Appendix H
Non-indigenous Heritage Study

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Non-indigenous Heritage Study:
Maitland to Minimbah
Third Track Project

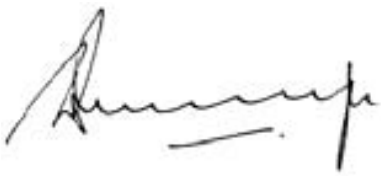
Prepared for:

Hunter 8 Alliance

For

Australian Rail Track Corporation

Nexus Project No 90601

Report written by:	Written and reviewed by:
	
Paul Rheinberger	Sue Singleton
Principal Archaeologist	Principal Archaeologist
Date April 2010	Date April 2010

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EXECUTIVE SUMMARY

The objective of this specialist study was the identification of items of local, state and national heritage significance along or adjacent to the Project corridor. All investigation was carried out according to guidelines set out by the NSW Heritage Manual and endorsed by the NSW Heritage Council. A total of fifty-three non-indigenous heritage sites were investigated in the course of the study.

Items were identified through searches of relevant heritage schedules including the Maitland LEP 1993, the Cessnock LEP 2008 (draft), the Singleton LEP 1996, the Hunter Regional Environmental Plan 1989 and the ARTC s170 Register. Further items were identified during survey. Where appropriate, items were assessed for heritage significance with reference to the NSW Heritage Guidelines.

The majority of identified sites were located within the existing rail corridor and consisted of various rail infrastructure items. Many items could be dated to the original construction of the Great Northern Railway circa 1860 and most of these items displayed some degree of repair, modification and/or extension carried out over subsequent years to the present day. In summary, the rail infrastructure items investigated comprised:

- One overbridge.
- Six underbridges.
- Six railway station precincts.
- Thirty-three brick culverts.
- Four stone culverts.
- One level crossing.

These collective railway resources, with the exception of two railway station precincts, were assessed as locally significant, some of which were considered rare within the locality. Branxton Railway Station and Greta Railway Station have been subject to previous significance assessments and as a result are listed on the State Heritage Register as items significant to the State.

A further two heritage sites were identified adjacent to the Project corridor:

- Clifton Homestead.
- Site of the former Allandale Wine Cellars/Penfolds Winery.

The Clifton Homestead, a restored circa 1845 residence and gardens, is listed in the Maitland Local Environmental Plan 1993 as locally significant. The former circa 1880 Allandale/Penfold Winery site is an archaeological site within the Dunoon property which is listed in the Cessnock Local Environmental Plan 2008 (draft) as locally significant.

In general, the construction and/or modifications of major infrastructure along with major earthworks and the construction of new access roads would result in varying degrees of obstruction, relocation, modification, damage and/or destruction to either the whole of a heritage resource or to components of a heritage resource. As a result, project works would result in a collectively unavoidable negative impact on non-indigenous heritage values through the loss, modification or permanent obstruction of heritage resources.

Where Project activity would have the capacity to obscure, move, modify, damage or destroy any part or component of a heritage resource within the study area, the resource would be archivally recorded prior to the commencement of any Project works. Project works would then be monitored by a suitably qualified archaeologist and an archival record should be completed for each resource. This record would comply with requirements set out in the NSW Heritage Guidelines.

A set of Site Inventory Sheets were prepared to provide individual site details and specifications including:

- A historical overview.
- Survey Results.
- Photographs, if available.
- Formal heritage listing.
- An assessment of archaeological potential.
- Statement of Signficance.
- References.
- A description of Project Works.
- An assessment of significance.
- Statement of Heritage Impact.
- Proposed mitigation strategies.
- Further recommendations and comments, if applicable.

The Site Inventory Sheets would function as a working reference for on ground Project Works.

Once construction of the third track has been completed there are no anticipated ongoing issues associated with the management of non-indigenous heritage resources subject to this study.

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FIGURES

FIGURES (cont)

APPENDICES

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1.0 INTRODUCTION

The Hunter 8 Alliance (Hunter 8) on behalf of the Australian Rail Track Corporation (the ARTC) is proposing to upgrade approximately 32 kilometres of the Main Northern Railway (formerly known as the Great Northern Railway [the GNR]) between the Maitland Junction and Minimbah Bank near Belford, New South Wales (the Project). Construction of the third track would include major earthworks, drainage, minor structures, new over and under bridges, modification of existing station platforms, signalling and relocation of existing services, collectively referred to as the Project Works.

Hunter 8 commissioned Nexus Archaeology & Heritage (Nexus) to undertake a study and analysis of the historical archaeology and heritage of proposed Project Works (the study area) according to the requirements of the Director-General regarding non-indigenous heritage.

The Director-General's requirements for non-indigenous heritage were:

> Identification of items and areas of local, state and national heritage significance along or adjacent to the corridor (including station groupings and yards and moveable heritage collections). This should include an archaeological assessment and an analysis of the potential impacts to the values, settings and integrity of items, taking into account NSW Heritage Guidelines.

Table 1.1 presents these requirements in the sequential steps required for their address along with reference to the relevant section of this report.

Table 1.1 - Director-General's Requirements – Non-Indigenous Heritage

Director-General's Requirements	Refer to Section
Identification of items and areas of local, state and national heritage significance along or adjacent to the corridor.	Section 2.3 – Historical Context and Section 2.4 – Physical Context (survey results)
Identification of station groupings and yards, and moveable heritage collections.	Section 2.3 – Historical Context and Section 2.4 – Physical Context (survey results)
Archaeological assessment and an analysis of the potential impacts to the values, settings and integrity of items, taking into account NSW Heritage Guidelines.	Section 3 and Appendix 2.

1.1 ARTC AS THE PROPONENT

The ARTC was created by the Commonwealth and State Governments in 1997 to provide a single body responsible for the National Interstate Rail Network. ARTC currently has responsibility for the management of 5,861 kilometres (km) of standard gauge interstate track in South Australia, Victoria, Western Australia and New South Wales (NSW), including the Hunter Valley Network and the North Coast rail line, as well as other regional rail links in NSW.

The ARTC is owned by the Commonwealth Government and has entered into an arrangement to lease the NSW interstate and Hunter Valley Network until 2057. ARTC has the authority to sell track access to train operators over the full length of the interstate mainline from Kalgoorlie to Adelaide, Adelaide to Sydney via Melbourne and Broken Hill and Sydney to the Queensland Border.

1.2 BACKGROUND

Coal for export and domestic use is transported, primarily via rail, from a series of mines and coal loaders located across the Hunter Valley for shipping from either Carrington (Port Waratah) or Kooragang Island ports at Newcastle. The coal is conveyed to the ports on the rail network that runs between Muswellbrook and Newcastle. Coal also feeds onto this line from Ulan and Gunnedah, west and northwest of Muswellbrook respectively. Domestic coal, although a comparatively small sector, is transported over the same network.

Due to the forecast increase in coal throughput at the Port of Newcastle, indicating a capacity increase in excess of 200 million tonnes per annum (mtpa) by 2012, a number of rail infrastructure improvements have been proposed in the Hunter Valley. ARTC has indicated that without further improvements to the main northern rail network, coal exports could be constrained post 2015 by current track capacities.

One of the key improvement projects included in the ARTC ten-year strategic plan is a proposed third track between Maitland and Minimbah. The objective of the improvement is to increase rail capacity and reliability between the Hunter Valley mine sites and the Port of Newcastle. In addition to providing increased track capacity, the third track aims to improve operational performance along the route. These improved efficiencies would be created through:

- Reduced impacts on coal traffic due to track maintenance activities.
- Reduced loss of train paths due to shadow path effects from passenger services.
- Reduced loss of available train paths due to train breakdowns.

1.3 TERMINOLOGY

The following Project related terminology is used throughout this report.

Term	Definition
Upside (Up)	The side of the track on which trains travel towards Sydney (usually positioned on the right when your back is to Sydney
Downside (Down)	The side of the track on which trains travel away from Sydney (usually positioned on the left when your back is to Sydney.)
Chainage	Chainage is generally the location in kilometres of the position of railway in relation to Sydney (NSW only) based on the 0.00 kilometres being located at the end of Central No. 1 Platform.
Country	The direction along the track away from Sydney.
City	The direction along the track towards Sydney.
Earthworks	Re-shaping of the natural ground level.
Cut	An excavation for constructing below the natural ground level.
Fill	Earth used to construct an embankment.
Underbridge	Where a road or pedestrian underpass is situated under the railway line.
Overbridge	Where a road or pedestrian footway is situated over the railway line.
Culvert	Cross drainage structures that allow catchment runoff from outside the rail corridor to flow through the rail corridor.

1.4 PROJECT OVERVIEW

The proposed third track would connect to the existing Up Main at the eastern end at Farley and would join the third track of Stage 1 (Minimbah Bank Third Track Project) at Minimbah at its western end.

The proposed third track would be predominantly located on the Up side of the Main Northern Railway. Approximately 3 kilometres of track around Branxton and Greta stations from chainage 210.170 kilometres to 211.180 kilometres and 214.060 kilometres to 216.000 kilometres, would be located on the Down side. Heritage sites at both stations (as described in Section 1.17) and the close proximity of Anvil Creek at Greta require the track to be located on the Down side at these two locations.

The vertical alignment of the third track is generally similar to the existing main line. The level of the third track is lower than the existing tracks in areas of straight track to improve track drainage. Maintenance vehicle access tracks would be located on the outer side of the Up Relief Main and the Down Main. The access tracks would provide sufficient space for vehicles to travel for track maintenance and emergency access.

Rail sidings for rail maintenance plant would be located in similar location to the existing sidings at Branxton. Access for trains to the existing Rothbury Riot siding at Branxton would be retained via the Down side maintenance siding. The existing Up track at Branxton and Greta station would be reconstructed along with the crossovers at Branxton. The existing rail and sleepers may be reused subject to an asset inspection to determine suitability for reuse.

Track drainage would include longitudinal drains on both sides of the track and a centre drain between the existing tracks and the new third track. Upgrades to existing cross track drains and construction of new pits and pipes from the centre drain would be completed.

1.5 REPORT OBJECTIVES

This study integrated the results of investigation of the archaeological and historical records, and the physical evidence of the study area. The principal objectives of the study were to identify, evaluate and propose appropriate management protocols for cultural material evidence that may be located within the ambit of the Third Track Project area and/or at some risk from direct or peripheral affect of the implementation of the Third Track Project.

Within the framework of this general objective, the study was undertaken on the basis that it may identify heritage and archaeological resources within, and provide insights into the development of, the study area and its occupational and social fabric that are not available from the historical record. The recovery of this information may contribute knowledge to current themes in historical archaeology such as:

- The contribution of rail transport technology to the development and use of land and resources in remote locations from the mid-19th to the mid- to late 20th Centuries (the period).
- The social component of working in a location, originally remote from close settlement, during the period.
- The original technology and technological evolution of railway construction and maintenance during the period.
- In respect of all of the above, the different emphases and inferences that may attach to the historical phases of use/occupation/development of the study area.

Within this context, this study makes an evaluation of the cultural significance of the heritage and archaeological resources of the study area. After reviewing issues and options for management, recommendations are made about the management of the archaeological and heritage values of the study area and its environs, and about the impact on heritage values of the project.

1.6 LOCATION AND FEATURES OF THE STUDY AREA

The Project consists of the construction of a third track adjacent to the existing two tracks of the Main Northern Railway between Maitland and Minimbah, within the Hunter Valley, NSW. The Project commences in Farley approximately 2 kilometres west of Maitland Station at chainage 194.500 kilometres and continues through the local government areas of Maitland, Cessnock and Singleton for approximately 30 kilometres, concluding at Minimbah at chainage 224.200 kilometres.

Other relevant information about the location of the study area is shown in Table 1.2.

Table 1.2 - Location Data

Topographic Map Sheets	92324S Maitland and 91321S Branxton
Grid reference/range	From Wollombi Road Overbridge at $_{3}61480._{63}77740$ to Brick Culvert, Chainage 224.141 at $_{3}37915._{63}85370$
Parishes	Gosforth, Branxton and Belford
County	Northumberland
Local Government Areas	Maitland, Cessnock and Singleton.

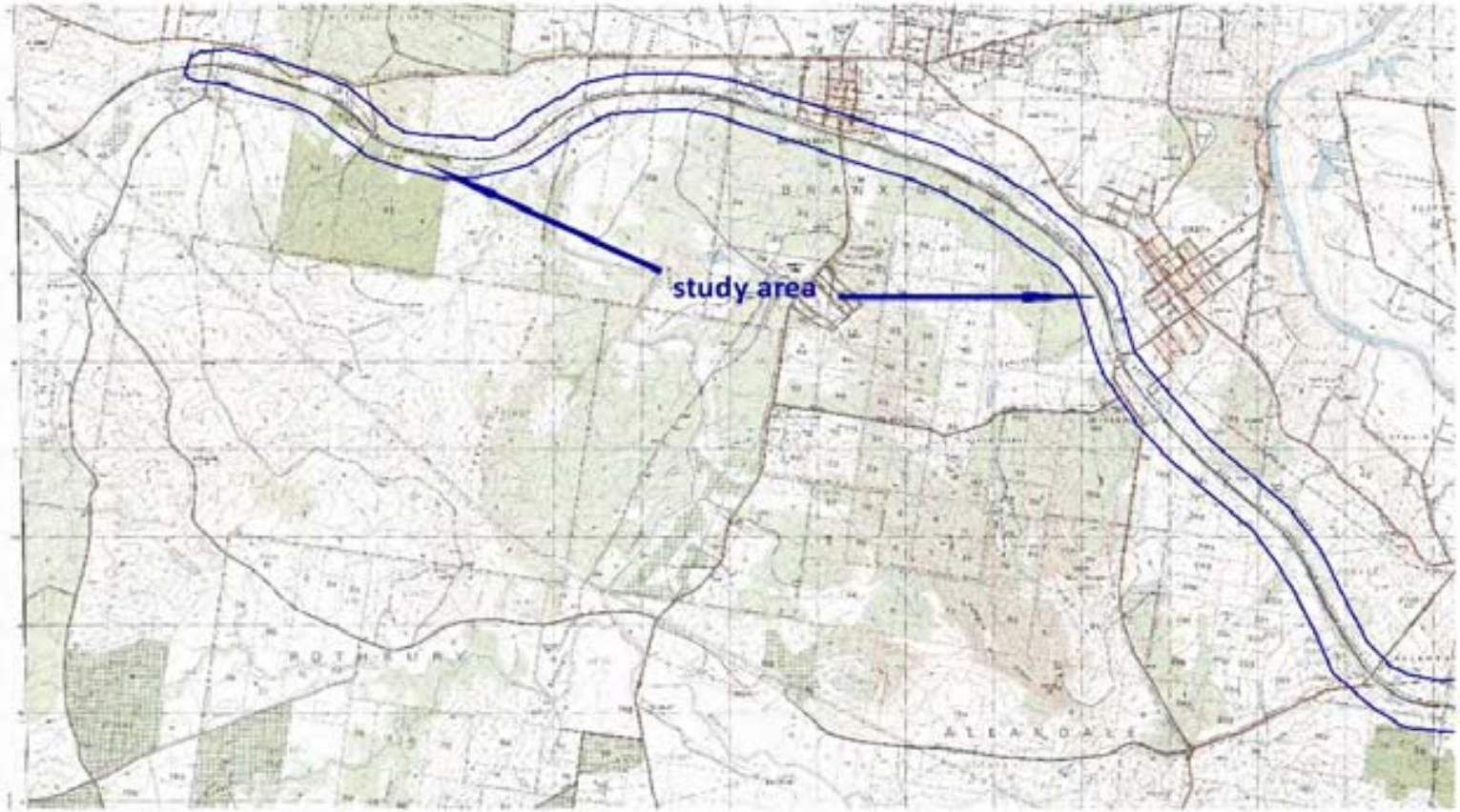
The regional location of the study area is shown on Figure 1.1 and the study area is defined in Figure 1.2 (the eastern precinct, chainage ≈195.000 to≈208.575) and Figure 1.3 (the western precinct, chainage, 206.000 to ≈224.500).

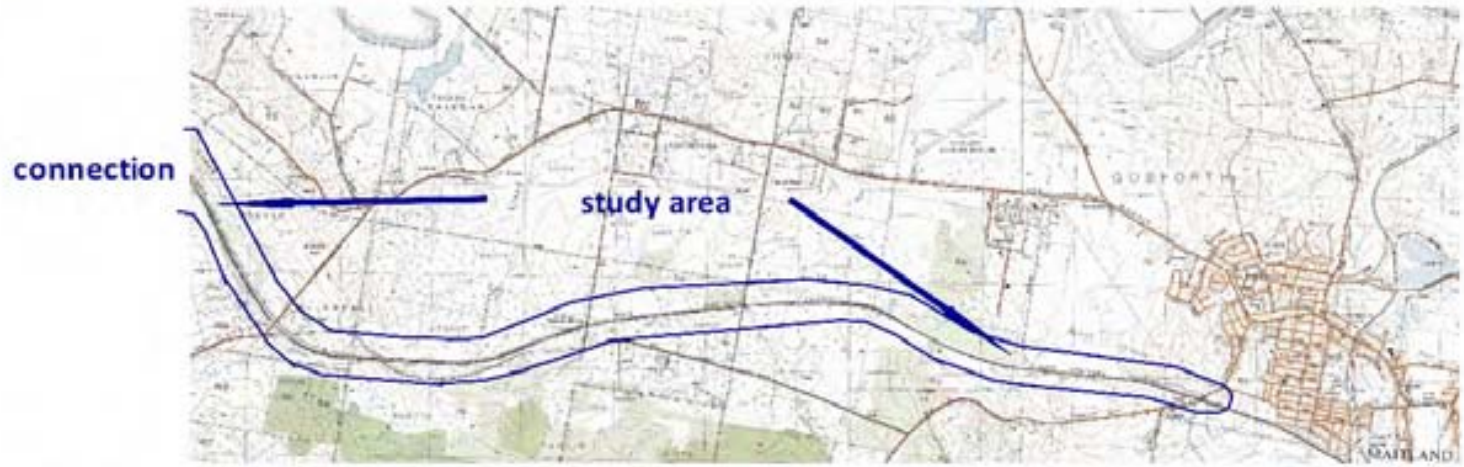
The study area comprised that defined on Hunter 8 site maps, sheet one to sheet 47, and generally incorporated a width of approximately 160 metres either side of the rail corridor.

1.7 METHODOLOGY AND REPORTING

This study and analysis has been undertaken broadly within the framework of the NSW Heritage Manual of the Heritage Office (now Heritage Branch) and the Department of Infrastructure, Planning, and Natural Resources, NSW (now NSW Department of Planning). The sequential steps of the study have been as follows:

- the relevant context of the study area has been researched and analysed:
  - the archaeological and historical records of the study area have been researched. Research results are abstracted in Sections 2.2 and 2.3.
  - the physical context of the study area has been determined by field survey, with attention to previously identified elements and detailed investigation of potential sites of cultural material





nexus	Scale: 1 km Grids	Client: Hunter8 for ARTC Reference: 90601	Source: Topographic Maps: 9321S & 9232S	Title: Regional Location of the Study Area	Figure 1.1

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nexus	Refer to Chainage	Hunter8 for ARTC Reference: 90601	Hunter8	Easterly Detail of the Study Area	Figure 1.2

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nexus	Scale: Refer to Chainage	Client: Hunter8 for ARTC Reference: 90601	Source: Hunter8	Title: Westerly Detail of the Study Area	Figure 1.3

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evidence. The observations made during field survey were recorded by field notes and the results are presented in Section 2.4.

- the heritage values of the study area have been defined in Section 3, in terms of:
    - the cultural significance of the archaeological resource has been assessed and a formal statement of cultural significance is contained in Section 3.2.
    - the condition and integrity of the overall archaeological resource has been reviewed and an evaluation made of the physical impact of proposed use in Section 3.3.
    - current research themes relevant to the Study area have been identified in Section 3.4.
    - the anticipated physical impact has been stated and a general Statement of Heritage Impact made in Section 3.5.
    - management of the heritage values of the Study area, in the light of the project, has been addressed in detail in Section 4.

In order to provide site specific impact assessments and individual impact statements where necessary, individual Site Inventory Sheets have been prepared and are included in Appendix 2.

1.8 STUDY PERSONNEL

Paul Rheinberger, Principal Archaeologist, Nexus, conducted the research and review of the archaeological and historical contexts for this assessment. Paul and Sue Singleton, Principal Archaeologist, Nexus, undertook the study of the physical context of the study area. Paul is the author of this report, with a significant written contribution by Sue.

1.9 ACKNOWLEDGEMENTS

Acknowledgement and appreciation is extended to the Rail Protection Officers who accompanied Paul and Sue during fieldwork, Kerry Chomiszak and Ben Froome. Appreciation is also extended to John Chomiszak, a former rail employee at Greta Station, for kindly giving his time to provide some oral history of the area.

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2.0 THE CONTEXT OF THE STUDY AREA

2.1 THE CONCEPT OF CONTEXT

Heritage and its associated value exist within a historical context: that is to say that the material evidence that is the target of a heritage study can only be properly understood in terms of those factors that have contributed to its creation, introduction to a site, use or function, deposition, survival, stratigraphy and exposure. In this environment, material evidence derives meaning particular to its site or location and similarly contributes enhanced meaning to and understanding of its site by complementing the oral or archival record. It is convenient to address the context of a study area in terms of its archaeological context (see Section 2.2), historical context (see Section 2.3) and physical context (see Section 2.4), where the first two headings indicate documentary research and review of previous archaeological and historical studies. The latter refers to the attributes identified in the course of physical inspection of the site.

2.2 ARCHAEOLOGICAL CONTEXT

The land-based archaeology of the locality of the study area appears not to have been previously studied in detail, although the surrounding area was undoubtedly investigated in the course of heritage studies for the relevant Local Environmental Plans; Maitland LEP 1993, the Cessnock Draft LEP 2008, Singleton LEP 1996 and the Hunter Regional Environmental Plan 1989 (the REP).

The Maitland LEP recorded the following sites and heritage resources either within or proximate to the study area:

- City area generally: 112, the Government Railway, assessed at Regional[1] level.
- in the Maitland urban area: Maitland Railway Station and yard group, assessed at State level and Maitland Railway Station, assessed at Local level.
- at Lochinvar: the Clifton property, at Station Lane, assessed at Local level.

The Cessnock (Draft) LEP recorded the following sites and heritage resources either within or proximate to the study area:

- City area generally: 1340868, the Great Northern Railway Network, assessed at State level.
- at Allandale: 1340061, the property 'Dunoon' at Lovedale Road comprised in Lot 1, DP 383440; Lot 1, DP 434185; and Lot 266, DP755211, assessed at Local level.
- at Branxton:
    - 1340213, Branxton Railway Station Group, at corner Station and Railway Streets; DP755211, assessed at Local[2] level.

[1] The reference to an assessment of a resource at 'Regional' level is now obsolete. Re-assessment will be made in due course, but the 'Government Railway', or GNR should be regarded as significant at State level.

[2] The listing/assessment of the Branxton and Greta Railway Station Groups at 'Local' level is problematic given that both are registered on the State Heritage Register, thus assessed as significant at 'State' level.

  - 1340730, Branxton Railway Cottage, 5 Station Street, assessed at Local level.

- at Greta: 1340214, Greta Railway Station Group and Stationmaster's House, off Nelson Street, Lot 2 DP 809649; and DP 755211, assessed at Local[1] level.

The Singleton LEP recorded no heritage resources either within or immediately proximate to the study area. A number of sites were recorded within the general locality but these sites were well beyond the study area.

- Dalwood Homestead and Outbuildings, Dalwood Road Branxton, assessed at State level.
- Leconfield, Dalwood Road, Branxton, assessed at Local level.
- Church of Good Shephers, Former Belford Public School and the New Freugh Ruin all on Bell Road, Belford, assessed at Local level.
- Corinda House Farm, Corinda Street, assessed at Local level .
- Kirkton Winery and Vineyard site, Standen Drive, assessed at Local level.

The Hunter REP did not address the Maitland City LGA. In the Cessnock City LGA, the REP recorded no sites or resources relevant to the study area but noted the following sites and heritage resources:

- as warranting further investigation at Greta:
  - Whitburn Colliery.
  - Anvil Creek Colliery.
- the Branxton and Greta Conservation Areas.

Reference to the ARTC Register maintained pursuant to s.170 Heritage Act (NSW) 1977 revealed registrations in respect of the following resources within and proximate to the study area:

- Allandale, Anvil Creek Underbridge.
- Branxton, Black Creek Underbridge.
- Branxton Railway Station [group] (C/L Stn 13)
- Branxton Railway Station group moveable relics.
- Branxton Footbridge.
- Greta Station Group (C/L Stn 36).
- Greta Footbridge.
- Maitland Railway Station and yard group.

- Singleton Railway Station Group.
- The Hunter River, Singleton Underbridge.

The Maitland Railway Station and yard group is located in close proximity to, but beyond the easternmost extreme of the study area. As there is no anticipated impact upon this site from the Project, no further investigation was considered necessary in this study.

Entries relevant to these resources contained in the NSW State Heritage Inventory and/or the ARTC s170 Register are copied in Appendix 1 of this report.

Research of the Register of the National Estate maintained by the Australian Heritage Commission, the State Heritage Register (SHR) and State Heritage Inventory (SHI) maintained by the NSW Heritage Council, and the Register of the National Trust (NSW) disclosed no historical (non-indigenous) heritage resources within or proximate to the study area that are not disclosed in the Maitland LEP, the Cessnock (Draft) LEP and the Hunter REP.

2.3 HISTORICAL CONTEXT

The historical research of the use, occupation and development of the study area has been limited specifically to those contexts that have a direct relationship to archaeological study and the evaluation of historic heritage of the study area. In particular, this section addresses only those resources that are considered to have the potential to fall within the amended definition of relic pursuant to the Heritage Act, NSW, 1977.

The first New South Wales railway, from Redfern to Parramatta, was a private undertaking by the Sydney Railway Company. However, financial difficulties saw the ownership of the railway transferred to the government just before it was opened in 1855. The government quickly expanded the rail network with extensions from Granville to Liverpool, and to Campbelltown.

At the Newcastle settlement, the Hunter River Railway Company was formed in 1853 to build a line from Newcastle to Maitland. In 1855, it also transferred its works to the government. The line from Newcastle to Maitland opened in 1857 and an extension to Lochinvar was completed by 1862. The line was further extended to Branxton in 1862 and to Singleton in 1863.

The study area involves the extension of the Great Northern Railway (the GNR, also now referred to as the Main Northern Railway) beyond Maitland. Within the present sphere of interest, the line to Branxton opened on 24 March 1862, thence to Singleton on 7 May 1863. Stations were opened along the railway at Farley (then called Wollombi Road) and Lochinvar on 2 July 1860, Branxton on 24 March 1862, Allandale on 29 June 1869, Greta (then called Farthings) and Belford on 6 September 1869. In 1886, a platform was opened at Rutherford, re-named Rutherford Junction in 1941.

Separately, sidings were opened from the GNR:

- from Rutherford to Denton Park Colliery in 1886-8 (private line)[3].
- from Rutherford to Rutherford (private) Racecourse, opened 26 July 1914[4].
- from Greta to William Farthing' Pit, said to have been opened in early 1862 and connected to the GNR mid-1863, closed 1865[5].
- By extension from Farthing's Pit to Anvil Creek Colliery, opened by about 1873, which became New Anvil Creek Colliery from 18 June 1886, and finally Central Greta Colliery on 27 April 1908. The siding also operated for Leconfield Colliery (opened 24 August 1888), Whitburn Colliery (opened 9 December 1908 and re-opened as Whitburn No 2 in 1937)[6].
- from Branxton to Rothbury (later Branxton and finally Ayrfield No 3) Colliery opened 4 March 1913[7].

3 Gosforth Parish Map series.
4 Ibid.
5 Delaney, 1998.
6 Ibid.
7 Ibid.

Additional historical information was drawn from the historical series of parish maps for the Parishes of Maitland, Gosforth and Belford and the town maps of Government Towns of Greta and Belford, noting that the towns of Lochinvar and Branxton were private towns: the subdivision of these private towns may be searched in the MPS (OS)[8] records contained in the General Registry of Deeds, Land and Property Authority.

Otherwise, the history of the development of the GNR has been dealt with in detail in:

- Railcorp NSW, 2008. NSW Railways (Railcorp) Thematic History, http://www.nswrailheritage.com.au/railheritageth.htm, accessed October 2009.
- McKillop, RF and D Sheedy, 2008. Our Region, Our Railway: the Hunter and the Great Northern Railway 1857-2007, ARHS/NSW Division, Sydney.
- Rowe, DJ, 1986. Construction of the Great Northern Railway in New South Wales, 1854-1889: an economic and labour history, Thesis 1035, University of Newcastle, unpub.
- Jeans, DN, 1972. An Historical Geography of New South Wales to 1901, Reed Education, Sydney.
- Campbell, David S, 2007. 'Railways of the Newcastle District of New South Wales, 1840-1865', in compact disk Stories of the GNR, Engineering Heritage Australia (Newcastle), Newcastle.
- Lee, R, 1988. Greatest Public Work, the: The New South Wales Railways, 1848-1889, Hale & Iremonger, Sydney.

The relevant historical context of each site within the study area has been dealt with in Sections 2.3.1 to 2.3.17. Site locations are shown over four figures, Figures 2.A to 2.D and are also provided in inventory sheets attached as Appendix 2.

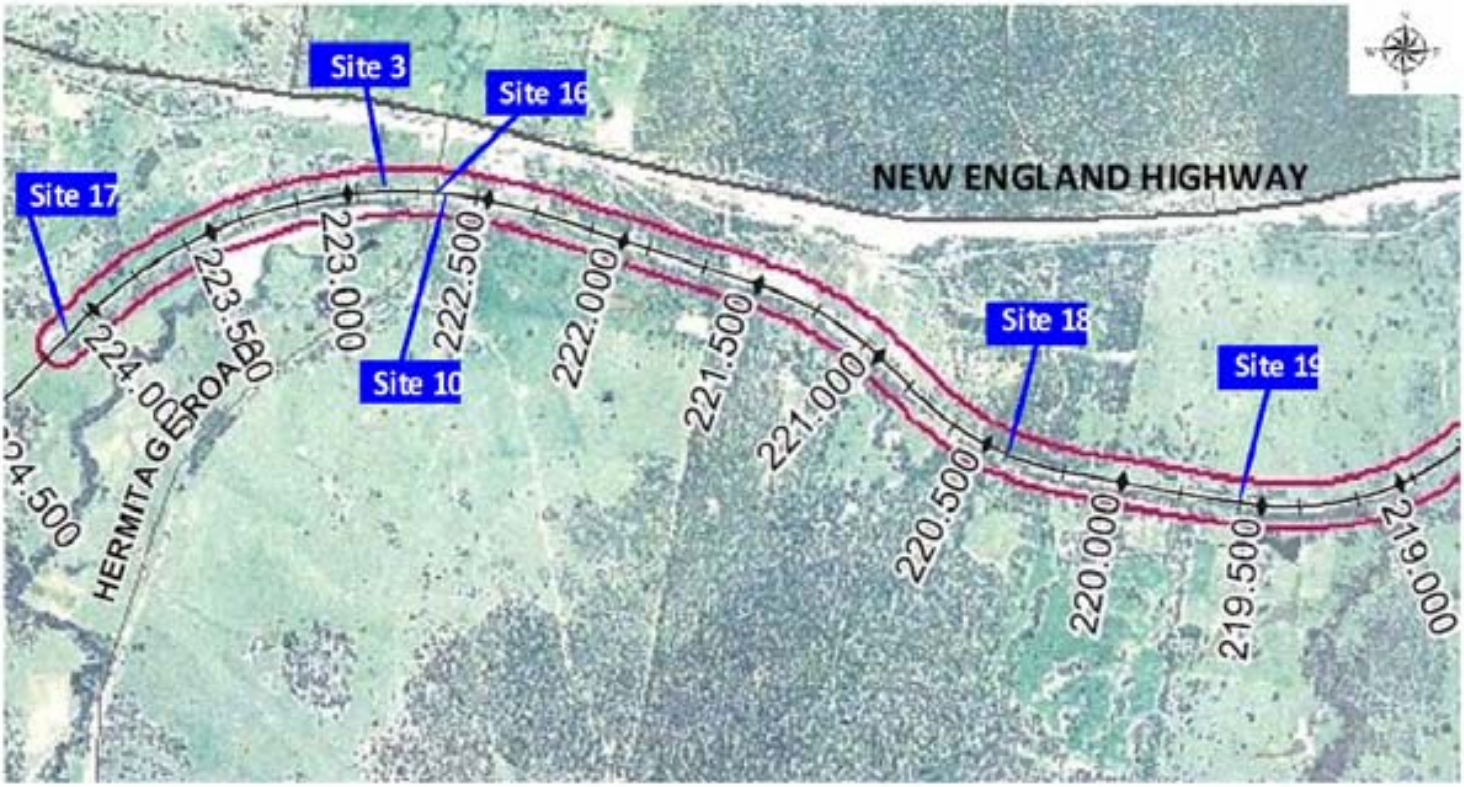
2.3.1 Site 1 - 'Clifton' Homestead, Station Lane, Lochinvar

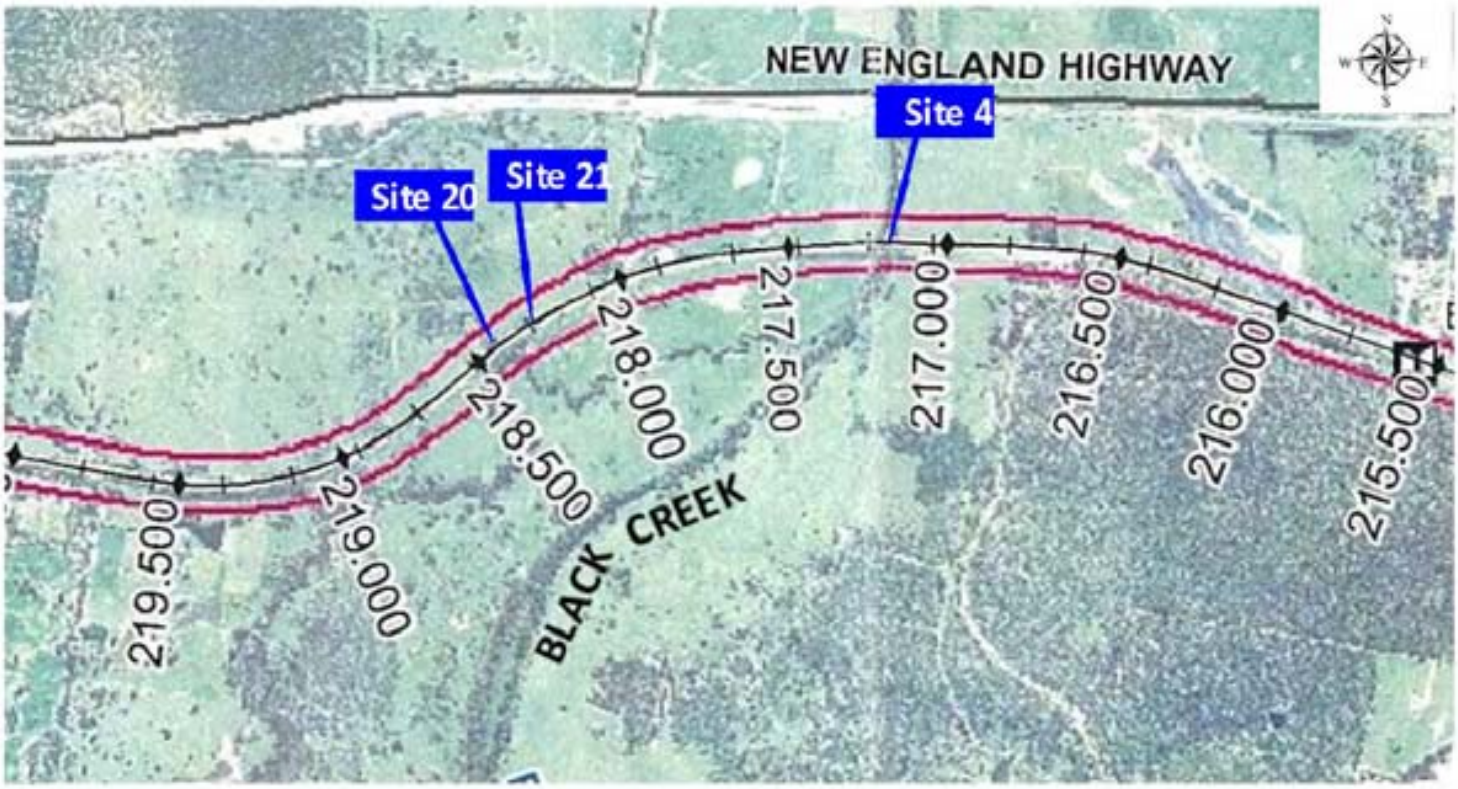
Clifton House was built by convict labour during the period (approximately) 1845 to 1850 for Samuel Clift, himself a former convict. Clift was not the original grantee of the land. Maps of Parish Gosforth, County Northumberland, are somewhat confused/ing on the subject, initially indicating the study area as part of a grant to Thomas Winder comprising the whole of the land from Winders Hill in the north, in a strip containing 2000acres, abutting Lochinvar township and south to the parish boundary, (Edition 1, 1885). The portion was not assigned a number on this edition.

By the Third Edition (1903), the strip had been divided between Portion 28, comprising Winder's 2000 acres, with a southern boundary along a road ≈36 chs (≈700m) south of the New England Highway. The road was apparently dedicated in the registration of DP478, the original subdivision of the Windella Estate. Portion 28 was also described as 'Hawes Farm'.

The portion between the dedicated road and the southern boundary of the Parish had been given the number 33, containing 800 acres and Henry Briggs was recorded as grantee. It is within the latter that the study area was located and the area had already also been subdivided by 1903, indicated as by DP1150 but in fact probably MPS(OS) 1150. Briggs grant was formalized on 19 October 1831 but by 1844-5, the

[8] MPS (OS): Miscellaneous Plan of Subdivision (Old System) – registration in this format was discontinued in 1961. Existing plans were renumbered in the DP150000 series.





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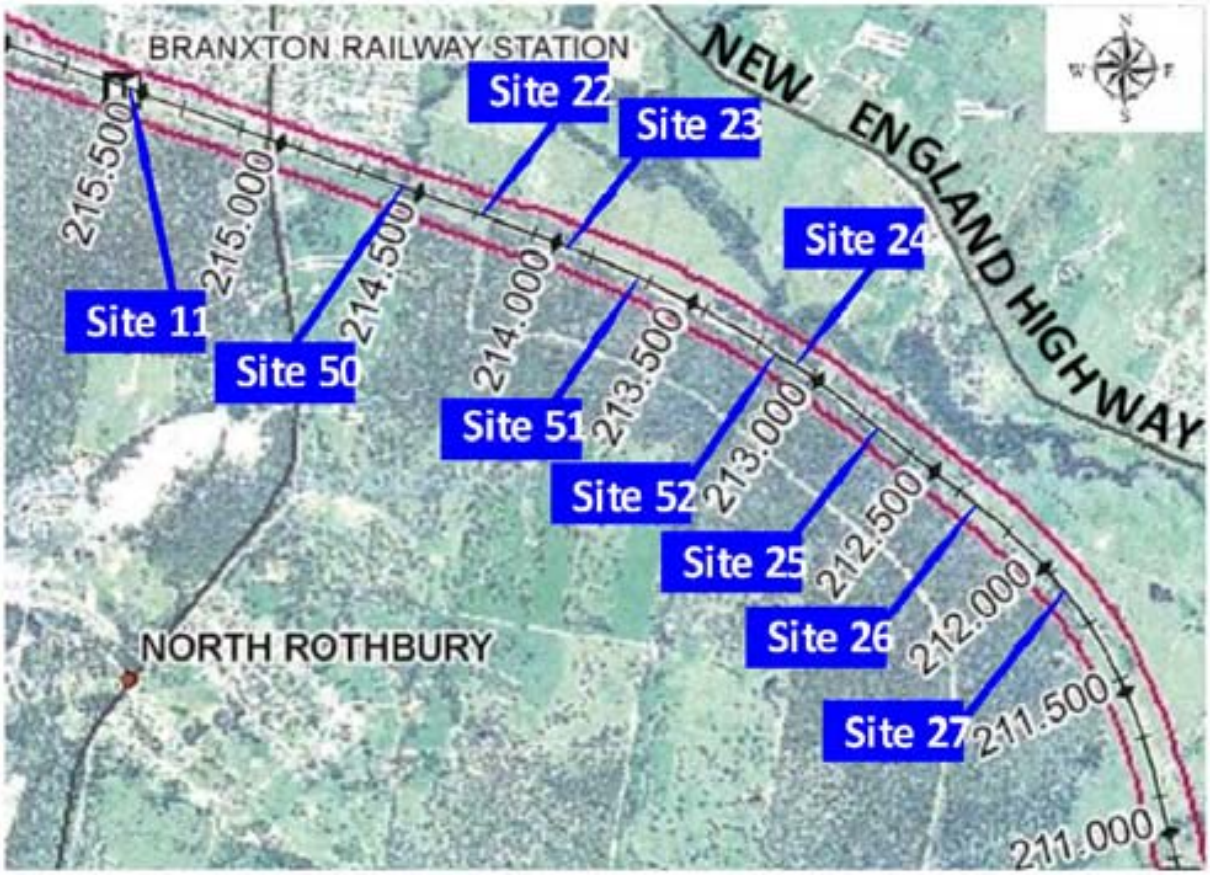

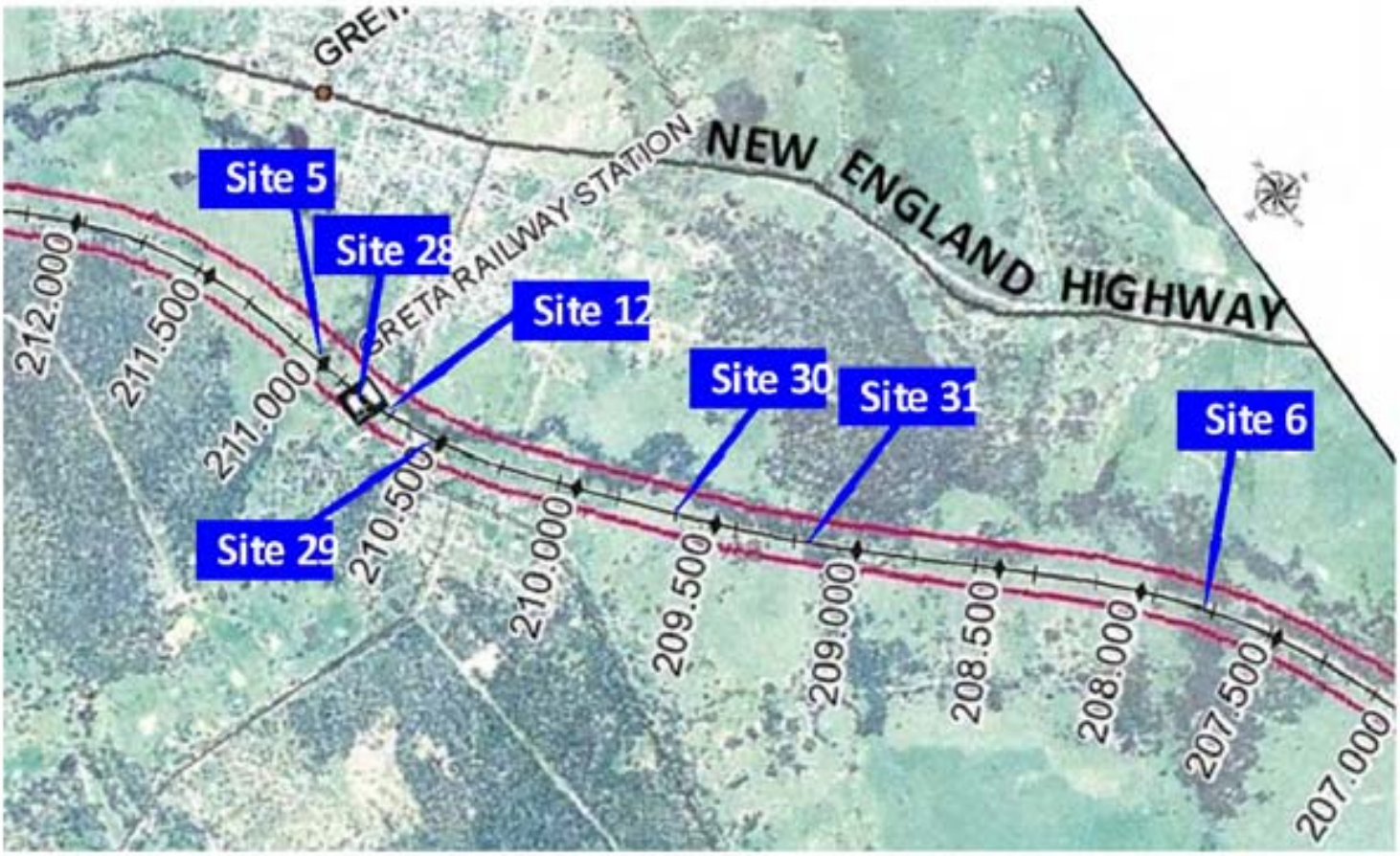

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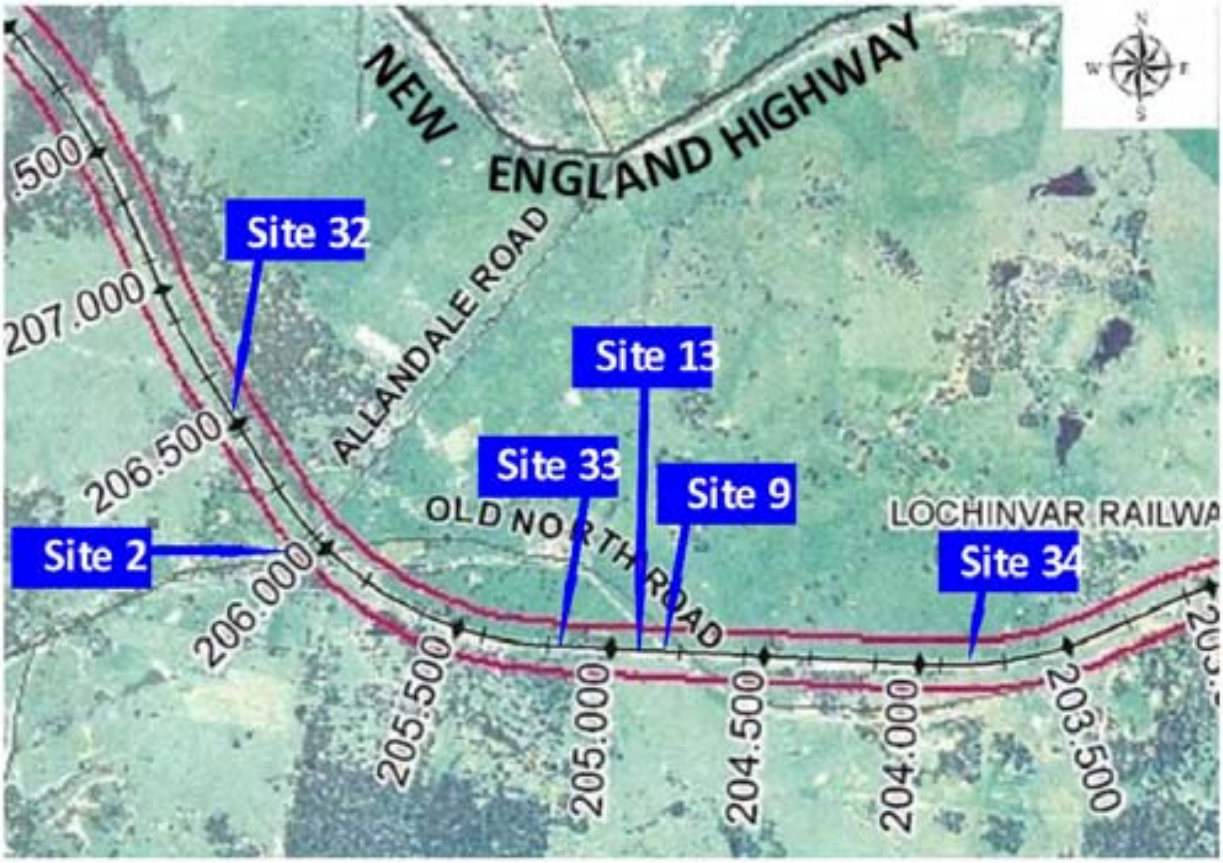

