sections (Figures **6** and **7**, Plate **3**). The possible cut, Context **9.08**, visible between two of the fills (Contexts **9.06** and **9.05)** represents the visible change between the materials laid down to ESE of the timber beam. The fills were probably used at the same time but came from different locations. As the architect suggested, one would expect the builders to have used a standard gravel fill on the road and bridge surfaces; however it appears they did not have a good source of gravel on-site and used what was readily available, in this case soils with partial gravel and sand content[13].

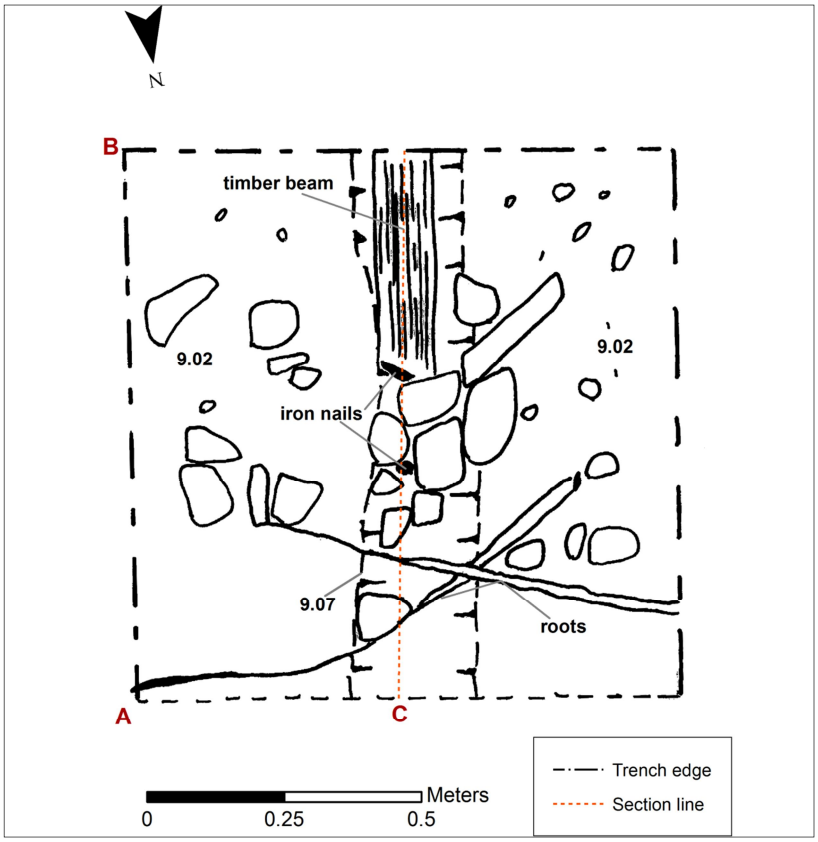

Figure 5 **Plan 1 : Bridge 009 trench, showing ditch with timber beam**

[13] pers comm Krystyna Pytasz

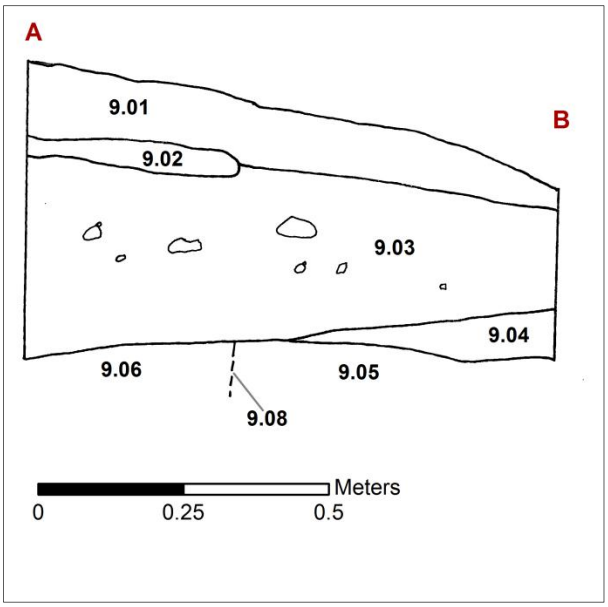

Figure 6 WNW-facing section, S1, Bridge 009

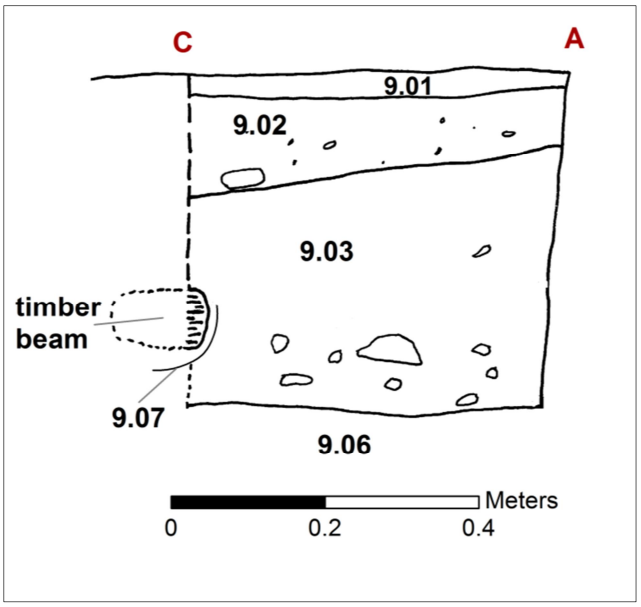

Figure 7 SSW-facing section, S2, Bridge 009

Plate 2 Mid-excavation image of Bridge 009 trench showing timber beam, facing N (CP 16)

Plate 3 **SW-facing section of Bridge 009 trench, facing NE (CP 16)**

6.2 Bridge 008

6.2.1 Pre-restoration survey

Bridge 008 comprises a single arch measuring 2.0m wide between low abutments. It crosses a small southwest to north-running burn located in a clearing within conifer plantation. The grass- and moss-covered surface of the bridge measures approximately 4.6m WNW-ESE by 3.9m (Figure **8**) and stands approximately 1.0m above the burn course. The stonework visible in the NE and SW faces comprises mostly sandstone slabs voussiers (up to 0.7m in length) with smaller pinning stones forming the arch, and sandstone slabs forming the spandrel and abutment. Slipped voussiers are visible on the underside of the soffit and the remaining slabs of the parapet appear to be partially displaced (Plate **4**).

Plate 4 NNE arch of bridge and western abutment, pre-excavation/conservation, facing SSW (CP6)

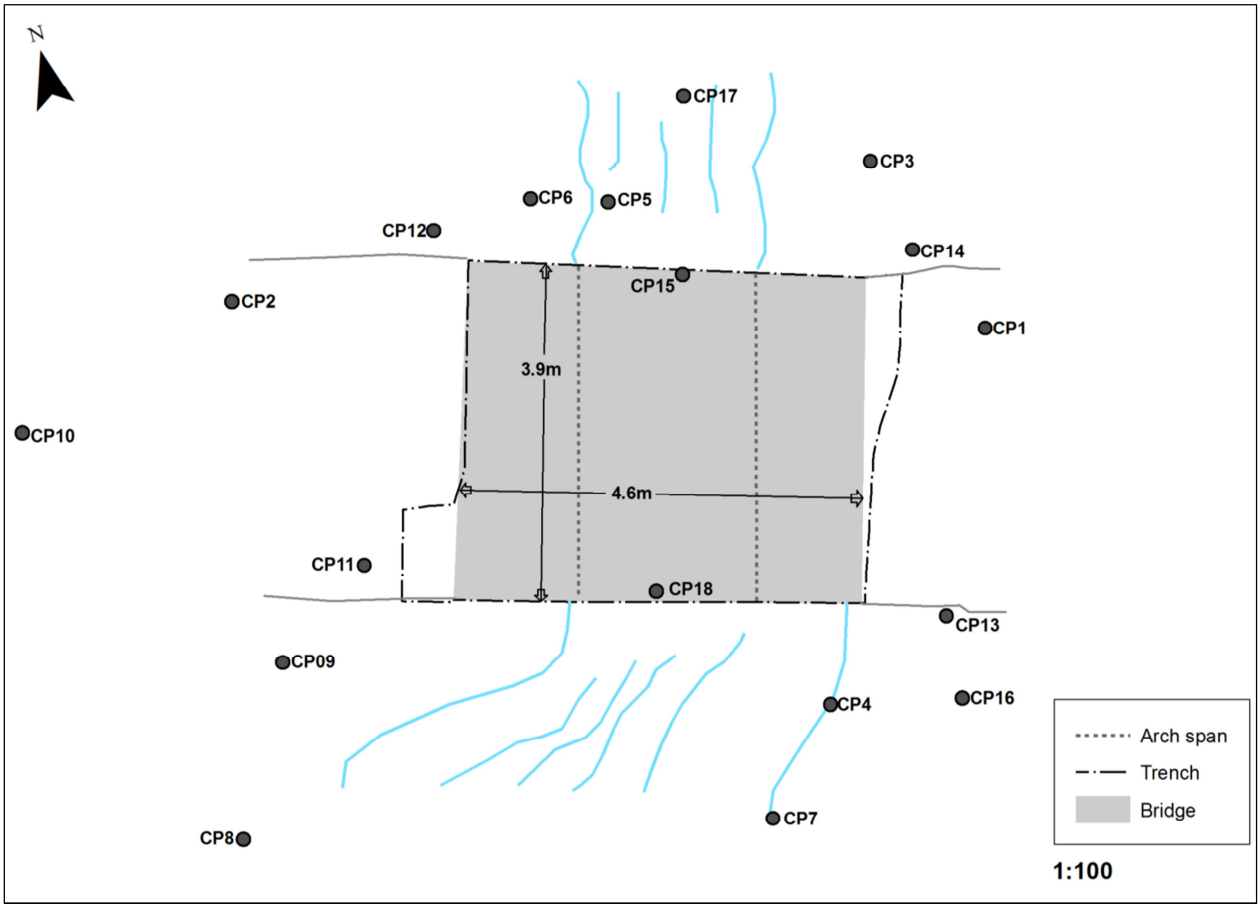

Figure 8 Sketch plan of Bridge 008 showing trench location and camera positions marked by "CP"