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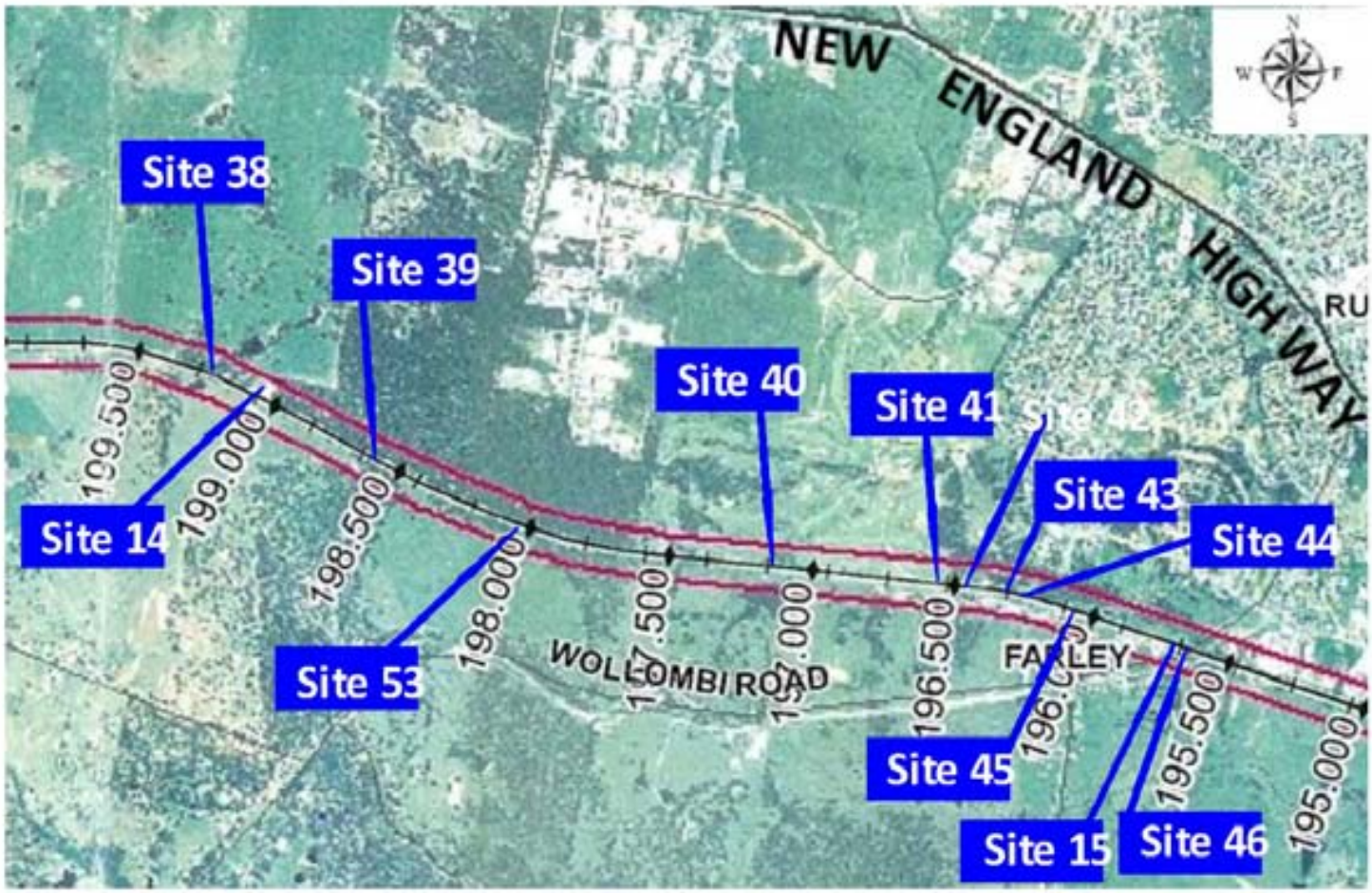

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property then aggregated to 2000 acres by separate acquisitions, was apparently in the hands of Samuel Clift. The house, 'Clifton', was built as a property headquarters house rather than as a gentleman's residence and appears to have been built not for Samuel but for his son Joseph Clift. Nonetheless, it was built to accommodate a family in considerable comfort, a six-bedroom home of locally burnt brick with local cedar joinery throughout. There is a local suggestion that Samuel built 'Clifton' as a pilot study for his own house, 'Walli', with which it shares a distinct visual likeness, externally at least.

The house was surrounded with a garden of Victorian style and spaciousness, including a range of specimen trees, shrubs, bedded gardens and defined rambles, with an ornamental lake and a variety of sitting, entertainment and leisure areas. During the five-year building program, the convict workers were accommodated in a sandstone shelter which became the detached kitchen, cooking, service and dry store.

Members of the Clift Family remained in occupation until the death of Ernest Clift in 1926, leaving no descendants. Ernest bequeathed the house to the Anglican Church and it became the first St Christopher Home, an orphanage operated by nuns until 1955. Thereafter, the house passed through the hands of the BHP Company before being bought by Mr and Mrs Morrison, the present owners, in 1983.

The project plan used in connection with the surface survey of the Clifton property is copied as Figure 2.1.

2.3.2 Site 2 - Allandale Wine Cellars/Penfold's Winery

This brief historical overview has been compiled largely from information provided by the owner and occupant of the property, Ruth Roberts. Ruth's parents acquired the property some forty years ago and Ruth has now inherited the holdings. Our appreciation is extended to Ruth for allowing the use of her research. Much of the information is anecdotal, obtained through oral history. Preliminary research of primary and secondary resources has provided some support for the oral history. However, further research would be required to close a number of information gaps.

The property is listed as Dunoon on the SHI as a result of listing in the Hunter Regional Environmental Plan of 1989. It is our understanding that Dunoon has also been included in the heritage schedule of the 2008 Cessnock LEP (draft) as an item of local significance. The statement of significance for the LEP reads "One of a small group of fine Victorian rural villas in the Lower Hunter Valley which demonstrates the wealth of the pastoral industry at this time" (Roberts, pers. comm.).

Dunoon is part of the former 2000 acres acquired by pioneer settler William Harper, after whom Harper's Hill is now named. The fifth edition of the Branxton Parish Map, showed the area of Portion 66 still intact with the Great Northern Railway intersecting the south west quarter of the property.

Peter Green purchased a nearby property Windermere in 1854 and sold in 1870[9]. It is possible that at about this time Green purchased Dunoon, thought to have been known then as Norwood. It is unclear whether Green purchased the entire 2000 acres of Harper's holdings and later subdivided the land into small rural holdings, or whether he purchased a portion of the already subdivided holdings. The former is more likely, as Peter Green is known to have been established at Allandale at the time of his death in 1889, well before the holdings were subdivided.

An article in the Maitland Mercury in 1889 stated that the owner of "Allandale Wines Cellars" was a Mr W C Green and asserted that Green had twenty years experience in winemaking. It is likely this winemaking

[9] Mitchell, 1984.

experience was gained working with his father Peter Green, probably at Allandale and but also elsewhere, prior to the establishment of the Allandale Wine Cellars. A comprehensive historical land title search would be required to establish more precisely when Peter Green acquired the property and constructed the winery. The 1889 article further provided valuable information on the structural components of the winery being cellars of over 12 000 square feet with six underground water tanks.

The Maitland Mercury confirmed that Green was a well established winemaker in his time, with vineyards at the Allandale site and also at Pokolbin. In addition, he purchased and processed the crops of another sixteen vineyards (Roberts, pers. comm.). The wine was sold locally and exported to London, Paris, Bordeaux and Amsterdam where it received accolades.

It is likely that the article printed in the Maitland Mercury in 1889 was in response to the death in that year of Peter Green, recorded by NSW Register of Births, Deaths and Marriages (BDM) registration number 11117/1889 at West Maitland. It appears that Peter's son Walter, and his wife Annie, inherited the holdings and immediately set about planning improvements to the cellars and the construction of the present day two storey Victorian residence, 'Dunoon'. Construction was completed in 1891, when two cottages were also constructed near the cellars for the use of those working on the property.

William and Frances Bridge with nine of their ten children occupied one of the cottages. One of their daughters, Lilly, was born in 1891 at nearby Greta. Walter and Annie Green produced seven children born between 1879 and 1895. Their son Frederick was their first born in 1879[10].

Oral history records the tragic tale of the murder of Lilly Bridge in 1908 somewhere between the cottage and the house. It is thought that Frederick Green ambushed Lilly, who had rejected his romantic advances, and murdered her by cutting off her head. Lilly was 17 years old. Anecdotal information claims that the murder weapon was never found. Frederick apparently received the death sentence but this was later commuted to a life sentence, probably the result of a concerted legal effort by the Green family. It is thought that Frederick was committed to an asylum for the next 25 years. Frederick's death was recorded in 1948 at Granville[11].

The murder and subsequent trial seems to have had an immediate effect on the fortunes of the Green family. It is possible that legal costs forced the sale of the property, but also that there was an element of community grievance making it uncomfortable for the Greens to remain in the area. A large area of land was relinquished to form part of the Soldier Settlement program following the end of the First World War. Anecdotal information claims that the Greens had left the district by 1912.

The 6th Edition of the Branxton Parish Map shows the subdivided land west of the railway as parcels of small holdings between 50 and 80 acres. The present study area, as then unsubdivided, fell within Portion 258, then an area of 59 acres. The corridor of the Great Northern Railway is clearly shown forming the western boundary of the portion.

By 1922 a number of lots within the Dunoon holdings were offered for sale by tender as part of the soldier settlement program. Annotation of the 7th Edition, Branxton Parish Map showed the creation of Lot 266 in 1924, an area of only three acres, excluded from the Soldier Settlement Area, probably due to the existence of the winery and cellars. The parish map also showed a road reserve running alongside the railway

10 BDM.
11 Op cit.

nexus	Scale: See Bar Scale	Client: Hunter 8 for ARTC Reference: 90601	Source: GHD	Title: Clifton House Precinct: Location of Physical Impact	Figure 2.1

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corridor on the western boundary of Lot 266. This road had been created to provide access to a portion of land still attached to the remainder of the original holdings on the eastern side of the railway line.

In 1924 Lot 266 was sold by tender to Penfolds Wines Limited and a definition survey was undertaken for the Lands Department by Mr Surveyor EH Dunlop. The ownership and fate of the winery between 1912, when the Greens apparently left, and 1924, when Penfolds took possession, is not yet known. The survey plan of Portion 266 in 1924 (copied as Figure 2.2) shows the footprint of the winery and cellars, and also shows a "road of variable width" on the western boundary. The plan does not show the location of the underground water tanks or the location of the workers cottage. It is quite possible that the site was abandoned entirely following Lilly's death, leaving the property unoccupied for a time.

In 1948, Penfolds sold Portion 266 to J N Cooke as the emphasis of the lower Hunter wine industry commenced to concentrate on the Pokolbin area. Cooke used the property for grazing and the grapevines and winery went to ruin. In the early 1970s the property was sold to the Roberts family and remains in that ownership.

In 2008, on the 100th anniversary of the murder of Lilly Bridge, members of the Bridge family re-visited the property and paid tribute to Lilly's memory by retracing the steps of her murder: a tragedy remains current and socially significant to the family descendants even after a century.

2.3.3 Site 3 - Underbridge, Jump Up Creek (residue), Belford

No specific history of the bridging of Jump Up Creek, near Hermitage Road, has been determined as yet. Jump Up Creek was presumably bridged for the original single track and the suggestion has been that all bridges in this phase of construction were in timber[12]. This bridge would have been replaced by a dual track bridge when the line was duplicated. Site 4 - Underbridge, Black Creek and Residue, near Branxton

The Black Creek underbridge lies between Branxton and Belford. The GNR was opened to Branxton on 24 March 1862 and to Singleton on 7 May 1863 (Belford Station not having been opened until September 1869). It is reasonable to assume that the original bridging of Black Creek was undertaken for a single track in late 1862 or early 1863.

The bridge currently in use was a development of the duplication of the line between Maitland and Singleton during 1915-16 and has been briefly described as:

> A 4-span brick arch viaduct with large spans, 51ft (15.6m). Nearly all brick arches were built either by the existing lines branch or by the PWD, all after John Whitton had retired. Built for the main north duplication. DWG 9-135[13]

2.3.4 Site 5 - Underbridge, Sawyers Creek, near Greta

The Sawyers Creek underbridge lies a short distance west of the Greta Railway Station precinct which was opened in September 1869. At construction, therefore, the bridge lay between the stations at Lochinvar and Branxton. The GNR was opened to Lochinvar on 2 July 1860 and to Branxton on 24 March 1862, so

[12] In fact it seems unlikely that all bridges were of timber: those at Sawyers Creek and Black Creek appear to have been in brick pier and iron beam style, while at Anvil Creek the bridge has been represented as an elegant two-cell brick arch structure.

[13] ARTC, NSW Country Rail s170 Register: Black Creek Bridge

that the original construction was probably undertaken in mid-1861. Historical resources consulted to date give no insights into the development of this bridge.

2.3.5 Site 6 - Underbridge, Anvil Creek, near Allandale

Acknowledging from a historical standpoint that the Allandale and Greta Railway Stations, those nearest to the 'Anvil Creek' Bridge, were not opened respectively until June and September 1869, at construction this underbridge lay between Lochinvar and Branxton. As observed above, the GNR was opened to Lochinvar on 2 July 1860 and to Branxton on 24 March 1862, so that the original construction was probably undertaken during the last quarter of 1860 and the first quarter of 1861. Design and construction is said to have been related to higher engineering standards imposed by John Whitton and the original bridge was in brick, in distinction from the majority of bridges and crossings of timber. The bricks are said to have been burnt in kilns (more likely clamps) established beside the line[14].

2.3.6 Site 7 - Underbridge, Wollombi Road, Farley

Wollombi Road was part of the original trunk road system between Sydney, along the Great North Road from Sydney, through Windsor to Wollombi, thence through the present Cessnock area, branching to Maitland, Singleton and Newcastle. By the time the GNR construction extended beyond Maitland, the Wollombi Road had been a well-established and major thoroughfare for about 20 years. The intersection of the road and railway was recognised when the first railway station west of Maitland was opened 2 July 1860 just east of the underbridge and called Wollombi Road. The station name was changed to Farley in 1882.

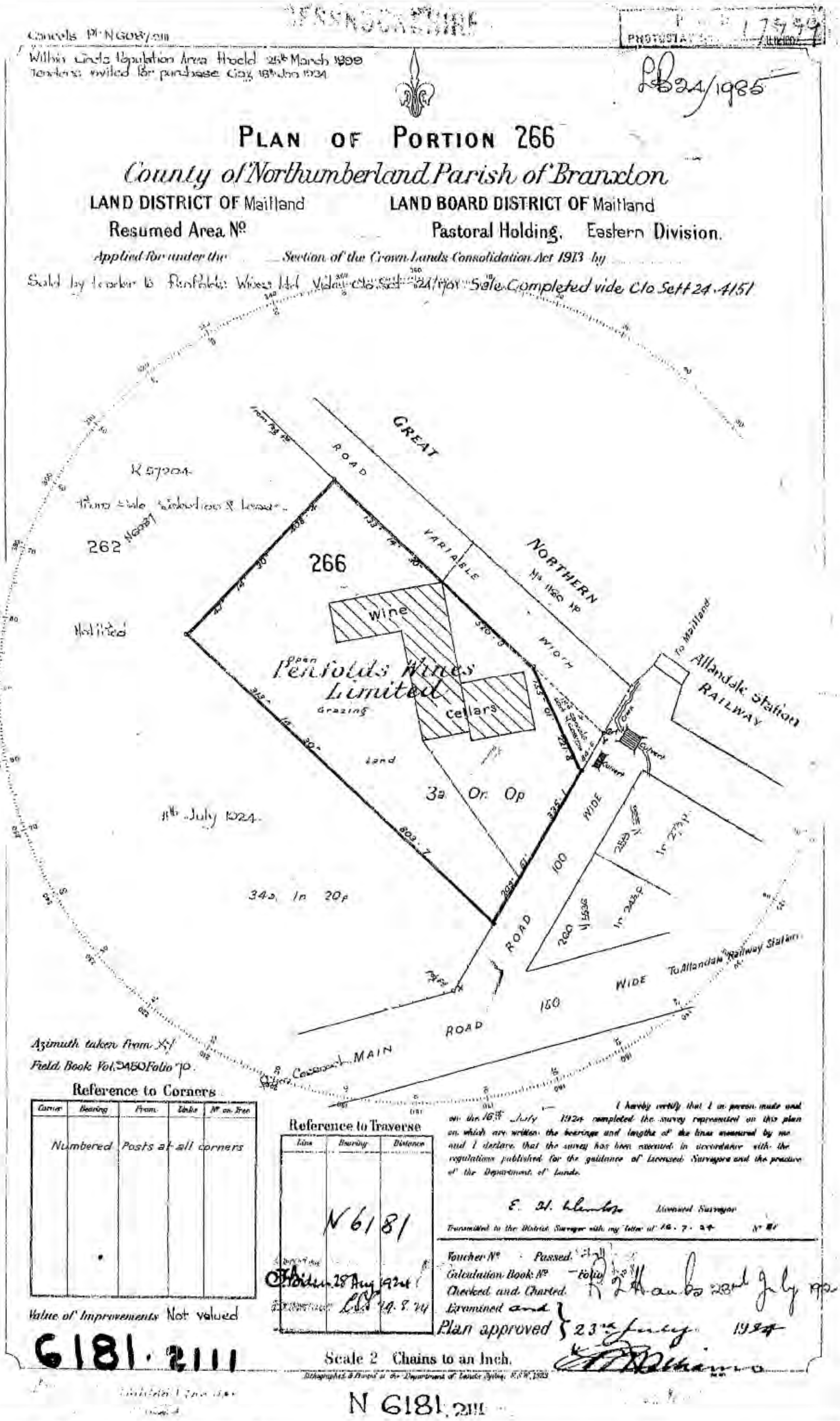
2.3.7 Site 8 - Underbridge, Stony Creek, Farley

Given the date of opening of the Wollombi Road/Farley Railway Station on 2 July 1860, it is reasonable to assume that the original bridging of Stony Creek was achieved prior to that date. No detail of the original construction and technology has been determined to date, but it would be anticipated that the bridge would be substantial in the light of the potential of Stony Creek. Design and construction was apparently similar to that of Site 7, brick being used for the original construction rather than timber.

2.3.8 Site 9 - Overbridge, Old North Road, Lochinvar-Allandale

The intersection of the Old North Road and the GNR appears to have remained at the present location since the inception of the railway. Old North Road branched from Wollombi Road approximately nine kilometres south-west-by west of the Wollombi Road underbridge and travelled westerly to the locality of Lochinvar. At an intersection south of the GNR at Lochinvar, a road, now Station Lane, branched to Lochinvar township while the Old North Road continued more or less parallel with the GNR westerly for approximately two kilometres to an intersection with the GNR and the overbridge. The original overbridge was almost certainly of timber but would have been replaced as a component of the duplication of the line in 1915-16. The overbridges were located approximately 100 metres east of the site of the original Allandale Railway Station

[14] ARTC, NSW Country Rail s170 Register: Anvil Creek Bridge.



Cancels PP N 6087/2111
Within Circle Population Area Proclaimed 25th March 1899
Tenders invited for purchase Gaz 18th Jan 1934
LB24/1985
PLAN OF PORTION 266
County of Northumberland Parish of Branxton
LAND DISTRICT OF Maitland
LAND BOARD DISTRICT OF Maitland
Resumed Area No
Pastoral Holding, Eastern Division.
Applied for under the Section of the Crown Lands Consolidation Act 1913 by
Sale Completed vide C/o Sett 24-4151
GREAT NORTHERN ROAD
VARIABLE WIDTH
266
Wine
Penfolds Wines Limited
Cellars
Grazing
Land
3a 0r 0p
262
Allandale Station
RAILWAY
To Maitland
To Allandale Railway Station
100 WIDE ROAD
150 WIDE
ROAD
MAIN
34a 1r 20p
Azimuth taken from
Field Book Vol 3450 Folio 70.
Reference to Corners
Numbered Posts at all corners
Reference to Traverse
N 6181
I hereby certify that I in person made and on the 16th July 1924 completed the survey represented on this plan on which are written the bearings and lengths of the lines measured by me and I declare that the survey has been executed in accordance with the regulations published for the guidance of Licensed Surveyors and the practice of the Department of Lands.
Licensed Surveyor
Voucher No
Passed.
Calculation Book No
Folio
Checked and Charted
Examined and
Plan approved 23rd July 1924
Value of Improvements Not valued
6181 · 2111
Scale 2 Chains to an Inch.
N 6181.2111

	Scale: **Disregard expressed Scale, see Dimensions**	Client: **Hunter8 for ARTC** Reference: **90601**	Source: **Department of Land and Property, LPI**	Title: **Definition Survey, Por 266, P Branxton**	**FIGURE 2.2**

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2.3.9 Site 10 - Belford Railway Station Precinct

The government town of Belford was laid out and proclaimed a village on 7 December 1889 and extant plans are represented in two versions of two editions of the Town Plan dated 1890 and 1893 (Ed 1) (see Figure 2.3) and 1906. The 1890 Town Plan indicates the location of a railway platform on the northern side of the single line GNR, abutting the eastern alignment of the then McDouall Street, now Hermitage Road. On scale, this platform appears to have been ≈4 chains (80 metres) long. The original platform was opened on 6 September 1869 but was replaced by a pair of modern miniature platforms, nominally three metres long, again on the eastern side of Hermitage Road (no date). On a frame of rail, the platforms appear to have had a concrete deck, while the ramp deck was formed of hardwood/hardboard on a hardwood frame. The platforms were enclosed by a timber railing. The station closed 19 March 1976.

2.3.10 Site 11 - Branxton Railway Station Precinct

The Branxton Railway Station was opened 24 March 1862 as a single platform on the northern side of the then single track, now the Up track. It has been described as:

> ...type 1, brick combination office/residence, 1880s...addition on the western side by a brick station building with gabled corrugated iron roof. The earlier building was modified to house a ticket office at the rear with verandah supported on brackets dating from around 1914. The newer station building appears to date from around the 1880s although the awning appears to be from around the time of duplication. This awning extends in front of the 1862 building. Two front pavilions of the early structure have also been removed.[the Signal Box) is a large timber on platform skillion roof box. The design is standard but the building is significantly bigger than most platform boxes and connects to the 1862 station building[15].

As a component of the 1915-16 duplication of the Maitland-Singleton line, a further platform was constructed at Branxton, on the Down side. This platform has been described as:

> The down platform has a 1914 standard brick and corrugated iron building with open waiting shed and toilets. It has a cantilevered awning on curved brackets and curved arch into the waiting room. This is a larger duplication building than normal reflecting the importance of the location[16].

Also forming part of the precinct was a footbridge connecting the two platforms. This feature is described as follows:

> ...a simple trussed bridge supported on steel towers with precaste [sic] steps with curved rail supports cons[t]ructed at the time of duplication in 1914. It adds to the completeness of the site[17].

The ARTC s170 Register also refers to 'signs, fences, seats, weighing machine and platform faces' which are considered to add to the completeness of the site. Also material to present considerations would be the pattern of tracks around the station precinct, management and operational infrastructure and the dormant connection to the former Rothbury/Branxton/Ayrfield No 3 colliery to the south of the precinct[18] and branching from this siding, there had been a siding that passed north of the Up platform , through the present parking area, to an Oak Milk Factory (KA Chomiszak, pers comm).

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15 ARTC, NSW Country Rail s170 Register: Branxton Railway Station
16 Loc cit.
17 Loc cit.
18 Delaney, op cit.

2.3.11 Site 12 - Greta Railway Station Precinct

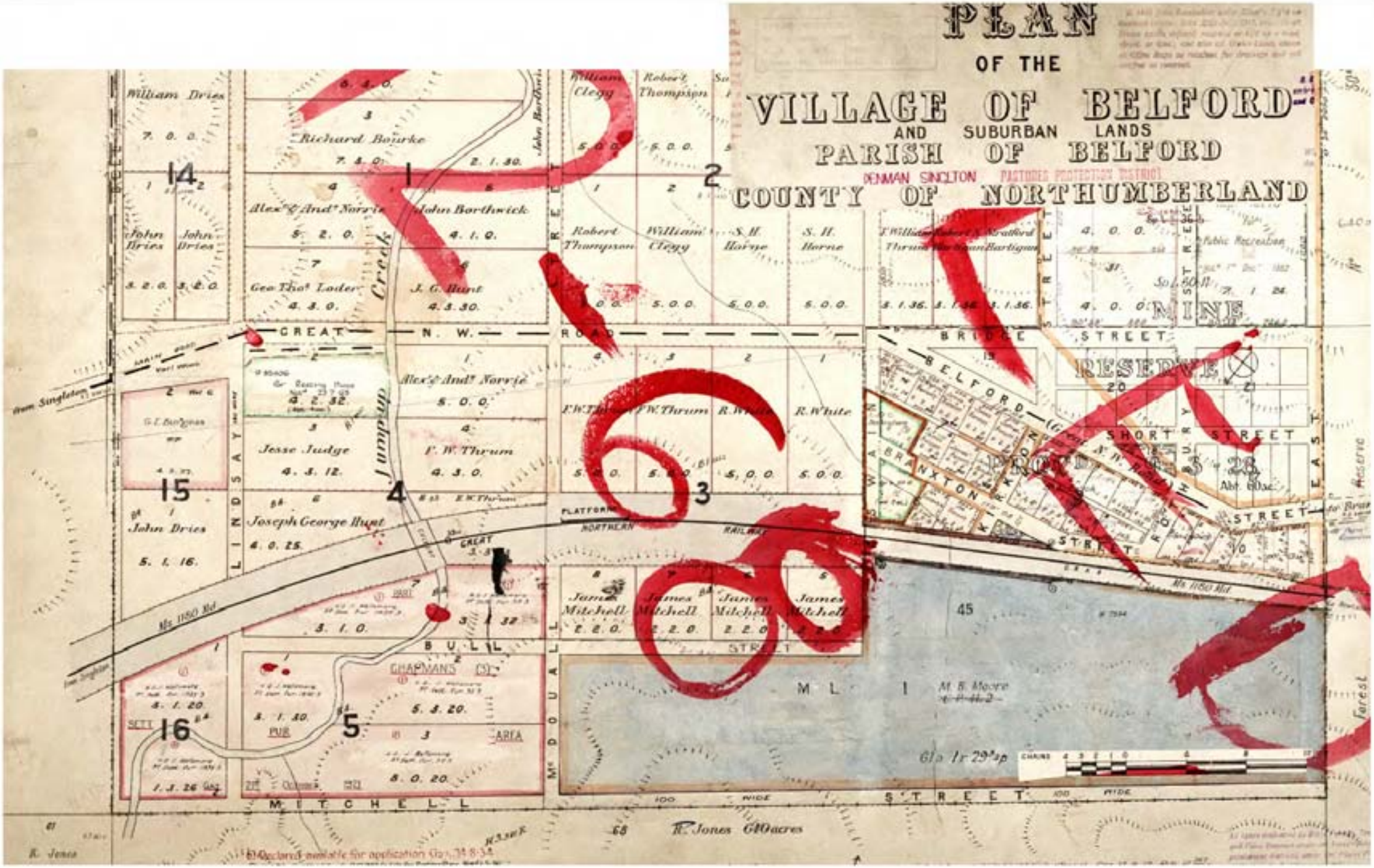
The Greta Railway Station was opened on 6 September 1889 as Farthings, acknowledgement of William Farthing's mining and railway endeavours in the locality: Farthing is said to have built a siding to his small mine and a private platform as early as 1863[19]. The platform serving the single track at that time is that for the present Up line and has been described as:

> The main station (...is of type 3, second class wayside station, 1889) building on the up platform is an intact example of a second class station building. It is a symmetrical brick structure with a corrugated iron hipped roof. The platform awning is supported on decorative cast iron posts and details including graceful curved beam supports between columns. An interesting moulded timber fascia extends around the three free sides of the awning. The awning to the passenger entry is a small hipped roof supported on stop-chamfered timber posts. The planning of the building is linear with a central booking/waiting room, a ticket office to one side and ladies waiting room to the other. The male toilet is in a detached structure to one end. The interior, although damaged, contains original joinery and chimney pieces. The adjacent brick building to the station building is a simple rectangular structure with gable roof clad in corrugated iron and simple lean to verandah to the front. This is supported on timber posts. Its construction date is not known (c.1889), but it appears to post date the station building. It has intricately detailed barge boards surviving at one end. Its construction date would be shortly after the station building. It appears to have been used as a parcels office, it is a one room structure with entry only from the platform.
>
> The signal box constructed in 1915 is a type 3 box widely used throughout the state in the early part of the century. It is a timber framed and clad structure with a skillion roof, large small- paned windows to two sides and a front entry door. This example is unusual in that it has an added front awning supported on 4 timber posts. It is most likely that this has been added after the time of construction. Although no longer in use it is an excellent example of its type and adds to the significance of the group.
>
> The station buildings on the down platform date from the time of duplication (...type 11 duplication station, 1915). The waiting shed is of brick construction with a gabled corrugated iron roof with integral awning supported on simple curved brackets. Entrance to the waiting area is through a large curved head opening. The structure has one window in the rear wall with small panes of coloured glass. Adjacent to it is a skillion roof timber framed and clad parcels room of unknown date. It contains a double door to the platform only and is typical of many similar structures throughout the state.
>
> Platform faces are of brick and appear to date to 1915. It is most likely that ...[fencing]... dates from 1913 at the time of duplication. Of interest is the platform surface which is gravel and the low height of the platforms above track level. Most stations have been raised significantly over the years and have had bitumen surfaces added.
>
> The footbridge [1922 construction]...is an unusual design having a steel frame and timber treads and handrails, with strand wire infill. A tubular steel handrail has been added at a later stage. The footbridge was built at the time of duplication and connects the two platforms only. The form of the painted posts and rails is dominant in viewing the station complex and is unusual when compared to the more standard grey steel structures[20].

In addition to the above, although there is little present evidence, goods handling facilities existed at Greta. On the 1912 Greta Town Map, the Greta railway station precinct was shown with a goods siding loop around the southern side and a run-through goods shed. The goods shed shows on historical photographs as being either weatherboard or (more likely) galvanised iron clad and perhaps 6 metres wide: the eastern

19 Ibid.

20 ARTC, NSW Country Rail s170 Register: Greta Station Group.



	Scale:	Client:	Source:	Title:	
nexus	See Bar Scale	Hunter 8 for ARTC Reference: 90601	Department of Land & Property, LPI	Extract, Belford Town Map, Ed 1, 31/1/1890	Figure 2.3

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end contained a rail vehicle portal/door and a pedestrian door. The goods shed was adjacent to the western end of the Down platform[21]. On the southern side of this was located a fuel store building (J Chomiszak, pers comm). The siding to the named collieries (above) branched northerly from the western end of the railway station precinct[22].

2.3.12 Site 13 - Allandale Railway Station Precinct

A platform was opened at Allandale on 29 June 1869 and was located on the southern side of the then single road, on the western side of the Old North Road underbridge. The original platform was replaced by a pair of modern miniature platforms, nominally about three metres long and of a style and construction similar to those at Belford, but relocated to chainage 205.93. The Allandale Station was temporarily closed in 2002 because of the public risk attending construction of the Old North Road Underbridge (chainage ≈206.000, as distinct from the Old North Road Overbridge at chainage 204.809) but was permanently closed 9 September 2005[23].

2.3.13 Site 14 - Rutherford Junction Railway Station Precinct

A platform was opened as 'Rutherford' in 1886, at the junction of the GNR and a private rail line established to serve the Denton Park Colliery, which opened in 1888 and appears to have ceased operations only a year later, although reopened in 1927. The station shows as 'Rutherford Junction', on the Sixth Edition of the Gosforth Parish Map (see Figure 2.4), the name having been changed in December 1941. The platform(s) may have been relocated a short distance westerly to relate to the Rutherford Racecourse branch, which was opened 26 July 1914. The branch, running north from the GNR, terminated in an island platform which was notable for its facilities for handling horses as well as human passengers. During the Second World War, the racecourse precinct was resumed by the Commonwealth Government for a munitions factory and the former Racecourse Branch was significantly amplified. The branch was closed in 1965 although the station buildings are said to have survived on site for many years[24].

2.3.14 Site 15 - Farley Railway Station Precinct

A station was opened on the western side of the intersection of the GNR with Wollombi Road on 2 July 1860 and was originally called 'Wollombi Road'. The station was at this time represented by a typical platform serving the present down line, with brick building(s) and platform awning on iron cantilever frames similar to those surviving at Greta and Branxton. In 1882, the station was renamed 'Farley' but was closed 20 September 1975. The building(s) were demolished some time after 1987 but the platform facing remained on site at least in 2005[25].

2.3.15 Site 16 - Level Crossing Precinct, Hermitage Road, Belford

Based on the historical maps of Parish Belford and the Belford Town Maps, there has been a crossing of the railway line at what is now called Hermitage Road since at least 1890 (see Figure 2.3). At that time, the road was named McDouall Street and the crossing was located immediately adjacent to the western end of

21 Randall, nd: not paginated.
22 Delaney, op cit.
23 <www.nswrail.net/library/planned.php>.
24 Ibid.
25 Ibid.

the Belford (single) platform on the northern side of the single track, at a point ≈120 metres east of the former '39m' marker (ie: 39 miles or 52½ kilometres west of Newcastle).

The passage of the main road between Branxton and Singleton was identified on the Belford Town Map as 'Great N. W. Road and 'Belford Street'. The residential section of the village was laid out on both sides of Belford Street, north-east of the station and McDouall Street crossing. On the western side of McDouall Street, which is material to present considerations, the a town allotments of Section 4 were larger: Allotment 1, taken up by Alexander and Andrew Norrie contained 5 acres; Allotment 4 by FW Thrum of 4 acres 3 roods; and Allotment 5 by EW Thrum, nominally of 3 acres 1 rood and 33 perches, but virtually decimated by resumption for the GNR. On the southern side of the GNR, Allotment 7 was not taken up until 1935: this allotment, together with Sections 5 and 16 of the Village, were gazetted for rural use as 'Part Chapman's Settlement Purchase Area' but were taken up eventually by NOJ Wellsmore as SP 1935/3.

On the basis of the above, it seems unlikely that any of the land foreshadowed for involvement in the realignment of Hermitage Road and bridging of the railway would have been developed by building or used for any purpose that might result in the deposition of material evidence.

2.3.16 Site 17 to Site 52 - Culverts

There was little in the historical resources to inform specifically on the nature, frequency and technology of watercourse crossings. However, 'some of the most graceful and enduring railway structures are bridges, viaducts and tunnel portals which belong to the early years of railway making'[26].

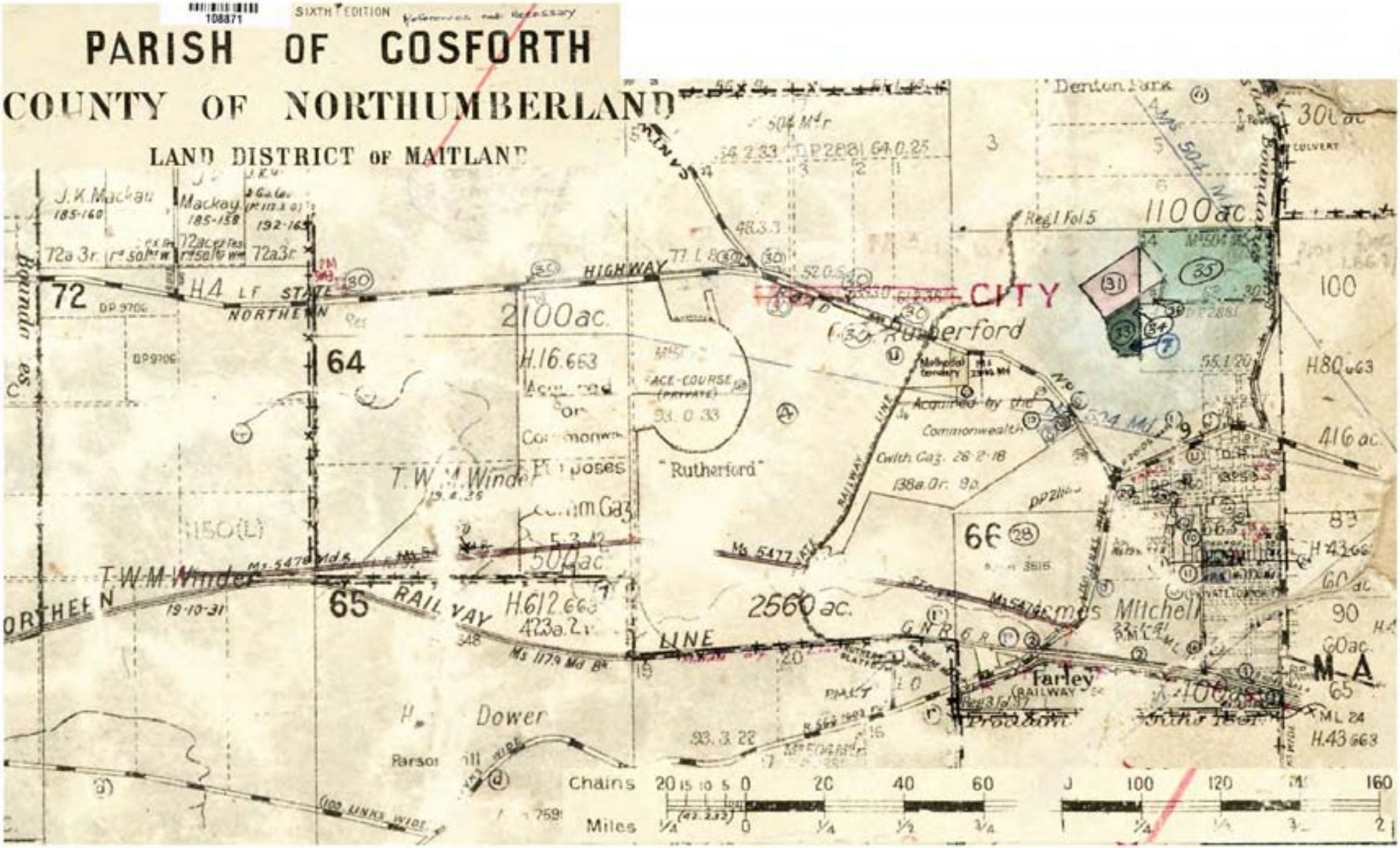
While the major watercourses in the study area, such as Jump Up Creek, Black Creek, Anvil Creek, Sawyers Creek and Stony Creek could be identified on parish and topographic maps, it was anticipated that a large number of minor and ephemeral watercourses and natural drains would have been negotiated in the construction of the GNR in its original single track form. Furthermore, it was anticipated that watercourse crossings would have been replaced, modified and/or amplified in the course of duplication of the line in 1912-1916. .

While no specific historical information on the bridges and culverts of the study area has been available to date, it is relevant to consider the general history of bridge building in an early Australian context. The development of bridge technology in Australia began with the rudimentary road systems which were established in the infant settlements to enable movement around the settlements and, later, into and around the hinterland.

Stone culverts were first constructed in Australia in the 1820s in association with early roads, notably the convict built Great North Road. These stone culverts were typically of a poor standard due to a lack of engineering and construction know how in the very early days of settlement.

One manifestation of the unique Australian landscape and climate was the behaviour of the streams and rivers, which was unlike anything experienced in England. The rivers, like the climate, reflected harsh extremes, so that a water channel may be dry for many months of the year, but in flood may carry vast volumes of water capable of great destruction. In addition, there was little engineering and construction expertise among the early settlers. As a result, many of the early bridge building efforts were destroyed within a short time of their construction.

[26] Burke, 1988, p 135.



	Scale:	Client:	Source:	Title:	
nexus	See Bar Scale	Hunter 8 for ARTC Reference: 90601	Department of Land & Property, LPI	Extract, Gosforth Parish Map, Ed 6, 1/1/1943	Figure 2.4

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With expansion into the hinterland areas, the demand was for cheap, rapid construction, using readily accessible materials and utilising the abundance of convict labour. This led to simple tree trunk bridges but, as the Colony gained stability, the government looked towards more permanent structures and, as the skills for quarrying and stone dressing became available, masonry bridges and bridge abutments were designed and built.

One of the early engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as Engineer-in chief[27] based on his knowledge and experience in railway and bridge construction in England.

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by the railway and burnt on site in brick clamps[28].

Over the next 32 years Whitton completed 2811 miles of railway around NSW and Victoria. He is notable for building the railway over the Blue Mountains, in particular the Great Zig Zag near Lithgow and the Glenrook Zig-Zag, the Hawkesbury River Bridge, and a number of road bridges throughout NSW.

Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as “formidable”.

2.4 PHYSICAL CONTEXT

2.4.1 Methodology

The assessment of physical context results from observations made in the course of a physical archaeological surface survey of the study area. The study area was readily accessible by an internal service road, gated at frequent intersections with public roads and places. In most areas, visibility off the active railway earthworks was impeded by heavy growth of vegetation, however larger features were both predictable and visible.

In general terms, the survey sought to identify and make a preliminary evaluation of material evidence of the former operations and occupation of the study area. It appeared possible that archaeological surface survey might locate:

- The residue of structural, functional and transport platforms, earthworks and/or infrastructure.
- Evidence of structural and machinery footings.

[27] O’Connor, 1985.
[28] O’Connor, 1985

- Positive indications of the former locations of residential and industrial/commercial operations and infrastructure.

- Artefacts (possibly) related to the use and occupation of the study area.

In the course of all field investigations, attention was directed to identifying:

- Structures and/or the remains of structures or demolition material.

- Signs of ground disturbance that might be associated with non-indigenous settlement and/or industrial activity, such as site levelling for buildings or infrastructure and the like.

- Artefacts or the indication of the possible presence of artefacts that might have an association with the former use(s) or application(s) of the study area.