6.2.2 Excavation

A trench measuring 4.3m WNW-ESE by 4.2m was excavated over the bridge and surrounding surface of the structure prior to conservation. It revealed that the core of the arch comprised upright voussiers pinned and locked together with small slabs and packed with a gravelly and sandy soil at the surface (Plate **5)**. The voussiers and smaller pinning slabs were also clearly visible in the structure, with gaps evident where slabs have fallen out (Figure **9**).

There was occasional evidence of mortaring visible along the remains of the parapet and in the bridge faces. A small portion of the parapet was visible at the northwest end of the northeast bridge face and along the top of the southwest bridge face where it abutted a bedrock outcrop to the WSW end. It is best preserved in the ESE end (Plates **6-7**, Figure **9**).

The surrounding surface of the bridge was formed with gravelly soil over stone slabs and cobbles of varying sizes (Context 8.03). A slight alignment of horizontal slabs over the bridge surface in the ENE quadrant appeared to be a later ‘repair’ to the structure.

Figure 9 **Plan 2: Bridge 008 and surrounding road surface, prior to conservation**

Plate 5 **Pre-conservation image of bridge surface and voussiers, facing SSW (CP15)**

Plate 6 **Pre-conservation image of SSW arch / parapet and voussiers, facing NNW (CP16)**

Plate 7 **Pre-conservation image of bridge surface and SSW arch and parapet, facing ESE (CP11)**

6.3 Bridge 007

6.3.1 Pre-restoration survey

Bridge 007 is the smallest of the three bridges, with a single arch measuring 2.5m wide and 0.7m high between abutments. It crosses the SSE to NNW-running Allt Thomais Burn, located in a partial clearing within conifer plantation. The grass- and moss-covered surface of the bridge measures approximately 5.2m ENE-WSW by 4.7m (Figure **10**) and stands 1.2m above the burn course. The stonework visible in the NNW and SSE faces of the arch comprises mostly sandstone slabs voussiers (up to 0.9m in length) with smaller pinning stones. A small proportion of large stone cobbles were used in forming part of the spandrel and abutment. A section of abutment (Plate **8**) to the southwest side of the SSE face had been built out 1.2m from the face.

To the northeast corner of the bridge arch, a gap in the vegetation marked a hole in the bridge arch where stonework had previously fallen away. This particular issue appeared to be recent as it had not been noted in the 2011 survey of the bridges. Further slipped voussiers were visible on the underside of the soffit.

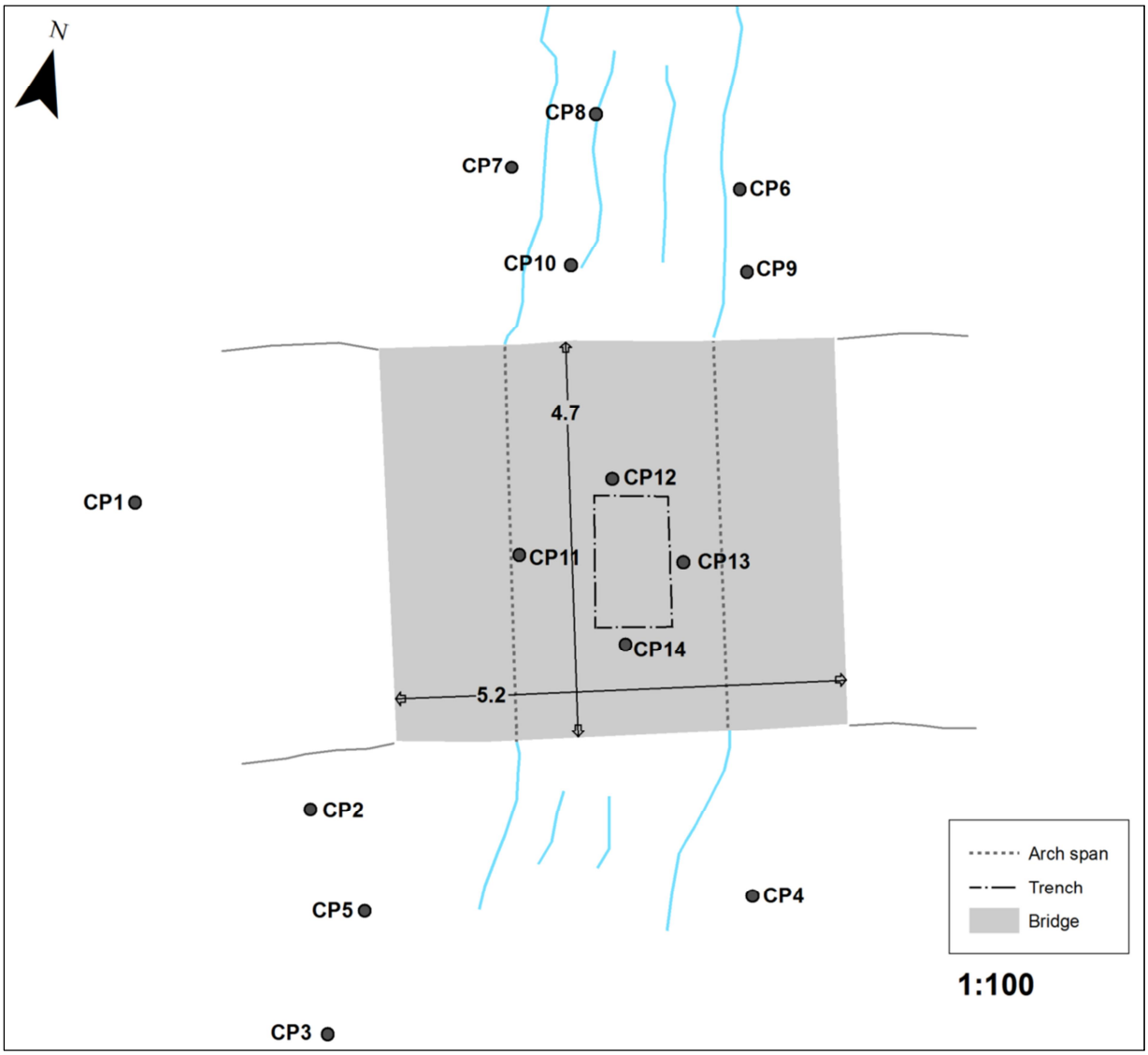

Figure 10 **Sketch plan of Bridge 007 showing trench location and camera positions marked by "CP"**

Plate 8 **Detail of southwest corner of Bridge 007, facing WNW (CP4)**

6.3.2 Excavation

A single trench measuring 1.65m NNW-SSE by 1.m was excavated near the centre of Bridge 007 prior to conservation (Figure **11**). As on Bridge 008, the trench revealed the core of the arch comprised upright voussiers pinned and locked together with small slabs and packed with a gravelly and sandy layer at the top (Plate **9**). A sequence of four lenses of material were visible in the trench section (Figure **12**, Plate **10**), representing at least two phases of road surfacing with two intermediate naturally formed ground surfaces (Context 7.05 and Context 7.03). The primary fill of the bridge surface (Context 7.06) corresponds with what was uncovered at Bridge 008, although the depth of deposits in the two trench sections were not sufficiently preserved to allow for recording of the material.