- Non-building structural modifications on the ground, such as, fencing and yards or their residue.

- Features of landscape that may have an operational or spatial relationship with known or suspected non-indigenous activity on the study area.

In respect of all of these investigations the preparation of a preliminary text and photographic record of the salient features of the study area.

2.4.2 Results of Field Surveys

Surface survey of the study area identified (or provisionally identified) more than fifty individual elements associated with former historical activities at/on the study area. These sites are dealt with in Sections 2.4.2.1 to 2.4.2.18 below. In respect of each site, this report:

- locates the element by chainage on the maps comprised in Figures 2.A to 2.D.

- briefly describes the fabric or the material evidence of the element.

- makes observations as to its known or presumed history, the original or probable original function of the site.

Survey results are also recorded on individual Site Inventory Sheets attached in Appendix 2.

2.4.2.1 Site 1 - 'Clifton' Homestead, Station Lane, Lochinvar

at Chainage: ≈202.480 km

'Clifton' has been listed on the Maitland Local Environmental Plan, and is accordingly also listed on the State Heritage Inventory. The listing here does not specify the extent of the heritage curtilage. However, the listing by the (unofficial) National Trust of Australia (NSW) indicates that the listing extends to cover both the building and the curtilage including garden and domestic outhouses, and presumably the ruins of rural structures in the near periphery.

In the course of surface survey, most attention was given to the residential curtilage rather than to individual structures, and then specifically to those areas of the property that were identified as subject to possible physical impact. Clifton house presents as an impressive building, in an impressive state of maintenance and presentation. The former detached kitchen remains as the oldest building of the

precinct. Although possibly a little outdated architecturally at the time it was built, the house is representative of its period in its environment, even taking into account its sensitive modifications of bathrooms and conservatory style additions. In the course of our inspection we observed around the house an essentially Arcadian, rambling and typically Victorian-style garden, with:

- an artificial lake with a stylised watercourse overflow channel over which a timber and cast iron bridge had been built as part of the garden ramble; it is possible that the lake occupies the site of a quarry from which clay was won and puddled, and sandstock bricks were moulded before clamp-firing, from which the house was built.

- a range of well-grown exotic and native specimens including rough-barked willow, Moreton Bay, wisteria, elm, jacaranda and crepe myrtle.

- rustic rockeries formed of random sandstone blocks, containing broad-leafed semi-tropicals, orchid and succulent specimens.

- a number of recreational resorts and furnishings, including statuary, a gazebo and rustic seats linked by gravelled paths with an arbour.

- two dome-capped wells or cisterns which were obviously original.

- a circular vehicular drive, framing one of the Moreton Bay figs and an ancient elm.

The gardens show signs of modification and addition during the 20th Century but the age of the more substantial plantings testifies to the originality of the broad layout to the north and east of the house. It is concluded that the immediate surroundings of 'Clifton', comprising the garden developments (of plantings, pathways, lake and overflow, and garden furnishings, recreational and functional features) and outbuildings combine to provide a curtilage that is integral to the heritage values of the house. Of particular relevance to present considerations is the fact that the most consequential and relatively intact component of the garden lies in this north/east alignment, that is, between the house and the railway corridor. The effect is that any encroachment in this area would have some impact on the heritage values of the house and curtilage.

2.4.2.2 Site 2 - Allandale Wine Cellars/Penfold's Winery

at Chainage 206.100–206.200 km

Sue Singleton undertook site inspection on Friday 23 October 2009 accompanied by property owner, Ruth Roberts. Ruth kindly provided anecdotal history and personal research results for use in this study.

The site is now used intermittently for grazing purposes and a thick ground cover of pasture considerably reduced surface visibility. However, four of the six underground water tanks were located without difficulty due to the presence of substantial structural remains. The tanks were circular in form and constructed of two leaf brickwork with internal render. Three of the four tanks had been filled with general rubbish including corrugated iron, fencing timbers and wire among other things. The fourth tank was full of water. The location of the remaining two underground tanks was not positively identified although landform evidence indicated the potential for locations to exist in alignment with the known tanks. Refer to Figures 2.5 and 2.6, in the latter where white arrows mark locations of known water tanks.

Further landform evidence consisting of building platforms excavated into the slope indicated the former location of buildings. Within the building platforms occasional structural timbers and handmade diamond frog bricks[29] were observed in the grass. The landform indicators corresponded to the general footprint of the Penfolds survey of 1924. The presence of artefacts associated with the former cellars and winery was able to be confirmed due to disturbance and exposure by industrial machinery moving across the site during previous works by ARTC[30]. Ceramic tile and glass was visible on the surface within the machine tracks and confirming these precincts as areas of actual as well as probable archaeological potential.

The base of a double fireplace constructed of brick, presumably one of the worker's cottages, was located only metres from the western boundary fence and rail corridor (see Figure 2.6). Given the orientation of the fireplace, it is likely the footprint of the cottage extended into what was theoretically mapped as a road and into the present day rail corridor. Other bricks and brick fragments were scattered within a short distance of the fireplace. The site of the second worker's cottage was not identified. However, landform indicators within the immediate area of the known remains presented a number of precincts for potential structural and archaeological remains.

There was no indication that the road, indicated on the 1924 survey and prior Parish Maps, had ever been formed into or used as an access road. The former occupation site appears to lie within this road reserve, which may go some way to explain why it was never developed as a road.

2.4.2.3 Site 3 - Underbridge, Jump Up Creek (residue), Belford

at Chainage: 222.848 km

No specific history of the bridging of Jump Up Creek has been determined as yet. Jump Up Creek was presumably bridged for the original single track and the suggestion has been that all bridges in this phase of construction were in timber[31] this bridge would have been replaced by a dual track bridge when the line was duplicated. At the outset, we were advised that the dual track was now carried on a modern concrete bridge. However, site inspection was still carried out in the event that structural remains of a former rail crossing were still evident. On surface survey, we validated that the present railway crossing of Jump Up Creek was a modern concrete structure, however residual material evidence suggested that an earlier bridge had been constructed with steel beams over two brick piers and, presumably, brick abutments (the latter having been either demolished or covered by the modern concrete abutments). The residual pier stumps are shown framed inside the present concrete structure in a composite photograph in Figure 2.7. The stumps had been cut down to ≈1.4 metres above ambient water level and capped with concrete and have a total potential bearing length of ≈8.0 metres, which suggests that they probably date to the duplication period, 1914-6.

2.4.2.4 Site 4 - Underbridge Precinct, Black Creek, near Branxton

at Chainage: 217.200 km

The Black Creek precinct is notable for retaining material evidence of the original bridge over Black Creek in the form of two single track width brick piers (see Figure 2.8) and abutments to east (see Figure 2.9) and west. The configuration of the piers and abutments suggested that the single track had been carried on

29 Diamond frog bricks are representative of brick making in the Maitland District circa 1860-1880.
30 R Roberts, pers. comm.
31 In fact it seems unlikely that all bridges were of timber: those at Sawyers Creek and Black Creek appear to have been in brick abutment/pier and iron beam style, while at Anvil Creek the bridge has been represented as an elegant two-cell brick arch structure.

Figure 2.5

In this general view of the Allandale Vineyard/Penfold Winery site, the Allandale Road Underbridge can be seen at right middle ground. In the left foreground, the assemblage of timber marks the position of one of the filled sub-surface water tanks while in far left middle ground can be seen the footing remains of the worker's cottage double fireplace.

Sue Singleton
No Scale

Figure 2.6

In this south-easterly view, virtually from the railway embankment, the footing remains of the worker's cottage double fireplace is in the immediate foreground while the white arrows indicate the approximate centre of the four sub-surface water tanks.

Sue Singleton
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Figure 2.7 (above)

A composite view of the Jump Up Creek Underbridge precinct showing the stumps of an earlier bridge framed by the modern concrete structure

Paul Rheinberger
No Scale

Figure 2.8

The two residual piers of the original Black Creek Underbridge, viewed from north-easterly

Paul Rheinberger
No Scale

Figure 2.9

The complex brick eastern abutment of the original Black Creek Underbridge. The function of the two arches has not been investigated at this stage

Paul Rheinberger
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iron or steel beams, each span of well over 70 feet (≈22 metres). The residual material evidence is particularly valuable as an insight into the technology of bridge construction on the original single track extension of the GNR west from Maitland.

The remaining Black Creek underbridge has been well described in heritage documentation and presents as an elegant as well as massive masonry construction. In general terms, the structure was founded on a sandstone footing, and sandstone was also coursed as a footing at the branch of the three arches. Sandstone was also used in three courses (including two string courses) as a footing for the parapet wall and as a single course for parapet wall capping. The bulk of the structure was of solid brick: using the second pier as an example, the structure comprised 57 courses between footing and the sandstone course at the arch branch; 92 courses between the arch branch and sandstone string courses at the foot of the parapet wall (including a sawtooth string course). The arch was comprised of 8 soldier courses (see Figure 2.10). An unusual feature of the structure was the use of engaged columns in the abutments, splayed at the base in the nature of a buttress. The description of the internal structure of the piers was borne out by the obvious continued function of the drains, from weep holes in the centre line of piers 20 courses below the sawtooth string course (see Figures 2.11 and 2.12).

2.4.2.5 Site 5 - Underbridge and Culvert, Sawyers Creek, near Greta

at Chainage: 211.010 km

Evolving styles of bridge technology were evident at the crossing of Sawyers Creek. In an earlier (perhaps original) form, the bridge had been constructed as a single line structure with brick abutments and a single central brick pier supporting iron/steel beams (see Figure 2.13). The leading and trailing edges of the pier had been chamfered. The structure closely resembled the style of the single line structure at Black Creek. On this bridge, timber sleepers were still in evidence. With the duplication of the line, the style was maintained with brick abutments and central pier, however in a later modification, metal beams had been replaced by precast concrete sections, as can be seen in Figure 2.13 Inset.

2.4.2.6 Site 6 - Underbridge, Anvil Creek tributary, near Allandale

at Chainage: 207.776

Inspection verified the description of this bridge in the ARTC s 170 Register, although three phases of construction could be identified. At the outset, on the northern side, at least, the Anvil Creek Bridge was indeed a graceful and thoroughly Victorian-style, twin-cell brick arch bridge (Figure 2.14). A central section of each drain arch was constructed with hand-moulded red brick, probably the original single track structure, laid in English bond. On the northern side the original arch forms had been extended in a machine-moulded yellow brick, also laid in English bond. The bricks appeared to be of c.1910-1920 vintage and probably relate to line duplication. The third phase was much more recent: on the southern side, the arches had been extended in formed arches of corrugated galvanised steel, set in concrete, which at one point had been inscribed 'November 2002 (Figure 2.15). Throughout, the brickwork of walls, arch and floor appeared in good condition (Figure 2.16). At the northern (outfall) arch, the floor was clear of sediment while some inflow sediment had accumulated around the southern arch. On the northern side, headwall height for each arch was 4100 mm, arch height 3430 mm, drain width 3220 mm and the dishing of the drain was 2775 mm deep. Total length of wing walls was 4280 mm, while the wing walls declined over 3350 mm. The height of wingwalls proximal to the headwall was 3980 mm and distal, 1940 mm.

2.4.2.7 Site 7 - Underbridge, Wollombi Road, Farley

at Chainage: 195.600 km

The Wollombi Road Underbridge was observed as a simple structure of east and west abutments over which the duplicated track was carried on steel beams. In this context, the bridge was not distinguished

from many of the same style in the general locality and the State. The bridge is shown in Figure 2.17 and comprised abutments of yellow brick in English bond rising 46 courses to four string courses and a single chamfer course above which were platforms rebated to support the ends of steel beams. Above the platforms, secondary abutments were offset to a height of 14 courses. An unusual feature of the abutments was the vacant provision for a third track on the southern side. Wing walls splayed from the northern and southern ends of the abutments.

2.4.2.8 Site 8 - Underbridge, Stony Creek, Farley

at Chainage: 195.555 km

The extent of this bridge was a revelation and, although unrecognised in the ARTC s170 Register, it has proved to be at least as fine an example of Victorian railway bridge building as the Anvil Creek Underbridge. Similar in style, but even more substantial in conception and execution, the bridge was found to be another twin-cell brick arch bridge (Figure 2.18). In this example, there was no evidence of modern intervention, however the drain arch revealed two phases of construction in a fashion similar to the Anvil Creek Underbridge. A join was evident in the arch brickwork dividing the northern and southern sides of the arch between older red brick and more recent yellow brick, both in the same style as at Anvil Creek (Figure 2.19). One point of distinction between the two bridges, however, was the pedestrian access afforded by a concrete pathway ≈1000 mm above water level. This path was gated and locked on the northern side: the gate of galvanised rod can be seen in Figure 2.18 while the detail of the path can be seen in Figure 2.19. This bridge also featured a drainage system of the type implemented at Black Creek Underbridge.

Because of access difficulties, only the northern side of the bridge could be conveniently inspected and accurate measurements were unable to be made because of standing water in the arches and approaches. However, by scaling, it appeared that on the northern brick arches, headwall height above water level was ≈5750 mm, arch height ≈4750 mm, drain width ≈3330 mm while any dishing of the drain obviously could not be estimated. Total length of wing walls was ≈7400 mm, while the wing walls declined over ≈6600 mm. The height of wingwalls proximal to the headwall was ≈5330 mm and distal, ≈1100 mm.

2.4.2.9 Site 9 - Overbridge, Old North Road, Lochinvar-Allandale

at Chainage: 204.809 km

The Old North Road crosses the GNR at Allandale on a high arch bridge, mostly brick, at a high point of a railway cutting (see Figure 2.20). The vertical walls below the branch of the arch comprised 58 courses of English bond below a string course of cement that may have been faced reinforced concrete or render over four additional courses of brickwork. Above the string course, the arch was framed by a facing of reinforced concrete, which showed signs of deterioration on the western side (note in figure). Above the arch, brickwork varied between 31 and nine courses below the parapet wall which comprised 13 courses of (mainly) stretcher bond in two leaves, with an occasional header as a ty-in mechanism. The parapet was surmounted by a single soldier course. The parapet walls were finished at each end with a tied column. The bridge parapet showed the signs of having suffered from motor vehicle impact on the south-eastern sector, which had been repaired in stretcher bond.

2.4.2.10 Site 10 - Belford Railway Station Precinct

nominally at Chainage: 222.700 km

The precise former location of the original station was determinable from historical sources, in particular the Belford Town Maps, 1890 and 1906. The modern platforms were apparently located at the same chainage. Surface survey of the sites on the eastern side of the Hermitage Road level crossing, both north and south, revealed no surface evidence of either the original or modern platforms, however such evidence probably remains in the sub-surface.

Figure 2.10

The graceful second and third arches of the present Black Creek Bridge contrast in height and mass with the first pier of the original bridge. Where the original bridge piering and abutments were solely of brick, the composite sandstone and brick of the present bridge can be see at footing, the branch of the arch and as string courses at foot and capping course above the parapet wall.

Paul Rheinberger
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Figure 2.11

Detail of the first arch of the present Black Creek Bridge, incidentally framing the first pier of the original bridge. Note the buttress/engaged column just east (left) of the first arch.

Paul Rheinberger
No Scale

Figure 2.12

Detail of the southern abutment of the bridge and branch of the third arch. Note the massive soldier coursing of the arch, the sawtooth string course below the sandstone string courses, the capping course and the buttress/engaged column.

Paul Rheinberger
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Figure 2.13(above/above left)

Looking south under/through the original Sawyers Creek Underbridge. The original single track bridge remained: brick abutments and central, chamfered brick pier under iron/steel beams. The duplication extension of the bridge continued the style but the decking had been replaced with reinforced concrete (see inset

Paul Rheinberger
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Figure 2.14

The appearance of the Anvil Creek underbridge on the northern side, inset showing the interface of original and duplication arch brickwork, cg stele extension in background, looking south...

Sue Singleton
Scale: 200 mm

Figure 2.15

...on the southern side, the corrugated galvanised steel extensions carried ou, according to a date scratched in the concrete, in November 2002.

Sue Singleton
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Figure 2.16

Looking south through one of the cells of the Anvil Creek Bridge, emphasizing the corrugated iron extension and the brickwork of the internal arch, including the floor.

Sue Singleton
Scale: 200 mm

Figure 2.17

Looking north to the Wollombi Road underbridge from the eastern side of Wollombi Road.

Paul Rheinberger
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Figure 2.18

The elegant twin-cell brick arch underbridge at chainage 195.555, Stony Creek, emphasizing the extent of standing water and the gated entrance to the pedestrian way

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2.4.2.11 Site 11 - Branxton Railway Station Precinct

at Chainage: 215.500 km

Surface survey of the Branxton Railway Station Precinct validated the descriptions of the resources of the precinct contained in the State Heritage Register and the ARTC s170 Register. Upon inspection the Up platform contained a series of buildings in keeping with the age and style of the historic station, and is depicted in Figure 2.21. Of particular note were the parcels office at the western end of the group, the main station building of offices and waiting room, while the signal box remained as a later addition. The platform facing had been modified in front of the signal room in concrete, while the surface of the platform had been raised by approximately 300 mm and bitumen sealed from east of the signal room to the western end of the platform to facilitate passenger access to modern carriages. The eastern end of the platform retained its original antbed surface behind the platform facing of brick, and was notable for the survival intact of the original dock siding, with platform access on both sides.

The same style of modification had been carried out, with the same resultant effect, on the Down platform shown in Figure 2.22. The only building on the down platform was the office/waiting room dating from the duplication of the line. Both platforms retained fencing in an original style. Figure 2.23 provides a view looking westerly along the precinct and detailing the dock siding, the Up and Down platforms with buildings and the footbridge at the western end of the precinct. Access between platforms was provided by the footbridge, supported on steel framed columns outside the fence line of both platforms. The access staircase and footbridge adjacent to the Up platform is shown in Figure 2.24

The footbridge provided a platform for elevated overviews of the precinct, provided at Figures 2.25 and 2.26. The latter shows the alignment of the Down platform and, to its south, the loop siding which also provided the offtake to the siding for the former Rothbury/Branxton/Ayrfield No 3 Collieries. Off the north-westerly end of the Up platform, lay the residue of a siding that served both the Branxton Goods Shed and yard and, while originally looping back to the main, also branched northerly away from the main line. The purpose of this branch was not clear. Suffice it to say that a stop had been imposed on the siding, beyond which lay lengths of lifted track including part of a points system. The various sidings switching were controlled by manual lever blocks at the eastern entry to the southerly loop siding, and at the western re-entry to main/Rothbury branch. A third block controlled access to the northerly siding. At the southern side of this siding remained a large c-i-p concrete block that had formerly supported the goods yard crane, while at the eastern end of the goods yard, north of the platform, lay the remains of a siding that had once served an Oak Milk Factory fronting Railway Street near its intersection with Short Street.

Of the heritage listed former moveable relics, the only element sighted was a steelyard scale on the Up platform, now being securely cemented in position with a layer of asphalt around the platform plinth. This item was immovable and well insulated against any Project impact.

2.4.2.12 Site 12 - Greta Railway Station Precinct

at Chainage: 210.600 km

Survey of the Greta Railway Station Precinct reflected the descriptions of the precinct's properties contained in the State Heritage Register and the ARTC s170 Register. Upon inspection the Up platform contained a series of buildings in keeping with the age and style of this historic station, and is depicted in Figure 2.27. From east to west, these buildings comprised a flat roofed brick building, possibly a convenience block, the brick main station offices and waiting room building, the brick parcels office and a weatherboard signal box.

The Down platform reflected its later construction and contained a very uncomplicated waiting room, but retained one of the original platform name boards (although presently painted white over blue rather than the original black) (see Figure 2.28). Both platforms had been fenced off to restrict access to the western ends. Beyond the fencing the platforms retained their original antbed surface behind the brick facing. Of particular note was the low level of both original platforms, which had necessitated their being raised substantially at the eastern end to facilitate passenger access. Those parts of the platforms readily accessible to the public presented a bitumen surface behind a concrete facing above the original brick.

The platforms were connected by the footbridge, supported on steel framed columns inside the fence line of both platforms. From the deck of the footbridge above the Down platform, an elevated westerly view of the Greta Railway Station complex is presented in Figure 2.29. The access staircase and footbridge is shown in Figure 2.30.

No sign was detected of the former goods shed loop, the goods shed, the shed/yard crane or the fuel shed, however sub-surface material evidence probably remains. The earthen bund formed on the southerly side of the Down platform was indicated only to be perhaps 10 years old, and the earthmoving plant used in this construction may have destroyed material evidence in the process.

2.4.2.13 Site 13 - Allandale Railway Station Precinct

Chainage 204.900 ±200 km

Close investigation of the area (chainage 204.900 ± 200) revealed no positive surface sign of the location or material evidence of this station platform. Some plantings of exotic succulents in the wall of the cutting in the area perhaps indicated general area of a former platform. Given the relatively recent earthworks within the former station precinct, it is unlikely that sub-surface evidence remains.

2.4.2.14 Site 14 - Rutherford Junction Railway Station Precinct

nominally at Chainage: ≈199.071 km

Historical sources had indicated the previous existence and approximate location of branch lines (one private) to Rutherford Racecourse/Military Munitions Plant and the earlier Denton Park Colliery, as well as the Rutherford/Rutherford Junction Station. The Gosforth Parish Map series had been particularly useful in this regard. Close search across the surface in the locality of these former branches (199.000 ± 200) failed to reveal any surface material evidence of the stations or, within the study area, of the roadbeds of the former branches.

2.4.2.15 Site 15 - Farley Railway Station Precinct

at Chainage: ≈195.700 km

Farley Railway Station remains were represented by the platform structure, although partly overgrown and degraded by its having been integrated into the service road corridor. The buildings of the station were demolished about 20 years ago, although footings would almost certainly be retained sub-surface. The residual platform was located about 150 metres west of the Wollombi Road Underbridge and was approximately 200 metres long and faced by a brick and concrete wall. Vestigial remains of the original 'antbed' surface of the platform could be seen.

2.4.2.16 Site 16 - Level Crossing, Hermitage Road, Belford

at Chainage: 222.700 km

Historical research had indicated no good reason to suspect material evidence in the footprint of projected works, and detailed surface survey confirmed this view. Survey addressed the surface of land that would

Figure 2.19

Inside the easterly of the twin-cells of the Stony Creek Underbridge, staining of the brickwork of the arch emphasizes the line at which it appears that an original bridge was extended at duplication in the original style.

Sue Singleton
No Scale

Figure 2.20 (below left)

Composite view of the westerly side of the Old North Road Overbridge at Allandale, noting in particular the deteriorated condition of concrete work.

Paul Rheinberger
No Scale

Figure 2.21

Looking north-east, view of the buildings of the up platform of Branxton Railway Station.

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Figure 2.22

Detail of the building on the Branxton down platform, looking south-westerly.

Paul Rheinberger
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Figure 2.23

Looking westerly along the Branxton Railway Station precinct, this figure also highlights the platform dock on the up platform and the position of the footbridge in the westerly sector of platforms.

Paul Rheinberger
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Figure 2.24

Northern stairway and deck of the footbridge at Branxton. Note that the entrance to the footbridge at this side is from the car park, not directly from the platform.

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Figure 2.25

From the footbridge, an elevated panorama of the Branxton Railway Station precinct looking easterly.

Paul Rheinberger
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Figure 2.26

Southerly of the previous figure, this figure presents detail of the Branxton down platform and the loop siding from the deck of the footbridge.

Paul Rheinberger
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Figure 2.27

Buildings of the up platform at Greta Railway Station. Note the additioln of a concrete riser on the easterly end of the platform to facilitate boarding modern passenger cars.

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Figure 2.28

Detail of the building on the down platform at Greta, also highlighting the historical nameboard (although now white on blue, not in the former standard white on black).

Paul Rheinberger
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Figure 2.29 (below left)

Elevated panorama of the Greta Railway Station precinct, looking westerly from the deck of the station footbridge.

Paul Rheinberger
No Scale

Figure 2.30 (below)

Looking east from the up platform, composite view of the footbridge at Greta Railway Station, noting that both staircases lead from the platforms. This photograph also emphasis the height of the riser on the down platform to accommodate the boarding height of two-car modern passenger trains.

Paul Rheinberger
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have fallen within the former Allotments 1, 4, 5 and 7 of Section 4, and Sections 5 and 16 of the village, as shown on Town Plan, copy of which is attached as Figure 2.3.

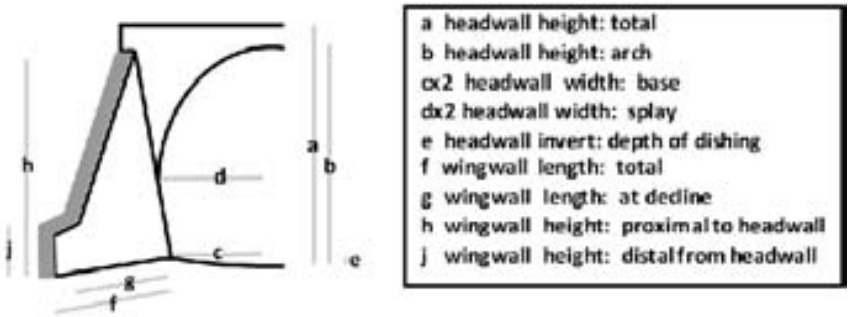
2.4.2.17 Sites 17 to 49 - Brick Culverts

As detailed in Table 2.1, the identification, location recording and basic descriptive data of/for, 31 brick culverts was undertaken. Judged on the style and extent of culverts, it appeared most likely that the majority of these culverts dated from the duplication of the Maitland-Singleton rail line from 1914. In some cases, it was possible to suggest that one side of culverts that had been extended represented original construction of the GNR. The exposure of material evidence of/for the culverts was single-sided in the majority of cases, extensions of concrete pipe, corrugated galvanised iron and/or precast concrete or similar having been installed either to accommodate the construction of the service road or to secure the drainage facility against signs of deterioration in brickwork.

One of the most notable features of the assemblage of culverts was the uniformity of style in the construction of arches, headwalls and wing walls, accepting that technological/engineering dictates based on the size of an arch, height of headwall and consequent length and height of wing walls required variation in brick structural coursing. Brick culverts are addressed hereunder collectively and, for brevity, Figures 2.31, 2.32 and 2.33 illustrate variations of size and an example of the nature of a currently existing modification. Culverts detailed in BOLD type are further described and assesses in Inventory Sheets in Appendix 2.

In Table 2.1:

- indication of 'exposure' refers to side(s) of embankment on which material evidence was visible;
- 'extent' indicates the level of brickwork extant and/or degree and mode of modification or stabilisation;
- measurements are given in millimetres, ±20mm and relate to basic dimensions as indicated in the following diagram:



The culverts varied in their respective condition and integrity, with some culverts providing outstanding examples of their type. Those sites are identified in Table 2.1 by an 'x' against the allocated site number. The culverts not classified as outstanding examples may have been modified, or are considered of lower condition and integrity in terms of their ability to represent a good example of their type.

Table 2.1: Brick Culverts identified

Site #	Chainage	Exposure/Extent	Headwall					Wingwalls			
			Height		Drain Width		Dish Depth	Length		Height	
			Total	Arch	Base	Splay		Total	Decline	Prox	Dist
17	224.141	Downside only/concrete pipe extension (cpe) to Upside	2200	1350	1350	1550	150	#	1920	1950	700
18	220.439	Downside only/Brick headwall face obscured by c-i-p concrete, metal formed pipe	1800 (2400 wide)	–	–	–	–	2250	1950	1700	470
19	219.650	Downside only/cpe to Upside, standing water through: *– measured from water surface	2900*	2200*	≈2000	≈2300	Water	≈2550	≈2250	2790*	890*
20 [x]	218.448	Downside only/cpe to Upside	2200	1550	1320	1520	150	2400	2150	2100	600
21	218.318	Downside only/cpe to Upside	1520	920	850	920	100	1440	1000	1420	370
22 [x]	214.586	Downside only/cpe to Upside,	2200	1540	1400	1640	150	2500	2100	2100	750
23	213.892	Downside only/cpe to Upside,	1450	920	820	920	100	1530	1220	1350	450
24 [x]	213.158	Upside 1915-16 brick extension, (Downside – original stone culvert – see site 52)	2620 Above water level	1800 Above water level	1950 At water level	2200	Water	2900 Cut & shot-crete	2870	2500	910
25	212.725	Downside only/cpe to Upside,	1500	900	770	900	100	1570	1270	1300	25
26	212.333	Downside only/cpe to Upside,	1450	900	800	900	200	1540	1290	1350	26
27	211.944	Downside only/cpe to Upside,	2200	1550	1300	1500	150	2350	2000	1450	27
28	210.703	Downside only, northern outlet not found in study area,	Now cp lined, some residual brick wings:					1950	460	1115	860
29 [x]	210.522	Downside and Upside complete c1915-16 yellow brick	3130	2260	1370	1600	100	3050	2750	3000	770

Figure 2.31

The culvert at 219.615 was a good example of a large culvert in operation. The brickwork of headwall, arch portal and drain arch appeared to be in good condition. Note the four soldier course of the arch...

Paul Rheinberger
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Figure 2.32

..when by contrast the culvert at 213.892 was a working example of a smaller culvert, in similar pattern but significantly scaled down. Note that here the arch was formed in three soldier courses.

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Figure 2.33

In the culvert at 214.566, evolution as the consequence of maintenance showed in a culvert in which the drain arch had been formed in stretcher bond – possibly itself a modern development, which in turn had been reinforced by concrete (probably pumped) above corrugated galvanised steel cylindrical formwork...

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Table 2.1: Brick Culverts identified (cont)

Site #	Chainage	Exposure/Extent	Headwall					Wingwalls			
			Height		Drain Width		Dish Depth	Length		Height	
			Total	Arch	Base	Splay		Total	Decline	Prox	Dist
30	209.639	Downside only/CPE to Upside.	All ≈2000	dims ≈1400	scaled ≈1100	≈1330	≈100	≈2200	≈1800	≈1900	≈750
31 x	209.174	Unmodified culvert, Up headwall flat,	4700	3200	4400	4500	100	west 6870 east 3900	4580	4270	^
		Downside wall splayed	4700	3200	4400	4500	100	west 6000 east 5300	4580	4270	^
32 x	206.519	Up only, Downside cie, brick floor	3100	2400	2220	2530	225	3825	3125	2790	1050
33	205.091	Cpe to Downside .	Access too treacherous on both sides								
34	203.844	Cpe both sides	Bricks of former head/wing wall observed a short distance away. No residual culvert brickwork seen in situ								
35	202.858	Downside and Upsides cpe.	No evidence of original culvert.								
36	202.103	Downside only (Extension in progress). Conc wing walls and cie to Up (very recent)	1600	1030	850	1000	^	1430	1050	1750	1430
37	201.480	Cpe to both sides.	No in situ residual evidence of earlier culvert. Brick rubble visible over surface of service road								
38	199.242	Up only with modification by cie	2040	1500	≈200	1650	^	2200	1900	1860	800#
39 x	198.613	Up	2600	2000	1700	2000	170	2640	2300	2330	920
		Downside	2560	1920	1700	2000	150	2640	2340	2300	900
40	197.165	Cpe to Downside and Upside.	No evidence of original culvert.								
41 x	196.561	Upside – original red brick culvert with intact brick floor	2100	1500	1330	1560	100	2130	1830	1900	780
		Downside yellow brick extension, brick floor	2200	1530	1300	1570	150	2160	1800	1930	620
42 x	196.481	Yellow brick extension to Upside, brick floor	2000	1500	1300	1560	75	2180	1800	1900	970
		Downside only, small abutments at wing wall prox, very old cp insert terminating at brick extension.	2000	1400	^	1400#	^	2500	2200	2100	400

Table 2.1: Brick Culverts identified (cont)

Site #	Chainage	Exposure/Extent	Headwall					Wingwalls			
			Height		Drain Width		Dish Depth	Length		Height	
			Total	Arch	Base	Splay		Total	Decline	Prox	Dist
43	196.340	Upside only, cp insert, cpe to.Downside	2200	1500	1340	1560	^	2250	1920	1960	800
44	196.280	Brickwork to Upside and Downside with through concrete pipe insert, small abutment at wing wall prox. Upside (yellow brick) dims only	2400	1500#	1450	1800 #	^	1800	1540	2230	600
		Downside (red brick)	2100	1500	1800	1900	^	2500	2400	2100	300#
45	196.069	Downside only, Upside now cpe, precast head/wing	2530	1400#	1400	1570 #	^	1470	1240	2000	840
46	195.600	Box culvert, possibly used as public access under line, adjacent Wollombi Road underbridge	2250	NA	2360	2470	flat	Wings modified			
47 x	195.133	Up only, no access to Downside.	All 1700	Dims 1000	Scaled 1100	1300	100	1600	1300	1600	500
48	194.912	Upside only - yellow brick extension, cp insert, no access to Downside.	1600	1050	800	1040	~100	1530	1370	1410	705
49 x	194.209 Outside project area	Upside ,yellow brick extension, standing water. Downside^, red brick original culvert.	3800	2900	3700	3700	^	5650	4880	3600	900

Key:

Cpe = concrete pipe extension
cie/i = corrugated iron extension/insert
^ = not able to determine dimensions due to modifications or access issues.
# = best estimate
x = considered an excellent example of its type

It was observed that a number of culverts had been constructed, or had undergone amplification, at the time of the line duplication in 1915-16. Culverts associated with the original single line construction circa 1860 were distinguished by dark red brickwork. The culverts associated with the later track duplication of 1915-16 were distinguished by yellow brickwork. The colours of the bricks reflecting the clay deposits from which they were manufactured and the dark colour reflecting the clamp firing while the yellow reflected kiln firing. Many of the culverts had undergone modification through repairs and/or replacement over the

150 years of continued use. In many cases, only one outlet provided material evidence of original construction or that of the 1915-16 amplification which occurred, for the most part, on the Upside of the existing track.

2.4.2.18 Sites 50 to 53 - Stone Culverts

As detailed in Table 2.2, identification, location recording and basic descriptive data in relation to four sandstone block culverts was undertaken. Judged on the style and extent of culverts, it appeared most likely that these culverts dated from the original construction of the Maitland-Singleton rail line from 1858 and corresponds to the period when John Whitton was Engineer-in-Chief for the government railway. All the stone culverts occurred on the Down side of the track, the Upside accommodating brick extensions constructed during the duplication of the line in 1912-1916. A typical stone arch culvert is depicted in Figure 2.34, although the drain arch has been modified by relining and extended in brick on the northern side. The box culvert at chainage 213.690 is depicted in Figure 2.35.

Table 2.2: Stone Culverts identified

Site #	Chainage	Exposure/Extent	Headwall					Wingwalls -			
			Height		Drain Width		Dish Depth	Length		Height	
			Total	Arch	Base	Splay		Total	Decline	Prox	Dist
50 x	214.566	Down only/brick arch walls of drain to Up.	3370	2400	2250	2470	≈flat	–	–	–	–
51 x	213.690	Down only/ cpe extension to Up side, concrete arch and wingwalls added.	590	660	750	680		660	590	930	220
			Associated stone sluice: the southernmost gather was 730 long and from 840 to 1040 wide; the decline from gather elevation to base level was at an angle ≈45° and the sluice condensed to 720 wide; from the base of sharp decline to the headwall, the sluice was 1300 long and 720 wide, formed of blocks 300 high and 450 wide, below ambient ground								
52 x	213.158	Down only/brick arch and wingwalls to Up	3000	2300	2100	2400	150	3700	2800	2300	1050
		Brick 1915-6 extension on Upside.	See Site 24.								
53 x	198.040	Down only Unfinished stone/ CPE to Up.	2050	1320	1530	1500	^	Sth 2700 Nth 2600	Sth 2150 Nth 2200	2050	500

Key:

Cpe	=	concrete pipe extension
cie/i	=	corrugated iron extension/insert
^	=	not able to determine dimensions due to modifications or access issues.
#	=	best estimate
x	=	considered a unique and/or an excellent example of its type

The stone culverts are all considered excellent examples of their type, occurring rarely in the Upper Hunter Locality. Of particular note is Site 51 which presents a stone box culvert and sluice, a rare early survivor and unique structure within the locality.

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Figure 2.34

...while on the southern side the headwall and wing walls appeared to be in the original sandstone arch and the drain arch appeared to also be of sandstone before the commencement of re-lining.

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Figure 2.35

In a total contrast (and unique in the study area), the small culvert at 213.690 was formed from dressed sandstone that collected water from a small splay on a bank at about the same height as present tracks and channeled the collected water down a steep slope then shallow slope by way of a stone sluice to a sandstone box culvert, the drain of which was walled and floored in dressed sandstone, the latter formed into a dished formation. The roof had been replaced by cip concrete.

Paul Rheinberger
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3.0 THE HERITAGE VALUES OF THE STUDY AREA

3.1 INTRODUCTION

Fundamental to any consideration of the cultural heritage values of a non-indigenous place or thing (a 'relic' – see below) is an appreciation of the impact of the Heritage Act, 1977 (NSW – the Act) which defines heritage items to be:

> Those buildings, works, relics or places of historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance for the state of New South Wales. [Our emphasis]

and defines a relic falling within that definition to be:

> ... any deposit, artefact, object or material evidence that:
>
> a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and
> b) is of State or local heritage significance.

Essentially, the evaluation of the heritage values of a relic depend upon the assessment of its significance, the level of its condition and integrity and, as a corollary, the potential it may possess to expand the existing level of knowledge. An appreciation of these factors qualifies the proper estimation of the impact that any disturbance, damage or destruction may have on such heritage values.

These aspects are dealt with in this section as follows:

- the significance of the study area and its components is explained and assessed in Section 3.2.
- the condition and integrity of the study area and its components is evaluated at Section 3.3.
- the research themes that are relevant to the study area and its components are defined at Section 3.4.
- the physical impacts that are foreseen to affect the Study area and the consequent heritage impacts are determined in the Heritage Impact Statement contained in Section 3.5.

3.2 ASSESSMENT OF SIGNIFICANCE

In the context of this report, significance is the measure of the value and importance of elements of the archaeological record to cultural heritage. While the fabric of the archaeological record is the subject of the assessment of heritage significance, the assessment itself is conditioned by the environmental and historical context of the site at the time of the assessment. In this environment, significance can be seen as a variable quality. It follows that the evaluation of heritage significance is not a static quality, but rather is evolutionary as a function of changing community perspectives and cultural values. The concept of significance and the approach to its assessment derives essentially from The Burra Charter, however the NSW Heritage Council has established standard criteria for the assessment of heritage significance.

3.2.1 Australia ICOMOS (The Burra Charter) under the Act

The approach to the assessment of heritage significance affirmed by the NSW Heritage Office adopts as a foundation the four values of the Australia ICOMOS[32] Charter for the Conservation of Places of Cultural Significance (the Burra Charter). These values are broadly accepted Australia-wide, as historical, aesthetic, scientific and social classifications of significance. The implications of these classifications are as follows:

3.2.1.1 Classification Criteria

The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter) adopts as the foundation of classification the four value types of historical, aesthetic, scientific and social significance. The implications of these classifications are as follows:

- Historical significance considers the evolutionary or associative qualities of an item with aesthetics, science and society, identifying significance in the connection between an item and cultural development and change.

- Aesthetic significance addresses the scenic and architectural values of an item and/or the creative achievement that it evidences. Thus, an item achieves aesthetic significance if it has visual or sensory appeal and/or landmark qualities and/or creative or technical excellence.

- Social significance is perhaps the most overtly evolutionary of all classifications in that it rests upon the contemporary community appreciation of the cultural record. Evaluation within this classification depends upon the social, spiritual or cultural relationship of the item with a recognisable community.

- Scientific significance involves the evaluation of an item in technical and/or research terms, considering the archaeological, industrial, educational and/or research potential. Within this classification items have significance value in terms of their ability to contribute to the better understanding of cultural history or environment and their ability to communicate, particularly to a broad audience within a community[33].

3.2.1.2 Value Criteria

As a component of the holistic concept of significance, archaeological significance has been described as a measure by which a site may contribute knowledge, not available from other sources, to current research themes in historical archaeology and related disciplines[34]. Archaeology is concerned with material evidence and the archaeological record may provide information not available from historical sources. An archaeological study focuses on the identification and interpretation of material evidence to explain how and where people lived, what they did and the events that influenced their lives.

Considerations material to the study of the archaeology of a relic include:

[32] International Council on Monuments and Sites.

[33] Marquis-Kyle, P and M Walker, Australia ICOMOS: The Illustrated Burra Charter. Australia ICOMOS, Sydney, 1992, 21-23.

[34] Bickford, A and S Sullivan, 'Assessing the research significance of historic sites', in Sullivan, S and S Bowdler, (eds), Site Survey and Significance Assessment in Australian Archaeology, Department of Prehistory, Research School of Pacific Studies, ANU Canberra, 1984 19-26

- whether a site, or the fabric contained within a site, contributes knowledge or has the potential to do so. If it does, the availability of comparative sites and the extent of the historical record should be considered in assessing the strategies that are appropriate for the management of the site.

- the degree and level at which material evidence contributes knowledge in terms of 'current research themes in historical archaeology and related disciplines'.

In relation to 'current research themes in historical archaeology and related disciplines' (see Section 4.1), the assessment of cultural significance is conditioned by considerations of historical, scientific, cultural, social, architectural, aesthetic and natural values:

- Historical value lies at the root of many of the other values by providing a temporal context and continuity, thereby providing an integrating medium for the assessment of social, cultural and archaeological significance.

- Scientific value depends upon the ability of an item to provide knowledge contributing to research in a particular subject or a range of different subjects.

- Cultural value attaches to material evidence that embodies or reflects the beliefs, customs and values of a society or a component of a society and/or have the potential to contribute to an understanding of the nature and process of change and its motivation.

- Social value derives from the way people work(ed) and live(d) and from an ability to understand the nature, process of change and its motivation. Social significance is closely related to cultural significance, in its concern with the practicalities of socio-cultural identification.

- Architectural value depends on considerations of technical design (architectural style, age, layout, interior design and detail), the personal consideration (ie. the work of a particular architect, engineer, designer or builder) and technical achievement (construction material, construction technique, finish).

- Aesthetic value addresses the manner in which an item comprises or represents creative achievement, epitomising or challenging accepted concepts or standards.

- Natural value attaches to items that either support or manifest existing natural processes and/or systems or provide insights into natural processes and/or systems.

3.2.1.3 Degree Criteria

In order to provide a ready reference to the degree of significance or the distinctiveness of an item in general terms, the item may be described as being either 'Rare' or 'Representative' within its community/cultural/geographical level.

3.2.1.4 Level Criteria

The final denominator of significance is the level of significance of an item. Level is nominally assessable in two classifications, depending upon the breadth of its identifiable cultural, community, historical or geographical context. Thus, within a New South Wales context, a relic may be recognised at the:

- Local level identifies the item as being significant within an identifiable local and/or regional cultural and/or community group and/or historical/geographical heritage context.

- State level identifies the item as being significant within an identifiable State-wide cultural and/or community group and/or historical/geographical heritage context.

On a broader front, by derivation, a relic may be recognised at the:

- National level identifies the item as being significant within an identifiable national cultural and/or community group and/or historical/geographical heritage context.

- International level identifies the item as having implications of significance for an identifiable cultural and/or community group both nationally and abroad and/or a world-wide historical/ geographical heritage context.

By the simple application of the principles outlined above, a subjective element was present in the significance assessment regime that opened the potential for skewed assessment. As a counter to this potential, the NSW Heritage Office has adopted a set of standardised assessment criteria.

3.2.2 NSW Heritage Office Standard Criteria

The NSW Heritage Office[35] defined a series of criteria that will be used by the Heritage Council of NSW as an assessment format within NSW. The seven criteria address:

Criterion (a) the importance of an item in the course or pattern of the cultural or natural history of NSW or a local area [ie: historical].

Criterion (b) the existence of a strong or special association between an item and the life or works of a person or group of persons important in NSW or local cultural or natural history [ie: historical].

Criterion (c) the importance of an item in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW or a local area [ie: aesthetic].

Criterion (d) the existence of a strong or special association between an item and the social, cultural or spiritual essence of a particular community or cultural group within NSW or a local area [ie: social].

Criterion (e) the potential of an item to provide information that will contribute to an understanding of the cultural or natural history of NSW or a local area [ie: scientific].

Criterion (f) the quality of an item to possess uncommon, rare or endangered aspects of the cultural or natural history of NSW or a local area [ie: rare degree of significance].

Criterion (g) the demonstration by an item of the principal characteristics of a class of cultural or natural place or cultural or natural environment within NSW or a local area. [ie: representative degree of significance].

Within the framework of the same criteria, where this is relevant, the individual contribution of separate elements or components of a relic may be evaluated according to a five-stage grading system, where:

Exceptional indicates that is a rare or outstanding element, contributing directly to the assessment of an item's significance at the appropriate level.

High indicates that an element exhibits an advanced degree of original fabric and is a key element in the assessment of an item's significance at the appropriate level.

[35] NSW Heritage Office, Assessing Heritage Significance, NSW Heritage Office, Sydney, 2001, 9.

Moderate indicates that an element has been modified or has degraded, with little individual heritage value, but that makes an interpretive contribution in the assessment an item's significance at the appropriate level.

Little indicates that an element has been modified or has degraded to a degree that detracts from the assessment of an item's significance at the appropriate level.