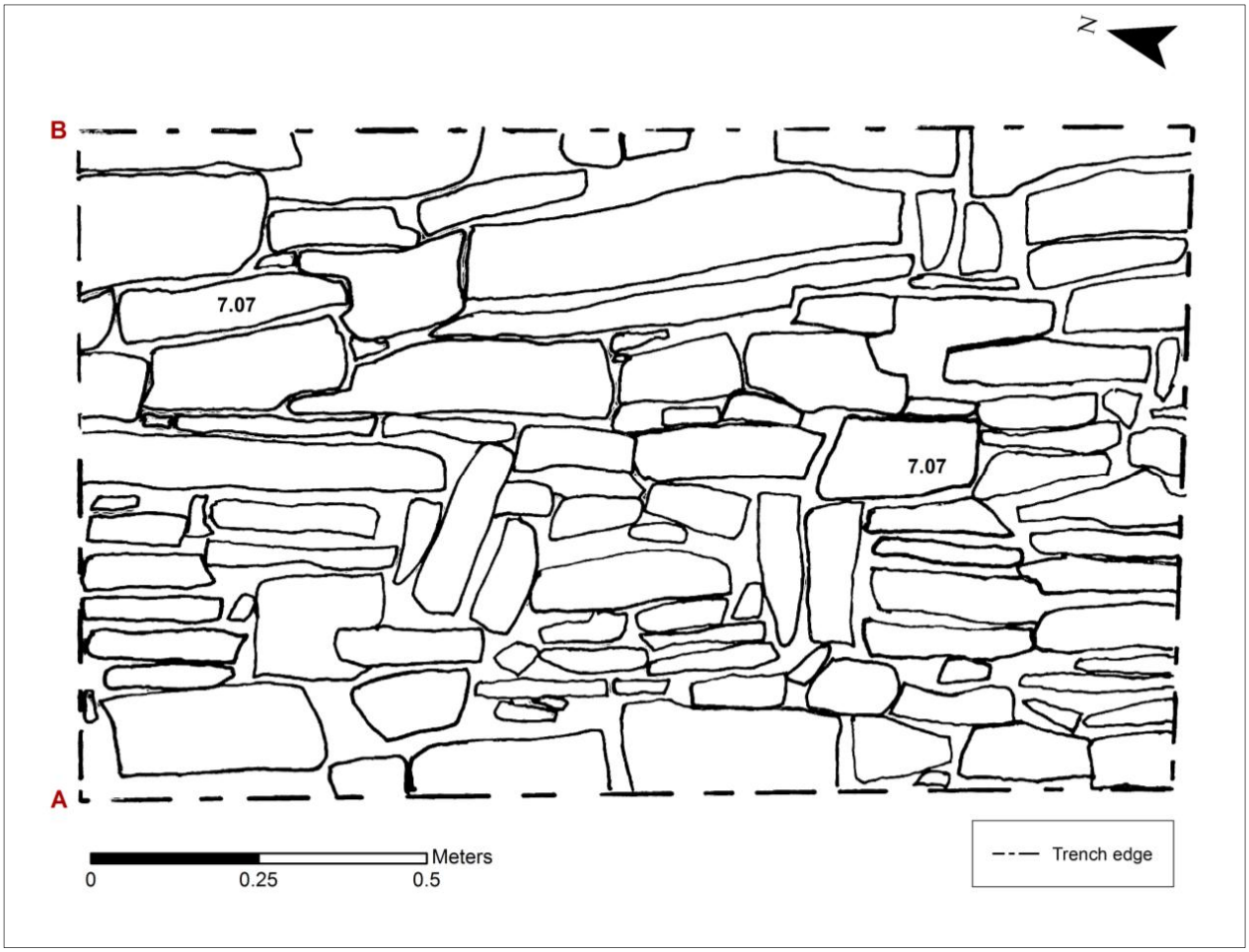

Figure 11 **Plan 3: Bridge 007 trench**

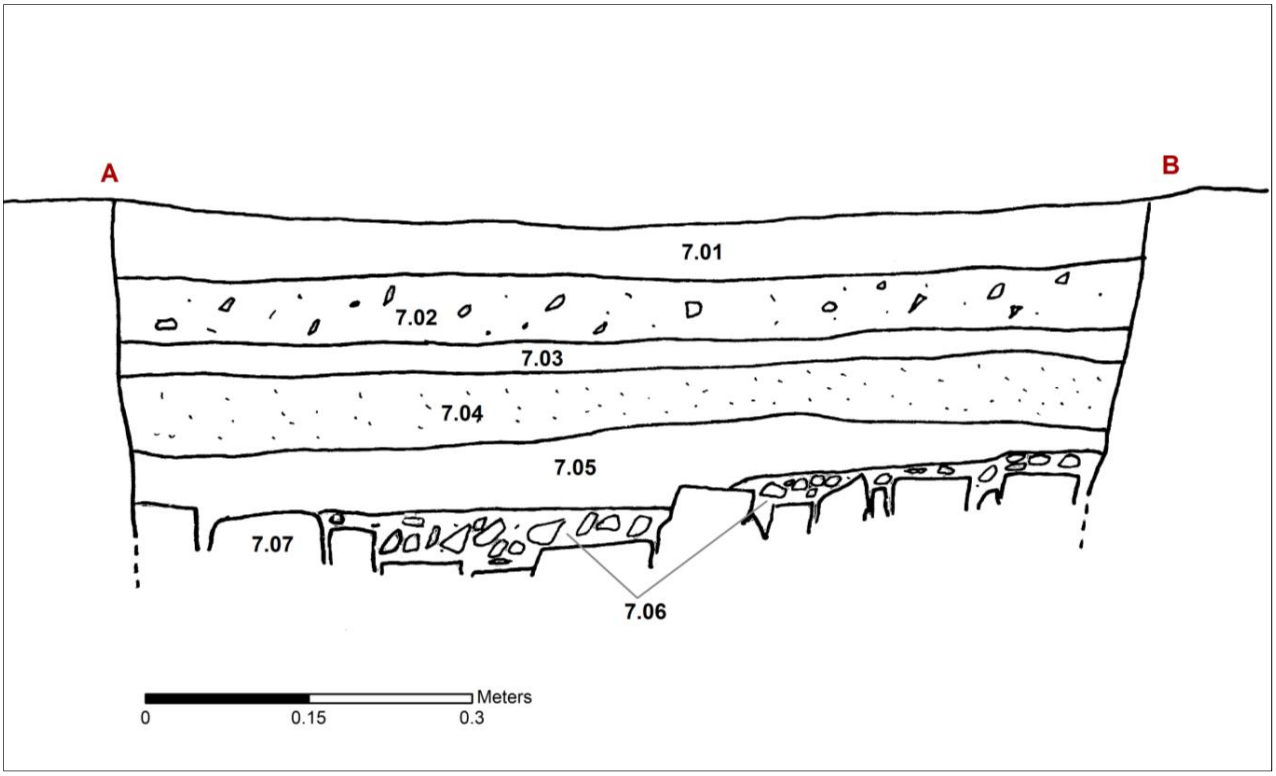

Figure 12 **SSE-facing trench section, S3, on Bridge 007**

Plate 9 **Bridge 007 trench, facing NNW (CP 14)**

Plate 10 **SSE-facing trench section on Bridge 007, facing NNW (CP14)**

7 Discussion

The excavations on the bridges offered an opportunity to look in greater detail at the construction methods of the bridges and the overlying surfaces. All three structures were well-built. Bridge 007 and Bridge 008 are very similar in size and build, while Bridge 009 is a much larger version of a similar type. The trenches on Bridges 007 and 008 showed the arches comprised upright voussiers of varying sizes that were pinned and locked together with small slabs. As detailed in the 2011 report on the bridges, historical documentation supports the fact that the bridges date to the period of Caulfeild military road construction.

The trench on Bridge 008 showed that the road surface to both sides of the bridge was well-formed with small stone slabs and cobbles. Furthermore, it was evident on all three of the sites that the core material packed into the surface of the bridges to create a surface and protect the structure was the most readily available material; gravel or sand would have been preferred but often the best available resource was a gravelly or sandy soil.

Although the bridges appeared to have been of drystone construction, some lime mortar was visible in places. The conservation stonemasons reported that the bridge stonework had been bedded together with lime mortar and although prior to conservation there had been no mortar pointing visible, it would have been used in the bridge construction and had washed out over time.

Plate 11 Pre-conservation image of Bridge 008, facing SW (CP3)

Plate 12 Pre-conservation image of Bridge 007, facing NNE (CP5)

8 References

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Appendix 1 List of contexts

Context No.	Type	Description	Fill of	Filled by	Under	Over	Bridge No.	Plans - Sections	Interpretation
7.01	Deposit	Turf/moss and mid brown sandy soil	-	-	-	7.02	007	3, S3	Turf/topsoil overburden
7.02	Deposit	Pale white-grey gravelly gritty sand	-	-	7.01	7.03	007	3, S3	Latest bridge path resurfacing
7.03	Deposit	Dark brown-grey sticky sandy soil	-	-	7.02	7.04	007	3, S3	Old ground surface
7.04	Deposit	Pale white-brown soily sand	-	-	7.03	7.05	007	3, S3	Earlier bridge path resurfacing
7.05	Deposit	Dark brown compact clayey soil	-	-	7.04	7.06	007	3, S3	Old ground surface
7.06	Deposit	Compact dark brown soily gravel	-	-	7.05	7.07	007	3, S3	Gravel levelling fill over bridge arch slabs
7.07	Structure	Upright slabs forming bridge arch	-	-	7.06	-	007	3, S3	Bridge arch
8.01	Deposit	Turf/moss and mid brown sandy soil	-	-	-	8.02	008	-	Turf/topsoil overburden
8.02	Deposit	Compact dark orange-brown soily gravel	-	-	8.01	-	008	2	Path surface to both sides of bridge
8.03	Deposit	Stone and cobbles set into sides of bridge surface	-	-	8.01	8.02	008	2	Path surface to both sides of bridge
8.04	Structure	Upright slabs forming bridge arch	-	-	8.01	-	008	2	Bridge arch
8.05	Structure	Remains of the bridge parapet	-	-	-	-	008	2	Parapet walling

Context No.	Type	Description	Fill of	Filled by	Under	Over	Bridge No.	Plans - Sections	Interpretation
9.01	Deposit	Turf/moss and mid brown-red sandy soil	-	-	-	9.02, 9.03	009	S1, S2	Turf/topsoil overburden
9.02	Deposit	Mid orange-yellow-brown loosely compact gravelly sand with 5% small cobbles	-	-	9.01	9.03	009	1, S1, S2	Latest bridge path resurfacing
9.03	Deposit	Mid-dark brown lightly compact sandy soil with 5% gravel and 5% small-large stones	9.07	-	9.01, 9.02	9.04, 9.05, 9.06	009	S1, S2	Earlier bridge path resurfacing, probably contemporary with 9.04
9.04	Deposit	Mid orange-brown loosely compact soily sand with 5% small cobbles and gravel	-	-	9.03	9.05	009	S1	Earlier bridge path resurfacing, probably contemporary with 9.03
9.05	Deposit	Dark brown-grey compact, wet clayey soil	-	-	9.03, 9.04		009	S1	Old ground surface (contemporary with bridge construction)
9.06	Deposit	Dark brown compact soil with 5% small gravel	9.08	-	9.03	9.08	009	S1, S2	Gravelly soil packing fill to bridge surface
9.07	Cut	Narrow and shallow linear cut through early soil horizon; located to WSW side of bridge	-	9.03	9.03	9.03	009	1, S2	Timber beam to mark edge of bridge surface
9.08	Cut	Linear cut through compact soil layer 9.05	-	9.06	9.06	-	009	S1	Edge of fill of bridge surface