Intrusive indicates that an element is damaging in the assessment of an item's significance at the appropriate level.

3.2.3 General Statement of the Significance of the Study Area

For the sake of brevity, the resources of the study area are dealt with under four headings. Accordingly, the study area derives cultural significance because:

1. The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts, excluding those at Branxton and Greta, (the Railway Resources) comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries. The underbridges over Black Creek, Anvil Creek and Stony Creek are regarded as rare contributions to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

2. Railway station precincts at Branxton and Greta have been assessed as possessing State Heritage significance and this assessment sees no reason to question that assessment.

3. The site of the Allandale Vineyard/Penfold Winery (the Winery) initially reflects the expansion of the viticulture industry around Greta in the last quarter of the 19th Century, building on the experience of Busby at Kirkton and Wyndham at nearby Dalwood Estate in the early 1830s. The existence of a wine growing production centre for at least 70 years is a tribute to the foresight of the Green family, even in the face of the tragic circumstances of 1908; and to the Penfold family between 1924 and 1948. The removal of the Penfolds undertaking in 1948 serves to reflect the early phase in a shift in local emphasis in favour of the Pokolbin area, where families such as the Tyrrells and Draytons had established vineyards in the 1850s. Conversely, the Pokolbin area is presently expanding northerly through Lovedale and Rothbury towards Allandale once again. The site further contains the remains of worker accommodation dating to the late 19th Century, also related to the 1908 tragedy, and thus represents a rare opportunity for study of the lifeways of vineyard and winery employees at an early stage in the settlement of the broad locality not readily available elsewhere. The site of the Allandale Vineyard/Penfold Winery is accordingly assessed as possessing generally representative and episodically rare local significance, where the locality is defined as the Lower Hunter region.

4. Clifton homestead, while not presently at direct risk from construction, may be at some risk from expanded operation. In this context, it is noted that Clifton has been assessed as possessing local significance in the Maitland LEP and this assessment is not questioned.

3.2.4 Statement of Significance by Criteria

Because they have been listed in either the State Heritage Register or State Heritage Inventory (Maitland LEP) respectively, this section does not further address the assessment of significance of the Branxton and Greta Railway Station Precincts, or the Clifton Homestead. Otherwise, the study area is significant because:

Criterion (a) [Historical]

- the Railway Resources represent the earliest development and the subsequent maintenance of heavy transport and the resultant advancement of extractive and rural industry, the spread and support of population and the inception of communities, westward and north from Maitland.
- the Winery represents both the expansion and local phasing of wine growing and production in the Lower Hunter and the lifeways or people engaged in employment in such pursuits.

Criterion (b) [Historical]

- the Railway Resources have a strong relationship with the people involved in the construction of the first railway in northern New South Wales and the pioneer people who travelled to and settled in a then remote area to support extractive and rural industry and to form local communities. Of particular note is the association with Engineer-in-chief John Whitton during the period of construction of the railway circa 1857.
- the Winery has a strong relationship with the Green family who established an early vineyard and commercial winery in the last quarter of the 19th Century; with employees who lived and worked on the Green property, in particular the Bridge family whose association with the property was tragic.

Criterion (c) [Aesthetic]

- the Railway Resources represent a high degree of historical technical achievement, particularly in the areas of bridging ephemeral and permanent watercourses and most notably at Black Creek, Anvil Creek and Stony Creek.

Criterion (d) [Social]

- the Railway Resources represent an essential part of the historical communication and transport link between the community hubs of Maitland and Newcastle and people living in communities in otherwise remote areas between the mid-19th and mid-20th Centuries.

Criterion (e) [Scientific]

- the Railway Resources contain a body of material evidence that is presently readily accessible and contains evidence of railway construction and maintenance technology.
- the Winery is generally speaking, an archaeological site, containing a body of surface evidence of its original activities but, from an archaeological standpoint, has the potential to yield information about the technology of early winery construction and operation and the lifeways of employees in that pursuit.

Criterion (f) [Rarity]

- in their constituents, the Black Creek Underbridge, the Anvil Creek Underbridge and the Stony Creek Underbridge, are assessed as possessing rare significance at the local level, where the locality is defined as the Hunter region and the northern area of New South Wales.

- in the site of its employee accommodation, the Winery is assessed as possessing rare significance at the local level, where the locality is defined as the Lower Hunter region.

Criterion (g) [Representativeness]

- the Railway Resources are generally assessed as possessing representative significance at the local level, where the locality is defined as the Hunter region and the northern area of New South Wales.

- the Winery is generally assessed as possessing representative significance at the local level, where the locality is defined as the Lower Hunter region.

3.3 CONDITION AND INTEGRITY

This section addresses matters that combine with the assessment of significance to allow a formal Statement of Heritage Impact to be appropriately validated. Condition considers the physical state of the fabric of the resource and its potential for survival. Integrity observes the degree to which the residual material evidence is an appropriate representation of the resource in its original form. Potential Impact assesses the nature and extent to which the resource would be modified as the result of the projected development.

3.3.1 Condition

The condition of heritage resources and/or individual elements that have been identified above is assessed on a five-stage scale, that is to say:

[i.] Intact, where the material evidence allows a complete recording of the resource without archaeological hypothesis.

[ii.] Substantially intact, where the material evidence is incomplete but the recording of material evidence would be sufficient to allow an accurate archaeological reconstruction, with hypotheses based on the archaeological record only.

[iii.] Standing ruin, where the material evidence is incomplete and the recording of material evidence would be sufficient to define the footprint of the resource and some of its elevations and features but would be insufficient to allow an accurate archaeological reconstruction of the resource without hypotheses based on the archaeological record and on a range of outside sources.

[iv.] Ruin, where the material evidence is incomplete and the recording of material evidence may be sufficient to define part, or the whole, of the footprint of the resource but would be insufficient to allow an archaeological reconstruction of the resource/its features, perhaps spatially and certainly vertically, without hypotheses based on the archaeological record and on a range of outside sources, and in circumstances where the validation of the reconstruction cannot be assured.

[v.] Archaeological site, implying a mostly sub-surface residue, where the material evidence suggest the former presence of an archaeological resource that cannot be defined without sub-surface investigation.

3.3.2 Integrity

The integrity of archaeological resources and/or individual elements that have been identified above is assessed on a five-stage scale, that is to say:

[i.] Intact, where the resource has remained virtually unchanged its form and/or design and/or function can be totally discerned from the material evidence.

[ii.] Minor Modification, where the resource has been modified or deteriorated cosmetically and/or in a manner that does not inhibit the discernment of its form and/or design and/or function by archaeological interpretation of the material evidence.

[iii.] Material Modification, where the resource has been modified so that its form and/or design and/or function cannot be discerned only by archaeological interpretation and without reference to external sources.

[iv.] Major Modification, where the resource has been so modified that attempted discernment of its form and/or design and/or function cannot be achieved by archaeological interpretation of the material evidence and requires a heavy reliance on external sources and in circumstances where discernment one or more elements may be equivocal.

[v.] None, where the integrity of the resource has been completely destroyed and the evidence for its form and/or design and/or function is totally external.

3.3.3 Summary of Condition and Integrity

The condition and integrity of the heritage resources of the study area is summarised in Table 3.1.

Table 3.1 - Summary of Condition of Resources

Resource	Description	Condition	Integrity
The Railway Resources	Artefacts, earthworks, crossings, culverts and bridges, and railway station precincts, excluding those at Branxton and Greta	Substantially intact	Minor modification
Branxton Railway Station Precinct	Standing station buildings	Substantially intact	Minor modification
Greta Railway Station Precinct	Standing station buildings	Substantially intact	Minor modification
Clifton Homestead	The house and garden of Clifton, Station Lane, Lochinvar	Substantially intact	Minor modification
The Winery	The precinct of the site of Allandale Vineyard/Penfold Winery with employee accommodation, Allandale Road Allandale	Archaeological site	Material modification

3.4 CURRENT RESEARCH THEMES

The heritage values of individual heritage elements and precincts may derive significance as the result of what they contribute to the cultural essence of, and/or the reflection or consequence cast on them by, their context and environment. Consideration of heritage values in this perspective involves an appreciation of the underlying historical influences that have shaped and continue to shape the context and environment. Historical themes have been developed to allow categorisation of the major forces or processes that have historically been involved in the development of a heritage context or environment and provide a framework within which the heritage significance of an item can be addressed.

Historical themes are considered at National, State and local levels:

- the nine National themes address broad issues of the development of Australia as a nation, with classifications related to Australia's natural evolution, peopling the nation, developing a range of economies, settling the country, work, education, government, cultural development and the phases of life in Australia;

- the 38 State themes, sub-classified under the National themes, address:

  - (Australia's natural evolution) the natural environment;
  - (peopling the nation) Aboriginal, convict and ethnic origins, and migration;
  - (developing a range of economies) agriculture, commerce, communication, the cultural landscape, events, exploration, fishing, forestry, health, industry, mining, pastoralism, science, technology and transport;
  - (settling the country) urbanisation, land tenure, utilities and accommodation;
  - (work) labour;
  - (education) education;
  - (government) defence, government and administration, law and order and welfare;
  - (cultural development) domestic life, creative endeavour, leisure, religion, social institutions and sport; and
  - (the phases of life in Australia) birth and death, persons.

Local themes reduce the National and State themes to their association with and/or impact upon or from the activities of local society and the inter-relationships between people, social groups, the environment and their cultures and values.

On the basis of the historical and archaeological research and with reference to themes adopted for use in the NSW heritage management system, the study area is material to the themes set out in Table 3.2.

Table 3.2 - Historical Themes

National	State	Local Themes/Application
(3) Developing local, regional and national economies	Agriculture	Activities relating to the speedy transport of farm produce from remote country areas to centre of consumers and for wider dissemination
	Commerce	Activities relating to buying, selling and exchanging goods and services: the transport of commercial commodities
	Communication	Activities related to the transmission of correspondence by mail
	Mining	Activities related to the transport of bulk coal from mines to shipping centres
	Pastoralism	Activities associated with the transport and distribution of livestock for human use
(4) Building settlements, towns and cities	Towns, suburbs and villages	Activities associated with the provision of transport and communication, the supply of goods and materials and the provision of ready access to larger settlements and communities

3.5 STATEMENT OF HERITAGE IMPACT

A Statement of Heritage Impact (SOHI) is prepared to assist in the review and approval process when a project could impact upon a heritage item. The purpose of a SOHI is to explain how the heritage value of an item might be affected by the development. Impact may be positive when an item is to be conserved or enhanced or impact may be detrimental if the site is to be disturbed or destroyed. Sympathetic solutions

(alternative options) are considered when a project would result in negative impact to heritage resources. While sympathetic solutions may be considered, it is not always possible to implement them whilst meeting project objectives.

The anticipated Project impact and assessed heritage impact for each identified heritage site is set out in Table 3.3. An inventory sheet for each site has been created to provide details of site specific project impact, including a site specific Statement of Heritage Impact (SOHI). The inventory sheets also provide proposed mitigation measures to address any perceived loss of heritage values due to Project works (see Appendix 2).

3.5.1 Overview of Project Works

In overview, Project works would result in some unavoidable negative impact on the heritage values of elements of rail infrastructure dating to original construction circa 1860, and to the amplification of infrastructure undertaken circa 1915-16 during duplication of the railway line Project works. Overall impact would collectively result in a loss and/or modification of heritage resources, and this would include:

- Tracks, turn outs and junctions.
- Major earthworks, track formation, drainage and minor structures.
- Construction/modification of overbridges and underbridges.
- Modifications of existing station platforms.

General construction impacts are expected to result from:

- Earthworks which would cause disturbance and modification, as a result of industrial excavation and large scale fill for construction, in precincts containing heritage items.
- The construction process itself, whereby industrial machinery, vehicles and personnel are operating in close proximity to heritage items.
- The establishment of site compounds within close proximity to heritage items.
- The amplification of underbridges, overbridges and culverts which would modify and permanently obscure the structure, generally, on only one aspect of elevation.
- The burial, by fill, of heritage structures such as culverts, to raise levels for track construction.
- The demolition and/or relocation of station platforms to allow track construction.
- Earthworks associated with excavation, and movement of personnel and industrial machinery over/in close proximity to heritage items.

3.5.2 Overveiw of Proposed Construction Methodology

During the detail design phase, the capacity of each of the existing cross drainage structures (culverts and bridges) would be assessed to determine if they meet the nominated design criteria of conveyance of the 50-year design storm event. Structural capacity of the culverts would also be assessed. It is anticipated that the majority of secondary structures would only require extension to cater for the additional earthworks associated with the Project, however some structures may need to be augmented or replaced.

Construction methodology associated with the extension or replacement of cross drainage structures is proposed, generally, as follows:

- Demolition of existing headwall.
- Demolition of existing reinforced concrete pipe back to the first joint.
- Excavation of the bed.
- Installation of new pipe.
- Installation of headwall and sparging of pipe using wire mattress.
- Backfilling and compacting.
- Supply and installation of scour protection at the headwall in the form of a rock filled mattress consisting of salvaged chain wire filled with rock laid on geofabric.

The Project would involve modifications to three existing RailCorp stations, being:

- Lochinvar Station.
- Greta Station.
- Branxton Station.

Lochinvar, Greta and Branxton stations would be modified. Station modification works would include new platforms for the new track and the provision of access and mobility features to meet current standards.

Lochinvar Station is a modern concrete platform and does not present any heritage management issues. In fact, the closure of the level crossing would restore a small degree of historical integrity to the adjacent heritage property of Clifton. The proposed Project works and construction methodology associated with construction at the State significant heritage stations of Greta and Branxton Stations are provided in the relevant inventory sheets in Appendix 2. It is specifically noted that no Project work at Branxton Station has the potential to impact listed 'moveable relics'.

Bridge works would involve:

- Construction of six new underbridges.
- Closure of one stock underpass.
- Demolition of two existing underbridges.
- Modifications to one overbridge.

A short summary of physical impacts at individual sites is provided in Table 3.3, and more detail is contained in the Inventory Sheets in Appendix 2. Again, the sites that have been inventoried are indicated in Bold type.

Table 3.3 – Summary of Physical Heritage Impacts

Site #	Name	Location (km)	Proposed Project Works	Potential for Negative Impact	Assessed Heritage Impact	Mitigation Available	Site Inventory Sheet (see Appendix 2)
1	Clifton	202.480	Earthworks (cut)	Limited	Neutral/Positive	Yes (only if required)	✓
2	Allandale Wine Cellars	206.100-206.200	Earthworks for access road (fill)	Yes	Negative	Yes	✓
3	Underbridge, Jump Up Creek	222.848	Construction of new underbridge (extension) and earthworks (fill)	Limited	Neutral	Yes	✓
4	Underbridge, Black Creek	217.200	Construction of new underbridge Upside (extension) and earthworks (cut Upside and fill Downside)	Limited	Neutral	Yes (only if required)	✓
5	Underbridge, Sawyers Creek	211.010	**Re-alignment of Sawyers Creek. Earthworks (cut and fill).** Construction of new underbridge Downside (extension).	Limited	Neutral	Yes	✓
6	Underbridge, Anvil Creek tributary	207.776	Culvert extension Upside and earthworks (cut and fill)	Limited	Neutral	Yes	✓
7	Underbridge, Wollombi Road	195.600	New bridge parallel to existing bridge and earthworks (fill)	No	Neutral	Yes (only if required)	✓
8	Underbridge, Stony Creek	195.555	New bridge parallel to existing bridge and earthworks (fill)	No	Neutral	Yes (only if required)	✓
9	Overbridge, Old North Road	204.809	**Demolition of the existing rail overbridge (road closure). No replacement structure planned.**	Yes	Negative	Yes	✓
10	Belford Railway Station	222.700	Earthworks (fill)	Limited/None	Neutral	Yes (only if required)	✓
11	Branxton Railway Station	215.500	Track construction on Downside to reduce negative impact. Modification to existing platform face.	Yes	Negative	Yes	✓
12	Greta Railway Station	210.600	Track construction on Downside to reduce negative impact. Modification to existing platform face.	Yes	Negative	Yes	✓
13	Allandale Railway Station	204.900 ± 200	Earthworks (cut)	Limited	Neutral	Yes	✓

Table 3.3 - Summary of Physical Heritage Impacts (cont)

Site #	Name	Location (km)	Proposed Project Works	Potential for Negative Impact	Assessed Heritage Impact	Mitigation Available	Site Inventory Sheet (see Appendix 2)
14	Rutherford Junction Railway Station	199.071	Earthworks (cut)	Limited	Neutral	Yes	✓
15	Farley Railway Station	195.700	Earthworks (cut)	Yes	Negative	Yes	✓
16	Level Crossing, Hermitage Road	222.700	Earthworks (cut)	No	None	Yes	✓
17	Brick Culvert – Downside only (Upside modified)	224.141	Culvert extension Upside and earthworks (fill)	Limited	NA	NA	✗
18	Brick Culvert – Downside only (Upside modified)	220.439	Culvert extension Upside and earthworks (fill)	No	None	NA	✗
19	Brick Culvert – Downside only (Upside modified)	219.650	Culvert extension Upside and earthworks (cut and fill)	No	None	NA	✗
20 [x]	Brick Culvert – Downside only (Upside modified)	218.448	Culvert extension Upside and earthworks (fill Upside, cut Downside)	Yes	Negative	Yes	✓
21	Brick Culvert – Downside only (Upside modified)	218.318	Culvert extension Upside and earthworks (fill Upside, cut Downside)	Limited	NA	NA	✗
22 [x]	Brick Culvert – Downside only (Upside modified)	214.586	Culvert extension Downside and earthworks (fill)	Yes	Negative	Yes	✓
23	Brick Culvert – Downside only (Upside modified)	213.892	Culvert extension Upside	No	None	NA	✗
24 [x]	Brick Culvert – Downside (see Site 52)	213.158	Culvert extension Upside and earthworks (cut and fill)	Yes	Negative	Yes	✓
25	Brick Culvert – Downside only (Upside modified)	212.725	Culvert extension Upside and earthworks (cut)	Limited	NA	NA	✗
26	Brick Culvert – Downside only (Upside modified)	212.333	Culvert extension Upside and earthworks (cut and fill)	No	NA	NA	✗
27	Brick Culvert – Downside only (Upside modified)	211.944	Culvert extension Upside and earthworks (cut and fill)	No	NA	NA	✗
28	Brick Culvert – Downside only (Upside modified)	210.703	Culvert extension Downside and earthworks (cut and fill) Upside	Limited	Neutral	NA	✗
29 [x]	Brick Culvert – both Upside and Downside	210.522	Culvert extension Upside and earthworks (fill)	Yes	Negative	Yes	✓

Table 3.3 (cont) - Summary of Physical Heritage Impacts

Site #	Name	Location (km)	Proposed Project Works	Potential for Impact	Assessed Heritage Impact	Mitigation Available	Site Inventory Sheet (see Appendix 2)
30	Brick Culvert – Downside only (Upside modified)	209.639	Culvert extension Upside and earthworks (cut)	No			✘
31[X]	Brick Culvert – Upside and Downside (unmodified)	209.174	Culvert extension Upside and earthworks (cut and fill)	Yes	Negative	Yes	✓
32	Brick Culvert- Upside only, Downside modified	206.519	Culvert extension Upside and earthworks (cut and fill)	No	Neutral	NA	✘
33	Culvert –Downside modified, Upside unknown-	205.091	Culvert extension Upside and earthworks (cut and fill)	No	Neutral	NA	✘
34	Brick Culvert – Upside and Downside modified	203.844	Culvert extension Upside and earthworks (cut and fill)	No	None	NA	✘
35	Brick Culvert – Upside and Downside modified	202.858	Culvert extension Upside and earthworks (cut)	No	None	NA	✘
36	Brick Culvert – Upside and Downside modified	202.103	Culvert extension Upside and earthworks (cut)	No	None	NA	✘
37	Brick Culvert – Upside and Downside modified	201.480	Culvert extension Upside and earthworks (fill)	No	None	NA	✘
38	Brick Culvert – Upside only (modified)	199.242	Culvert extension Upside and earthworks (fill)	No	None	NA	✘
39[X]	Brick Culvert – Upside and Downside (unmodified)	198.613	Culvert extension Upside and earthworks (cut)	Yes	Negative	Yes	✓
40	Brick Culvert – Upside and Downside modified	197.165	Culvert extension Upside and earthworks (fill Upside cut Downside)	No	Neutral	NA	✘
41[X]	Brick Culvert – Upside and Downside (unmodified)	196.561	Culvert extension Upside and earthworks (fill)	Yes	Negative	Yes	✓
42[X]	Brick Culvert – Upside and Downside (unmodified)	196.481	Culvert extension Upside and earthworks (fill)	Yes	Negative	Yes	✘
43	Brick Culvert – Upside and Downside modified	196.340	Culvert extension Upside and earthworks (fill)	No	None	NA	✘
44[X]	Brick Culvert – Upside and Downside (modified)	196.280	Culvert extension Upside and earthworks (fill)	Yes	Negative	Yes	✓
45	Brick Culvert – Downside only, Upside modified	196.069	Culvert extension Upside and earthworks (fill)	No	None	NA	✘

Table 3.3 (cont) - Summary of Physical Heritage Impacts

Site #	Name	Location (km)	Proposed Project Works	Potential for Impact	Assessed Heritage Impact	Mitigation Available	Site Inventory Sheet (see Appendix 2)
46	Brick Culvert – box culvert pedestrian underpass	195.600	Culvert extension Upside and earthworks (fill). Would be closed by installing concrete walls at each end.	Limited	Neutral	NA	✘
47[X]	Brick Culvert – Upside, Downside unknown*	195.133	Culvert extension Upside and earthworks (cut and fill)	Yes	Negative	Yes	✓
48	Brick Culvert – Upside (modified), Downside unknown*.	194.912	Culvert extension Upside and earthworks (fill)	No	None		✘
49[X]	Brick Culvert – Upside and Downside (unmodified).	194.209 Outside construction zone.	None	None	NA	NA	✘
50[X]	Stone Culvert – down only	214.566	Culvert extension Downside and earthworks (fill)	Yes	Negative	Yes	✓
51[X]	Stone Culvert – down only	213.690	Culvert extension Upside and earthworks (cut)	Yes	Negative	Yes	✓
52[X]	Stone Culvert – down only	213.158	Culvert extension Upside and earthworks (cut and fill, cut Downside)	Yes	Negative	Yes	✓
53[X]	Stone Culvert – down only	198.040	Culvert extension Upside and earthworks (fill)	Yes	Negative	Yes	✓

Key
*Access restricted
[X] Outstanding example of its type
'Modified' refers to installations after original construction, that is, concrete pipe inserts/extensions or cast-in-place concrete head walls and wing walls.
NA – 'not applicable' as this site does not represent a good example of its type due to poor condition and/or integrity due to repair, modification or replacement. Representative examples have been selected for recording.

Potential for impact has been classified as:

- None – no potential for the Project to impact upon heritage values due to the presence of only limited heritage values due to modification or deterioration.
- Limited – some potential for negative impact to heritage values, limited by on ground and site specific works.
- Yes – Project works would result in an unavoidable negative impact upon heritage values and mitigation management would be required.

3.5.3 Environmental Risk Assessment

A detailed Environmental Risk and Impact Assessment (Risk Assessment) has been conducted as part of the Environmental Assessment process to evaluate the potential impacts that the Project could have on a wide range of environmental, social and economic assets and beneficial uses. This section provides the detailed non-indigenous heritage risk assessment which was undertaken using the standardised risk assessment criteria and matrix developed specifically for the Project. Details are provided in Appendix 3.

The objective of this risk assessment was to address the DGRs:

> Notwithstanding the key assessment requirements [listed within the DGRs],the Environmental Assessment must include an environmental risk analysis to identify:

- Potential environmental impacts associated with the project (construction and operation).
- Proposed mitigation measures.
- Potentially significant residual environmental impacts after the application of proposed mitigation measures.

The risk ranking was calculated via the risk matrix, considering both consequence and likelihood allocations. The risk outputs relevant to non-indigenous heritage are presented in Table 3.4.

Table 3.4 – Risk Assessment

Site(s)	Risk Pathway	Consequence (IMPACT)	Project Controls	Consequence	Likelihood	Risk	Additional Controls	Consequence	Likelihood	Risk
Residue of platforms at Farley (197.700 km) and Rutherford (199.071 km) Residue of sidings for Rothbury/Ayrfield Colliery Rutherford Racecourse/Munitions Works Denton Park Colliery and Anvil Creek Colliery Belford (222.700 km) and Allandale (204.900 km) Railway Stations	Construction of the project would require modification or demolition	Reduction in or loss of the heritage value(s) of individual resources at the local and community levels	Survey the area before construction Identify and categorise heritage values, protect where possible and otherwise adopt and comply with appropriate management recommendations	Moderate	Unlikely	Medium	In respect of material evidence identified on survey, archivally record in accordance with Heritage Branch criteria prior to project works	Minor	Unlikely	Low
Allandale Wine Cellars/Penfold Winery site (206.100km to 206.200 km) including a former worker's cottage occupation site and substantial underground water tanks associated with the circa 1880s winery	Construction of the project would require earthworks resulting in modification and/or disturbance	Reduction in or loss of the heritage value(s) of individual resources at local and community levels	Survey the area before construction Identify and categorise heritage values, protect where possible and otherwise adopt and comply with appropriate management recommendations	Moderate	Almost Certain	High	As deemed necessary post-survey, obtain, and comply with conditions of the grants of, necessary permits or licences from relevant authorities. Monitorand archivally record in accordance with Heritage Branch criteria during project works	Minor	Almost Certain	Medium
Branxton Railway Station (215.500 km) Branxton Railway Footbridge - to be retained but closed Greta Railway Station (210.600 km) Greta Railway Footbridge - to be demolished	Construction of the project would require modification or demolition of resources registered on the State Heritage Register	Reduction in or loss of the heritage value(s) of individual resources at the State level.	Survey the area before construction Identify and categorise heritage values, protect where possible and otherwise adopt and comply with appropriate management recommendations	Moderate	Almost Certain	High	Obtain, and comply with conditions of the grants of, necessary permits or licences from relevant authorities. Archivally record prior to project works; monitor and archivally record in accordance with Heritage Branch criteria during project where works cause physical impact	Minor	Almost Certain	Medium

Table 3.4 – Risk Assessment (cont)

Site(s)	Risk Pathway	Consequence (IMPACT)	Project Controls	Consequence	Likelihood	Risk	Additional Controls	Consequence	Likelihood	Risk
Brick and stone culverts (throughout study area) Sawyers Creek underbridge (211.010 km)	Construction of the Project would result in visible evidence being covered and permanently buried by earthworks	Reduction in or loss of the heritage value(s) of individual resources at local and community levels	Survey the area before construction Identify and categorise heritage values, protect where possible and otherwise adopt and comply with appropriate management recommendations	Minor	Almost Certain	Medium	In respect of material evidence identified on survey, archivally record in accordance with Heritage Branch criteria prior to project works	Insignificant	Almost Certain	Low
Jump Up creek underbridge (224.150 km) Black Creek underbridge (217.200 km) Stoney Creek underbridge (195.555km)	Construction of the project would reduce visibility but would result in no physical impact to heritage resources	Reduction in or loss of the heritage value(s) of individual resources at local and community levels	Survey the area before construction Identify and categorise heritage values, protect where possible and otherwise adopt and comply with appropriate management recommendations	Minor	Rare	Negligible	In respect of material evidence identified on survey, archivally record in accordance with Heritage Branch criteria prior to project works	Minor	Rare	Negligible
Clifton Homestead (202.480 km)	Construction of the project would result in the modification of small areas of the land surrounding Clifton but with no impact on the building or curtilage	Reduction in or loss of the heritage value(s) of individual resources at local and community levels	Survey the area before construction Identify and categorise heritage values, protect where possible and otherwise adopt and comply with appropriate management recommendations	Insignificant	Almost Certain	Low	No further controls considered necessary	Insignificant	Almost Certain	Low

Table 3.4 – Risk Assessment (cont)

Site(s)	Risk Pathway	Consequence (IMPACT)	Project Controls	Consequence	Likelihood	Risk	Additional Controls	Consequence	Likelihood	Risk
Anvil Creek tributary underbridge (207.776 km)	Construction of the project would result in the demolition and replacement of the underbridge	Reduction in or loss of the heritage value(s) of individual resources at local and community levels	Survey the area before construction Identify and categorise heritage values, protect where possible and otherwise adopt and comply with appropriate management recommendations	Moderate	Almost Certain	High	As deemed necessary post-survey, obtain, and comply with conditions of the grants of, necessary permits or licences from relevant authorities. Monitorand archivally record in accordance with Heritage Branch criteria during project works	Minor	Almost Certain	Medium
Road overbridge, Old North Road (204.809 km) Road underbridge, Wollombi Road (195.585 km)	Construction of the project would result in the demolition and replacement	Reduction in or loss of the heritage value(s) of individual resources at State and/or local and community levels	Survey the area before construction Identify and categorise heritage values, protect where possible and otherwise adopt and comply with appropriate management recommendations	Minor	Almost Certain	Medium	In respect of material evidence identified on survey, archivally record in accordance with Heritage Branch criteria prior to project works	Insignificant	Almost Certain	Low
Level crossing, Belford (222.700 km)	Construction of the project would result in the level crossing being by-passed and closed	No perceived loss of heritage values	None required	Insignificant	Almost Certain	Low	None	Insignificant	Almost Certain	Low

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3.5.4 Statement of Heritage Impact

Project works have been assessed in relation to the identified heritage site. Where Project works conflict with a heritage site and would result in a perceived negative impact, an inventory sheet has been prepared to provide detailed project impact and recommended mitigation measures (see Appendix 2).

According to the guidelines of the NSW Heritage Manual, the following statements are addressed to the Project in general as part of an overall SOHI. Individual Statements of Heritage Impact are provided for each site, or group of sites, in the Site Inventory Sheets in Appendix 2.

1. The following aspects of the Project respect or enhance the heritage significance of the study area for the following reasons.

   Project works respect the heritage significance of the study area through the due diligence process of investigation and assessment in order to formulate and carry out best practice heritage management before and during Project works.

   Any information/knowledge recovered during the management process would enhance heritage significance of the study area in general and, specifically, of historic rail infrastructure dating from the 1860s to the early 1900s.

   Of note is the potential for further information to be recovered concerning the historical Allandale Wine Cellars, therefore enhancing the knowledge and more accurately reflect the heritage significance of this site.

   Heritage significance would be further respected and enhanced through the interpretation and dissemination of any recovered information to the general public, and to professional researchers, through the preparation and distribution of a report.

2. The following aspects of the Project could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts.

   A net loss in heritage resources, as a result of unavoidable Project works, is considered a detrimental impact on heritage significance. However, appropriate mitigation strategies including archival recording prior to Project commencement, archaeological monitoring and, if necessary, archaeological investigation would ultimately offset this detrimental impact.

   Please see Inventory Sheets, in Appendix 2, for specific site details

3. The following sympathetic solutions have been considered and discounted for the following reasons.

   The construction of the third track is largely within the existing rail corridor, so that the area of impact is concentrated upon rail heritage. Where possible, Project planning has taken into consideration those heritage items located adjacent to the corridor, such as Clifton and the former winery at Allandale.

   Sympathetic solutions often include avoidance strategies whereby project footprints are altered to accommodate the retention, and avoid disturbance of, heritage resources. The construction of a third rail track within an existing rail corridor exerts some limitations on these strategies. However, approximately 3 kilometres of track around Branxton and Greta stations from chainage 210.170 kilometres to 211.180 kilometres and 214.060 kilometres to 216.000 kilometres, were located on the Down side in order to avoid impact upon these State Heritage items.

Additional sympathetic solutions have been implemented by retaining heritage structures where possible and constructing amplifications in parallel, either adjacent or abutting the existing structure.

Where project works conflict with other identified heritage resources, management would include appropriate investigation and recovery of information prior to commencement of project works to ensure that information is not lost. The research questions formulated in Section 4.3 are designed to give any investigation a structured approach. Any recovered information would be analysed within this research framework and the results included in a report to be made available for public access.

However, the overall need for improved rail infrastructure, in order to accommodate increased coal traffic and maintain adequate passenger services, reduces the options for sympathetic solutions to the overall Project. Due to the differing nature of heritage sites within the study area, sympathetic solutions, where available, are site specific and are outlined in the attached Site Inventory Sheets in Appendix 2.

3.5.5 Archaeological Potential

This section assesses the archaeological potential of the study area. That is, the anticipated nature and possible location of sub-surface relics that may be exposed during the course of the project. This is a theoretical model based on an understanding of the recorded history and development within the study area. While the extent and nature of sub-surface evidence is speculative, this model is a best estimate based on the known context of the site and on experience with similar sites.

A potential archaeological resource is defined as the material evidence that is anticipated to exist below the ground surface. This can include below ground evidence such as building foundations, occupation deposits, features and artefacts, and above ground evidence including buildings that are intact or ruined, or landform features such as building platforms or drainage lines.

There are few potential archaeological resources within the Project area due to continued use, disturbance, amplification of structures and general maintenance over the years.

Survey at Site 2, the former Allandale Wine Cellar/Penfold's Winery, confirmed the presence of the ruins of a former circa 1890s worker's cottage and the presence of artefactual resources nearby. Archaeological resources can be reasonably expected during any excavation within the curtilage of the footprint of the former winery, particularly within the cottage precinct. These resources have the potential to reveal presently unknown information about the life of winery workers and their families at the turn of the 20th Century. The potential for archaeological resources to contribute information about the 1908 murder of Lilly Bridge cannot be entirely discounted as the murder weapon has, apparently, never been recovered.

Any disturbance or excavation of the cottage footprint, particularly in the area of footings, is likely to expose archaeological resources related to the construction and occupation of the site. In earlier times, it was common for backfilling of trenches, footings and the like to contain disposable items such as bottles, broken items such as tools or household goods, or discarded clay smoking pipes. Many telling artefacts have been unearthed when building foundations have been excavated.

There is limited potential for any excavation proximate to overbridges and underbridges to reveal evidence of earlier bridge structures. However, the likelihood is considered slim at best. Previous disturbance, renovation and amplification of the bridges over time is likely to have destroyed this evidence.

Otherwise, there is little likelihood that the balance of the Project area would contain any potential archaeological resources. Notwithstanding, there is always the potential for any excavation to expose archaeological resources that cannot be reasonably predicted or expected.

3.5.6 Curtilage and Archaeological Zoning

The integration of the archaeological, historical and physical contexts has allowed the definition of an appropriate curtilage for the historical use of the study area and, within the framework of the definition of curtilage, the zoning of the relevant parts of the study area according to its archaeological potential, that is to say, its potential to contain significant sub-surface material evidence.

The NSW Heritage Act 1977 defines the term curtilage as:

> The area of land (including land covered by water) surrounding an item or area of heritage significance which is essential for retaining and interpreting its heritage significance (DUAP, 1996:3).

In order to define zones for particular management strategies, the study area has been zoned into areas of archaeological potential graduated from high through moderate to low. These zones are defined as follows:

(i) A zone of high potential is determined as an area likely to contain direct evidence of the history of development and/or structural and occupational use of the study area. Such zones are therefore defined around the apparent location of elements known or determined to have occupied the study area, represented in its archaeological and historical context and in historical mapping and plans.

The precinct of the Allandale Wine Cellar/Penfold's Winery represents a zone of high archaeological potential (see Site 2 Project Inventory in Appendix 2).

(ii) A zone of moderate potential is determined about locations peripheral to a zone of high potential, or areas already disturbed but probably containing ephemeral artefactual material relating to the use and occupation of the study area.

Zones of moderate archaeological potential can be considered to exist occur in association with or close proximity to existing historic rail infrastructure, that is, underbridges, overbridges and culverts.

(iii) A zone of low potential is determined as an area apparently having little or no demonstrated or determinable capacity to contribute to a better understanding of the history of the development or structural and occupational use of the study area. In a study area containing zone(s) of higher potential, this zone would comprise the remainder of the study area outside the zones of high and moderate potential.

The zone of low archaeological potential accounts for the balance of the study area not encompassed with zones of high or moderate archaeological potential.

The above zoning exercise effectively produces a predictive model for potential sub-surface material. However, it must be stressed that this plan is theoretical and is based on the current understanding and interpretation of available information. The exposure of unexpected relics can rarely be entirely discounted.

Table 3.5 – Summary of Identified Heritage Sites

Site #	Name	Location (km)	Assessed Significance	Archaeological Potential
1	Station Lane/Clifton	202.480	Local	Unlikely
2	Allandale Wine Cellars	206.100-206.200	Local (Rare)	Likely
3	Underbridge, Jump Up Creek	222.848	None	Theoretically possible but Unlikely
4	Underbridge, Black Creek	217.200	Local (Rare)	Theoretically possible but Unlikely
5	Underbridge, Sawyers Creek	211.010	Local	Theoretically possible but Unlikely
6	Underbridge, Anvil Creek trib	207.776	Local (Rare)	Theoretically possible but Unlikely
7	Underbridge, Wollombi Road	195.66	Local	Theoretically possible but Unlikely
8	Underbridge, Stony Creek	195.555	Local (Rare)	Theoretically possible but Unlikely
9	Overbridge, Old North Road	204.809	Local (Rare)	Theoretically possible but Unlikely
10	Belford Railway Station	222.700	Local	Possible
11	Branxton Railway Station	215.500	State	Theoretically possible but Unlikely
12	Greta Railway Station	210.600	State	Theoretically possible but Unlikely
13	Allandale Railway Station	204.900± 200	Local	Possible
14	Rutherford Junction Railway Station	199.071	Local	Theoretically possible but Unlikely
15	Farley Railway Station	195.700	Local	Likely
16	Level Crossing, Hermitage Road	222.700	None	Likely
17	Brick Culvert – Down only	224.141	Local	Theoretically possible but Unlikely
18	Brick Culvert – Down only	220.439	Local	Theoretically possible but Unlikely
19	Brick Culvert – Down only	219.650	Local	Theoretically possible but Unlikely
20[x]	Brick Culvert – Down only	218.448	Local	Theoretically possible but Unlikely
21	Brick Culvert – Down only	218.318	Local	Theoretically possible but Unlikely
22[x]	Brick Culvert – Down only	214.586	Local	Theoretically possible but Unlikely
23	Brick Culvert – Down only	213.892	Local	Theoretically possible but Unlikely
24[x]	Brick Culvert – Down only	213.158	Local	Theoretically possible but Unlikely
25	Brick Culvert – Down only	212.725	Local	Theoretically possible but Unlikely
26	Brick Culvert – Down only	212.333	Local	Theoretically possible but Unlikely
27	Brick Culvert – Down only	211.944	Local	Theoretically possible but Unlikely
28	Brick Culvert – Down only	210.703	Local	Theoretically possible but Unlikely
29	Brick Culvert – Down only	210.522	Local	Theoretically possible but Unlikely
30	Brick Culvert – Down only	209.639	Local	Theoretically possible but Unlikely
31[X]	Brick Culvert - complete	209.174	Local (rare)	Theoretically possible but Unlikely
32	Brick Culvert- Up only, Down modified	206.519	Local	Theoretically possible but Unlikely
33	Brick Culvert - modified	205.091	None	Theoretically possible but Unlikely
34	Brick Culvert - modified	203.844	None	Theoretically possible but Unlikely
35	Brick Culvert - modified	202.858	None	Theoretically possible but Unlikely
36	Brick Culvert - modified	202.103	None	Theoretically possible but Unlikely
37	Brick Culvert - modified	201.480	None	Theoretically possible but Unlikely
38	Brick Culvert - modified	199.242	None	Theoretically possible but Unlikely
39[X]	Brick Culvert - complete	198.613	Local	Theoretically possible but Unlikely
40	Brick Culvert - modified	197.165	None	Theoretically possible but Unlikely
41[X]	Brick Culvert - complete	196.561	Local (rare)	Theoretically possible but Unlikely
42[X]	Brick Culvert - complete	196.481	Local	Theoretically possible but Unlikely
43	Brick Culvert - modified	196.340	None	Theoretically possible but Unlikely
44[x]	Brick Culvert – modified	196.280	None	Theoretically possible but Unlikely
45	Brick Culvert - modified	196.069	None	Theoretically possible but Unlikely
46	Brick Culvert – box culvert	195.666	Local	Theoretically possible but Unlikely
47[X]	Brick Culvert – appears complete	195.133	Local	Theoretically possible but Unlikely
48	Brick Culvert – modified	194.912	None	Theoretically possible but Unlikely
49[X]	Brick Culvert – complete	194.209	Local (rare)	Theoretically possible but Unlikely
50[X]	Stone Culvert – Down only	214.566	Local (rare)	Theoretically possible but Unlikely
51[X]	Stone Culvert – Down only	213.690	Local (rare)	Theoretically possible but Unlikely
52[X]	Stone Culvert – Down only	213.158	Local (rare)	Theoretically possible but Unlikely
53[x]	Stone Culvert – Down only	198.040	Local (rare)	Theoretically possible but Unlikely

4.0 HERITAGE MANAGEMENT

4.1 ISSUES FOR MANAGEMENT

Ideally, culturally significant archaeological resources might be conserved in situ within the framework of the Burra Charter. Such a course is frequently impossible or impractical and questions are posed by the conflicting claims of cultural heritage on the one hand and progress and development on the other. Relevant to the concurrent questions of site conservation and site management/usage is the following legislation:

Table 4.1 - A Summary of Statutory Provisions (NSW)

The Heritage Act, 1977 (NSW – the Act)…	…provides for the protection of historic heritage and provides the process and criteria for listing of heritage deposits and/or relics that are of State significance on the State Heritage Register and those that are of Local significance on the State Heritage Inventory. Archaeological sensitivity and the potential for heritage value may be indicated by historical research and/or site-based archaeological study. Where historical research and/or archaeological study indicates sensitivity, the discovery of relics is highly likely if the ground surface is disturbed. Pursuant to amendments to the Heritage Act that were proclaimed 16 October 2009, a relic is defined as: … any deposit, artefact, object or material evidence that: (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and (b) is of State or local heritage significance.
	The Act further provides statutory protection from disturbance/destruction of sites and relics in a range of descriptions (ss.24-34, 35A-55B, 130, 136-7, 139) and for their registration or listing (ss.26(2)(b), 35A,36,37, 44). In particular, it provides that no disturbance or excavation may proceed that may expose or discover relics except with an Excavation Permit and that an excavation permit is required, if a relic is: • listed on the State Heritage Register, pursuant to s60; and • not listed on the State Heritage Register, pursuant to s140.
The Environmental Planning and Assessment Act 1979 (NSW)…	…contains similar protective measures to those contained in the Heritage Act. The act also provides for sites to be in Local and Regional Environmental Plans, as sites in development control plans or subject to development controls and/or as subject to planning controls or additional conservation provisions (ss.24-72, 76).

4.2 OPTIONS PROJECT WORKS MANAGEMENT

The options for conservation management theoretically available to address the issues raised in the preceding sub-section range from taking no conservation management action to preserving all elements of archaeological resource in situ:

Option 1: Taking no conservation management action would (theoretically) allow development to proceed unobstructed but would almost certainly result in the destruction or irretrievable modification of the archaeological/heritage resource. In that the archaeological resource is non-renewable, such an option might result in the loss not only of the archaeological resource but also of the opportunity of recording and interpreting the resource and thereby preserving:

- for future study, an opportunity to incorporate data about the resource into further studies.

and/or

- the present and future, a tangible account of the heritage values of the study area.

In present circumstances, this option is considered inappropriate, because it would result in the loss of heritage values, actual and potential, without any record having been made.

Option 2: Preserving all elements of the archaeological resource would, on the other hand, restrict or prevent any modification or the destruction of the resource and thereby secure the archaeology at the expense of the projected re-development, in an environment where the existence and implications of any such resource would not be properly investigated, evaluated or recorded.

In present circumstances, this option is considered inappropriate, because this would have the effect of defeating the Project or by causing unwarranted and excessive cost increase render the Project uneconomical.

Option 3: Alternative courses lie in:

1. varying (where necessary) projected or future development to minimise impact on the archaeological resource, and/or

2. detailed archaeological investigation with or without excavation, of any part of the resource that has the potential to be disturbed, damaged or destroyed by development, and/or

3. archaeological monitoring concurrent with the development process, and/or

4. archival recording, by plane survey, text, plan and elevation drawings, and photography,or

5. any appropriate combination of the above.

The result of such alternative courses would be that either elements of the archaeological resource would be conserved or that those modified or destroyed would be fully and appropriately recorded and the net loss in heritage values would be minimised.

In the present circumstances, a combination of the second, third and fourth alternative courses is considered an appropriate management action, because the process would maximise the archaeological and heritage values of archaeological and/or construction excavation and provide a body of data contributing to an understanding and interpretation of the study area that would otherwise be unavailable .

4.3 RESEARCH QUESTIONS

In the investigation of the archaeology of the Study area during course of Project works, attention would be directed to addressing the following research questions:

[i.] What information can the archaeological/material evidence provide about:

a) the technology employed at various stages in the construction, evolution and operation of the various features and undertakings of and/or within the study area?
b) the social component of the operation of railway construction and maintenance and railways in terms of people at work, and people interacting with transport and industry?

[ii.] Do the footprints and structural details of the various features and undertakings of and/or within the study area individually and collectively reveal specific details that complement or distinguish archival records and the historical context?

[iii.] What can the material evidence and artefacts reveal of the work practices and techniques of people engaged in working in various occupations associated with the study area?

[iv.] How does the material evidence reflect the changing and/or evolving technology, work practises, expectations and applications of and in the various occupations associated with the study area?

[v.] Does the evidence of people in the landscape in the study area differ from the evidence of people in other communities and occupations in the broader locality?

[vi.] Can all, or any, different stages in the use of the study area and of individual precincts be determined from the material evidence?

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5.0 RECOMMENDATIONS

The following criteria for the research and management of the heritage values and/or further archaeological investigation of the study area have been made on the basis of:

- the synthesis of archaeological, historical and physical contexts of the study area;
- consideration of the archaeological zoning, and potential fabric of the study area and its components;
- the assessment of the significance of the actual and potential material evidence;
- the appraisal of the condition and integrity of the archaeological resource;
- appreciation of the actual and heritage impacts of the proposed development;
- acknowledgement of the issues and options for management of the resource; and
- the research questions identified as relevant to the study area.

It is recommended that:

1. In general, in connection with the development, the attention of Hunter 8 and all contractors, sub-contractors and employees should be directed to the provisions of the Heritage Act 1977 (NSW) and in particular to:

   a. the definition of relic under that Act;

   b. the provisions of sections 24-34, 35A-59, 130, 136-7 139 and 146 of that Act;

   c. the requirement for, and the conditions that may attach to, a grant of an Excavation Permit under s60 of the Act in respect of a site that is registered on the State Heritage Register; and/or s140 of the Act in respect of a site that is not so registered, or the conditions and/or requirements of the Director General in the case of resolution of an application under Part 3A of the Environmental Planning and Assessment Act 1979.

   d. the basic requirements that if:

      i. a relic is suspected, or there are reasonable grounds to suspect a relic in ground, that is likely to be disturbed damaged or destroyed by excavation;

      ii. any relic is discovered in the course of excavation that would be disturbed, damaged or destroyed by further excavation;

      the person suspecting or discovering must notify the NSW Department of Planning, Heritage Branch or its delegate and suspend work that might have the effect of disturbing, damaging or destroying such relic until the requirements of Heritage Branch have been satisfied.

2. Having regard to the implications of Recommendation 1 and the present assessment of the significance of the study area, prior to commencement of the Project, the contents of this assessment report should become part of any application pursuant to Part 3A of the Environmental Planning and

Assessment Act 1979 and no project activity should commence in relation to these components without the prior issue of such conditions and/or requirements of the Director General, and thereafter strictly in compliance with such conditions and/or requirements.

3. In the planning of the project, Hunter 8 should provide time and resources for the completion of any archaeological study, survey and excavation, archival recording and any further research that may be recommended below or become necessary as the result of continuing work and studies.

4. Acknowledging that the site of the Allandale Vineyard/Penfolds Winery is presently fragile and contains relics, upon the definition of the nature and extent of any Project works upon or immediately proximate to Portion 266, Parish Branxton, County Northumberland:

    a. the land within the footprint of the Project works immediately adjacent to the identified heritage sites should be subjected to detailed surface survey and salvage of any surface material evidence.

    b. in the event that such Project works may have an impact, from construction and/or earthmoving and/or the movement of plant, equipment or personnel, upon the site of any former structural improvement/s on or below the surface of the said portion, the site of such projected impact:

        i. an archaeological excavation by mechanical and/or manual process should be undertaken specifically directed at defining the presence or otherwise of structural or other material evidence and its disposition (if any);
        ii. the process of industrial excavation should be monitored by a qualified historical archaeologist as described below; and
        iii. both forms of excavation should be archivally recorded by a qualified historical archaeologist as described below.

5. The Greta and Branxton Railway Station precincts are listed on the State Heritage Register and possess qualities that have been assessed as rare. In that context, the impact of any modification of the form of features of the precincts would be minimised by a suitable representative reconstruction of the feature so modified. The Down platforms of both precincts retain rare features that can be related to their Victorian-period origins, notably in the platform height, facing construction and surface finish. It is acknowledged that Project works would require the demolition and replacement of the platform facings of the Down platforms at both Greta and Branxton Station precincts in order to permit increase of the track-centre spacing. In addition to any other recommendations in respect of such work at such locations, it is recommended that a representative length of the original brick platform facing should be salvaged and reinstated on the new platform alignment, away from the dedicated passenger area and the antbed platform surface reinstated. The re-erected brick facing should be distinguished from any original work by suitable marking or inscription detailing the date and nature of re-erection.

6. Otherwise than as specifically recommended above, an archival record of the study area should be created by a qualified historical archaeologist by the following steps:

    a) where any Project activity in relation to the study area may have the capacity to obscure, move, modify, damage or destroy any part or component of the heritage resources of the study area, such heritage resource should be archivally recorded prior to the commencement of any Project works.

    b) Project works should be monitored and the archaeologist should compile an archival record of such activity and the progressive stages of obscurity, movement, modification, damage and/or destruction. Such monitoring and archival recording should be undertaken and completed

according to the criteria implemented by the NSW Heritage Council and to a level appropriate to the assessed significance of any individual resource as appropriate by:

i) creating a text record using a suite of field recording materials and analysis notes and material, and by drafting, in standard formats and field book(s);
ii) plane survey and/or developed measured plans and elevations; and
iii) photographically by monochrome print, colour transparency and digital imaging.

Field notes and records should be in a form appropriate to be appended to subsequent reporting. The graphics of the archival record should be orientated by reference to any extant photography, plans and diagrams of the present and former operator(s) within the study area, and should otherwise comply with the criteria established for archival recording by the NSW Heritage Office.

c) in the process of monitoring and recording, the archaeologist should salvage and secure such artefacts, elements and/or components and/or samples of the historical functions within the study area and its maintenance and operation and otherwise such material evidence as shall be considered diagnostic and relevant and capable of assisting in the interpretation of the plants and their heritage values.

7. Where, during the course of archaeological monitoring, the Archaeologist deems it necessary, work should cease or be suspended in a specific area in order to allow detailed manual investigation. In a detailed manual investigation, the Archaeologist would employ small hand tools such as trowels, brushes and the like. This process may be time consuming and time and resources would be required to carry out this process according to best practice standards of the NSW Heritage Guidelines.

8. Any artefacts salvaged or recovered in terms of Recommendation 6.c. should be conserved, identified and, to the extent possible, analysed for implication, significance, provenance and post-depositional effects, and:

a) recorded in the field, individually by provenance, nature, type, fabric/material, shape, dimension and mass on an artefact recovery index field sheet and in terms of found context in a context field record sheet.

b) in post-fieldwork management, would be cleaned, catalogued according to typology, features and provenance, and interpreted in the context of the total excavation results.

On completion of post-fieldwork management, artefacts would be appropriately conserved and packed, an inventory would be taken of packing and all packed material would be deposited with the archive of plans and photographic records for permanent archiving with accessibility to be provided to bona fide researchers.

9. All elements of monitoring, archival recording and artefact management would be documented in a detailed report to publication standard, illustrated where relevant by photography, plans, elevations and drawings and complying with such conditions as may be contained in the excavation permit or Director Generals conditions or requirements.

10. Copies of the reports and all photography, plans, elevations and drawings would be provided to Hunter 8 and to the NSW Heritage Branch, the NSW State Library, Maitland and Cessnock Councils and the local history sections of the Newcastle, Maitland and Cessnock Libraries.

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6.0 REFERENCES

6.1 PRIMARY SOURCES

Department of Information Technology and Management, Land and Property Information, NSW –
31/1/1890. Edition 1, Map of the Village of Belford. PMap 108565 Md01/07.
19/8/1906. Edition 2, Map of the Village of Belford. PMap 108564 Md01/07.
1/1/1877 (1886), Edition 2, Map of the Village of Greta, PMap 108578 Md01/07.
2/1/1912. Edition 3, Map of the Village of Greta, PMap 108577 Md01/07.
1/1/1913. Edition 3, Map of Parish Gosforth, Co Northumberland. PMap 108874 Md06/07.
1/1/1926. Edition 5, Map of Parish Gosforth, Co Northumberland. PMap 108892 Md06/07.
1/1/1943. Edition 6, Map of Parish Gosforth, Co Northumberland. PMap 108871 Md06/07.
1/1/1913. Edition 6, Map of Parish Branxton, Co Northumberland. PMap 108411 Md05/07.
1/1/1922. Edition 7, Map of Parish Branxton, Co Northumberland. PMap 108350 Md05/07.
1/1/1933. Edition 8, Map of Parish Branxton, Co Northumberland. PMap 108400 Md05/07.
1/1/1911. Edition 4, Map of Parish Belford, Co Northumberland. PMap 108419 Md05/07.
15/6/1938. Edition 7, Map of Parish Belford, Co Northumberland. PMap 108417 Md05/07.

Department of Lands, NSW, 1924. Definition survey, Portion 266, Parish Branxton Co Northumberland, by Mr Surveyor EH Dunlop, 16 July 1924.

6.2 SECONDARY SOURCES

ARTC, nd. Register maintained pursuant to s170, Heritage Act, NSW, 1977.

Bickford, A and S Sullivan, 1984. 'Assessing the research significance of historic sites', in Sullivan, S and S Bowdler, (eds), Site Survey and Significance Assessment in Australian Archaeology, Department of Prehistory, Research School of Pacific Studies, ANU Canberra.

David Burke, 1998. With Iron Rails, NSW University Press.

Campbell, David S, 2007. 'Railways of the Newcastle District of New South Wales, 1840-1865', in compact disk Stories of the GNR, Engineering Heritage Australia (Newcastle), Newcastle.

Cessnock City Council, 2008. City of Cessnock (Draft) Local Environmental Plan, NSW Government.

Delaney, JW, 1998. A History of the Greta Coal Measures, 1861-1998, Newcastle Regional Museum, Newcastle

Department of Land and Water Conservation, nd. Topographic maps, 92324S Maitland and 91321S Branxton. Central Mapping Authority, Bathurst.

Environment Australia/Australian Heritage Commission. Australian Heritage Database. <http://www.environment.gov.au/heritage>.

Heritage Office, 1996 - 2001. NSW Heritage Manual, particularly:
Archaeological Assessments ...
Historical Archaeological Sites ...
Guidelines for Photographic Recording ...
Heritage Assessment Guidelines ...
Assessing Heritage Significance...
Heritage Curtilages...

...Heritage Office and Department of Urban Affairs and Planning, (NSW), Sydney.

Hunter Region Organisation of Councils, 1989. Hunter Regional Environmental Plan1989 (Heritage), NSW Government.

Jeans, DN, 1972. An Historical Geography of New South Wales to 1901, Reed Education, Sydney.

McKillop, RF and D Sheedy, 2008. Our Region, Our Railway: the Hunter and the Great Northern Railway 1857-2007, ARHS/NSW Division, Sydney.

Maitland City Council, 1993. City of Maitland Local Environmental Plan, NSW Government.

Marquis-Kyle, P and M Walker, 1992. Australia ICOMOS: The Illustrated Burra Charter. Australia ICOMOS, Sydney.

Mitchell, CJ, 1984, Hunter's River, Estate of Cecily Joan Mitchell.

New South Wales Government:
1977. Heritage Act.
1979. Environmental Planning and Assessment Act.

New South Wales Registry of Births, Deaths and Marriages, http://www.bdm.nsw.gov.au, accessed October 2009.

O'Connor, C, 1985. Spanning Two Centuries – Historic Bridges of Australia. University of Queensland Press.

Railcorp NSW, 2008. NSW Railways (Railcorp) Thematic History, http://www.nswrailheritage.com.au/railheritageth.htm, accessed October 2009.

Randall, V., 1993, Greta, the Town and it's People – 150 Years. Self pub.

Rowe, DJ, 1986. Construction of the Great Northern Railway in New South Wales, 1854-1889: an economic and labour history, Thesis 1035, University of Newcastle, unpub.

State Heritage Register and Inventory. <http://www.heritage.nsw.gov.au>.

Sullivan, S and S Bowdler (eds), 1984. Site Survey and Significance Assessment in Australian Archaeology, Department of Prehistory, Research School of Pacific Studies, ANU Canberra.

Appendix 1

NSW State Heritage Inventory Sheets

ARTC Section 170 Inventory Sheets

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Clifton

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Item

Name of Item: Clifton

Primary Address: Station Lane, Lochinvar, NSW 2321

Local Govt. Area: Maitland

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
Station Lane	Lochinvar	Maitland			Primary

Assessment Criteria: Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan		1993	03 Sep 93	098	5525

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

Data Source

The information for this entry comes from the following source:

Name: Local Government

Database Number: 2000130

Every effort has been made to ensure that information contained in the State Heritage Inventory is

correct. If you find any errors or omissions please send your comments to the **Database Manager**.

ARTC - NSW Country Rail S.170 Register

SHI Number
4281615
Study Number

State Heritage Inventory - NSW Country Rail

Item Name: Allandale, Anvil Creek Underbridge

Location: 207.776km, Northern Railway line, Allandale to Greta

Address:	207.776km, Northern Railway line	**DUAP Region:**	Hunter & Central Coast
Suburb / Nearest Town:	Allandale to Greta	**Historic region:**	Lower Hunter
Local Govt Area:	Cessnock	**Parish:**	
State:	NSW	**County:**	

Other/Former Names:

Area/Group/Complex: **Group ID:**

Aboriginal Area:

Curtilage/Boundary: The curtilage includes the bridge structure and extends fior a distance of 20m in all directions

Item Type: Built **Group:** Transport - Rail **Category:** Railway Bridge/ Viadu

Owner: Commonwealth Government

Admin Codes: ARTC Lease Network **Code 2:** Hunter Valley networ **Code 3:**

Current Use: Carries main northern line over ??? Anvil Creek

Former Uses:

Assessed Significance: Local **Endorsed Significance:**

Statement of Significance: The twin-cell brick arch culvert at Allandale with its largely intact original headwall, is a rare example of its type from the earliest period of railway construction in NSW and Australia. It is associated with the introduction of higher engineering standards by John Whitton, the prre-eminent railways engineer of the 19th century

The structure is of exceptional overall cultural heritage significance and is of State and National significance.

Historical Notes or Provenance: The railway from Newcastle to Maitland was opened in 1858. Work then commenced on the extension to Singleton. Following resolution of disagreements between the Government and Engineer-in-Chief John Whitton, work was speeded up in 1859 with the letting of a contract to Sir Morton Peto and Company in April of that year with a proposed completion date to Singleton at the end of 1860.

After delays the line was opened to Lochinvar (east of the subject structure) on 2 July 1860, Branxton (beyond the subject structure) on 24 March 1862 and to Singleton on 7 May 1863. Evidence suggests the bricks were being manufactured in January 1860 in kilns set up beside the line.

Themes:

Designer: Not known

Item Name: Allandale, Anvil Creek Underbridge

Location: 207.776km, Northern Railway line, Allandale to Greta

Maker / Builder: Sir Morton Peto and Company (or a sub-contractor)

Year Started: 1860 **Year Completed:** **Circa:** No

Physical Description: Twin cell brick arch culvert, each cell being composed of a semi-circular five-ringed brick arch of 3.20m (10ft6in) span and 3.49m (11ft6in) rise. The invert (base) of the structure is an inverted segmental arch.
The original section, including a headwall and wingwall parallel to the track, comprises the southern end of the structure. An extension has been built using similar design and construction techniques on the northern end, but the wingwall is angled away from the track as in later practice.

Physical Condition: This structure is still in use.

Modification Dates: Extended at northern end in similar construction c.1915

Recommended Management:

Management:

Further Comments:

Criteria a) It is associated with the earliest phase of railway development in Australia and its southern end appears to date from 1860 or slightly earlier; it is the only structure of similar size and type built in the Hunter Valley, up to 1863 which is substantially complete at one end with a headwall and has local historical significance in this regard; it is likely that the structure is the oldest remaining one of its type, size and intactness in NSW and has State or even National significance; only one other structure of similar size and type exists on the Great Northern Line at Farley, and it has been lengthened at both ends, destroying the original headwalls.

Criteria b) The structure is one of the first in NSW built after John Whitton, the "father of the NSW railways" took full control of design and construction; however, having a different form from a design known have been signed by Whitton, it may be an example of a contractor's alternative to accommodate available labour and materials. Nevertheless it has a strong association with Whitton as the person who insisted on using permanent materials and high construction standards in opposition to prevailing political pressure.

Criteria c) The structure is well proportioned and is pleasing in its choice of materials. Damage at the older end reduces the appearance to some degree, but suitably designed repairs can restore most of the aesthetic quality. The structure exemplifies the technical achievement of "engineered" masonry as developed in the United Kingdom with the expansion of railways in the mid-19th century and brought to Australia by the pioneer engineers such as Whitton. It also exemplifies the technical achievement of the logistical task of the early railway builders who set up their own brickmaking operations.

Criteria d) The Great Northern Railway contributed to opening up of the country inaccessible by sea with the consequent lowering of transport costs and reducing times for communication. It

Item Name: Allandale, Anvil Creek Underbridge

Location: 207.776km, Northern Railway line, Allandale to Greta

had a major impactg on the development of NSW and continues to do so as the major transport mode for coal, one of Australia's major exports. As part of the Great Northern Railway the structure has strong associations with rural communities and interstate travellers for the north of NSW.

Criteria e) The structure is evidence of the skills available in brickmaking, mortar manufacture and masonry construction in the middle of the 19th century. In particular, the level of skill employed seems to be significantly greater than found in most buildings from the period and reflects what was possible with adequate design and specification. The mortar is of much higher quality than is usually found in buildings of the period. As an example of hydraulic lime mortar of highest quality, it is deserving of further study in its own right and could produce valuable data for use in the conservation of 19th century masonry structures. Other structures in the vicinity have similar potential and scientific significance.

Criteria f) Is the only known example of its type and size of this period with an intact headwall

Criteria g) Is a fine example of its type and is outstanding because of its size and inctactness

Integrity / Intactness: Substantially intact and in use. Conservation, repair and strengthening proposed (as reported in 2001)

References:

Author	Title	Year
Bill Jordan and Associates Pty Ltd	CMP c.1860 Twin-cell Brick Arch Culvert 297.776km Allandale	2001

Studies:

Author	Title	Number	Year

Parcels:

Latitude: **Longitude:**

Location validity: **Spatial Accuracy:**

Map Name: **Map Scale:**

AMG Zone: **Easting:** **Northing:**

Listings:

Name:	Title:	Number:	Date:
Heritage Act - s.170 NSW State agency heritage register			06/01/2005

Other number:

Km From Sydney: 207.776km

Client Region:

Legal Owner: Australian Rail Track Corporation

Artefact Notes:

Click on the BACK button of your browser to return to the previous page.

Greta Railway Station group

Item

Name of Item:	Greta Railway Station group
Type of Item:	Complex / Group
Group/Collection:	Transport - Rail
Category:	Railway Platform/ Station
Location:	Lat:151.38398979 Long:-32.68633092
Primary Address:	Main Northern railway, Greta, NSW 2334
Local Govt. Area:	Cessnock

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

Boundary: The listing boundary is formed by a line running north at the rear of the former crane, extending to the end of the platform at the northern end then turning east until reaching the eastern fence line of the residence where it turns south along the fence to the front fence of the residence. From here it follows the front fence, turning south along the western side of the road to a point adjacent to the southern end of the platform where it turns west across the tracks.

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
Main Northern railway	Greta	Cessnock			Primary

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
RailCorp	State Government	29 Oct 98

Statement of Significance: Greta station group is perhaps the best late 19th century station group surviving from the period before the introduction of standard and economical construction methods around 1890. Its signifcance is enhanced by its intactness and completeness. The

station building and residence (no longer owned by State Rail) are particularly fine buildings and the residence appears to be of unique design. The station building is the only surviving example of its kind without significant alteration. The site exhibits layering of different periods and styles, largely due to duplication and the need for additional buildings at that time. As new buildings were constructed at each stage and buildings were not extended (with the exception of the awning on the signal box) it displays a range of unaltered structures from various periods co-existing at one location. The footbridge, signs, lights, fencing and other details of the site add to the significance and completeness of the site and help create what is a unique small country railway station group.
Date Significance Updated: 27 Nov 00
Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical Description:
BUILDINGS
station buildings
- type 3, second class wayside station,1889
- type 11, duplication station,1915
signal box - skillion roof type 3,1915
parcels office - c. 1889
STRUCTURES
platform faces - birck, 1915
footbridge - 1922
LANDSCAPE
trees - up side
ARTEFACTS
fencing
signs
lighting

Historic Themes

Australian Theme (abbrev)	New South Wales Theme	Local Theme
3. Economy - Developing local, regional and national economies	Transport - Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	(none) -

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Assessment of Significance

SHR Criteria f) [Rarity]
This item is assessed as historically rare. This item is assessed as scientifically rare. This item is assessed as arch. rare. This

item is assessed as socially rare.

Assessment Criteria

Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Procedures /Exemptions

Section of Act	Description	Title	Comments	Action Date
57(2)	Exemption to allow work	Standard Exemptions	SCHEDULE OF STANDARD EXEMPTIONS HERITAGE ACT 1977 Notice of Order Under Section 57 (2) of the Heritage Act 1977 I, the Minister for Planning, pursuant to subsection 57(2) of the Heritage Act 1977, on the recommendation of the Heritage Council of New South Wales, do by this Order: 1. revoke the Schedule of Exemptions to subsection 57(1) of the Heritage Act made under subsection 57(2) and published in the Government Gazette on 22 February 2008; and 2. grant standard exemptions from subsection 57(1) of the Heritage Act 1977, described in the Schedule attached. FRANK SARTOR Minister for Planning Sydney, 11 July 2008 To view the schedule click on the Standard Exemptions for Works Requiring Heritage Council Approval link below.	Sep 5 2008

Standard Exemptions for Works Requiring Heritage Council Approval

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Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - State Heritage Register		01156	02 Apr 99	27	1546
Heritage Act - s.170 NSW State agency heritage register					

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

Data Source

The information for this entry comes from the following source:

Name: Heritage Branch

Database Number: 5012026

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number 4801180
Study Number SRA180,

Item Name: Greta Station Group (C/L Stn 36)

Location: Nelson Street, Greta [Cessnock City]

Address:	Nelson Street	**DUAP Region:**	Hunter & Central Coast
Suburb / Nearest Town:	Greta 2334	**Historic region:**	Lower Hunter
Local Govt Area:	Cessnock City	**Parish:**	
State:	NSW	**County:**	

Other/Former Names:

Area/Group/Complex: **Group ID:**

Aboriginal Area:

Curtilage/Boundary: The listing boundary is formed by a line running north at the rear of the former crane, extending to the end of the platform at the northern end then turning east until reaching the eastern fence line of the residence where it turns south along the fence to the front fence of the residence. From here it follows the front fence, turning south along the western side of the road to a point adjacent to the southern end of the platform where it turns west across the tracks.

Item Type: Built **Group:** Transport - Rail **Category:** Railway Platform/ Stati

Owner: State Rail Authority

Admin Codes: HV **Code 2:** 180 **Code 3:**

Current Use:

Former Uses:

Assessed Significance: **Endorsed Significance:**

Statement of Significance: Greta station group is perhaps the best late 19th century station group surviving from the period before the introduction of standard and economical construction methods around 1890. Its signifcance is enhanced by its intactness and completeness.
The station building and residence (no longer owned by State Rail) are particularly fine buildings and the residence appears to be of unique design. The station building is the only surviving example of its kind without significant alteration.
The site exhibits layering of different periods and styles, largely due to duplication and the need for additional buildings at that time. As new buildings were constructed at each stage and buildings were not extended (with the exception of the awning on the signal box) it displays a range of unaltered structures from various periods co-existing at one location.
The footbridge, signs, lights, fencing and other details of the site add to the significance and completeness of the site and help create what is a unique small country railway station group.

Historical Notes or Provenance: Footbridge: By 1900 Eddy's economic and functional policies were being widely implemented. Footbridge: For Footbridges this meant simple structures, no ornamentations, fabricated locally from steel sections imported from England.

The simplest structure was a pair of steel beams (RSJ) with a timber deck, all supported on

Item Name: Greta Station Group (C/L Stn 36)

Location: Nelson Street, Greta [Cessnock City]

angle iron trestles. The stairway too had timber steps supported by sloping channel iron stringers, and the balustrades (handrails) had timber posts and rails plus some intermediate wires. A few examples survive.

Principle changes since 1920's are concrete deck, RSJ trestles and metal bar balustrades. Ten still have timber decks, plus replacements in Hardie Board.

Themes:

National Theme	State Theme	Local Theme
3. Economy	Transport	(none)

Designer:

Maker / Builder:

Year Started: **Year Completed:** **Circa:** No

Physical Description:

BUILDINGS
station buildings
- type 3, second class wayside station,1889
- type 11, duplication station,1915
signal box - skillion roof type 3,1915
parcels office - c. 1889
STRUCTURES
platform faces - birck, 1915
footbridge - 1922
LANDSCAPE
trees - up side
ARTEFACTS
fencing
signs
lighting

The main station building on the up platform is an intact example of a second class station building. It is a symmetrical brick structure with a corrugated iron hipped roof. The platform awning is supported on decroative cast iron posts and details including graceful curved beam supports bewteen columns. An interesting moulded timber fascia extends around the three free sides of the awning. The awning to the passenger entry is a small hipped roof supported on stop-chamfered timber posts. The planning of the building is linear with a central booking room I waiting room, a ticket office to one side and ladies waiting room to the other. The male toilet is in a detached flat foor parapeted structure to one end. The interior although damaged contains original joinery and chimney pieces.
The adjacent brick building to the station building is a simple rectangular structure with gable roof clad in corrugated iron and simple lean to verandah to the front. This is supported on timber posts. Its construction date is not known, but it appears to post date the station

building. It has intricatley deatiled barge boards surviving at one end. Its construction date would be shortly after the station building. It appears to have been used a s a parcels office, it is a one room structure with entry only from the platform.
The station buildings on the down platform date from the time of duplication. The waiting shed is of brick construction with a gabled corrugated iron roof with integral awning supported on simple curved brackets. Entrance to the waiting area is through a large curved head opening. The structure has one window in the rear wall with small panes of coloured glass. Adjacent to it is a skillion roof timber framed and clad parcels room of unknown date. It contains a double door to the platform only and is typical of many similar structures throughout the state.
SIGNAL BOX
The signal box constructed in 1915 is a type 3 box widely used throughout the state in the early part of the century. It is a timber framed and clad structure with a skillion roof, large small- paned windows to two sides and a front entry door. This example is unusual in that it has an added front awning supported on 4 timber posts. It is most likely that this has been added after the time of construction. Although no longer in use it is an excellent example of its type and adds to the significance of the group.
FENCING, SIGNS, PLATFORM SURFACE AND LIGHTING
All of these elements add greatly to the significance of the site as very few sites retain these elements in such intact condition, particularly timber fencing. It is not certain if the fencing dates from the construction of the station buildings, it is most likely that it dates from 1913 at the time of duplication. Of interest is the platform surface which is gravel and the low height of the platforms above track level. Most stations have been raised significantly over the years and have had bitumen surfaces added. The gravel surface is indicative of early finishes and again adds to the significance of the site.
PLATFORM FACES
The brick platform faces appear to be of the same construction and as such would both date from 1913 making them good examples of a duplication station.
RESIDENCE
The residence is a unique structure that has been classified as a miscellaneous residence as it does not appear to relate to any other structures. It is a simple U-shaped structure with the front facade on one leg of the U. It is symmetrical on each axis. It is constructed of brick which has been painted, the roof is hipped in form and clad in corrugated iron. The front verandah roof is detached, hipped and has a slightly reversed curve. It is an
STATION BUILDINGS
STATE RAIL AUTHORITY HERITAGE REGISTER
unusually large residence for a relatively small country location which adds to its interest. Its proximity to the station building is also of interest as residences of the early period were often farther away or were incorporated in the station structure. As part of the group the building is of high significance.
FOOTBRIDGE
The footbridge, located quite close to the road bridge is an unusual design having a steel frame andtimber treads and handrails, with strand wire inf ill. A tubular steel handrail has been added at a later stage. The footbridge was built at the time of duplication and connects the two platforms only. The form of the painted posts and rails is dominant in viewing the station complex and is unusual when compared to the more standard grey steel structures. The bridge unifies the site, adds to the completeness of the place and is of interesting

Item Name: Greta Station Group (C/L Stn 36)

Location: Nelson Street, Greta [Cessnock City]

design.

Footbridge 1922: Standard structure. Timber deck.Timber newel posts.

Physical Condition:

Modification Dates:

Recommended Management:

Management:

Further Comments:

Criteria a)

Criteria b)

Criteria c)

Criteria d)

Criteria e)

Criteria f) This item is assessed as historically rare. This item is assessed as scientifically rare. This item is assessed as arch. rare. This item is assessed as socially rare.

Criteria g)

Integrity / Intactness:

References:

Studies:

Author	Title	Number	Year
State Rail Authority	State Rail Authority Heritage Register Study	SRA180, SRA660 (footbridge)	1999
Paul Davies for SRA	Heritage and Conservation Register State Rail Authority of NSW	82	1993

Parcels:

Latitude: **Longitude:**

Location validity: **Spatial Accuracy:**

Map Name: **Map Scale:**

AMG Zone: **Easting:** **Northing:**

Listings:

Name:	Title:	Number:	Date:

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number
4801180
Study Number
SRA180,

Item Name: **Greta Station Group (C/L Stn 36)**

Location: **Nelson Street, Greta [Cessnock City]**

Heritage Act - s.170 NSW State agency heritage register

Asset Number:

Km From Sydney: 211

Client Region: SRA of NSW

Legal Owner: SRA of NSW

Artefact Notes: 3 2nd class building

Exclusions: Modern: track structures; signalling structures; platform luminaries; station signs; platform furniture; platform fencing

Data Entry: **Date First Entered:** 26/10/1999 **Date Updated:** 03/06/2009 **Status:** Partial

Item Name: Greta Station Group (C/L Stn 36)

Location: Nelson Street, Greta [Cessnock City]

Image/s:

Caption: Greta Station Footbridge

Copyright:

Image by: Don Fraser

Image Date: 6/11/1996

Image Number: Survey Of Railway Footbridges, NO 12 Neg 22

Image Path:

Image File: 4440660.jpg

Thumb Nail Path:

Thumb Nail File: t_4440660.jpg

Item Name: Greta Station Group (C/L Stn 36)

Location: Nelson Street, Greta [Cessnock City]

Image/s:

Caption: Greta Station Group
Copyright: State Rail Authority
Image by:
Image Date:
Image Number:
Image Path:
Image File: 4440180.jpg
Thumb Nail Path:
Thumb Nail File: t_4440180.jpg

Greta Footbridge

Item

Name of Item: Greta Footbridge
Type of Item: Built
Group/Collection: Transport - Rail
Category: Railway Bridge/ Viaduct
Primary Address: At Station, Greta, NSW 2334
Local Govt. Area: Maitland

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
At Station	Greta	Maitland			Primary

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
RailCorp	State Government	

Statement of Significance

Standard structure.

Timber deck.

Timber newel posts.

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Construction Years: 1922 -

Physical Description:	A steel beam structure over 2-track main west. Long plank timber deck (27 sites). Drawings 11 - 36 and 43 - 71 Timber newel posts (17 sites).
Physical Condition and/or Archaeological Potential:	Good

History

Historical Notes:

By 1900 Eddy's economic and functional policies were being widely implemented. For Footbridges this meant simple structures, no ornamentations, fabricated locally from steel sections imported from England.

The simplest structure was a pair of steel beams (RSJ) with a timber deck, all supported on angle iron trestles. The stairway too had timber steps supported by sloping channel iron stringers, and the balustrades (handrails) had timber posts and rails plus some intermediate wires. A few examples survive.

Principle changes since 1920's are concrete deck, RSJ trestles and metal bar balustrades. Ten still have timber decks, plus replacements in Hardie Board.

Historic Themes

Australian Theme (abbrev)	New South Wales Theme	Local Theme
3. Economy - Developing local, regional and national economies	Transport - Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	(none) -

Assessment Criteria

Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - s.170 NSW State agency heritage register	SRA s.170 Register				

Study Details

Title	Year	Number	Author	Inspected by	Guidelines Used
State Rail Authority Heritage Register Study	1999	SRA660	State Rail Authority		No
Footbridge Survey		SRA660	Don Fraser		No

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

(Click on Thumbnail for Full Size Image and Image Details)

Data Source

The information for this entry comes from the following source:

Name: State Government Agency

Database Number: 4440660

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number
4801660
Study Number
SRA660

Item Name: **Greta Footbridge**

Location: **At Station, Greta [Maitland City]**

Address:	At Station	**DUAP Region:**	Hunter & Central Coast
Suburb / Nearest Town:	Greta 2334	**Historic region:**	Lower Hunter
Local Govt Area:	Maitland City	**Parish:**	
State:	NSW	**County:**	

Other/Former Names:

Area/Group/Complex: **Group ID:**

Aboriginal Area:

Curtilage/Boundary:

Item Type: Built **Group:** Transport - Rail **Category:** Railway Bridge/ Viadu

Owner: State Rail Authority

Admin Codes: SRA **Code 2:** 660 **Code 3:**

Current Use:

Former Uses:

Assessed Significance: **Endorsed Significance:**

Statement of Significance:

Standard structure.

Timber deck.

Timber newel posts.

Historical Notes or Provenance:

By 1900 Eddy's economic and functional policies were being widely implemented. For Footbridges this meant simple structures, no ornamentations, fabricated locally from steel sections imported from England.

The simplest structure was a pair of steel beams (RSJ) with a timber deck, all supported on angle iron trestles. The stairway too had timber steps supported by sloping channel iron stringers, and the balustrades (handrails) had timber posts and rails plus some intermediate wires. A few examples survive.

Principle changes since 1920's are concrete deck, RSJ trestles and metal bar balustrades. Ten still have timber decks, plus replacements in Hardie Board.

Themes:

National Theme	State Theme	Local Theme
3. Economy	Transport	(none)

Item Name: Greta Footbridge

Location: At Station, Greta [Maitland City]

Designer:

Maker / Builder:

Year Started: 1922 **Year Completed:** **Circa:** No

Physical Description: A steel beam structure over 2-track main west.

Long plank timber deck (27 sites).

Drawings 11 - 36 and 43 - 71

Timber newel posts (17 sites).

Physical Condition: Good

Modification Dates:

Recommended Management:

Management:

Further Comments:

Criteria a)

Criteria b)

Criteria c)

Criteria d)

Criteria e)

Criteria f)

Criteria g)

Integrity / Intactness:

References:

Studies:

Author	Title	Number	Year
State Rail Authority	State Rail Authority Heritage Register Study	SRA660	1999
		SRA660	

Parcels:

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number
4801660
Study Number
SRA660

Item Name: Greta Footbridge

Location: At Station, Greta [Maitland City]

Parcels:

Latitude: **Longitude:**

Location validity: **Spatial Accuracy:**

Map Name: **Map Scale:**

AMG Zone: **Easting:** **Northing:**

Listings:

Name:	Title:	Number:	Date:
Heritage Act - s.170 NSW State agency heritage register			

Asset Number:

Km From Sydney: 210.744

Client Region: SRA

Legal Owner: SRA

Artefact Notes:

Exclusions:

Data Entry: **Date First Entered:** 26/10/1999 **Date Updated:** 03/06/2009 **Status:** Partial

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number
4801660
Study Number
SRA660

Item Name: Greta Footbridge

Location: At Station, Greta [Maitland City]

Image/s:

Caption: Survey Of Railway Footbridges
Copyright: State Rail Authority
Image by: Don Fraser
Image Date: 6/11/1996
Image Number: NO 12 Neg 22
Image Path:
Image File: 4440660.jpg
Thumb Nail Path:
Thumb Nail File: t_4440660.jpg

Greta Conservation Area

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Item

Name of Item: Greta Conservation Area

Type of Item: Conservation Area

Primary Address: Greta, NSW 2334

Local Govt. Area: Cessnock

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
	Greta	Cessnock			Primary

Assessment Criteria

Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Regional Environmental Plan	Hunter REP 1989		03 Nov 89	107	9374

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

Data Source

The information for this entry comes from the following source:

Name: Gazette NSW Statutory Listings

Database Number: 3375

Click on the BACK button of your browser to return to the previous page.

Branxton Railway Station group

Item

Name of Item: Branxton Railway Station group

Type of Item: Complex / Group

Group/Collection: Transport - Rail

Category: Railway Platform/ Station

Location: Lat:151.34638569 Long:-32.6625094

Primary Address: Main Northern railway, Branxton, NSW 2335

Local Govt. Area: Cessnock

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

Boundary: The site is defined by lines drawn across the tracks approximately 30m past each end of the plaforms, extending to the SRA property boundaries formed by the road to the north and the rear of the loop siding to the south.

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
Main Northern railway	Branxton	Cessnock			Primary

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
RailCorp	State Government	21 Oct 98

Statement of Significance: Branxton features some of the earliest buildings on the northern line. The substantial nature of the buildings reflects the importance once attached to the town and its station. The original station incorporated a rare example of a residence (1 of 5 similar structures in the State). The group exhibits the effects of duplication and the addition of structures from later periods including several additions to the 1862 building during the 1880's and again in 1914 to make a substantial main line railway

group.
The group is one of the most interesting and important sites surviving in the State.

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical Description:

BUILDINGS
station buildings, HS
up - type 1, brick combination office/residence, 1862 (opening), 1880's, 1915
down - type 11, brick initial island building at duplication,1915
signal box - timber skillion roof with remaining telegraph wires and poles, c 1915
store - timber
STRUCTURES
platform faces - brick
dock platform
footbridge - steel, c. 1915
jib crane - JC Commenson T431 5 ton (not erected)
signals - double light colour light (metropolitan style), 1946
PLANT + EQUIPMENT
weighing machine - Pooley 5 ton
ARTEFACTS
miscellaneous station details - signs, seats, fences including examples from different periods of railway development.

Historic Themes

Australian Theme (abbrev)	New South Wales Theme	Local Theme
3. Economy - Developing local, regional and national economies	Transport - Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	(none) -

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Assessment of Significance

SHR Criteria f) [Rarity]

This item is assessed as historically rare. This item is assessed as scientifically rare. This item is assessed as arch. rare. This item is assessed as socially rare.

Assessment Criteria

Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Procedures /Exemptions

Section of Act	Description	Title	Comments	Action Date
57(2)	Exemption to allow work	Standard Exemptions	SCHEDULE OF STANDARD EXEMPTIONS HERITAGE ACT 1977 Notice of Order Under Section 57 (2) of the Heritage Act 1977 I, the Minister for Planning, pursuant to subsection 57(2) of the Heritage Act 1977, on the recommendation of the Heritage Council of New South Wales, do by this Order: 1. revoke the Schedule of Exemptions to subsection 57(1) of the Heritage Act made under subsection 57(2) and published in the Government Gazette on 22 February 2008; and 2. grant standard exemptions from subsection 57(1) of the Heritage Act 1977, described in the Schedule attached. FRANK SARTOR Minister for Planning Sydney, 11 July 2008 To view the schedule click on the Standard Exemptions for Works Requiring Heritage Council Approval link below. Standard Exemptions for Works Requiring Heritage Council Approval	Sep 5 2008

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - State Heritage Register		01098	02 Apr 99	27	1546
Heritage Act - s.170 NSW State agency heritage					

register					

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

Data Source

The information for this entry comes from the following source:

Name: Heritage Branch

Database Number: 5011953

Every effort has been made to ensure that information contained in the State Heritage Inventory is correct. If you find any errors or omissions please send your comments to the Database Manager.

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number 4801176
Study Number SRA176,

Item Name: Branxton Railway Station (C/L Stn 13)

Location: Railway St, Branxton [Cessnock City]

Address:	Railway St	**DUAP Region:**	Hunter & Central Coast
Suburb / Nearest Town:	Branxton 2335	**Historic region:**	Lower Hunter
Local Govt Area:	Cessnock City	**Parish:**	
State:	NSW	**County:**	

Other/Former Names:

Area/Group/Complex: **Group ID:**

Aboriginal Area:

Curtilage/Boundary: The site is defined by lines drawn across the tracks approximately 30m past each end of the plaforms, extending to the SRA property boundaries formed by the road to the north and the rear of the loop siding to the south.

Item Type: Built **Group:** Transport - Rail **Category:** Railway Platform/ Stati

Owner: State Rail Authority

Admin Codes: HV **Code 2:** 176 **Code 3:** RailCorp

Current Use:

Former Uses:

Assessed Significance: **Endorsed Significance:**

Statement of Significance: Branxton features some of the earliest buildings on the northern line. The substantial nature of the buildings reflects the importance once attached to the town and its station. The original station incorporated a rare example of a residence (1 of 5 similar structures in the State). The group exhibits the effects of duplication and the addition of structures from later periods including several additions to the 1862 building during the 1880's and again in 1914 to make a substantial main line railway group.
The group is one of the most interesting and important sites surviving in the State.

Historical Notes or Provenance: Information from 1993 Heritage Register:

BACKGROUND INFORMATION
Branxton originated as a small village providing minor service needs to a handful of settlers in its surroundings near the boggy and difficult crossing over Black Creek to the north. The 'Crown Inn' was built in 1848 at a cost of £1,400 and a subdivision of 194 blocks for building purrposes was made in the same year. The foundation stone of the Methodist chapel was laid in on Jan 2 1865, St Brigidits Roman Catholic church was opened by the Bishop of Maitland in December 1866. in 1866, Branxton had a steam mill, four hotels, a post office and Mechanics Institute with a population around 500. The railway station was opened on March 24 1862.

Footbridge: By World War I the functional, economical beam or Truss Footbridges were

dominant. In 1915 standard drawings were prepared. The designs suited almost any site with minor alterations mainly to the Footings and Trestles.

Until about 1950 the Trusses competed well with beam F/B's in terms of weight and span range.

Since then improved beam designs have dominated such that Trusses are only used when cost-benefit is better eg Campsie and Burwood.

Themes:

National Theme	State Theme	Local Theme
3. Economy	Transport	(none)

Designer:

Maker / Builder:

Year Started: **Year Completed:** **Circa:** No

Physical Description:

BUILDINGS
station buildings, HS
up - type 1, brick combination office/residence, 1862 (opening), 1880's, 1915
down - type 11, brick initial island building at duplication,1915
STRUCTURES
platform faces - brick
dock platform

PLANT + EQUIPMENT
weighing machine - Pooley 5 ton
ARTEFACTS
miscellaneous station details - signs, seats, fences including examples from different periods of railway development.

Footbridge: At Station. A combination of standard Warren Truss, Tressles and stairway.
On of twentyfour riveted steel warren Truss Footbridges. Timber Deck. Timber newel posts.A steel riveted through Warren Truss Footbridge on angle iron Trestles and channel iron stair stringers.
DWG 11 - 118 Longitudinal timber plank deck, 26 other sites.

Information from 1993 Heritage Register:

STATION BUILDINGS
The buildings on the up platform comprise the original portion of the combined station/residence of brick and slate construction (similar to Menangle), much altered by the addition on the west side by a brick station building with gabled corrugated iron roof. The

earlier building was altered to house a ticket office at the rear with verandah supported on brackets dating from around 1914. The newer station building appears to date from around the 1880's although the awning appears to be from around the time of duplication. This awning extends in front of the 1862 building. The two front pavilions of the early structure have also been removed.
The down platform has a 1914 standard brick and corrugated iron building with open waiting shed and toilets. It has a cantilevered awning on curved brackets and curved arch into the waiting room. This is a larger duplication building than normal reflecting the importance of the location
FOOTBRIDGE
This is a simple trussed bridge supported on steel framed towers with precaste steps with curved rail supports consructed at the time of duplication in 1914. It adds to the completeness of the site.
SIGNAL BOX
This is a large timber on platform skillion root box. The design is standard but the building is significantly bigger than most on platform boxes and connects to the 1862 station building
MISCELLANEOUS STATION DETAILS
The signs, fences seats, weighing machine and platform faces add to the completeness of the site forming an integral part of the understanding of the development of the railway in the area.

Physical Condition:

Modification Dates: 2008 ARTC removed wires for safety reasons.
1. remove the 2 poles on the Down side and wires over the track. Cut the wires, over the track, where the wires leave the pole beside the station;
2. leave all of the poles and wires on the Up side;
ARTC advised HeritageBranch. Need to update listing with Heritage Branch.

Recommended Management:

Management:

Further Comments:

Criteria a)

Criteria b)

Criteria c)

Criteria d)

Criteria e)

Criteria f) This item is assessed as historically rare. This item is assessed as scientifically rare. This item is assessed as arch. rare. This item is assessed as socially rare.