Appendix 2 List of plan and section drawings

Plan No.	Section No.	Bridge No.	Contexts	Date	Initials	Scale	Direction (facing)	Description
1		009	9.02, 9.07	12-7-12	MKP	1:20	-	Plan of Bridge 009 trench
	S1	009	9.01-9.06, 9.08	12-7-12	MKP	1:10	WNW	WNW-facing trench section, Bridge 009
	S2	009	9.01-9.03, 9.06, 9.07	12-7-12	MKP	1:10	SSW	SSW-facing section in Bridge 009 trench
2		008	8.02 - 8.05	18-9-12	MKP	1:20	-	Pre-conservation plan of Bridge 009, after excavation of turf and soil
3		007	7.07	1-11-12	MKP	1:20	-	Plan of Bridge 007 trench
	S3	007	7.01-7.07	1-11-12	MKP	1:10	SSE	SSE-facing trench section, Bridge 007

Appendix 3 List of photographs

No.	Direction Facing	Camera Position	Notes	Taken By	Date
Bridge 009					
1	N	CP1	South face of bridge, pre-conservation, showing feature (possible buttress) at east end of the bridge	MKP	12/07/2012
2	NNW	CP2	South arch of bridge, pre-conservation	MKP	12/07/2012
3	NNW	CP2	South arch of bridge, pre-conservation	MKP	12/07/2012
4	NE	CP3	South arch of bridge, pre-conservation	MKP	12/07/2012
5	N	CP3	South arch of bridge, pre-conservation	MKP	12/07/2012
6	N	CP4	South arch of bridge, pre-conservation	MKP	12/07/2012
7	SSW	CP6	North arch of bridge, pre-conservation	MKP	12/07/2012
8	SW	CP7	North arch of bridge, pre-conservation, showing eastern abutment	MKP	12/07/2012
9	SSW	CP8	North arch of bridge, pre-conservation, showing eastern abutment	MKP	12/07/2012
10	SW	CP9	Eastern abutment by north arch of bridge, pre-conservation	MKP	12/07/2012
11	SE	CP10	Eastern side of arch soffit	MKP	12/07/2012
12	SW	CP7	North arch of bridge, pre-conservation	MKP	12/07/2012
13	SW	CP11	Western side of arch soffit	MKP	12/07/2012
14	SSW	CP11	Arch soffit	MKP	12/07/2012
15	SSW	CP11	Arch soffit	MKP	12/07/2012
16	W	CP13	Western side of arch soffit	MKP	12/07/2012
17	E	CP5	Surface of bridge, pre-conservation	MKP	12/07/2012
18	ENE	CP15	Surface of bridge, pre-conservation	MKP	12/07/2012
19	W	CP12	Surface of bridge, pre-conservation	MKP	12/07/2012
20	SW	CP14	Surface and north arch of bridge, pre-conservation	MKP	12/07/2012
21	NNW	CP16	Mid-excavation of trench, showing timber beam below soil fill	MKP	12/07/2012
22	N	CP16	Mid-excavation of trench, showing timber beam below soil fill	MKP	12/07/2012
23	ENE	CP16	Mid-excavation of trench, showing timber beam below soil fill	MKP	12/07/2012
24	NNW	CP16	SSE-facing section through trench	MKP	12/07/2012
25	NE	CP16	SW-facing trench section	MKP	12/07/2012
26	WSW	CP17	ENE-facing section through trench	MKP	12/07/2012
27	WSW	CP17	ENE-facing section through trench	MKP	12/07/2012
28	NE	CP15	Post-excavation image showing trench location	MKP	12/07/2012
Bridge 008					
29	W	CP1	Surface of bridge, pre-excavation/conservation	MKP	12/07/2012
30	ESE	CP2	Surface of bridge, pre-excavation/conservation	MKP	12/07/2012
31	SW	CP3	NNE arch of bridge, pre-excavation/conservation	MKP	12/07/2012
32	SW	CP3	NNE arch of bridge, pre-excavation/conservation	MKP	12/07/2012
33	SSW	CP6	NNE arch of bridge and western abutment, pre-excavation/conservation	MKP	12/07/2012
34	SSW	CP5	View below NNE arch of bridge, showing slippage of stonework in soffit	MKP	12/07/2012