Criteria g)

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number
4801176
Study Number
SRA176,

Item Name: **Branxton Railway Station (C/L Stn 13)**

Location: **Railway St, Branxton [Cessnock City]**

Integrity / Intactness:

References:

Studies:

Author	Title	Number	Year
State Rail Authority	State Rail Authority Heritage Register Study	SRA176, SRA605 (F/B)	1999
Paul Davies for SRA	Heritage and Conservation Register State Rail Authority of NSW	52	1993

Parcels:

Latitude: **Longitude:**

Location validity: **Spatial Accuracy:**

Map Name: **Map Scale:**

AMG Zone: **Easting:** **Northing:**

Listings:

Name:	Title:	Number:	Date:
Heritage Act - s.170 NSW State agency heritage register			
Regional Environmental Plan	DOP		

Asset Number:

Km From Sydney: 215

Client Region:

Legal Owner:

Artefact Notes: 1 residence/office

Exclusions:

Data Entry: **Date First Entered:** 26/10/1999 **Date Updated:** 03/06/2009 **Status:** Partial

Item Name: Branxton Railway Station (C/L Stn 13)

Location: Railway St, Branxton [Cessnock City]

Image/s:

Caption: Location Plan

Copyright: State Rail Authority

Image by:

Image Date:

Image Number:

Image Path:

Image File: 4440176s.jpg

Thumb Nail Path:

Thumb Nail File: t_4440176s.jpg

Branxton Railway Station group movable relics

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Item

Name of Item:	Branxton Railway Station group movable relics
Type of Item:	Movable / Collection
Group/Collection:	Transport - Rail
Category:	Railway Machinery & Objects
Location:	Lat:151.34598163 Long:-32.66234346
Primary Address:	Main Northern railway, Branxton, NSW 2335
Local Govt. Area:	Cessnock

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
Main Northern railway	Branxton	Cessnock			Primary

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
RailCorp	State Government	02 Nov 98

Assessment Criteria Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Procedures /Exemptions

Section of Act	Description	Title	Comments	Action Date
57(2)	Exemption to allow work	Standard Exemptions	SCHEDULE OF STANDARD EXEMPTIONS HERITAGE ACT 1977 Notice of Order Under Section 57 (2) of the Heritage Act 1977 I, the Minister for Planning, pursuant to subsection 57(2) of the Heritage Act 1977, on the recommendation of the Heritage Council of New South Wales, do by this Order: 1. revoke the Schedule of Exemptions to subsection 57(1) of the Heritage Act made under subsection 57(2) and published in the Government Gazette on 22 February 2008; and 2. grant standard exemptions from subsection 57(1) of the Heritage Act 1977, described in the Schedule attached. FRANK SARTOR Minister for Planning Sydney, 11 July 2008 To view the schedule click on the Standard Exemptions for Works Requiring Heritage Council Approval link below. Standard Exemptions for Works Requiring Heritage Council Approval	Sep 5 2008

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - State Heritage Register		01099	02 Apr 99	27	1546
Heritage Act - s.170 NSW State agency heritage register					

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

Data Source

The information for this entry comes from the following source:

Name: Heritage Branch

Database Number: 5012072

Branxton Footbridge

Item

Name of Item:	Branxton Footbridge
Type of Item:	Built
Group/Collection:	Transport - Rail
Category:	Railway Bridge/ Viaduct
Primary Address:	At Station, Branxton, NSW 2335
Local Govt. Area:	Maitland

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
At Station	Branxton	Maitland			Primary

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
RailCorp	State Government	

Statement of Significance

A combination of standard Warren Truss, Tressles and stairway.
On of twentyfour riveted steel warren Truss Footbridges.
Timber Deck.
Timber newel posts.

This is an historic precinct controlled by a group associated with Rothbury. See Don Fraser's site note for details.
Date Significance Updated: 09 Nov 99
Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Construction Years:	1916 -
Physical Description:	A steel riveted through Warren Truss Footbridge on angle iron Trestles and channel iron stair stringers. DWG 11 - 118 Longitudinal timber plank deck, 26 other sites. Timber newel posts at bottom of stairs, 16 other sites.
Physical Condition and/or Archaeological Potential:	Good

History

Historical Notes:	By World War I the functional, economical beam or Truss Footbridges were dominant. In 1915 standard drawings were prepared. The designs suited almost any site with minor alterations mainly to the Footings and Trestles. Until about 1950 the Trusses competed well with beam F/B's in terms of weight and span range. Since then improved beam designs have dominated such that Trusses are only used when cost-benefit is better eg Campsie and Burwood.

Historic Themes

Australian Theme (abbrev)	New South Wales Theme	Local Theme
3. Economy - Developing local, regional and national economies	Transport - Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	(none) -

Assessment Criteria

Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - s.170 NSW	SRA s.170				

State agency heritage register	Register				

Study Details

Title	Year	Number	Author	Inspected by	Guidelines Used
State Rail Authority Heritage Register Study	1999	SRA605	State Rail Authority		No
Footbridge Survey		SRA605	Don Fraser		No

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

Data Source

The information for this entry comes from the following source:

Name: State Government Agency

Database Number: 4440605

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number
4801605
Study Number
SRA605

Item Name: **Branxton Footbridge**

Location: **At Station, Branxton [Maitland City]**

Address:	At Station	**DUAP Region:**	Hunter & Central Coast
Suburb / Nearest Town:	Branxton 2335	**Historic region:**	Lower Hunter
Local Govt Area:	Maitland City	**Parish:**	
State:	NSW	**County:**	

Other/Former Names:

Area/Group/Complex: **Group ID:**

Aboriginal Area:

Curtilage/Boundary:

Item Type: Built **Group:** Transport - Rail **Category:** Railway Bridge/ Viadu

Owner: State Rail Authority

Admin Codes: SRA **Code 2:** 605 **Code 3:**

Current Use:

Former Uses:

Assessed Significance: **Endorsed Significance:**

Statement of Significance:
A combination of standard Warren Truss, Tressles and stairway.
On of twentyfour riveted steel warren Truss Footbridges.
Timber Deck.
Timber newel posts.

This is an historic precinct controlled by a group associated with Rothbury. See Don Fraser's site note for details.

Historical Notes or Provenance:
By World War I the functional, economical beam or Truss Footbridges were dominant. In 1915 standard drawings were prepared. The designs suited almost any site with minor alterations mainly to the Footings and Trestles.

Until about 1950 the Trusses competed well with beam F/B's in terms of weight and span range.

Since then improved beam designs have dominated such that Trusses are only used when cost-benefit is better eg Campsie and Burwood.

Themes:

National Theme	State Theme	Local Theme
3. Economy	Transport	(none)

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number
4801605
Study Number
SRA605

Item Name: Branxton Footbridge

Location: At Station, Branxton [Maitland City]

Designer:

Maker / Builder:

Year Started: 1916 **Year Completed:** **Circa:** No

Physical Description: A steel riveted through Warren Truss Footbridge on angle iron Trestles and channel iron stair stringers.

DWG 11 - 118

Longitudinal timber plank deck, 26 other sites.

Timber newel posts at bottom of stairs, 16 other sites.

Physical Condition: Good

Modification Dates:

Recommended Management:

Management:

Further Comments:

Criteria a)

Criteria b)

Criteria c)

Criteria d)

Criteria e)

Criteria f)

Criteria g)

Integrity / Intactness:

References:

Studies:

Author	Title	Number	Year
State Rail Authority	State Rail Authority Heritage Register Study	SRA605	1999
		SRA605	

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number
4801605
Study Number
SRA605

Item Name: Branxton Footbridge

Location: At Station, Branxton [Maitland City]

Parcels:

Latitude: **Longitude:**

Location validity: **Spatial Accuracy:**

Map Name: **Map Scale:**

AMG Zone: **Easting:** **Northing:**

Listings:

Name:	Title:	Number:	Date:
Heritage Act - s.170 NSW State agency heritage register			

Asset Number:

Km From Sydney: 0

Client Region: SRA

Legal Owner: SRA

Artefact Notes:

Exclusions:

Data Entry: **Date First Entered:** 26/10/1999 **Date Updated:** 03/06/2009 **Status:** Partial

RailCorp Section 170 Heritage Register

RailCorp Heritage Inventory

SHI Number
4801605
Study Number
SRA605

Item Name: **Branxton Footbridge**

Location: **At Station, Branxton [Maitland City]**

Branxton Conservation Area

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Item

Name of Item: Branxton Conservation Area

Type of Item: Conservation Area

Primary Address: Branxton, NSW 2335

Local Govt. Area: Cessnock

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
	Branxton	Cessnock			Primary

Assessment Criteria

Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Regional Environmental Plan	Hunter REP 1989		03 Nov 89	107	9374

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

Data Source

The information for this entry comes from the following source:

Name: Gazette NSW Statutory Listings

Database Number: 3349

ARTC - NSW Country Rail S.170 Register

State Heritage Inventory - NSW Country Rail

SHI Number 4280446
Study Number SRA567

Item Name: Branxton, Black Creek Underbridge

Location: 217.175km, Main Northern Railway, Branxton

Address:	217.175km, Main Northern Railway	**DUAP Region:**	Hunter & Central Coast
Suburb / Nearest Town:	Branxton 2335	**Historic region:**	Lower Hunter
Local Govt Area:	Cessnock	**Parish:**	
State:	NSW	**County:**	

Other/Former Names:

Area/Group/Complex: **Group ID:**

Aboriginal Area:

Curtilage/Boundary: The curtilage includes the bridge structure and extends for a distance of 20m in all directions

Item Type: Built **Group:** Transport - Rail **Category:** Railway Bridge/ Viadu

Owner: Commonwealth Government

Admin Codes: ARTC Lease Network **Code 2:** Hunter Valley networ **Code 3:**

Current Use: Carries Main Northern Line over Black Creek between Branxton and Singleton

Former Uses:

Assessed Significance: Local **Endorsed Significance:**

Statement of Significance:

Collectively, brick arch bridges are a significant component of the history of NSW railways. They were a strong durable local product that avoided an otherwise massive import of expensive steel.
There were political, economic and railway policy factors associated with their use.
Largest brick arch built for a main line duplication project.

The Black Creek brick arch viaduct was built in 1914-15 for the proposed duplication of the Main North Railway from Farley to Singleton.

The viaduct is an imposing structure clearly seen from the New England Highway.

The four 50 feet span viaduct is one of the largest on the railway system.

Historical Notes or Provenance:

The construction of brick arch underbridges occured in two periods, 1892 for the duplication from Granville to Picton, then from 1914 to 1922 mostly for main line duplications. The former had bricks supplied from private brickworks whereas the latter's supply came from the state brickworks at Homebush.
The topic is well summarised in "Bridges Down Under" pp 80-84.

The section of the Main North from Newcastle to Singleton was completed as a single line in 1863, all bridges were timber.

All bridges were upgraded during the duplication work from Farley 1914-15 including the

Item Name: Branxton, Black Creek Underbridge

Location: 217.175km, Main Northern Railway, Branxton

brick arch viaduct over Black Creek west of Branxton. But the project as stopped due to World War I whereas the same work continued on the Main South and the Main West hence their greater number of brick arch bridges and viaducts.

By the time duplication of the Main North past Branxton resumed in the 1950s the use of brick arch construction had been superseded by steel girders.

Consequently, the Black Creek viaduct is the only example of brick arch construction north of Newcastle.

Themes:

National Theme	State Theme	Local Theme
3. Economy	Transport	(none)

Designer: Per Way Branch Staff, NSW Government Railways

Maker / Builder: Day Labour

Year Started: 1914 **Year Completed:** 1915 **Circa:** No

Physical Description: A 4-span brick arch viaduct with large spans, 51ft (15.6m).
Nearly all brick arches were built either by the existing lines branch or by the PWD, all after John Whitton had retired.
Built for the main north duplication by Rly dept.
DWG 9 - 135

A 4-span brick arch viaduct west of Branxton, the arches are 50 feet clear spans.

The brick arch is about a metre thick.

The 'V' formed by the arches at each pier has been filled with concrete so as to form an internal drain so as the prevent the track ballast from becoming water logged.

Physical Condition: the viaduct is in good condition

Modification Dates: Unknown

Recommended Management:

Management:

Further Comments:

Criteria a) The Black Creek brick arch viaduct was built in 1914-15 for the proposed duplication of the Main North Railway from Farley to Singleton. The project was suspended for 40 years by

Item Name: Branxton, Black Creek Underbridge

Location: 217.175km, Main Northern Railway, Branxton

which time steel beams had superseded brick arches.

Criteria b)

Criteria c) The viaduct is an imposing structure clearly seen from the New England Highway

Criteria d)

Criteria e) The four 50 feet span viaduct is one of the largest on the railway system.

Criteria f) The only example of brick arch underbridge on the Main North Railway north of Newcastle

Criteria g) An excellent example of bridge arch construction

Integrity / Intactness: It retains its original fabric

References:

Author	Title	Year

Studies:

Author	Title	Number	Year
State Rail Authority	State Rail Authority Heritage Register Study	SRA567	1999

Parcels:

Latitude: **Longitude:**

Location validity: **Spatial Accuracy:**

Map Name: **Map Scale:**

AMG Zone: **Easting:** **Northing:**

Listings:

Name:	Title:	Number:	Date:
Heritage Act - s.170 NSW State agency heritage register			

Other number:

Km From Sydney: 217.175

Client Region:

Legal Owner:

Artefact Notes:

(spare):

Data Entry: **Date First Entered:** 26/10/1999 **Date Updated:** 03/06/2009 **Status:** Completed

Item Name: **Branxton, Black Creek Underbridge**

Location: **217.175km, Main Northern Railway, Branxton**

Image/s:

Caption: Branxton, Black Creek underbridge
Copyright: ARTC
Image by: ARTC
Image Date:
Image Number:
Image Path:
Image File: 4280446b1.jpg
Thumb Nail Path:
Thumb Nail File:

Item Name: Branxton, Black Creek Underbridge

Location: 217.175km, Main Northern Railway, Branxton

Image/s:

Caption: Branxton, Black Creek underbridge, looking from Down side of railway line, Newcastle on right

Copyright: ARTC

Image by: ARTC

Image Date: 04/12/2005

Image Number:

Image Path:

Image File: 4280446b2.jpg

Thumb Nail Path:

Thumb Nail File:

Dunoon

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Item

Name of Item: Dunoon

Primary Address: Lovedale Road, Allandale, NSW 2320

Local Govt. Area: Cessnock

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
Lovedale Road	Allandale	Cessnock			Primary
Harpers Hill Road	Allandale	Cessnock			Alternate

Assessment Criteria

Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Regional Environmental Plan	Hunter REP 1989		03 Nov 89	107	9354

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

Data Source

The information for this entry comes from the following source:

Name: Gazette NSW Statutory Listings

Database Number: 3351

Government Railway

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Item

Name of Item: Government Railway

Other Name/s: Railway relic

Type of Item: Complex / Group

Primary Address: Maitland, NSW 2320

Local Govt. Area: Maitland

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
	Maitland	Maitland	Maitland	Northumberland	Primary

Description

Construction Years: 1857 - 1858

Physical Description: Two track railway, generally on embankments and elevated structures through study areas, stations at Central Maitland and East Maitland (closed) with ancillary buildings.

Modifications and Dates: Branch line to Morpeth closed - rails taken up - route still evident in land form.

History

Historical Notes: Public meeting in Sydney 1853 formed Hunter River Railway Co. Built to East Maitland 1857, to West Maitland 1858. 1864 extended to Singleton.

Historic Themes

Australian Theme (abbrev)	New South Wales Theme	Local Theme
3. Economy - Developing local, regional and national economies	Transport - Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	(none) -

Assessment of Significance

SHR Criteria a) [Historical Significance]	This item has historical significance.
SHR Criteria c) [Aesthetic Significance]	This item has aesthetic significance.
SHR Criteria e) [Research Potential]	This item has scientific significance.
SHR Criteria g) [Representativeness]	This item has representative and landmark value.
Integrity/Intactness:	This item has integrity value.
Assessment Criteria	Items are assessed against the State Heritage Register (SHR) Criteria to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan		1993	03 Sep 93	098	5525
Heritage study		0112		1993	

Study Details

Title	Year	Number	Author	Inspected by	Guidelines Used
Maitland Heritage Survey Review	1994	0112	Brian McDonald & Associates		Yes

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

(Click on Thumbnail for Full Size Image and Image Details)

Data Source

The information for this entry comes from the following source:

Name: Local Government

Database Number: 2000162

Every effort has been made to ensure that information contained in the State Heritage Inventory is correct. If you find any errors or omissions please send your comments to the Database Manager.

Appendix 2

Project Inventory Sheets

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Contents

Appendix 2 - Site Inventory Sheets

Site #	Name	Location (km)	Assessed Significance
1	Clifton	202.480	Local
2	Allandale Wine Cellars	206.100-206.200	Local (Rare)
3	Underbridge, Jump Up Creek	222.848	None
4	Underbridge, Black Creek	217.200	Local (Rare)
5	Underbridge, Sawyers Creek	211.010	Local
6	Underbridge, Anvil Creek trib	207.776	Local (Rare)
7	Underbridge, Wollombi Road	195.66	Local
8	Underbridge, Stony Creek	195.555	Local (Rare)
9	Overbridge, Old North Road	204.809	Local (Rare)
10	Belford Railway Station	222.700	Local
11	Branxton Railway Station	215.500	State
12	Greta Railway Station	210.600	State
13	Allandale Railway Station	204.900 ± 200	Local
14	Rutherford Junction Railway Station	199.071	Local
15	Farley Railway Station	195.700	Local
16	Level Crossing, Hermitage Road	222.700	None
20	Brick Culvert – Down only	218.448	Local
22	Brick Culvert – Down only	214.586	Local
24	Brick Culvert – Down only	213.158	Local
31	Brick Culvert - complete	209.174	Local (rare)
39	Brick Culvert - complete	198.613	Local
41	Brick Culvert - complete	196.561	Local (rare)
42	Brick Culvert - complete	196.481	Local
44	Brick Culvert – modified	196.280	None
46	Brick Culvert – box culvert	195.666	Local
47	Brick Culvert – appears complete	195.133	Local
49	Brick Culvert – complete	194.209	Local (rare)
50	Stone Culvert – Down only	214.566	Local (rare)
51	Stone Culvert – Down only	213.690	Local (rare)
52	Stone Culvert – Down only	213.158	Local (rare)
53	Stone Culvert – Down only	198.040	Local (rare)

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Site Details
Site 1 - Clifton House and Station Lane, Lochinvar

Location (km)
202.480

Location Plan

Historical Overview

Clifton House was built by convict labour during the period (approximately) 1845 to 1850 for Samuel Clift, himself a former convict. The house, 'Clifton', was built as a property headquarters house rather than as a gentleman's residence and appears to have been built not for Samuel but for his son Joseph Clift. Nonetheless, it was built to accommodate a family in considerable comfort, a six-bedroom home of locally burnt brick with local cedar joinery throughout.

The house was surrounded with a garden of Victorian style and spaciousness, including a range of specimen trees, shrubs, bedded gardens and defined rambles, with an ornamental lake and a variety of sitting, entertainment and leisure areas. During the five-year building program, the convict workers were accommodated in a sandstone shelter which became the detached kitchen, cooking, service and dry store.

Members of the Clift Family remained in occupation until the death of Ernest Clift in 1926, leaving no descendants. Ernest bequeathed the house to the Anglican Church and it became the first St Christopher Home, an orphanage operated by nuns until 1955. Thereafter, the house passed through the hands of the BHP Company before being bought by Mr and Mrs Morrison, the present owners, in 1983.

Station Lane was dedicated as a connection between the township of Lochinvar and the Old North Road and passes immediately west of the frontage of Clifton House. The land negotiates the study area by level crossing immediately north-west of the Clifton residence and east of Lochinvar Railway Station.

Survey Results

In the course of surface survey, most attention was given to the residential curtilage rather than to individual structures, and then specifically to that area in the north east of the property that was identified as subject to possible physical impact. The gardens have been restored to represent the former Victorian garden of the 1850s. The lake has also been restored and is original in its form although the bridge over the drainage line has been replaced. The former detached kitchen remains as the oldest building of the precinct. The house is representative of its period in its environment, including the Arcadian, rambling and typically Victorian-style gardens.

Photograph/s

Historic photograph, circa 1900, looking east.

Present day context from Station Street, looking north east, 2009.

View of northern fence line - Clifton property boundary. The rail corridor is immediately adjacent to fence.

Ornamental lake in northern precinct of restored garden, approximately 20 metres south of rail corridor.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☒ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☒ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☒ NSW National Trust
- ☐ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Clifton House precinct is a surviving reminder of the earliest settlement of Wallis Plains by the holders of large tracts of land and the builders of commodious dwellings, of which Maitland urban area possesses many fine examples including Clifton's Walli, and Grossmann House, although rural examples are less numerous, but include Lochinvar House, Aberglasslyn House and Dalwood House.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The Clifton House precinct provides a strong link with Samuel Clift, one of the original settlers of Wallis Plains and a large landholder. The fact that the house was originally built for his son and family suggest the Samuels's ambition of creating of a family domain. The house is also a tangible reminder of the opportunities available in the then colony, Clift having achieved property and wealth after having been transported originally as a 'Government servant' (convict).

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

Although built in the early Victorian period, and subsequently modified during its service as an orphanage and lately by the present owners, the house is a fine example of the colonial adaptation of Georgian style, set in a Victorian style arbor-garden.

☒ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

Detail

The precinct presents as a surviving representative of the aspirations of those associated with the earliest rural expansion in the young colony and those who, with wealth backing them, acquired large tracts of the best land in the lower Hunter area.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

The precinct unquestionably possess material evidence that will provide valuable data about the early settlers, their settlement and style and their ambitions, as well as information about the operation of remote properties during the earliest settlement period. The garden may individually provide data for heritage garden studies.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

The original building on the precinct, later used as detached kitchen and scullery, was built of local stone by convicts and was used as a residence while the brick residence was building. This structure is regarded as a rare in the locality for its stone work and convict associations, distinguished from the grander Dalwood House because of its size, temporary family occupation and utilitarian end-use.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

Clifton House precinct is representative of its type and period and bears a strong family similarity to Walli House dwelling also built by Clift in West Maitland, while sharing contemporary associations with a variety of early Victorian residences in the Maitland urban area and, to a lesser extent, some surviving country estates.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

Clifton is locally significant for its historical, social, aesthetic and scientific attributes. The residence is a fine example of its type. The gardens, although renovated and restored, provide an example of an expansive Victorian era estate setting.

The alignment of Station Lane is considered to lack any heritage values or significance.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☒ Unlikely
- ☐ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

The Clifton House precinct will not suffer impact as the result of the Project and no imperative for further archaeological accordingly will arise. For its part, Station Lane will be re-aligned and the level crossing closed, neither action giving rise to any need for further archaeological study.

References

The private collection of Mr and Mrs Morrison.
Maitland LEP 1993.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

The curtilage of Clifton house does not extend into any area that is projected for physical impact by the Project (as shown at right).

Of particular relevance to present considerations is the fact that the most consequential and relatively intact component of the garden lies in this north/east alignment, that is, between the house and the railway corridor. In the result, any encroachment in this area will have some impact on the heritage values of the house and curtilage. However, Project works will occur on the Up side of the rail corridor in this area.

Earthworks (cut) are required in the construction zone adjacent to the northern property boundary. Provided these works, including machinery and personnel, remain within the construction impact zone there is no reason to anticipate any negative impact upon this site.

The present alignment of Station Lane will be closed on the northern side of the railway tracks and the road will be re-aligned over an incline rising to an overbridges constructed west of the present location of Lochinvar station. South of the railway tracks, a lane will be maintained as an access to Clifton House but the re-aligned Station Lane will curve easterly south of the new overbridge to intersect Old Northern Road west of the location of the present Station Lane intersection. The Station Lane level crossing will be closed.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

In avoiding developments proximate to the built heritage and garden of Clifton House precinct, the Project respects the

heritage values of the precinct.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

In ensuring that Project works are carried out at a distance from the Clifton House precinct, the Project will facilitate its conservation and preservation.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

In ensuring that Project works are carried out at a distance from the Clifton House precinct, the Project will facilitate the conservation and preserve the integrity of the resource as a component of the heritage values of the study area and the locality

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the Clifton property. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged for on-call consultation in the event that material evidence is suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the design works package.

Attachments

None

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Site Details
Site 2 - Former Allandale Wine Cellars/Penfolds Winery

Location (km)
206.100 – 206.200

Location Plan

Historical Overview

The Allandale Wine Cellars were established by winemaker Peter Green in the late 19th Century. The winery consisted of a building of 12,000 square feet (≈1120m^2) and six substantial underground tanks. Walter Green inherited the winery on his father's death in 1889, completed improvements to winery and constructed worker's accommodation and the present residence in the high Victorian style. The winery produced prize-winning wine for local sale and export.

In 1908, the precinct suffered notoriety when Walter's son Frederick Green murdered Lilly Bridge, daughter of a property/ winery resident employee. The Penfold family company acquired the winery in 1924 but sold the property in 1948, after which time the infrastructure fell into disuse and disintegration.

Survey Results

Four of the six underground water tanks were located without difficulty due to the presence of substantial structural remains. The tanks were circular in form and constructed of two leaf brickwork with internal render. Three of the four tanks had been filled with general rubbish including corrugated iron, fencing timbers and wire among other things. The fourth tank was full of water. The location of the remaining two underground tanks was not positively identified although landform evidence indicated the potential for locations to exist in alignment with the found tanks.

Further landform evidence consisting of building platforms excavated into the slope indicated the former location of buildings. Within the building platforms occasional structural timbers and handmade diamond frog bricks were observed in the grass. The presence of artefacts was confirmed due to disturbance and exposure by industrial machinery moving across the site during previous works by ARTC.

The base of a double fireplace constructed of brick, presumably one of the worker's cottages, was located only metres from the western boundary fence and rail corridor. Given the orientation of the fireplace, it is likely the footprint of the cottage extended into what was theoretically mapped as a road and into the present day rail corridor. Other bricks and brick fragments were scattered within a short distance of the fireplace. The site of the second worker's cottage was not identified. However, landform indicators within the immediate area of the known structural remains, presented a number of precincts for potential structural and archaeological remains.

Photograph/s

Looking south-east across the precinct, residue of a brick fireplace is shown in foreground. Blue arrows indicate the locations of water tanks.

View showing rail corridor, Allandale Road underbridge at right, underground water tank in fenced area and fireplace base at blue arrow.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☒ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☒ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☐ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, the cultural or natural history of NSW

Detail

Evidence of the late 19th Century diversification of rural properties and the emphasis on grape-growing and processing reflects the early recognition of the potential value of the broad Cessnock area for viticulture and wine-making, reinforcing the judgment and activities of the early viticulturists and vintners.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

Continuation of the early direction of William Kelman and James Busby at nearby Kirkton and George Wyndham at Dalwood. The Green developments were contemporary with the establishments of the Tyrrell, Wilkinson, Drayton and Lindeman families at Pokolbin, and places the property at the forefront of the development of the Hunter wine industry.

☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

☒ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

Detail

Association at one level with the group of people responsible for the proliferation and popularisation of wineries of the Pokolbin and Lower Hunter and, at the opposite level, its representation of the lifeways of rural workers in the late 19th and early 20th Centuries.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

Through surface and sub-surface material evidence, has the potential to contribute knowledge about the people and their lifeways who worked and lived on diversified rural properties in the late 19th and early 20th Centuries, and in particular who were involved in intensive processing of rural production.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

The opportunity presented within this precinct is considered uncommon to the point of rarity and iforms part of an endangered phase of cultural heritage

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The material evidence of the precinct is considered representative of winery establishment and, in particular, the accommodation of rural employees, of the late 19th and early 20 Century periods.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The Dunoon property generally has been assessed as "One of a small group of fine Victorian rural villas in the Lower Hunter Valley which demonstrates the wealth of the pastoral industry at this time" (Cessnock LEP, 2009).

The site of the former late 19th Century winery and rural workers' occupation site is significant for its historical, social and research potential. The potential for subsurface evidence to reveal information about lifeways at this time and the 1912 murder of Lily Bridge cannot be underestimated.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☐ Unlikely
☐ Possible
☒ Likely

Assessment of Research Potential

Yes	No	
☒	☐	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

The assessment of archaeological potential is based upon the results of surface study to date, which has indicated to presence on the surface of material evidence serving to indicate the location, and to a degree the nature, of previous workers' accommodation within the precinct. The lives and lifeways of housed rural employees warrant further study because of the paucity of archaeological evidence at material interpretation that is documented or available to be made, while at the same time is represented as a diminishing resource as the result of deterioration of the resource by natural and development agencies

References

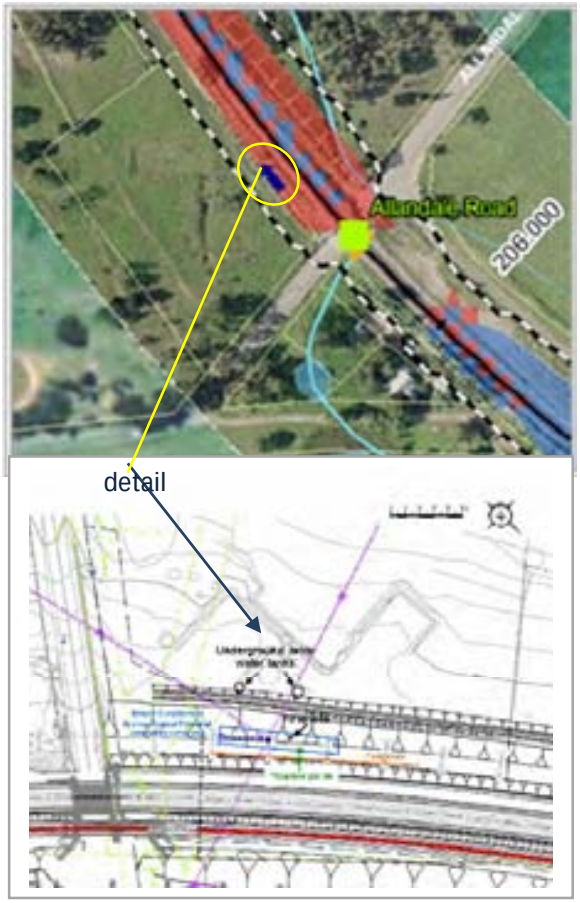
Ruth Roberts personal research records
Cessnock LEP 2009 (Draft)
LPI Parish Map Series, Parish Branxton 1893, 1913, 1922, 1933.
Registry of Births, Deaths and Marraiges.
Plan, revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

The corridor for the track component of the Project passes the site on the up-side of the existing track at this location. Project works on the down side in this area will involve earthworks and fill to raise the ground level beside the track for the construction of continuation of the railway access road.

The site of the late-Victorian workers cottages falls within the construction zone and is well within the impact zone, as shown at right (see blue arrow). The site of former winery buildings and the associated tanks are not at risk of direct impact from the project, provided machinery and personnel remain within the designated construction impact zone and do not use this area for access.

Impact will result from the formation by cut and fill of earthwork and the movement of construction plant, equipment and personnel across and around the Project site.



STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

- The constraint of projected development within a narrow corridor along what appears to have been subsequently created a road permit avoids disturbance of the major residual material evidence of the Green family winery. Care will be taken to ensure that Project works avoid contact or proximity to underground tanks.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

- On the other hand, there is little doubt that the workers' cottages were originally built on the projected road earthworks and development and will be disturbed or destroyed as a result of construction. Such impact would have the capacity to destroy evidence of the domestic incidents of the rural workers and thus prevent comprehension of their lives and lifeways.

The following sympathetic solutions have been considered and discounted for the following reasons:

- There is no alternative route that presents itself for location of the railway access road, however archaeological study of the site at surface and sub-surface levels will minimise the impact of destruction of the archaeological record by allowing the salvage, study and interpretation of any meaningful material evidence.

The net impact of the Project upon the heritage values of this site is expected to be:

☒ Negative - due to modification or demolition

☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
☐ Neutral – through the offset of negative impact by mitigation measures
☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail
For the reasons enumerated above, while the Project will enhance the heritage values of the precinct by preserving the material evidence of the Green family winery, while causing the disturbance or destruction of the site of former rural employees accommodation. The nominal impact of such disturbance or destruction may be minimised by appropriate archaeological surface and sub-surface study, salvage and interpretation of residual material evidence.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

☒ Negative - due to modification or demolition
☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
☐ Neutral – through the offset of negative impact by mitigation measures
☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail
At a cumulative level, the impact of the Project on local/regional heritage values is reduced because the subject of the precinct differs from that of the majority of the study area. In this sense, to the extent that the Project will cause some detrimental impact, the impact is more isolated than a contributor to a cumulative effect. Similarly, the positive impact resulting from the preservation of the Green family winery material evidence makes limited, if any, cumulative contribution to the heritage values of the study area as a whole, in the context of the locality and region.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

☒ Archival recording prior to commencement of works
☒ On site monitoring during project works
☐ On call monitoring (in the event of unexpected relics)
☒ Archaeological investigation/excavation
☐ No heritage/archaeological management required

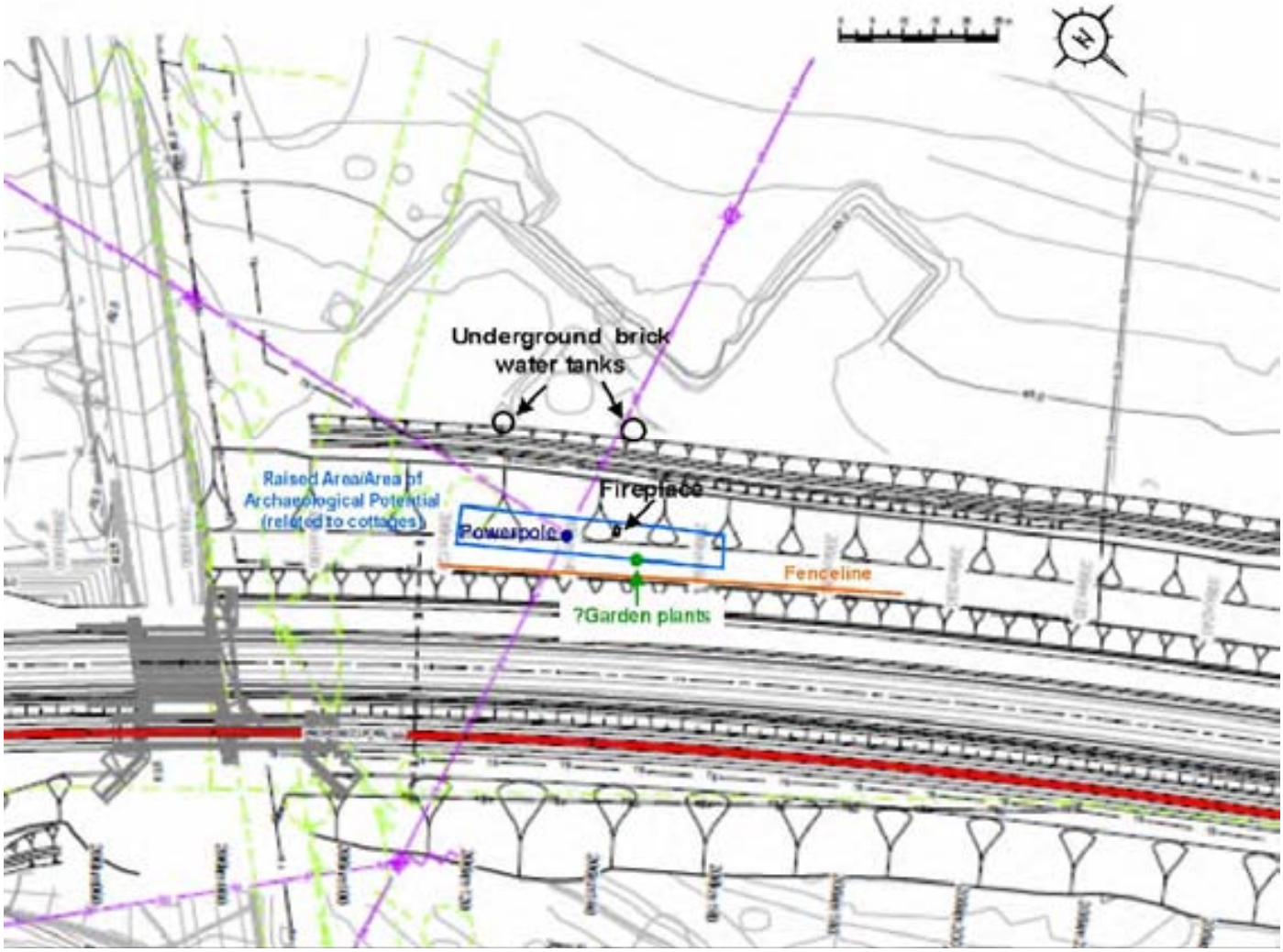
Detail
Project personnel should be briefed on their obligations regarding heritage management and the potential for relics to be exposed during the course of Project works in the vicinity of the former occupation site of the cottage and winery. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged to:

- prepare the appropriate heritage management strategies for application during the course of the Project;
- carry out a discrete archaeological investigation prior to the commencement of Project works;
- monitor and archivally record the progress to completion of Project works..

Further Recommendations/Comments
This inventory sheet may require review and update following any changes to the design works package.

Heritage management will require a due diligence approach in consultation with the property owner and heritage specialist.
Avoid using this area as a compound or spoil area.
Limit to essential access only for vehicles and machinery in the precinct, including in the construction impact zone.

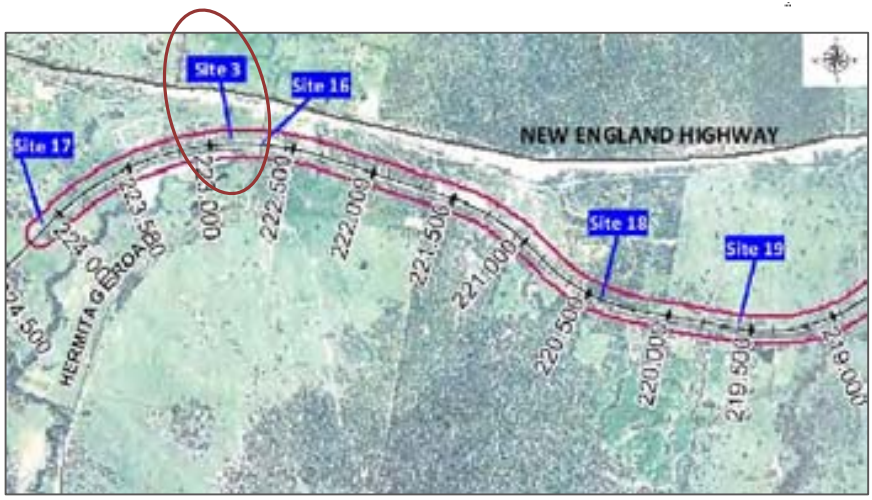
Attachments
Plan of physical impact zone, of which the above plan is a detail.


Underground brick water tanks
Raised Area/Area of Archaeological Potential (related to cottages)
Fireplace
Powerpole
Fenceline
?Garden plants

Site Details
Site 3 – Underbridge, Jump Up Creek

Location (km)
222.848

Location Plan



Historical Overview

No specific history of the bridging of Jump Up Creek is currently known. Jump Up Creek was presumably bridged for the original single track and the suggestion has been that all bridges in this phase of construction were in timber[1] this bridge will have been replaced by a dual track bridge when the line was duplicated. At the outset, we were advised by Hunter 8 that the dual track was now carried on a modern concrete bridge.

Survey Results

The present day railway crossing at Jump Up Creek was a modern concrete structure, however residual material evidence suggested that an earlier bridge had been constructed with steel beams over two brick piers and, presumably, brick abutments (the latter having been either demolished or covered by the modern concrete abutments). The residual pier stumps are shown framed inside the present concrete structure in a composite photograph below. The stumps had been cut down to ≈1.4 metres above ambient water level and capped with concrete and have a total potential bearing length of ≈8.0 metres, which suggests that they probably date to the duplication period of 1915-16.

Photograph/s

A composite view of the Jump Up Creek Underbridge precinct showing the stumps of an earlier bridge framed by the modern concrete structure.

1

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Jump Up Creek bridge was a component of the second phase of railway development of the Great Northern Railway and appears likely to date from the period 1914-1916, when the track was duplicated between Maitland and Singleton. In this context its shares with numerous other elements of infrastructure an integral part of the cultural heritage that attaches to the railway related to its construction as an arterial conduit between northern and north-western NSW and the metropolitan centres of Newcastle and Sydney. This was at a time when motor vehicles were rare and alternative modes of travel were by coach or horse-drawn vehicles, and goods transport by horse or bullock wagon.

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☐ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

☐ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The masonry stumps of the intermediate piers of the bridge are representative of their type and comparative with those of larger bridge remains at Black Creek and of the surviving bridge at Sandy Creek north of Muswellbrook (both single track)

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts, comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries. This former bridge is generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

Within this framework, the residue of the Jump Up Creek bridge represents one feature of the major evolution of the railway with the duplication of tracks in the period 1914-16, reflecting the increase in traffic and importance of the line. At the same time, it reflects specific requirements attaching to the railway crossing of Jump Up Creek.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☒ Unlikely
- ☐ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Having regard to the projected physical impact in the vicinity of this feature, there is little likelihood that the residual piers will suffer any impact. Their significance relates only to their unique capacity to contribute to an understanding of the planning that wnet into the crossing of Jump Up Creek at the time of duplication. In that sense, in assisting in the understanding of the wider planning issues of railway construction, the piers provide a useful insight into the then engineering process and pose the question “Why was this crossing treated differently to, for example, Anvil Creek and Stony Creek?”.

References

Nexus, 2009.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

Track construction will occur on the Down side at this location. The existing concrete underbridge will remain, as will the stumps of the original bridge, without alteration or foreseeable impact. A new single span precast concrete underbridge will be constructed adjacent, on the Down side. Some fill will be required to raise existing levels and there is some limited potential for dispersed elements of the demolition of the brick piers to be exposed and/or obscured by these works. Demolition material of this type is unlikely to possess significance.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

The erection of a new parallel bridge will assure the preservation and facilitate future interpretation of questions inherent in the construction of the Jump Up Creek bridge.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

There are none.

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged for on-call consultation in the event that a relic is suspected or exposed and to salvage and record any significant archaeological material evidence and information exposed or revealed in the Project process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the design works package.

Attachments

None

Site Details
Site 4 – Underbridge Black Creek

Location (km)
217.200

Location Plan

Historical Overview

The Black Creek underbridge lies between Branxton and Belford. The GNR was opened to Branxton on 24 March 1862 and to Singleton on 7 May 1863. It is reasonable to assume that the original bridging of Black Creek was undertaken for a single track in late 1862 or early 1863.

The bridge currently in use was a development of the duplication of the line between Maitland and Singleton during 1915-16 and has been briefly described as:

> A 4-span brick arch viaduct with large spans, 51ft (15.6m). Nearly all brick arches were built either by the existing lines branch or by the PWD, all after John Whitton had retired. Built for the main north duplication. DWG 9-135[1]

Survey Results

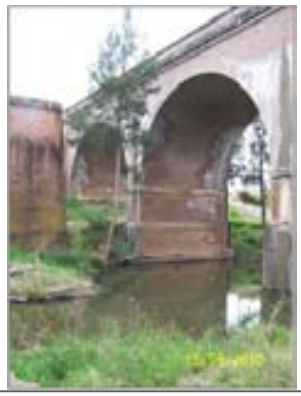
The Black Creek precinct is notable for also retaining material evidence of the original bridge over Black Creek in the form of two single track width brick piers and abutments to east and west. The configuration of the piers and abutments suggested that the single track had been carried on iron or steel beams, each span of well over 70 feet (≈22 metres). The residual material evidence is particularly valuable as an insight into the technology of bridge construction on the original single track extension of the GNR west from Maitland.

The remaining Black Creek underbridge has been well described in heritage documentation and presents as an elegant as well as massive masonry construction. In general terms, the structure was founded on a sandstone footing, and sandstone was also coursed as a footing at the branch of the three arches. Sandstone was also used in three courses (including two string courses) as a footing for the parapet wall and as a single course for parapet wall capping. The bulk of the structure was of solid brick: using the second pier as an example, the structure comprised 57 courses between footing and the sandstone course at the arch branch; 92 courses between the arch branch and sandstone string courses at the foot of the parapet wall (including a sawtooth string course). The arch was comprised of 8 soldier courses. An unusual feature of the structure was the use of engaged columns in the abutments, splayed at the base in the nature of a buttress. The description of the internal structure of the piers was borne out by the obvious continued function of the drains, from weep holes in the centre line of piers 20 courses below the sawtooth string course.

1

Photograph/s

Black Creek Bridge, incidentally framing the first pier of the original bridge. Note the buttress/engaged column just east (left) of the first arch.



Second and third arches of the present Black Creek Bridge contrast in height and mass with the first pier of the original bridge.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☒ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☐ No formal listing

Black Creek bridge should be listed in the NSW SHI in virtue of its listing on the ARTC s170 Register.

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. The Black Creek underbridge precinct reflects design and construction of the GNR, and the evolution of the railway, by containing the residue of the crossing of Black Creek by a single track in the initial construction phase of the railway and the expansion of the railway by track duplication requiring a new bridge.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The residue of the earlier bridge remains as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying brick abutments and fine tapering piers.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The residue of the earlier bridge is a testament to the mid-19th Century style and design of railway bridges, probably representing technology transfer from the English railway system in which John Whitton obtained his qualification and experience. The present bridge possesses exceptional aesthetic appeal and embodies a high degree of technical achievement and creativity in its graceful design and dimensions, and its massive construction, use of predominant brick and decorative sandstone media

☐ (d) Social – demonstrates a strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons

☐ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

Archaeological study and archival recording will provide a vehicle for further comprehension and interpretation of the technologies involved and the changing technology of railway bridge-building during the period of expansion and duplication of railway service in the Hunter Valley and the State at large.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

The residue of the original Black Creek underbridge is rare in the railway between Newcastle and Singleton and Newcastle and Sydney. The present Black Creek underbridge is a rare example of its style of underbridge in the State of NSW and is unique on the Main Northern Railway.

☐ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The residue of the original Black Creek underbridge is representative at the level of the Main Northern Railway and is replicated in style, form and construction by the single track underbridge at Sandy Creek, north of Muswellbrook, the latter still in use.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts, comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries.

The underbridge over Black Creek, along with those over Sawyers Creek, Anvil Creek and Stony Creek, is evaluated as making rare contributions to the overall significance of the Railway heritage resource. The residue of the original Black Creek and the Sawyers Creek, Anvil Creek and Stony Creek underbridges were almost certainly designed and constructed under the supervision (at least) of engineer John Whitton and attract historical significance through this association. The present Black Creek underbridge attracts significance from its association with the evolution of the railway in keeping with the increased importance of the region and for its own aesthetic, engineering and structural properties.

In this context, this total resource is assessed rare at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☒ Unlikely
☐ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☒	☐	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Given the level of Project physical impact in this area, there is no reasonable expectation for the realisation of archaeological potential at this site. Possible loss of visual amenity on the Up side may be compensated by archival photographic recording.

References

ARTC, NSW Country Rail s170 Register: Black Creek Bridge.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

The existing bridge at Black Creek is a multi-span brick arch structure carrying both Main tracks. Project works involve the construction of a new twin-track, three span pre-cast concrete underbridge on the up side of the existing underbridge. It is foreseen that the appropriate working capacity of the existing bridge will be exceeded in future and to reduce its loading, the new bridge will carry the proposed third track and the present Up Main will also be slewed onto the new bridge.

It is most unlikely that the Project will have any impact on the material evidence of this precinct, although the construction of the new bridge will have the effect of marginally restricting the present high visibility of the present three-span bridge from the New England Highway.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

The project will have no physical impact on either the residue of the original or the present three-span brick arch Black Creek underbridge, however the project will insure the preservation of both and will physically enhance the survival of the present bridge by providing for a substantial limitation on its work loading.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None.

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/its component item

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The removal of the Up main track loading from the present Black Creek underbridge by slewing the track onto the new construction will contribute significantly to intact survival of the present brick-arch structure, while moving substantial traffic and vibration way from the residue of the original bridge.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works, limited to archival photography of the Up side elevation
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the site. Due care should be taken in order to avoid inadvertent damage to the existing brick structure. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged for on-call consultation in the event that material evidence is suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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Site Details
Site 5 – Underbridge, Sawyers Creek, near Greta

Location (km)
211.010

Location Plan

Historical Overview

The Sawyers Creek underbridge lies a short distance west of the Greta Railway Station precinct which was opened in September 1869. At construction, therefore, the bridge lay between the stations at Lochinvar and Branxton. The GNR was opened to Lochinvar on 2 July 1860 and to Branxton on 24 March 1862, so that the original construction was probably undertaken in mid-1861. Historical resources gave no insights into the development of this bridge.

Survey Results

Evolving styles of bridge technology were evident at the crossing of Sawyers Creek. In an earlier (perhaps original) form, the bridge had been constructed as a single line structure with brick abutments and a single central brick pier supporting iron/steel beams. The leading and trailing edges of the pier had been chamfered. The structure closely resembled the style of the single line structure at Black Creek. On this bridge, timber sleepers were still in evidence. With the duplication of the line, the style was maintained with brick abutments and central pier, however in a later modification, metal beams had been replaced by precast concrete sections.

Photograph/s

The original Sawyers Creek Underbridge.

Metal beams had been replaced by precast concrete sections.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☐ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. The substantially intact residue of the original single track Sawyers Creek over bridge is both a direct connection with the original construction of the GNR and a stylistic (if much smaller) comparator with the Black Creek underbridge and reveals the input of Chief Engineer John Whitton. The precinct as a whole reflects the impacts of progressive evolution on the railway.

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The residue of the earlier bridge remains as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying brick abutments and fine tapering piers.

☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The residue of the earlier bridge is a testament to the mid-19th Century style and design of railway bridges, probably representing technology transfer from the English railway system in which John Whitton obtained his qualification and experience. Although the decking has been replaced, the present bridge carries forward the basic stylistic qualities of the earlier.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

Detail

☐ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

Archaeological study and archival recording will provide a vehicle for further comprehension and interpretation of the technologies involved and the changing technology of railway bridge-building during the period of expansion and duplication of railway service on the Main Northern Railway.

☐ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The residue of the original Sawyers Creek underbridge is representative at the level of the Main Northern Railway and is exemplified in style by the single track underbridges overt Black Creek and Sandy Creek (north of Muswellbrook, the latter still in use) although in form and construction both latter bridges are substantially longer and at greater height.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries.

This site provides an excellent example of its type, and demonstrates evolving styles of bridge technology along with a number of construction/maintenance phases. The underbridge over Sawyers Creek, along with those over Black Creek, Anvil Creek and Stony Creek, are evaluated as making rare contributions to the overall significance of the Railway heritage resource. The residue of the original Black Creek and the Sawyers Creek, Anvil Creek and Stony Creek underbridges were almost certainly designed and constructed under the supervision (at least) of engineer John Whitton and attract historical significance through this association. The present SawyersCreek underbridge attracts significance from its association with the evolution of the railway in keeping with the increased importance of the region

In this context, the resource is assessed as generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☒ Unlikely
☐ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Given the level of physical impact in this area, there is no reasonable expectation for the realisation of archaeological potential at this site.

References

Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

Project works involve the realignment of Sawyers Creek and the construction of a new single span pre-cast concrete underbridge on the Down side and parallel with the Down main, adjacent to the present brick underbridge. On this basis, there is no likelihood of physical impact to the original, or the present underbridge.

Project works will involve earthworks and the movement of heavy machinery around the site. Some indirect impact may occur as a result of temporary obstruction of Sawyers Creek and the Down side passage of the stream under the bridge. The situation requires awareness and planning, however it is considered that overall impact will be neutral due to offset through mitigation measures.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

The project will have no physical impact on either the residue of the original or the present two-span Sawyers Creek underbridge, however the project will ensure the preservation of both.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None.

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring (in the event of exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the site. Due care should be taken in order to avoid inadvertent damage to the existing brick structure. A qualified archaeologist should be engaged for on-call consultation in the event that a relic is suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

Site Details
Site 6 – Underbridge, tributary of Anvil Creek, near Allandale

Location (km)
207.776

Location Plan

Historical Overview

Acknowledging from a historical standpoint that the Allandale and Greta Railway Stations, those nearest to the 'Anvil Creek' Bridge, were not opened respectively until June and September 1869, at construction this underbridge lay between Lochinvar and Branxton. As observed above, the GNR was opened to Lochinvar on 2 July 1860 and to Branxton on 24 March 1862, so that the original construction was probably undertaken during the last quarter of 1860 and the first quarter of 1861. Design and construction is said to have been related to higher engineering standards imposed by John Whitton and the original bridge was in brick, in distinction from the majority of bridges and crossings of timber. The bricks are said to have been burnt in kilns (more likely clamps) established beside the line.

Survey Results

Inspection verified the description of this bridge in the ARTC s 170 Register, although three phases of construction could be identified. At the outset, on the northern side, at least, the Anvil Creek Bridge was indeed a graceful and thoroughly Victorian-style, twin-cell brick arch bridge. A central section of each drain arch was constructed with hand-moulded red brick, probably the original single track structure, laid in English bond. On the northern side the original arch forms had been extended in a machine-moulded yellow brick, also laid in English bond. The bricks appeared to be of c.1910-1920 vintage and probably relate to line duplication. The third phase was much more recent: on the southern side, the arches had been extended in formed arches of corrugated galvanised steel, set in concrete, which at one point had been inscribed 'November 2002. Throughout, the brickwork of walls, arch and floor appeared in good condition. At the northern (outfall) arch, the floor was clear of sediment while some inflow sediment had accumulated around the southern arch.

On the upside, headwall height for each arch was 4100 mm, arch height 3430 mm, drain width 3220 mm and the dishing of the drain was 2775 mm deep. Total length of wing walls was 4280 mm, while the wing walls declined over 3350 mm. The height of wingwalls proximal to the headwall was 3980 mm and distal, 1940 mm.

Photograph/s

Northern elevation showing face of brick extension c1915-1916.

Southern elevation showing 2002 extension.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☒ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☐ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. The Anvil Creek tributary underbridge reflects design and construction of the GNR, and the evolution of the railway, by revealing in its different construction materials clear phases of evolution.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The enduring from of its brickwork component shows the original design form of the bridge, which remains as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying brick abutments head- and wing walls and graceful arches.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

This bridge, in common with the Stony Creek underbridge, testifies to the mid-19th Century style and design of railway bridges, probably representing technology transfer from the English railway system in which John Whitton obtained his qualification and experience. While graceful in form, it will be appreciated that the bridge is an extension of the fairly standard design of single-arch brick culverts revealed along the study area.

☐ (d) Social – demonstrates a strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

Archaeological study and archival recording will provide a vehicle for further comprehension and interpretation of the technologies involved and the changing technology of railway bridge-building during the period of expansion and duplication of railway service in the Hunter Valley and the State at large.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

The twin-cell form of brick arch underbridge is rare in the railway between Newcastle and Singleton, represented at only two locations, viz: the present site and at Stony Creek.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The Anvil Creek tributary underbridge is representative at the level of the Main Northern Railway. The original and first extension in brick is replicated in style, form and construction by the underbridge at Stony Creek, at Farley.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts, comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries.

The underbridge over Anvil Creek tributary together with those of Sawyers Creek, Black Creek and Stony Creek are regarded as rare contributions to the overall significance of the Railway heritage resource. This bridge and the original Black Creek and the Sawyers Creek and Stony Creek underbridges were almost certainly designed and constructed under the supervision (at least) of engineer John Whitton and attract historical significance through this association. In this context, the resource is assessed as rare at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales. This underbridge is an excellent example of its type: the original c.1860 twin underbridge remaining intact, including brick dish floor. This underbridge is further significant for its scale, and current condition and integrity.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☒ None
☐ Unlikely
☐ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Given the level of Project physical impact in this area, there is no reasonable expectation for the realisation of archaeological potential at this site. Possible loss of visual amenity on the Up side may be compensated by archival photographic recording.

References

ARTC, NSW Country Rail s170 Register: Anvil Creek Bridge.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

Track construction will occur on the Up side in this location. The existing structure will remain and a new single span precast concrete underbridge will be constructed on that side. Although associated earthworks for cut and fill will be required it is unlikely that any direct impact to the existing structure will result. Some unavoidable visual impact will occur as a result of the new structure obscuring visibility of the twin-arch underbridge from the northern side.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

The construction of a new bridge adjacent to the old in the Project, while maintaining the bridge as a function of the railway, will ensure the conservation and maintenance-

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

In ensuring that Project works are carried out at a distance from the underbridge, the Project will facilitate its conservation and preservation.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

In ensuring that Project works are carried out at a distance from the underbridge, the Project will facilitate the conservation and preserve the integrity of the resource as a component of the heritage values of the study area and the locality.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works, limited to archival photography of the Up side elevation
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the site. Due care should be taken in order to avoid inadvertent damage to the existing brick structure. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged to undertake photographic archival recording, and for on-call consultation in the event that material evidence is suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the design works package.

Attachments

None

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Site Details
Site 7 – Underbridge, Wollombi Road

Location (km)
195.600

Location Plan

Historical Overview

Wollombi Road was part of the original trunk road system between Sydney, along the Great North Road from Sydney, through Windsor to Wollombi, thence through the present Cessnock area, branching to Maitland, Singleton and Newcastle. By the time the GNR construction extended beyond Maitland, the Wollombi Road had been a well-established and major thoroughfare for about 20 years. The intersection of the road and railway was recognised when the first railway station west of Maitland was opened 2 July 1860 just west of the underbridge and called Wollombi Road. The station name was changed to Farley in 1882. The present bridge is unlikely to pre-date the duplication of track between about 1914 and 1916.

Survey Results

The Wollombi Road Underbridge was observed as a simple structure of east and west solid brick abutments over which the duplicated track was carried on steel beams. In this context, the bridge was not distinguished from many of the same style in the general locality and the State. The bridge comprised abutments of yellow brick in English bond rising 46 courses to four string courses and a single chamfer course above which were platforms rebated to support the ends of steel beams. Above the platforms, secondary abutments were offset to a height of 14 courses. An unusual feature of the abutments was the vacant provision for a third track on the southern side. Wing walls splayed from the northern and southern ends of the abutments.

Photograph/s

View of Wollombi Road underbridge, Down side.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☐ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

Archaeological investigation of the Wollombi Road underbridge has limited potential to yield information about the technology of its construction and, in particular, confirmation of, and the reason for, its provision for a third track on the Down side. Otherwise, the bridge is exemplary of many bridges of its type across the State.

☐ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The Wollombi Road underbridge is a good example of its style of road underbridge and one of few remaining in the Lower Hunter area (qv: underbridges of the South Maitland Railway).

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries.

The underbridge over Wollombi Road is assessed as generally representative at the local level, where the locality is expressed the Lower Hunter area of New South Wales.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☒ Unlikely
- ☐ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Given the level of physical impact in this area, there is no reasonable expectation for the realisation of archaeological potential at this site.

References

Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

A four span precast concrete underbridge will be constructed on the Up side parallel to, but approximately 15 metres distant from, the existing structure. This new structure will extend over both Stony Creek (see Site 8) and Wollombi Road.

There will accordingly be no direct impact upon the existing structure, although new construction will have a visual impact on the Up side. There will be no loss in heritage value.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage values of the study area for the following reasons:

The project will have no physical impact on the Anvil Creek underbridge, and the project will ensure the preservation of the material evidence of its evolution.

The following aspects of the proposal could detrimentally impact on heritage values. The reasons are explained as well as the measures to be taken to minimise impacts:

None.

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring and archival management (in the event of exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the site. Due care should be taken in order to avoid inadvertent damage to the existing brick structure. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged for on-call consultation in the event that material evidence is suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the design works package.

Attachments

None

Site Details
Site 8 – Underbridge, Stony Creek

Location (km)
195.555

Location Plan

Historical Overview

Given the date of opening of the Wollombi Road/Farley Railway Station on 2 July 1860, it is reasonable to assume that the original bridging of Stony Creek was achieved prior to that date. No detail of the original construction and technology has been determined to date, but it would be anticipated that the bridge would be substantial in the light of the potential of Stony Creek. Design and construction was apparently similar to that of Site 7, brick being used for the original construction rather than timber.

Survey Results

The extent of this bridge was a revelation and, although unrecognised in the ARTC s170 Register, it has proved to be at least as fine an example of Victorian railway bridge building as the Anvil Creek Underbridge. Similar in style, but even more substantial in conception and execution, the bridge was found to be another twin-cell brick arch bridge. In this example, there was no evidence of modern intervention, however the drain arch revealed two phases of construction in a fashion similar to the Anvil Creek Underbridge. A join was evident in the arch brickwork dividing the northern and southern sides of the arch between older red brick and more recent yellow brick, both in the same style as at Anvil Creek. One point of distinction between the two bridges, however, was a later addition for pedestrian access afforded by a concrete pathway ≈1000 mm above water level. This bridge also featured a drainage system of the type implemented at Black Creek Underbridge.

Due to access difficulties, only the northern side of the bridge could be conveniently inspected and accurate measurements were unable to be made because of standing water in the arches and approaches. However, by scaling, it appeared that on the northern brick arches, headwall height above water level was ≈5750 mm, arch height ≈4750 mm, drain width ≈3330 mm while any dishing of the drain obviously could not be estimated. Total length of wing walls was ≈7400 mm, while the wing walls declined over ≈6600 mm. The height of wingwalls proximal to the headwall was ≈5330 mm and distal, ≈1100 mm.

Photograph/s

View of northern elevation, from south.

View of northern elevation, from south-east.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. The Stony Creek underbridge reflects design and construction of the GNR, and the evolution of the railway, by revealing in its different construction materials clear phases of evolution.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The enduring from of its brickwork component shows the original design form of the bridge, which remains as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying brick abutments head- and wing walls and graceful arches.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

This bridge, in common with the Anvil Creek tributary underbridge, testifies to the mid-19th Century style and design of railway bridges, probably representing technology transfer from the English railway system in which John Whitton obtained his qualification and experience. While graceful in form, it will be appreciated that the bridge is an extension of the fairly standard design of single-arch brick culverts revealed along the study area.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

Archaeological study and archival recording will provide a vehicle for further comprehension and interpretation of the technologies involved and the changing technology of railway bridge-building during the period of expansion and duplication of railway service in the Hunter Valley and the State at large.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

The twin-cell form of brick arch underbridge is rare in the railway between Newcastle and Singleton, represented at only two locations, viz: the present site and at Anvil Creek tributary.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The Stony Creek underbridge is representative at the level of the Main Northern Railway. The original and first extension in brick is replicated in style, form and construction by the underbridge at Anvil Creek tributary, near Greta Railway Station.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries.

The underbridge over Stony Creek together with those of Sawyers Creek, Black Creek and Anvil Creek are regarded as rare contributions to the overall significance of the Railway heritage resource. This bridge and the original Black Creek and the Sawyers Creek and Anvil Creek tributary underbridges were almost certainly designed and constructed under the supervision (at least) of engineer John Whitton and attract historical significance through this association. In this context, the resource is assessed as rare at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales. This underbridge is an excellent example of its type: the original c.1860 twin underbridge remaining intact, including brick dish floor. This underbridge is further significant for its scale, and current condition and integrity.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☒ Unlikely
☐ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Given the level of physical impact in this area, there is no reasonable expectation for the realisation of archaeological potential at this site. . Possible loss of visual amenity on the Up side may be compensated by archival photographic recording.

References

Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

A four span precast concrete underbridge will be constructed on the Up side parallel to, but approximately 15 metres distant from, the existing structure. This new structure will extend over both Stony Creek and Wollombi Road (see Site 7).

There will accordingly be no direct impact upon the existing structure, although new construction will have a visual impact on the Up side. There will be no loss in heritage value.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage values of the study area for the following reasons:

The project will have no physical impact on the Anvil Creek underbridge, and the project will ensure the preservation of the material evidence of its evolution.

The following aspects of the proposal could detrimentally impact on heritage values. The reasons are explained as well as the measures to be taken to minimise impacts:

None.

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail
In ensuring that Project works are carried out at a distance from the underbridge, the Project will facilitate its conservation and preservation.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of any perceived negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail
In ensuring that Project works are carried out at a distance from the underbridge, the Project will facilitate the conservation and preserve the integrity of the resource as a component of the heritage values of the study area and the locality.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works, limited to archival photography of the Up side elevation
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail
Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the site. Due care should be taken in order to avoid inadvertent damage to the existing brick structure. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged to undertake photographic archival recording, and for on-call consultation in the event that material evidence is suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments
This inventory sheet may require review and update following any changes to the design works package.
Attachments
None

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Site Details
Site 9 – Overbridge, Old North Road

Location (km)
204.809

Location Plan

Historical Overview

The intersection of the Old North Road and the GNR appears to have remained at the present location since the inception of the railway. Old North Road branched from Wollombi Road approximately nine kilometres south-west-by west of the Wollombi Road underbridge and travelled westerly to the locality of Lochinvar. At an intersection south of the GNR at Lochinvar, a road, now Station Lane, branched to Lochinvar township while the Old North Road continued more or less parallel with the GNR westerly for approximately two kilometres to an intersection with the GNR and the overbridge. The original overbridge was almost certainly constructed of timber but would have been replaced as a component of the duplication of the line in 1915-16. The overbridges were located approximately 100 metres east of the site of the original Allandale Railway Station

Survey Results

The Old North Road crosses the GNR at Allandale on a high arch bridge, mostly brick, at a high point of a railway cutting. The vertical walls below the branch of the arch comprised 58 courses of English bond below a string course of cement that may have been faced reinforced concrete or render over four additional courses of brickwork. Above the string course, the arch was framed by a facing of reinforced concrete, which showed signs of deterioration on the western side. Above the arch, brickwork varied between 31 and nine courses below the parapet wall which comprised 13 courses of (mainly) stretcher bond in two leaves, with an occasional header as a tie-in mechanism. The parapet was surmounted by a single soldier course. The parapet walls were finished at each end with a tied column. The bridge parapet showed the signs of having suffered from motor vehicle impact on the south-eastern sector, which had been repaired in stretcher bond.

Photograph/s

Two views of the westerly side of the Old North Road Overbridge at Allandale, noting in particular the deteriorated condition of concrete work.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☐ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

Archaeological investigation of the Old North Road underbridge has limited potential to yield information about the technology of its construction. Otherwise, the bridge is exemplary of many bridges of its type across the State.

☐ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The Old North Road overbridge is a good example of its style of a full brick-arch road overbridge.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries.

The Old North Road over bridge relates to the duplication of the railway between 1914 and 1916 and is assessed as representative at the local level, where the locality is expressed the Lower Hunter area of New South Wales.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☒ Unlikely
- ☐ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Apart from the structure of the Old North Road over bridge, it seems unlikely that other archaeological material evidence will remain in the precinct.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

Project works would require that the existing Old North Road Overbridge be demolished and the embankment widened to cater for the third track. No replacement bridge is proposed at this location and the Old North Road would be closed on both sides of the expanded cutting.

Demolition of this structure will result in the loss of a low-grade contributor to the overall railway heritage resource. The loss is considered an unavoidable, mild negative impact upon the heritage values of the Great Northern Railway. There are mitigation measures available in order to limit this negative impact.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage values of the study area for the following reasons:

Other than resulting in the preparation of an archival record of the Old North Road over bridge, the Project has no potential to enhance or respect the heritage values of the study area.

The following aspects of the proposal could detrimentally impact on heritage values. The reasons are explained as well as the measures to be taken to minimise impacts:

The projected demolition of the Old North Road over bridge will result in the loss of a heritage asset, acknowledging that this asset is at the lower end of the scale of significance. The loss of the physical asset can be substantially compensated by its archival recording and communication in an interpretive report, in circumstances where the existence and features of the bridge, relatively isolated as it is, have not readily accessible for broad community interest.

The following sympathetic solutions have been considered and discounted for the following reasons:

Because of the nature of the Project and the physical constraints of the bridge and its roadway approaches, it has not been possible to achieve a sympathetic solution.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The nature of negative impact is considered at a low level. The Old North Road is not now subjected to heavy traffic flow and is not accessed by the broad community. Its existence and features are not well known and appropriate archival recording will minimise the nominal loss of heritage values while providing the vehicle for communication of any values it may possess.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

For reasons expressed above, while there will be a nominal loss in the study area, such a loss translates into a minimal loss at the cumulative level, and will be well compensated by archival recording and communication in reporting.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☒ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the Old North Road over bridge and to monitor its demolition in order to salvage and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the design works package.

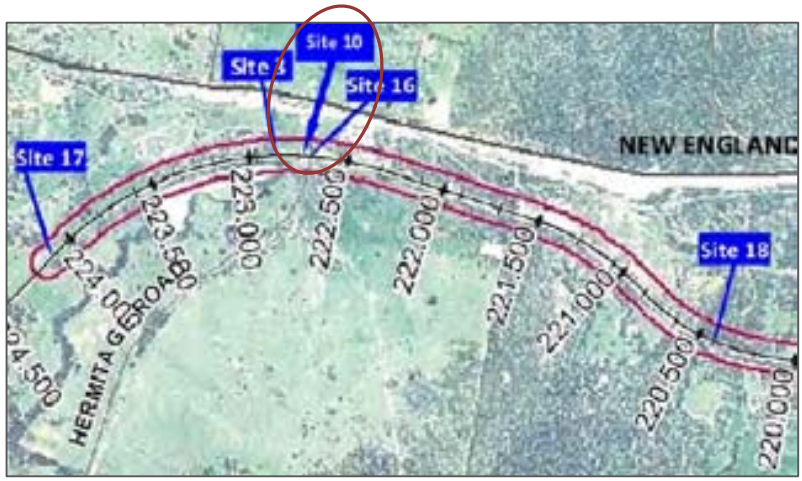
Attachments

None

Site Details
Site 10 – Belford Railway Station

Location (km)
222.700

Location Plan



Historical Overview

The government town of Belford was laid out and proclaimed a village on 7 December 1889 and extant plans are represented in two versions of two editions of the Town Plan dated 1890 and 1893 (Ed 1) (see Figure 2.3) and 1906. The 1890 Town Plan indicates the location of a railway platform on the northern side of the single line GNR, abutting the eastern alignment of the then McDouall Street, now Hermitage Road. On scale, this platform appears to have been ≈4 chains (80 metres) long. The original platform was opened on 6 September 1869 but was replaced by a pair of modern miniature platforms, nominally three metres long, again on the eastern side of Hermitage Road (no date). On a frame of rail, the platforms appear to have had a concrete deck, while the ramp deck was formed of hardwood/hardboard on a hardwood frame. The platforms were enclosed by a timber railing. The station closed 19 March 1976.

Survey Results

The precise former location of the original station was determinable from historical sources, in particular the Belford Town Maps, 1890 and 1906. The modern platforms were apparently located at the same chainage. Surface survey of the sites on the eastern side of the Hermitage Road level crossing, both north and south, revealed no surface evidence of either the original or modern platforms, however such evidence probably remains in the sub-surface.

Photograph/s

Belford Parish Map 1890.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The location of the former Belford Railway Station, although devoid of material evidence, represents initially an insight into the original aspirations of railway builders to provide travel and transport facilities to a broad range of localities and to the nascent village of Belford (which never eventuated). A secondary insight then directs attention to the shift in railway thinking and the change in rural activity that made the Allandale stop redundant that has promoted evolution in the system.

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

☒ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

Detail

The location of the former Belford Railway Station, and the history of its reduction, reflects the decline in social potential and transport demand of the Belford locality in the intervening 140 years from that of possible closely settled centre to its present reality of sparsely settled rural locality.

☐ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

☐ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The former Belford station stands with former potential centres, served by a railway station. Within the study area examples are: Rutherford Junction, Farley and Allandale.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries. In this context, the former Belford Railway Station is assessed as representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

The Belford Railway Station precinct is considered an element of the railway resources and any material evidence of the original station might have been assessed as generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales. The modern platforms would not be considered to attract consideration of significance. The site of the original station presently lacks any evidence of its structure(s) sufficient to positively identify its location. The broad area is therefore of marginal local significance only as a feature of the original establishment of the GNR and of its subsequent evolution.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☒ Unlikely
- ☐ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Site surface survey has indicated no surface evidence of the former structures of the site and the evidence of past physical modification of the surface and sub-surface renders the precinct unlikely to contain residual material evidence. Recommended mitigation strategies will be adequate to ensure that any material evidence at or in the site will be appropriately assessed for its historical heritage values.

References

LPI Parish Map Series, Belford Town.
www.nswrail.net/library/planned.php.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

Track construction will occur on the Up side at this location and will involve earthworks to raise existing ground levels. There is limited potential for any subsurface evidence of former station buildings to be exposed through the movement of heavy machinery across the site. However, the net result of Project works will be to bury any subsurface evidence with imported fill. As this is considered a method of preservation, there will be no perceived loss of heritage resources at this site. However, due to the nature of Project works the opportunity to recover and interpret heritage resources is not available at this site. As a result the net impact of Project works at this site is considered neutral.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

None

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring (in the event of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the site. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged for on-call consultation in the event that material evidence is suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

Site Details	Location (km)
Site 11 – Branxton Railway Station, Branxton Footbridge, Moveable Relics	215.500

Location Plan

Historical Overview

The Branxton Railway Station was opened 24 March 1862 as a single platform on the northern side of the then single track, now the up track. It has been described as:

> ...type 1, brick combination office/residence, 1880s...addition on the western side by a brick station building with gabled corrugated iron roof. The earlier building was modified to house a ticket office at the rear with verandah supported on brackets dating from around 1914. The newer station building appears to date from around the 1880s although the awning appears to be from around the time of duplication. This awning extends in front of the 1862 building. Two front pavilions of the early structure have also been removed...[the Signal Box) is a large timber on platform skillion roof box. The design is standard but the building is significantly bigger than most platform boxes and connects to the 1862 station building.

As a component of the 1915-16 duplication of the Maitland-Singleton line, a further platform was constructed at Branxton, on the down side. This platform has been described as:

> The down platform has a 1914 standard brick and corrugated iron building with open waiting shed and toilets. It has a cantilevered awning on curved brackets and curved arch into the waiting room. This is a larger duplication building than normal reflecting the importance of the location.

Also forming part of the precinct was a footbridge connecting the two platforms. This feature is described as follows:

> ...a simple trussed bridge supported on steel towers with precaste [sic] steps with curved rail supports cons[t]ructed at the time of duplication in 1914. It adds to the completeness of the site

The ARTC s170 Register also refers to 'signs, fences, seats, weighing machine and platform faces' which are considered to add to the completeness of the site. Also material to present considerations would be the pattern of tracks around the station precinct, management and operational infrastructure and the dormant connection to the former Rothbury/Branxton/Ayrfield No 3 colliery to the south of the precinct and branching from this siding, there had been a siding that passed north of the up platform , through the present parking area, to an Oak Milk Factory (KA Chomiszak, pers comm).

Survey Results

Surface survey of the Branxton Railway Station Precinct validated the descriptions of the resources of the precinct contained in the State Heritage Register and the ARTC s170 Register. The up platform contained a series of buildings in keeping with the age and style of the historic station. Of particular note were the parcels office at the western end of the group, the main station building of offices and waiting room, while the signal box remained as a later addition. The platform facing had been modified in front of the signal room in concrete, while the surface of the platform had been raised by approximately 300 mm and bitumen sealed from east of the signal room to the western end of the platform to facilitate passenger access to modern carriages. The eastern end of the platform retained its original antbed surface behind the platform facing of brick, and was notable for the survival intact of the original dock siding, with platform access on both sides.

The same style of modification had been carried out on the down platform. The only building on the down platform was the office/waiting room dating from the duplication of the line. Both platforms retained fencing in an original style. Access between platforms was provided by the footbridge, supported on steel framed columns outside the fence line of both platforms.

The footbridge provided a platform for elevated overviews of the precinct. To the south of the down platform there was a loop siding which also provided the offtake to the siding for the former Rothbury/Branxton/Ayrfield No 3 Colliery/ies. Off the north-westerly end of the up platform, lay the residue of a siding that served both the Branxton Goods Shed and yard and, while originally looping back to the main, also branched northerly away from the main line. The purpose of this branch was not clear. Suffice it to say that a stop had been imposed on the siding, beyond which lay lengths of lifted track including part of a points system. The various sidings switching were controlled by manual lever blocks at the eastern entry to the southerly loop siding, and at the western re-entry to main/Rothbury branch. A third block controlled access to the northerly siding. At the southern side of this siding remained a large c-i-p concrete block that had formerly supported the goods yard crane, while at the eastern end of the goods yard, north of the platform, lay the remains of a siding that had once served an Oak Milk Factory fronting Railway Street near its intersection with Short Street.

Photograph/s

Looking north-east, view of the buildings of the up platform of Branxton Railway Station.

Detail of the building on the Branxton down platform, looking south-westerly.

Northern stairway and deck of the footbridge at Branxton. Note that the entrance to the footbridge at this side is from the car park, not directly from the platform.

From the footbridge, an elevated panorama of the Branxton Railway Station precinct looking easterly.

Heritage Listings

- ☐ Australian Heritage Database (AHD)
- ☒ State Heritage Register (SHR)
- ☒ State Heritage Inventory (SHI)
- ☒ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☒ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☐ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Justification

The Branxton Railway Station group comprises some of the earliest buildings on the northern line and represents an important survivor of the earliest years of railway expansion in NSW. The original station, the present Up Main platform, exemplifies the style and aspirations of the initial construction of the Great Northern Railway and originally incorporated a rare example of a stationmaster's residence. In the latter case, the station was one of only five such examples in NSW. The group also represents the evolution of the railway, structural additions to the 1862 building and on the platforms during the 1880's and in 1914 combining to make a substantial and unique main line railway group while the present Down Main platform remains a substantial incident of early 20th Century service duplication.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Justification

As a surviving example of the earliest buildings on the Great Northern Railway, the substantial nature of the buildings of the Branxton Station group reflects the importance that originally attached to the settlement of the town and its people during the earliest period of railway expansion in the State, and the then recognition of the necessity of putting the town and its people in contact with the larger metropolitan centres.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Justification

Branxton features some of the earliest buildings on the northern line. The substantial nature of the buildings reflects, and remains as a rare example of, the aesthetics of railway structural development, particularly in the period 1860 to 1920. The original station building, described as 'Type 1 brick combination office/residence', incorporated a rare example of a residence of which there are only four other examples in the State. The Down platform building is described as 'Type 11 brick island building', but is larger than usual island platform buildings, and thus distinguishable. There remain only 24 sites representing rivetted Warren Truss footbridges in NSW. The styles of different members of the group indicate the shifts in functional design over the life of the station.

☒ (d) Social – demonstrates a strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons

Justification

The nature, scale and style of the station platforms and their buildings and the pedestrian footbridge reflects the importance that once attached to Branxton, and to rail as a mode of personal and goods transport in a then remote settlement and the importance of that connection between that settlement and established metropolitan centres.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Justification

Because of its early origin and continued function on the northern line, Branxton Station group encapsulates the history of railway in the township and represents an irreplaceable interpretive resource relating to the evolving technology of construction of rail permanent way, station and yard management and building as well as providing insights into former associations of rail transport with primary and secondary industry within the township.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Justification

In separate registrations, the Branxton Railway Station Group and the Branxton Railway Station group moveable relics have been listed as rare on the (NSW) State Heritage Register.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Justification

Individual members of the Branxton Railway Station group, while not unique and in some cases modified, are representative of their type across a limited range of comparators

Assessed Significance

☐ National ☒ State ☐ Local

Statement of Significance

Branxton Station features some of the earliest buildings on the northern line. The substantial nature of the buildings reflects the importance once attached to the town and its station. The original station incorporated a rare example of a residence (1 of 5 similar structures in the State). The group exhibits the effects of duplication and the addition of structures from later periods including several additions to the 1862 building during the 1880's and again in 1914 to make a substantial main line railway group.

The group is one of the most interesting and important sites surviving in the State.

(Extracted from the SHR Listing for 'Branxton Railway Station group)

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☒ Unlikely
☐ Possible
☐ Likely

Assessment of Research Potential from Project works

Yes	No	
☒	☐	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Justification

Given the scope of the Project, it appears unlikely that earthworks for the extension of the Down platform are likely to disturb ground containing archaeological material evidence. The addition to the northern aspect of the Down platform has the capacity to modify the existing structure, while a substantial component will remain unaffected. This work is unlikely to disturb material evidence other than the structure itself. Similarly, deconstruction of that part of the Down platform is unlikely to cause impact other than to the structure.

The Branxton Station group has the capacity to contribute knowledge about the evolution of the technology of construction of rail permanent way, station and yard management and building at a small and then-remote centre as well as providing insights into the growth of population/settlement, and former associations of rail transport with primary and secondary industry, at Branxton.

References

Hunter 8 Drawing H8R-SKT-S2B-ARC-0099, with manual annotations (03/2010)
Draft Project Description and construction methodology (2/12/2009)
ARTC, NSW Country Rail s170 Register: Branxton Railway Station (C/L Stn 13) SHI No 4801176.
ARTC, NSW Country Rail s170 Register: Branxton Railway Station (C/L Stn 13) SHI No 4801176
SHR Listing 5011953.
Delaney, JW, 1998.

Project Works

The following works are presently indicated and the extent and nature of project works illustrated on the attached concept plan.

- No station buildings will be modified or affected.
- The functions of the operational lines through Branxton Station will be re-allocated as follows:
  - the present Up Main will become the Up Coal;
  - the present Down Main will become the Up Main; and
  - the northerly of the proposed new tracks will become the new Down Main, passing south of the present Down platform; while
  - an additional track will be constructed south of the proposed new Down Main as a siding.
- Other than minor, non-structural de-commissioning work, the Up (Northern) platform will not be modified.
- The Dock platform and loading siding (functions of the present Up platform) will not be modified.
- Access to the present Up platform will be restricted by the construction of fencing and a lockable gate.
- From the eastern alignment of the present platform building to the western end, the present Down platform will not be modified (see area other than that highlighted GREEN and PINK on the Concept Plan: Hunter 8 Drawing H8R-SKT-S2B-ARC-0099).
- The present Down platform will or may be:
  - converted into an island platform by the construction of a new southerly platform area to align with the proposed new Down Main (see area highlighted GREEN on the Concept Plan: Hunter 8 Drawing H8R-SKT-S2B-ARC-0099); and
  - in the area highlighted PINK on the Concept Plan: Hunter 8 Drawing H8R-SKT-S2B-ARC-0099, either-
    - modified, at least, by the construction of a raised platform surface (concrete fascia with bituminous infill) on the present platform area from east of the eastern wall of the platform building to the eastern end of the platform, in keeping with current Railcorp standards for level access; or
    - demolished in full and replaced by full new platform construction.
- The existing footbridge will not be modified or affected.
- The 'moveable relics' at Branxton Station will not be modified or affected.
- The present carpark and drop-off area on the northern side of the station will not be modified.

Construction of the southern extension of the Down Main platform should be expected to include, but only in the area highlighted GREEN on the Concept Plan: Hunter 8 Drawing H8R-SKT-S2B-ARC-0099:

- Earthworks for preparation of base level for new platform works.
- Construction of c-i-p concrete footings.
- Installation of precast 'U-box' concrete platform units using a crane where the platform is to be extended.
- Installation of pre-cast and/or c-i-p concrete pavement.

Modification of the present Down platform should be expected to include, but only in the area highlighted PINK on the attached Concept Plan:

- Installation of concrete fascia elements above the existing brick fascia wall.
- Infill by bituminous concrete between the newly installed concrete fascia and the northern face of the southerly platform extension, to the level of the latter.

Alternative reconstruction of the present Down platform should be expected to include, but only in the area highlighted PINK on the attached Concept Plan:

- Deconstruction of the existing structure of brick fascia, loan infill with bituminous concrete surface.
- Earthworks for preparation of base level for new platform works.
- Construction of c-i-p concrete footings.
- Installation of precast 'U-box' concrete platform units using a crane where the platform is to be extended.
- Installation of pre-cast and/or c-i-p concrete pavement.

All project works will or may require:

- Installation of auxiliary works including lighting and signage.
- Trenching for drainage and for the supply and/or reticulation of service.
- The movement of machinery, plant and personnel across the work site.

The potential for any excavation during construction to expose relics at this site cannot be discounted. Overall, there is an unavoidable negative impact upon the heritage resources at this site. However, mitigation measures are available in large part to offset any such negative impact.

There is no indication that moveable heritage, associated with the function of the railway and Branxton Station, is at risk of impact from the Project.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

- maintenance, conservation, preservation and/or interpretation of –
  - the present Up platform including the Dock, fencing, signage and illumination;
  - the 1914 Footbridge;
  - the western component of the present Down platform;
  - all the heritage buildings of the Branxton Railway Station group;
  - the moveable heritage relics at Branxton Station.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

- modification of the present Down platform fascia and surface or the deconstruction of the indicated part of the Down platform and its reconstruction in modern materials and design;
- although this is considered unlikely, disturbance of the existing ground in works at the Down platform may disturb, destroy and/or bury of any residual material evidence.

The following sympathetic solutions have been considered and discounted for the following reasons:

- In face of the need to accommodate the imperative of construction of a third service track across the railway line between Maitland and Minimbah, and to comply with Railcorp standards for level access to passenger rolling stock, a series of options for design, construction and management of the resources of the Branxton Railway Station group have been evaluated. The proposals implemented in the present concept plan have been considered by the stakeholders to be those that have the least impact on the heritage values of the Branxton Railway Station group in particular and the State, while providing the best opportunity for minimizing actual impact with archival recording and interpretation.

The net impact of the Project upon the heritage values of this site is expected to be:

☒ Negative – as a result of the modification of the present Down Main platform fascia and surface or the deconstruction of the indicated part of the Down platform and its reconstruction in modern materials and design.
☒ Negative – due to disturbance of the existing ground in the construction of the southern extension of the Down platform may cause disturbance, destruction and/or burial of any residual material evidence
☒ Neutral – at least some of the negative impacts of the project may be offset by effecting the mitigation strategies and practices as detailed below
☒ Positive – acknowledging that some change will always attend evolutionary development of an operating railway system, the maintenance, conservation, preservation and/or interpretation of the present Up Main platform, the Dock, the Footbridge and the western component of the present Down Main platform, together with all the heritage buildings of the Branxton Railway Station complex will operate as a significant positive outcome of the project.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

☒ Negative - due to modification or demolition at this site and across the study area.
☒ Negative – due to disturbance and/or earthworks which may cause damage, destruction and/or burial at this site and across the study area.
☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item.
☒ Neutral – through a combination of the partial offset of negative impact by total mitigation measures across the study area, together with those factors contributing towards a positive impact, as described above and in the inventories generally.

☒ Positive – through restoration, conservation, preservation and/or interpretation of components of the site as described above.

Detail

Nominally the earthmoving and structural works for addition to and modification of part of the Down platform would work as a serious negative contribution to the modifications projected, for example, in respect of the residual Farley platform, the Greta Railway Station group, the Anvil Creek underbridge and many of the original culverts on the railway between Maitland and Minimbah. In fact, nominal cumulative impact will be minimised by the following factors:

- Farley station is survived only by one platform fascia and deflated residual infill. The site is capable of archival recording and interpretation but the surviving photography will be relied upon to provide detail above platform surface.
- the heritage values of the Greta Railway Station group will be managed, in the spirit of the Branxton Railway Station group, in a manner that ensures the survival of most of the heritage values and by a practice that has been arrived at by a careful process of evaluation.
- The Anvil Creek underbridge is listed for demolition only because its structural stability has been questioned on an engineering basis.
- although many of the culvert headwalls will be buried and some deconstructed, the majority of culvert structures and a representative body of original headwalls will remain unaffected; in this regard it should be emphasised that although brick culvert headwalls vary widely in dimensions, the pattern or structural design appears relatively standardised. On the other hand, the sandstone headwalls are more individual.
- In circumstances where it is unavoidable that heritage items must be modified, deconstructed or buried, such items will be archivally recorded, interpreted and results of archaeological study made available to the public, all in terms of the recommendations of the report.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

☒ Archival recording prior to commencement of works
☒ On site monitoring during project works
☒ On call monitoring (in the event of suspicion or exposure of unexpected relics
☐ Archaeological investigation/excavation
☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management of State significant items, and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the station. An appropriately qualified archaeologist should be engaged to prepare a specific heritage management strategy, to make an archival record of the site and for on-call consultation in the event that a relic is suspected. In this instance, work should cease until appropriate management is formulated.

Appropriate machinery should be selected for use at this site in order to reduce the risk of inadvertent damage to heritage components.

The deconstruction of any part of platform surface and/or fill and/or platform fascia should be monitored by a heritage specialist and each stage archivally recorded. The building materials should be recovered and stored for re-use in the construction of the new platform face. An information plaque should be installed at completion to record the modifications.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

(Note reference to Hunter 8 Drawing H8R-SKT-S2B-ARC-0099, with manual annotations [03/2010])

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Site Details
Site 12 – Greta Railway Station, Greta Footbridge

Location (km)
210.600

Location Plan

Historical Overview

The Greta Railway Station was opened on 6 September 1889 as Farthings, acknowledgement of William Farthing's mining and railway endeavours in the locality: Farthing is said to have built a siding to his small mine and a private platform as early as 1863.

The signal box was constructed in 1915. The station buildings on the down platform date from the time of duplication circa 1915. Platform faces are of brick and appear to date to 1915. Fencing is thought to dates to around 1913. The platform surface is gravel and is low in relation to the height of the platforms above track level. Most stations have been raised significantly over the years and have had bitumen surfaces added.

The footbridge was constructed in 1922 and is an unusual design, having a steel frame and timber treads and handrails, with strand wire infill. A tubular steel handrail has been added at a later stage. The footbridge was built at the time of duplication and connects the two platforms only.

In addition to the above, although there is little present evidence, goods handling facilities existed at Greta. On the 1912 Greta Town Map, the Greta railway station precinct was shown with a goods siding loop around the southern side and a run-through goods shed. The goods shed shows on historical photographs as being either weatherboard or (more likely) galvanised iron clad and perhaps 6 metres wide: the eastern end contained a rail vehicle portal/door and a pedestrian door. The goods shed was adjacent to the western end of the down platform. On the southern side of this was located a fuel store building (J Chomiszak, pers comm). The siding to the named collieries (above) branched northerly from the western end of the railway station precinct.

Survey Results

Survey of the Greta Railway Station Precinct reflected the descriptions of the precinct's properties contained in the State Heritage Register and the ARTC s170 Register. Upon inspection the up platform contained a series of buildings in keeping with the age and style of this historic station. From east to west, these buildings comprised a flat roofed brick building, possibly a convenience block, the brick main station offices and waiting room building, the brick parcels office and a weatherboard signal box.