No.	Direction Facing	Camera Position	Notes	Taken By	Date
35	S	CP5	View below NNE arch of bridge, showing slippage of stonework in soffit and eastern abutment	MKP	12/07/2012
36	NNE	CP4	SSW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
37	NNE	CP4	SSW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
38	NNE	CP7	SSW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
39	N	CP7	SSW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
40	N	CP8	SSW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
41	ESE	CP2	Surface of bridge, post-excavation and pre-conservation	MKP	18/09/2012
42	NE	CP9	Surface and SSW arch of bridge, post-excavation and pre-conservation	MKP	18/09/2012
43	NE	CP9	Surface and SSW arch of bridge, post-excavation and pre-conservation	MKP	18/09/2012
44	NE	CP8	Surface and SSW arch of bridge, post-excavation and pre-conservation	MKP	18/09/2012
45	NE	CP8	Surface and SSW arch of bridge, post-excavation and pre-conservation	MKP	18/09/2012
46	ESE	CP10	Surface of bridge, post-excavation and pre-conservation	MKP	18/09/2012
47	ESE	CP10	Surface of bridge, post-excavation and pre-conservation	MKP	18/09/2012
48	ESE	CP11	Surface of bridge, post-excavation and pre-conservation	MKP	18/09/2012
49	S	CP12	Surface of bridge, post-excavation and pre-conservation; showing upright slabs of bridge arch	MKP	18/09/2012
50	S	CP12	Surface of bridge, post-excavation and pre-conservation; showing NNE parapet and upright slabs of bridge arch	MKP	18/09/2012
51	NW	CP13	Surface of bridge, post-excavation and pre-conservation; showing SSW parapet and upright slabs of bridge arch	MKP	18/09/2012
52	SW	CP14	Surface of bridge, post-excavation and pre-conservation; showing SSW parapet and upright slabs of bridge arch	MKP	18/09/2012
53	SSW	CP15	Upright slabs forming bridge arch, post-excavation and pre-conservation	MKP	18/09/2012
54	ESE	CP11	Surface of bridge and SSW arch and parapet, post-excavation and pre-conservation	MKP	18/09/2012
55	N	CP4	SSW arch / parapet and upright slabs forming arch, post-excavation and pre-conservation	MKP	18/09/2012
56	N	CP7	SSW arch / parapet and upright slabs forming arch, post-excavation and pre-conservation	MKP	18/09/2012
57	NNW	CP16	SSW arch / parapet and upright slabs forming arch, post-excavation and pre-conservation	MKP	18/09/2012
58	SSW	CP17	NNE arch of bridge, post-excavation and pre-conservation	MKP	18/09/2012
59	SW	CP17	NNE arch of bridge, post-excavation and pre-conservation	MKP	18/09/2012
60	S	CP17	Eastern end of NNE bridge arch, post-excavation and pre-conservation	MKP	18/09/2012
61	S	CP12	Eastern end and western abutment of NNE bridge arch, post-excavation and pre-conservation	MKP	18/09/2012

No.	Direction Facing	Camera Position	Notes	Taken By	Date
62	NNE	CP18	Upright slabs forming bridge arch, post-excavation and pre-conservation	MKP	18/09/2012
63	NNW	CP16	Surface of bridge, post-excavation and pre-conservation; showing SSW parapet and upright slabs of bridge arch	MKP	18/09/2012
Bridge 007					
64	N	CP3	Pre-excavation/conservation of bridge, facing downstream towards SSE arch	MKP	12/07/2012
65	NE	CP1	Looking across bridge surface, pre-excavation/conservation	MKP	12/07/2012
66	NNE	CP2	Looking across bridge surface and SSE arch, pre-excavation/conservation	MKP	12/07/2012
67	NNW	CP4	SSE arch of bridge, pre-excavation/conservation	MKP	12/07/2012
68	NW	CP4	SSE arch and SW abutment of bridge, pre-excavation/conservation	MKP	12/07/2012
69	WNW	CP4	SSE arch and SW abutment of bridge, pre-excavation/conservation	MKP	12/07/2012
70	NW	CP4	SSE arch and SW abutment of bridge, pre-excavation/conservation	MKP	12/07/2012
71	NNE	CP5	SSE arch of bridge and SE abutment, pre-excavation/conservation	MKP	12/07/2012
72	S	CP6	NNW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
73	SE	CP7	NNW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
74	SE	CP7	NNW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
75	SW	CP9	NNW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
76	S	CP10	NNW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
77	SSW	CP8	NNW arch of bridge, pre-excavation/conservation	MKP	12/07/2012
78	SSW	CP10	NNW arch and soffit of bridge, pre-excavation/conservation	MKP	12/07/2012
79	ENE	CP11	Post-excavation image of trench on Bridge 007: upright slabs forming central core of arch	MKP	01/11/2012
80	SSE	CP12	Post-excavation image of trench on Bridge 007: upright slabs forming central core of arch	MKP	01/11/2012
81	WNW	CP13	Post-excavation image of trench on Bridge 007: upright slabs forming central core of arch	MKP	01/11/2012
82	NNW	CP14	Post-excavation image of trench on Bridge 007: upright slabs forming central core of arch and SSE-facing trench section	MKP	01/11/2012
83	NNE	CP11	Post-excavation image of trench on Bridge 007: upright slabs forming central core of arch and SSE- and WSW-facing trench sections	MKP	01/11/2012
84	NNW	CP14	Post-excavation image of trench on Bridge 007: upright slabs forming central core of arch	MKP	01/11/2012
85	NNW	CP14	Post-excavation image of trench on Bridge 007: SSE-facing trench section	MKP	01/11/2012
86	NNW	CP14	Post-excavation image of trench on Bridge 007: SSE-facing trench section	MKP	01/11/2012
87	WSW	CP13	Post-excavation image of trench on Bridge 007: ENE-facing trench section	MKP	01/11/2012
88	SSW	CP12	Post-excavation image of trench on Bridge 007: NNW-facing trench section	MKP	01/11/2012