The down platform reflected its later construction and contained a very uncomplicated waiting room, but retained one of the original platform name boards (although presently painted white over blue rather than the original black). Both platforms had been fenced off to restrict access to the western ends. Beyond the fencing the platforms retained their original antbed surface behind the brick facing. Of particular note was the low level of both original platforms, which had necessitated their being raised substantially at the eastern end to facilitate passenger access. Those parts of the platforms readily accessible to the public presented a bitumen surface behind a concrete facing above the original brick. The platforms were connected by the footbridge, supported on steel framed columns inside the fence line of both platforms.

No sign was detected of the former goods shed loop, the goods shed, the shed/yard crane or the fuel shed, however sub-surface material evidence probably remains. The earthen bund formed on the southerly side of the down platform was indicated only to be perhaps 10 years old, and the earthmoving plant used in this construction may have destroyed material

evidence in the process.

Photograph/s

Buildings of the up platform at Greta Railway Station. Note the addition of a concrete riser on the easterly end of the platform to facilitate boarding modern passenger cars.

Elevated panorama of the Greta Railway Station precinct, looking westerly from the deck of the station footbridge.

Looking east from the up platform, composite view of the footbridge at Greta Railway Station, noting that both staircases lead from the platforms.

Heritage Listings

- ☐ Australian Heritage Database (AHD)
- ☒ State Heritage Register (SHR)
- ☒ State Heritage Inventory (SHI)
- ☒ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☒ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☐ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Greta Railway Station group represents possibly the best late 19th century station group surviving from the period immediately before standardisation and economical construction methods were introduced around 1890. The original station, the present Up Main platform, exemplifies the late free style of the initial period on Great Northern Railway (that is, before the 1889 connection with Sydney and the rest of the State). The group also represents the evolution of the railway, structural additions on the platforms during 1915 (Signal Box) and in 1922 (Footbridge) combining to make a substantial and unique main line second level railway group. The present Down platform (1915) remains a substantial incident of early 20th Century service duplication.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

As a surviving example of the earliest buildings on the Great Northern Railway, the substantial nature of the buildings of the Branxton Station group reflects the importance that originally attached to the settlement of the town and its people during the earliest period of railway expansion in the State, and the then recognition of the necessity of putting the town and its people in contact with the larger metropolitan centres.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The nature of the buildings reflects, and remains as a rare example of, the aesthetics of railway structural development at secondary centres, particularly in the period 1885 to 1920. The original station building, described as 'Type 3, second class wayside station'. The station building is the only one in the State that remains unmodified. The Down platform building is described as 'Type 11 duplication station' and is regarded as a standard plan and execution, albeit without modification. There remain only 27 sites representing double steel beam footbridges in NSW, although nly 17 of these feature timber newel posts. The styles of different members of the group indicate the shifts in functional design over the life of the station.

☒ (d) Social – demonstrates a strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons

Detail

The nature, scale and style of the station platforms and their buildings and the pedestrian footbridge reflects the importance that once attached to Branxton, and to rail as a mode of personal and goods transport in a then remote settlement and the importance of that connection between that settlement and established metropolitan centres.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

Because of its early origin and continued function on the northern line, Greta Station group encapsulates the history of railway in the township and represents an irreplaceable interpretive resource relating to the evolving technology of construction of rail permanent way, station and yard management and building as well as providing insights into former associations of rail transport with primary industry within the township.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

In separate registrations, the Branxton Railway Station Group and the Branxton Railway Station group moveable relics have been listed as rare on the (NSW) State Heritage Register.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

Individual members of the Greta Railway Station group, while not unique and in some cases modified, are representative of their type across a limited range of comparators.

Assessed Significance

☐ National ☒ State ☐ Local

Statement of Significance

Greta station group is perhaps the best late 19th century station group surviving from the period before the introduction of standard and economical construction methods around 1890. Its significance is enhanced by its intactness and completeness. The station building is a particularly fine building and is the only surviving example of its kind without significant alteration. The site exhibits layering of different periods and styles, largely due to duplication and the need for additional buildings at that time. As new buildings were constructed at each stage and buildings were not extended (with the exception of the awning on the signal box) it displays a range of unaltered structures from various periods co-existing at one location. The footbridge, signs, lights, fencing and other details of the site add to the significance and completeness of the site and help create what is a unique small country railway station group.

(Extracted from the SHR Listing for 'Greta Railway Station group')

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☒	☐	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Given the scope of the Project, it appears possible that earthworks for the extension of the Down platform or for the construction of the third track will disturb ground that may still contain the residue of footings/piles of the former Greta Railway Goods siding and Goods shed. The addition to the eastern aspect of the Down platform has the capacity to modify the existing structure, while a substantial component will remain unaffected. This work is unlikely to disturb material evidence other than the structure itself. Similarly, deconstruction of that part of the Down platform is unlikely to cause impact other than to the structure.

The Greta Station group dates originally from 1889 and thus has the capacity to contribute knowledge about the evolution of the technology of construction of rail permanent way, station and yard management and building at a small and then-remote centre as well as providing insights into the growth of population/settlement, and former associations of rail transport with industry (basically primary/extractive) at Greta.

References

Hunter 8 Drawing H8R-SKT-S2B-ARC-0098 (03/2010)).
Draft Project Description and construction methodology (2/12/2009).
ARTC, NSW Country Rail s170 Register: Greta Railway Station (C/L Stn 36) SHI No 4801180
ARTC, NSW Country Rail s170 Register: Greta Footbridge SHI No 4801660
SHR Listing 1156 Db#5012026.
Delaney, JW, 1998.
Randall, 1993.

Project Works

The following works are presently indicated and the extent and nature of project works illustrated on the attached concept plan.

- No station buildings will be modified or affected.
- The functions of the operational lines through Branxton Station will be re-allocated as follows:
  - the present Up Main will become the Up Coal;
  - the present Down Main will become the Up Main; and
  - the proposed third track will become the new Down Main, passing west of the present Down platform.
- Other than minor, non-structural de-commissioning work, the Up (Eastern) platform will not be modified.

- Access to the present Up platform will be restricted by the construction of fencing and a lockable gate.
- From line south of the southern alignment of the present platform building to the northern end, the present Down platform will not be modified (see area other than that highlighted GREEN and PINK on the Concept Plan: Hunter 8 Drawing H8R-SKT-S2B-ARC-0098).
- The present Down platform will or may be:
  - converted into an island platform by the construction of a new westerly platform area to align with the proposed new Down Main (see area highlighted GREEN on the Concept Plan: Hunter 8 Drawing H8R-SKT-S2B-ARC-0098). This redevelopment will involve:
    - demolition of the southern fascia of the platform and reconstruction to a height consistent with–
    - raising of the level of the northern component of present platform fascia in keeping with –
    - and filling and sealing the new/replacement work to a surface consistent with –

    ...current Railcorp standards for level access
  - in the area highlighted PINK on the Concept Plan: Hunter 8 Drawing H8R-SKT-S2B-ARC-0098, either-
    - modified, at least, by the construction of a raised platform surface (concrete fascia with bituminous infill) on the present platform area from a line south of the southern wall of the platform building to the northern end of the platform, in keeping with current Railcorp standards for level access; or
    - demolished in full and replaced by full new platform construction.
- The existing footbridge will not be modified or affected.
- The 'moveable relics' at Branxton Station will not be modified or affected.
- The present carpark and drop-off area on the northern side of the station will not be modified.

Construction of the southern extension of the Down Main platform should be expected to include, but only in the area highlighted GREEN on the Concept Plan: Hunter 8 Drawing H8R-SKT-S2B-ARC-0098:

- Earthworks for preparation of base level for new platform works.
- Construction of c-i-p concrete footings.
- Installation of precast 'U-box' concrete platform units using a crane where the platform is to be extended.
- Installation of pre-cast and/or c-i-p concrete pavement.

Modification of the present Down platform should be expected to include, but only in the area highlighted PINK on the attached Concept Plan:

- Installation of concrete fascia elements above the existing brick fascia wall.
- Infill by bituminous concrete between the newly installed concrete fascia and the northern face of the southerly platform extension, to the level of the latter.

Alternative reconstruction of the present Down platform should be expected to include, but only in the area highlighted PINK on the attached Concept Plan:

- Deconstruction of the existing structure of brick fascia, loan infill with bituminous concrete surface.
- Earthworks for preparation of base level for new platform works.
- Construction of c-i-p concrete footings.
- Installation of precast 'U-box' concrete platform units using a crane where the platform is to be extended.
- Installation of pre-cast and/or c-i-p concrete pavement.

All project works will or may require:

- Installation of auxiliary works including lighting and signage.
- Trenching for drainage and for the supply and/or reticulation of service.
- The movement of machinery, plant and personnel across the work site.

The potential for any excavation during construction to expose relics at this site cannot be discounted. Overall, there is an unavoidable negative impact upon the heritage resources at this site. However, mitigation measures are available in large part to offset any such negative impact.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

- maintenance, conservation, preservation and/or interpretation of –
  - the present Up Main platform, fencing, signage and illumination;
  - the 1914 Footbridge;
  - the northern component of the present Down platform;
  - all the heritage buildings of the Greta Railway Station group;

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

- modification of the present Down platform fascia and surface or the deconstruction of the indicated part of the Down platform and its reconstruction in modern materials and design;
- although this is considered unlikely, disturbance of the existing ground in works at the Down platform may disturb, destroy and/or bury of any residual material evidence.
-

The following sympathetic solutions have been considered and discounted for the following reasons:

In face of the need to accommodate the imperative of construction of a third service track across the railway line between Maitland and Minimbah, and to comply with Railcorp standards for level access to passenger rolling stock, a series of options for design, construction and management of the resources of the Greta Railway Station group have been evaluated. The proposals implemented in the present concept plan have been considered by the stakeholders to be those that have the least impact on the heritage values of the Greta Railway Station group in particular and the State, while providing the best opportunity for minimizing actual impact with archival recording and interpretation.

The net impact of the Project upon the heritage values of this site is expected to be:

☒ Negative – as a result of the modification of the present Down platform fascia and surface or the deconstruction of the indicated part of the Down platform and its reconstruction in modern materials and design.
☒ Negative – due to disturbance of the existing ground in the construction of the southern extension of the Down platform may cause disturbance, destruction and/or burial of any residual material evidence
☒ Neutral – at least some of the negative impacts of the project may be offset by effecting the mitigation strategies and practices as detailed below
☒ Positive – acknowledging that some change will always attend evolutionary development of an operating railway system, the maintenance, conservation, preservation and/or interpretation of the present Up platform, the Footbridge and the northern component of the present Down platform, together with all the heritage buildings of the Greta Railway Station complex will operate as a significant positive outcome of the project.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

☒ Negative - due to modification or demolition at this site and across the study area.
☒ Negative – due to disturbance and/or earthworks which may cause damage, destruction and/or burial at this site and across the study area.
☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item.
☒ Neutral – through a combination of the partial offset of negative impact by total mitigation measures across the study area, together with those factors contributing towards a positive impact, as described above and in the inventories generally.
☒ Positive – through restoration, conservation, preservation and/or interpretation of components of the site as described above.

Detail

Nominally the earthmoving and structural works for addition to and modification of part of the Down platform would work as a serious negative contribution to the modifications projected, for example, in respect of the residual Farley platform, the Branxton Railway Station group, the Anvil Creek underbridge and many of the original culverts on the railway between Maitland and Minimbah. In fact, nominal cumulative impact will be minimised by the following factors:

- Farley station is survived only by one platform fascia and deflated residual infill. The site is capable of archival recording and interpretation but the surviving photography will be relied upon to provide detail above platform surface.
- the heritage values of the Branxton Railway Station group will be managed, in the spirit of the Greta Railway Station group, in a manner that ensures the survival of most of the heritage values and by a practice that has been arrived at by a careful process of evaluation.
- The Anvil Creek underbridge is listed for demolition only because its structural stability has been questioned on an engineering basis.
- although many of the culvert headwalls will be buried and some deconstructed, the majority of culvert structures and a representative body of original headwalls will remain unaffected; in this regard it should be emphasised that although brick culvert headwalls vary widely in dimensions, the pattern or structural design appears relatively standardised. On the other hand, the sandstone headwalls are more individual.
- In circumstances where it is unavoidable that heritage items must be modified, deconstructed or buried, such items will be archivally recorded, interpreted and results of archaeological study made available to the public, all in terms of the recommendations of the report.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☒ On site monitoring during project works
- ☒ On call monitoring (in the event of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management of State significant items, and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the station. An appropriately qualified archaeologist should be engaged to prepare a specific heritage management strategy, to make an archival record of the site and for on-call consultation in the event that a relic is suspected. In this instance, work should cease until appropriate management is resolved.

Appropriate machinery should be selected for use at this site in order to reduce the risk of inadvertent damage to heritage components.

The deconstruction of any part of platform surface and/or fill and/or platform fascia should be monitored by a heritage specialist and each stage archivally recorded. The building materials should be recovered and stored for re-use in the construction of the new platform face. An information plaque should be installed at completion to record the modifications.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the design works package.

Attachments

None

(Note reference to Hunter 8 Drawing H8R-SKT-S2B-ARC-0098, with manual annotations [03/2010])

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Site Details
Site 13 – Allandale Railway Station

Location (km)
204.900 ± 200

Location Plan

Historical Overview

A platform was opened at Allandale on 29 June 1869 and was located on the southern side of the then single road, on the western side of the Old North Road underbridge. The original platform was replaced by a pair of modern miniature platforms, nominally about three metres long and of a style and construction similar to those at Belford, but relocated to chainage 205.93. The Allandale Station was temporarily closed in 2002 because of the public risk attending construction of the Old North Road Underbridge (chainage ≈206.000, as distinct from the Old North Road Overbridge at chainage 204.809) but was permanently closed 9 September 2005.

Survey Results

Close investigation of the area (chainage 204.900 ± 200) revealed no positive surface sign of the location or material evidence of this station platform. Some plantings of exotic succulents in the wall of the cutting in the area perhaps indicated general area of a former platform. Given the relatively recent earthworks within the former station precinct, it is unlikely that sub-surface evidence remains.

Photograph/s

Downside (left) and upside (right) embankment in the vicinity of the former Allandale Railway Station. The Old North Road overbridge can be seen in the distance.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The location of the former Allandale Railway Station, although devoid of material evidence, represents initially an insight into the original aspirations of railway builders to provide travel and transport facilities to a broad range of localities and probable recognition of the limited primary industrial undertaking nearby at the Allandale Winery. A secondary insight then directs attention to the shift in railway thinking and the change in rural activity that made the Allandale stop redundant that has promoted evolution in the system.

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

☒ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

Detail

The location of the former Allandale Railway Station, and the history of its reduction, reflects the decline in social potential and transport demand of the Allandale locality in the intervening 140 years from that of possible closely settled and light industrial centre to its present reality of sparsely settled rural locality.

☐ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

☐ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The former Allandale station stands with former potential centres, served by a railway station. Within the study area examples are: Rutherford Junction, Farley and Belford.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries.

The Allandale Railway station precinct is considered an element of the railway resources and any material evidence of the original station might have been assessed as generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales. The modern platforms would not be considered to attract consideration of significance. The site of the original station presently lacks any evidence of its structure(s) sufficient to positively identify its location. The broad area is therefore of marginal local significance only as a feature of the original establishment of the GNR and of its subsequent evolution.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☒ Unlikely
- ☐ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Site surface survey has indicated no surface evidence of the former structures of the site and the evidence of past physical modification of the surface and sub-surface renders the precinct unlikely to contain residual material evidence.
Recommended mitigation strategies will be adequate to ensure that any material evidence at or in the site will be appropriately assessed for its historical heritage values.

References

www.nswrail.net/library/planned.php.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

Track construction will occur on the Down side in this location. Although considered unlikely, the presence of sub surface material in this precinct cannot be absolutely discounted. Track construction will require earthworks to widen the corridor in this area. However, it is reasonable to conclude that Project works will have no foreseeable impact on material evidence.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

None

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring and archival management (in the event of exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the site. Due care should be taken in order to avoid inadvertent damage to the existing brick structure. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged for on-call consultation in the event that material evidence is suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

Site Details
Site 14 – Rutherford Junction Railway Station

Location (km)
199.071

Location Plan

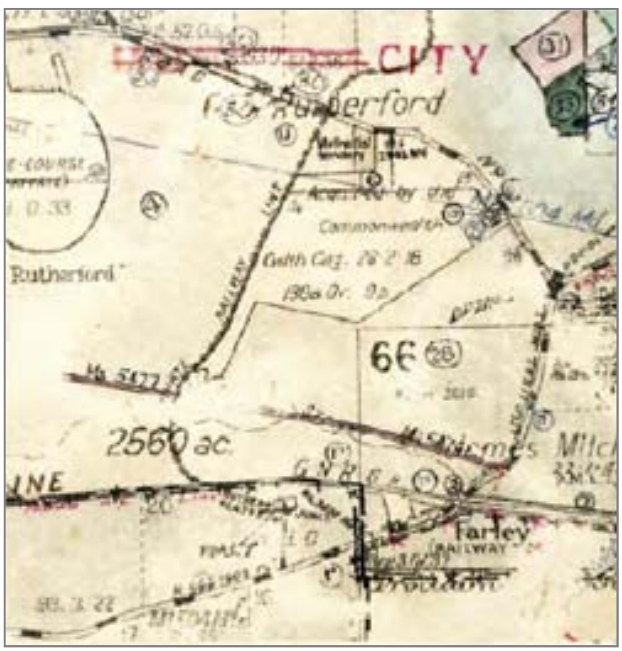
Historical Overview

A platform was opened as 'Rutherford' in 1886, at the junction of the GNR and a private rail line established to serve the Denton Park Colliery, which opened in 1888 and appears to have ceased operations only a year later, although reopened in 1927. The station shows as 'Rutherford Junction', on the Sixth Edition of the Gosforth Parish Map, the name having been changed in December 1941. The platform(s) may have been relocated a short distance westerly to relate to the Rutherford Racecourse branch, which was opened 26 July 1914. The branch, running north from the GNR, terminated in an island platform which was notable for its facilities for handling horses as well as human passengers. During the Second World War, the racecourse precinct was resumed by the Commonwealth Government for a munitions factory and the former Racecourse Branch was significantly amplified. The branch was closed in 1965 although the station buildings are said to have survived on site for many years.

Survey Results

Historical sources had indicated the previous existence and approximate location of branch lines (one private) to Rutherford Racecourse/Military Munitions Plant and the earlier Denton Park Colliery, as well as the Rutherford/Rutherford Junction Station. The Gosforth Parish Map series had been particularly useful in this regard. Close search across the surface in the locality of these former branches (199.000 ± 200) failed to reveal any surface material evidence of the stations or, within the study area, of the roadbeds of the former branches.

Photograph/s



Gosforth Parish Map, 1943.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☐ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The location of the former Rutherford Junction Railway Station, devoid of material evidence, provides initially an insight into the original aspirations of railway builders to provide travel and transport facilities to a broad range of localities and recognition in this case of the dual opportunities presented by the locality for its recreational resource and early coal minel. A secondary insight then directs attention to the shift in railway thinking and the change in local activities that made the junction redundant that has promoted evolution in the system.

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

Detail

The location of the former Rutherford Junction station, and the history of its reduction, reflects the decline in social potential of the western Rutherford locality in the intervening 140 years from that of recreational resource and (somewhat ephemeral) coal mine to the present light industrial and commercial centre.

☐ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

☐ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The former Rutherford Junction station precinct stands with former potential centres, served by a railway station. Within the study area examples are: Allandale, Farley and Belford.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries.

The Rutherford Junction station precinct is considered an element of the railway resources and any material evidence of the original station might have been assessed as generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales. The site of the original station presently lacks any evidence of its structure(s) sufficient to positively identify its location. The broad area is therefore of marginal local significance only as a feature of the original establishment of the GNR and of its subsequent evolution.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☒ Unlikely
- ☐ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Site surface survey has indicated no surface evidence of the former structures of the site and the evidence of past physical modification of the surface and sub-surface renders the precinct unlikely to contain residual material evidence. Recommended mitigation strategies will be adequate to ensure that any material evidence at or in the site will be appropriately assessed for its historical heritage values.

References

LPI Parish Map Series, Parish Gosforth.
www.nswrail.net/library/planned.php.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

Track construction will occur on the Up side in this location. Although considered unlikely, the presence of sub surface material in this precinct cannot be absolutely discounted. Track construction will require earthworks to widen the corridor in this area. However, it is reasonable to conclude that Project works will have no foreseeable impact on material evidence.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

None

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring and archival management (in the event of exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of the site. Due care should be taken in order to avoid inadvertent damage to the existing brick structure. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged for on-call consultation in the event that material evidence is suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

Site Details
Site 15 – Farley Railway Station

Location (km)
195.700

Location Plan

Historical Overview

A station was opened on the western side of the intersection of the GNR with Wollombi Road on 2 July 1860 and was originally called 'Wollombi Road'. The station was at this time represented by a typical platform serving the present down line, with brick building(s) and platform awning on iron cantilever frames similar to those surviving at Greta and Branxton. In 1882, the station was renamed 'Farley' but was closed 20 September 1975. The building(s) were demolished sometime after 1987 but the platform facing remained on site at least in 2005.

Survey Results

Located on the downside, Farley Railway Station remains were represented by the platform structure, although partly overgrown and degraded by its having been integrated into the service road corridor. The buildings of the station were demolished about 20 years ago, although footings would almost certainly be retained sub-surface. The residual platform was located about 150 metres west of the Wollombi Road Underbridge and was approximately 200 metres long and faced by a brick and concrete wall. Vestigial remains of the original 'antbed' surface of the platform could be seen.

Photograph/s

Gosforth Parish Map, 1943.

Remaining platform face of the former Farley Railway station looking west.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. The Farley Railway Station precinct reflects design and construction of the GNR, and the evolution of the railway, by containing limited residue of one of the in the initial construction phase of the railway and the expansion of the railway by track duplication.

☒ (a) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

☒ (b) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

☐ (c) Social – demonstrates a strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons

Detail

The residue of the Farley Railway Station, and the history of its reduction, reflects the decline in social potential and transport demand of the Wollombi Road/Farley locality in the intervening 140 years..

☐ (d) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

Archaeological study and archival recording will provide a vehicle for further comprehension and interpretation of the technologies involved and the changes in railway function during the period of expansion, duplication and service contraction of railway operatiion in the Hunter Valley and the State at large.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

The residue of the Farley Railway Station is rare in the railway between Newcastle and Singleton in its representation of the earthworks, brick platform fascia and, probably, the structural footings of the former buildings, of a redundant duplication period station.

☐ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

The residue of the original Farley Railway Station is representative at the level of the Main Northern Railway and will provide a useful and informative comparator with the surviving station platforms of Greta and Branxton..

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges, and railway station precincts comprise material evidence of a great engineering endeavour of the 19th Century. They reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries.

The precinct of the former Farley Railway Station is regarded as a contributing element to the Railway Resources. In this context, the site is assessed as generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales. The site of the original station Down platform presently retains adequate material evidence of its structure to positively identify its location and probably to identify the former Down platform structures.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☐ Possible
- ☒ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Given the level of projected physical impact in this area, there is every expectation for a realisation of archaeological potential at this site that makes a valuable contribution to an understanding and interpretation of the study area as a whole and to the heritage values of the locality.

References

LPI Parish Map Series, Parish Gosforth.
www.nswrail.net/library/planned.php
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

Track construction will occur on the Up side at this location and however, Project plans call for substantial earthworks appear on for the downside and it is likely that the remains of the platform will be, at least, modified and probably demolished in this process. The modification or demolition of the former platform will result in a negative impact upon this heritage resource. However, mitigation measures are available to offset this impact.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Archaeological intervention in the pre-Project period in terms recommended will insure the appropriate archival recording of the residue of the Farley Railway station Down platform and facilitate its interpretation and the communication of its values in a manner that is not now accessible or available.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

Modification or demolition of the residue of the Farley Railway station Down platform will cause the partial or total loss of a heritage resource that is not well known or understood, and which has never been interpreted or appropriately recorded. The Up platform in toto and the structural incidents of the Down platform have been previously demolished so that without archaeological intervention, the heritage values of the residual platform would not be realised.

The following sympathetic solutions have been considered and discounted for the following reasons:

Because of the nature of the Project and the physical constraints of the Farley Railway Station precinct, it has not been possible to achieve a sympathetic solution.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The nature of negative impact is considered at a low level. The Farley Railway Station precinct is not now accessed by nor accessible to, the broad community. Its existence and features are not well known and appropriate archival recording will minimise the nominal loss of heritage values while providing the vehicle for communication of any values it may possess.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☒ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

For reasons expressed above, while there will be a nominal loss in the study area, such a loss translates into a minimal loss at the cumulative level, and will be well compensated by recommended mitigation measures and communication in reporting.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☒ On site monitoring during project works
- ☒ On call monitoring and archival management (in the event of exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential for relics to be exposed during the course of Project works in this precinct. works in the vicinity of the site. Due care should be taken in order to avoid inadvertent damage to the existing brick structure. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged to make an archival record prior to Project works, to monitor physical modification of the Farley Railway Station precinct in the course of the Project and archivally record material evidence of its former structural development and operation, and for on-call consultation in the event that material evidence is otherwise suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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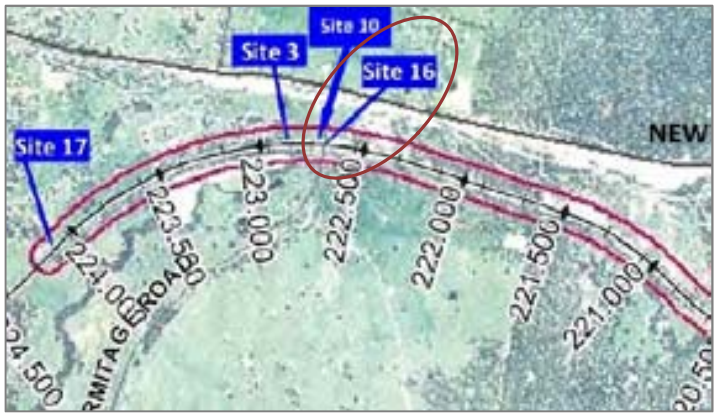
Site Details
Site 16 – Hermitage Road Level Crossing

Location (km)
222.700

Location Plan



Historical Overview

Based on the historical maps of Parish Belford and the Belford Town Maps, there has been a crossing of the railway line at what is now called Hermitage Road since at least 1890. At that time, the road was named McDouall Street and the crossing was located immediately adjacent to the western end of the Belford (single) platform on the northern side of the single track, at a point ≈120 metres east of the former '39m' marker (ie: 39 miles or 52½ kilometres west of Newcastle).

The passage of the main road between Branxton and Singleton was identified on the Belford Town Map as 'Great N. W. Road and 'Belford Street'. The close residential section of the village was laid out on both sides of Belford Street, north-east of the station and McDouall Street crossing. On the western side of McDouall Street, which is material to present considerations, the town allotments of Section 4 were larger: Allotment 1, taken up by Alexander and Andrew Norrie contained 5 acres; Allotment 4 by FW Thrum of 4 acres 3 roods; and Allotment 5 by EW Thrum, nominally of 3 acres 1 rood and 33 perches, but virtually decimated by resumption for the GNR. On the southern side of the GNR, Allotment 7 was not taken up until 1935: this allotment, together with Sections 5 and 16 of the Village, were gazetted for rural use as 'Part Chapman's Settlement Purchase Area' but were taken up eventually by NOJ Wellsmore as SP 1935/3.

On the basis of the above, it seems unlikely that any of the land foreshadowed for involvement in the realignment of Hermitage Road and bridging of the railway would have been developed by building or used for any purpose that might result in the deposition of material evidence.

Survey Results

Historical research had indicated no good reason to suspect material evidence in the footprint of projected works and detailed surface survey confirmed this view. Survey addressed the surface of land that would have fallen within the former Allotments 1, 4, 5 and 7 of Section 4, and Sections 5 and 16 of the village, as shown on the Town Plan (see 'Project Works' section)

Photograph/s

Hermitage Road Level Crossing precinct

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

- ☐ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history
- ☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history
- ☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW
- ☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons
- ☐ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history
- ☐ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history
- ☐ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Assessed Significance

☐ National ☐ State ☐ Local ☒ None

Statement of Significance

There is no significance attached to this site.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☒ None
- ☐ Unlikely
- ☐ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☐	☒	The site contributes knowledge that no other site can
☐	☒	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

There is no evidence of any activity on the site of the level crossing or the area proposed for construction of replacement overpass that might generate the foreseeability of material evidence.

References

LPI Parish Map Series, Belford Town Map, 1890.
www.nswrail.net/library/planned.php
Revised construction impact zone (27/11/2009).
Draft Project Description and construction methodology (2/12/2009).

Project Works

Track construction will occur on the Up side in this location. The presence of sub surface material in this precinct can be virtually discounted. Track construction will require earthworks to widen the corridor in this area, but it is reasonable to conclude that impact will be negligible.

The existing level crossing will be closed and an overpass constructed, involving substantial earthworks within the broad area shown in the following plan. The site of projected earthworks has, on both historical and physical grounds, been assessed as lacking the actual and potential for material evidence in the absence of any indication that it has ever been used for other than the low level rural activity of grazing animals.

[Plan derived as detail from separate report of Review of Environmental Factors: Nexus 2010]

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

None

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☒ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☐ On call monitoring (in the event of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☒ No heritage/archaeological management required

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

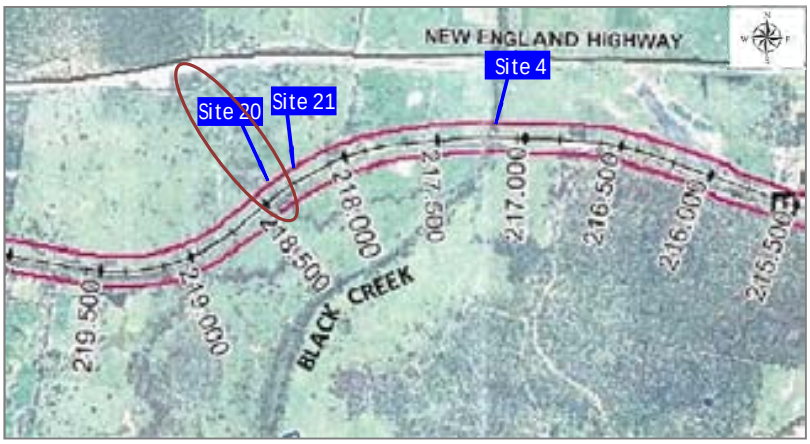
None

Site Details
Site 20 – Brick Culvert

Location (km)
218.448

cf also the following, not committed to Inventory at this stage: Sites 17 (km 224.141, 18 (km 220.439), 19 (km 219.650), 21 (km 218.318), 23 (km 213.892), 25 (km 212.725), 26 (km 212.333), 27 (km 211.944), 28 (km 210.703), 30 (km 209.639), 32 (km 206.519), 33 (km 205.091), 34 (km 203.844), 35 (km 202.858), 36 (km 202.103), 37 (km 201.480), 38 (km 199.242), 40 (km 197.165), 45 (km 196.069), 48 (km 194.192);
and the following accompanying Inventories for: 22(km 214.586), 39 (km 198.613), 44 (km 196.280), 42(km 196.481), 47 (km 195.133);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group of the assemblage'.

Location Plan



Historical Overview

As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arkmes were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

One of the earliest engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as chief Engineer based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by railway workers and burnt on site in brick 'clamps'.

Survey Results

This culvert presented as a brick arch structure, notably on the Down side. A concrete pipe extension had been applied on the Up side. The Down side brickwork was in excellent condition: the red bricks indicated this as an element of original GNR construction c.1860.

Photograph/s

Downside intact brick arkm culvert with brick floor and external dish drain.

Internal view of culvert showing intact dished brick floor.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR,and are a specific reflection of mid 19th Century railway construction style, design and execution

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The early parts of this and other culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the substantial use of bricks in the drainage arches, headwalls, wingwalls and aprons. Furthermore, the brick arch culverts stand as a memorial to the railway workers who, tradition insists, quarried local clay to burn bricks along the corridor, and the tradesmen bricklayers who converted design into a finely constructed drainage system.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning, not only at the inception of the GNR but also about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts also surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 218.448km is a good representative of the larger form of culvert, distinguished by an arch of four soldier course, and presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

This culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part are an important reflection of the structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At all brick arch culverts referred to above as forming this group of the assemblage, track construction will occur on the Up side. The existing concrete pipe or corrugated culvert on the Up side will be replaced or extended which will affect the already modified outlet but will not directly impact upon any heritage values because of its relatively recent placement. On the other hand, the headwall, wingwalls and residual apron on the Up side will require demolition, which may entail a notional detrimental impact on heritage values locally and cumulatively. Earthworks proximate to the culvert would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work will ensure the preservation of the headwall(s), wingwalls and surviving apron(s) on the Down side (the original construction)and structure of the brick arch drain, and the other component drains of this group of the assemblage although..

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

…the headwall and wingwalls on the Up side will, of necessity, be demolished and relatively modern extension materials will be removed. Any earthwork formation can be undertaken in such a way as to avoid damage to, and consequent loss of heritage values by, the drainage structure(s) and Down side headwall(s), wingwalls and surviving aprons.

The following sympathetic solutions have been considered and discounted for the following reasons:

Because of the nature of the Project, the proximity of elements of the culvert/culverts and their physical constraints, it has not been possible to achieve a sympathetic solution.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

While the demolition of the Up side headwall(s), wingwalls and surviving apron(s) will result in a loss of heritage values related to the duplication period of the railway, the preservation of the Down side and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- [x] Negative - due to modification or demolition
- [ ] Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- [ ] Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- [ ] Neutral – through the offset of negative impact by mitigation measures
- [x] Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The nominal loss of heritage values on a cumulative basis resulting from the demolition of the Up side headwall(s), wingwalls and surviving apron(s) will be minimised by appropriate mitigation strategies, and substantially compensated by the preservation of the Down side elements and the drainage arch as a whole, together with the preservation of excellent examples of Down side (duplication period) headwall(s), wingwalls and surviving aprons at other sites in the study area (eg: Sites 24, 29, 31, 41, 43).

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- [x] Archival recording prior to commencement of works
- [ ] On site monitoring during project works
- [x] On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- [ ] Archaeological investigation/excavation
- [ ] No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the Old North Road over bridge and to monitor its demolition in order to salvage and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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Site Details
Site 22 – Brick Culvert

Location (km)
214.586

cf also the following, not committed to Inventory at this stage: Sites 17 (km 224.141, 18 (km 220.439), 19 (km 219.650), 21 (km 218.318), 23 (km 213.892), 25 (km 212.725), 26 (km 212.333), 27 (km 211.944), 28 (km 210.703), 30 (km 209.639), 32 (km 206.519), 33 (km 205.091), 34 (km 203.844), 35 (km 202.858), 36 (km 202.103), 37 (km 201.480), 38 (km 199.242), 40 (km 197.165), 45 (km 196.069), 48 (km 194.192);
and the following accompanying Inventories for: Sites 20 (km 214.488), 39 (km 198.613), 44 (km 196.280), 42(km 196.481), 47 (km 195.133);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group of the assemblage'.

Location Plan

Historical Overview

As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arches were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

One of the earliest engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as chief Engineer based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by the railway and burnt on site in brick 'clamps'.

Survey Results

This culvert presented as a brick arch structure, notably on the Down side. A concrete pipe extension had been applied on the Up side. The Down side brickwork was in excellent condition: the red bricks indicated this as an element of original GNR construction c.1860.

Photograph/s

Downside of culvert 214.685 showing intact brick arch and brick apron/floor.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR,and are a specific reflection of mid 19th Century railway construction style, design and execution

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The early parts of this and other culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the substantial use of bricks in the drainage arches, headwalls, wingwalls and aprons. Furthermore, the brick arch culverts stand as a memorial to the railway workers who, tradition insists, quarried local clay to burn bricks along the corridor, and the tradesmen bricklayers who converted design into a finely constructed drainage system.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning, not only at the inception of the GNR but also about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts also surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 218.586km is a good representative of the larger form of culvert, distinguished by an arch of four soldier course, and presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

This culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part is an important reflection of the structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☐ Unlikely
☒ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At all brick arch culverts referred to above as forming this group of the assemblage, track construction will occur on the Up side. The existing concrete pipe or corrugated culvert on the Up side will be replaced or extended which will affect the already modified outlet but will not directly impact upon any heritage values because of its relatively recent placement. On the other hand, the headwall, wingwalls and residual apron on the Up side will require demolition, which may entail a notional detrimental impact on heritage values locally and cumulatively. Earthworks proximate to the culvert would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work will ensure the preservation of the headwall(s), wingwalls and surviving apron(s) on the Down side (the original construction) and structure of the brick arch drain, and the other component drains of this group of the assemblage although…

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

…the headwall and wingwalls on the Up side will, of necessity, be demolished. Any earthwork formation can be undertaken in such a way as to avoid damage to, and consequent loss of heritage values by, the drainage structure(s) and Down side headwall(s), wingwalls and surviving aprons.

The following sympathetic solutions have been considered and discounted for the following reasons:

Because of the nature of the Project, the proximity of elements of the culvert/culverts and their physical constraints, it has not been possible to achieve a sympathetic solution.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

While the demolition of the Up side headwall(s), wingwalls and surviving apron(s) will result in a loss of heritage values related to the duplication period of the railway, the preservation of the Down side and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The nominal loss of heritage values on a cumulative basis resulting from the demolition of the Up side headwall(s), wingwalls and surviving apron(s) will be minimised by appropriate mitigation strategies, and substantially compensated by the preservation of the Down side elements and the drainage arch as a whole, together with the preservation of excellent examples of Down side (duplication period) headwall(s), wingwalls and surviving aprons at other sites in the study area (eg: Sites 24, 29, 31, 41, 43).

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Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the Old North Road over bridge and to monitor its demolition in order to salvage and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None.

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Site Details
Site 24 – Brick Culvert

Location (km)
213.158

cf also the following, not committed to Inventory at this stage: Sites 43 (km 198.340;
and the following accompanying Inventory for: Sites 29 (km 210.522; 41 (km 196.561),
52 (213.158);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group'.

Location Plan

Historical Overview

As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arkmes were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

One of the earliest engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as chief Engineer based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by railway workers and burnt on site in brick 'clamps'.

Survey Results

This culvert presented as a brick arch structure and was recorded as the Up side component of a single culvert of which the Down side was separately recorded. The yellow colouration of the bricks indicated construction during 1914-16 as part of duplication works.

The Down side of the culvert presented as an original stone culvert (see Inventory: Site 52).

No Photograph

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR,and , in this case, is a specific reflection of early 20th Century evolutionary railway construction style, design and execution.

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction and, in this case, the continuity of these aspects in the course of evolution.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 213.158km is a good representative of the larger form of culvert, distinguished by an arch of four soldier course, and presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

This culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part are an important reflection of the structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☐ Unlikely
☒ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At all culverts referred to above as forming this group, track construction will occur on the Up side. The headwall and wingwalls on the Up side will not require modification, and there will be no detrimental impact on heritage values locally and cumulatively on this account. Earthworks proximate to the culvert would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work ensures the preservation of the headwall(s), wingwalls and surviving apron(s) on the Up side) and structure of the brick arch drain, and the other component drains of this group.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The preservation of the Up side and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The unavoidable modification of a number of Up side headwalls, wingwalls and aprons will be substantially compensated by the preservation of the Up side elements and the drainage arch of this culvert and of the asseemblage.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☒ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to remain on call to monitor work in the precinct of any material evidence either suspected or unexpectedly exposed and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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Site Details
Site 29 – Brick Culvert

Location (km)
210.522

cf also the following, not committed to Inventory at this stage: Sites 43 (km 198.340
and the following accompanying Inventory for: Sites 24 (km 213.158, 41 (km196.561),
52 (km213.158);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group'.

Location Plan

Historical Overview

As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arches were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

One of the earliest engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as chief Engineer based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by railway workers and burnt on site in brick 'clamps'.

Survey Results

This culvert presented as a brick arch structure, with complete headwalls, wingwalls and aprons in brick on both Up and Down sides. The intact drainage arch reflected the evolution of the original red brick arch of the 1860s and the yellow brick extension of the duplication period.

Photograph

View of Down side (L) and Up side (R)
aspects of the culvert at 210.522km.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR and, in this case, contains a specific reflection of early 20th Century evolutionary railway construction style, design and execution.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

The early parts of this and other culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the substantial use of bricks in the drainage arches, headwalls, wingwalls and aprons. Furthermore, the brick arch culverts stand as a memorial to the railway worker who, tradition insists, quarried local clay to burn bricks along the corridor, and the tradesmen bricklayers who converted design into a finely constructed drainage system.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction and, in this case, the continuity of these aspects in the course of evolution.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 210.522km is a good representative of the larger form of culvert, distinguished by an arch of four soldier course, and presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

This culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part are an important reflection of the structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☐ Unlikely
☒ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At all brick arch culverts referred to above as forming this group of the assemblage, track construction will occur on the Up side. The headwall and wingwalls on the Up side will not require modification, and there will be no detrimental impact on heritage values locally and cumulatively on this account. Earthworks proximate to the culvert would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work ensures the preservation of the headwall(s), wingwalls and surviving apron(s) on the Up side and structure of the brick arch drain, and the other component drains of this group of the assemblage.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The preservation of the Up side and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The unavoidable modification of a number of Up side headwalls, wingwalls and aprons will be substantially compensated by the preservation of the Up side elements and the drainage arch of this culvert and of the assemblage.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☒ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to remain on call to monitor work in the precinct of any material evidence either suspected or unexpectedly exposed and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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Site Details	Location (km)
Site 31 – Brick Culvert	**209.174**

Location Plan

Historical Overview

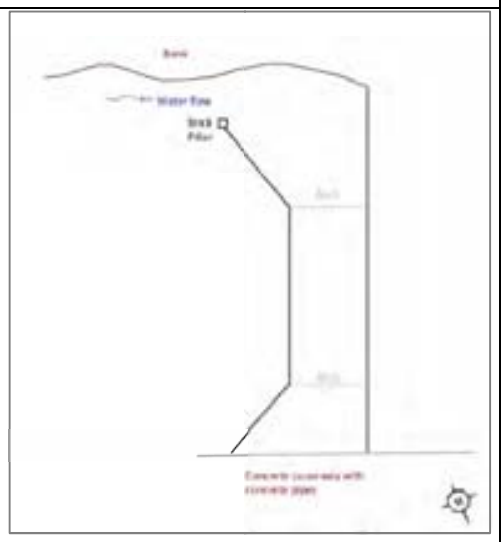
As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arches were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

One of the early engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as Engineer-in chief based on his knowledge and experience in railway and bridge construction in England.

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by the railway and burnt on site in brick 'clamps'.

Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (railcorp) Thematic History, where he is described as "formidable".

Survey Results



This culvert presented as a substantial single arch culvert. The arch height was 2300 mm high and spanned 4400 mm wide making this culvert a substantial drainage structure designed specifically for local conditions. The yellow brick of the Up side extension reflecting the c.1915-16 duplication period interfaced with the original GNR red brick structure. A further corrugated iron and concrete extension had been added in 2002, obscuring view of the Up side arch structure. However, an intact brick floor extended the entire length of the culvert including both extensions. The size of the structure indicated the heavy flow events for which it had been designed. Of note were the wingwalls on the western side, which were not splayed as was standard at other culverts. A diagram of the culvert in plan is provided at right.

The design of the culvert was specifically directed at deflecting anticipated heavy run-off at (virtually) a right angle into the culvert. The water course at this location may have been deliberately realigned at the time of construction.

This culvert provides an outstanding example of a the largest form/design, specifically designed for the discrete local environment and land form, two phases of construction over 150 years of continued use and function.

Photograph/s

Up side view of the single cell culvert at209.174km.

Down side view showing the country side, flat-angled wing walls and brick floor/apron. culvert.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR and, in this case, contains a specific reflection of early 20th Century evolutionary railway construction style, design and execution.

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

The early parts of this and other culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the substantial use of bricks in the drainage arches, headwalls, wingwalls and aprons. Furthermore, the brick arch culverts stand as a memorial to the railway worker who, tradition insists, quarried local clay to burn bricks along the corridor, and the tradesmen bricklayers who converted design into a finely constructed drainage system.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction and, in this case, the continuity of these aspects in the course of evolution

.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 209.174km is a good representative of the larger form of culvert, distinguished by an arch of four soldier course, and presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

This culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part are an important reflection of the structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☐ Unlikely
☒ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Justification

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway. The culvert at 209.174km is a rare example of a very large single cell culvert, distinguished by its arch formation of five soldier courses or brickwork.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009

Project Works

Track construction will occur on the Upside in this location. Accommodation of the third track will be provided by a new precast concrete arch structure , constructed adjacent to the existing structure, rather than by placement of a corrugated or concrete extension integrated into the existing culvert structure.

Project works will involve earthworks and the movement of heavy excavation and construction machinery around the site. There is no anticipated direct negative impact upon the heritage values of the culvert. Indirect impact will occur through the limitation of visibility of the Up side aspect of the culvert.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work ensures the preservation of the headwall(s), wingwalls and surviving apron(s) on the Up side) and structure of the brick arch drain, and the other component drains of this group of the assemblage.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The preservation of the Up side and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The unavoidable modification of a number of Up side headwalls, wingwalls and aprons will be substantially compensated by the preservation of the Up side elements and the drainage arch of this culvert and of the assemblage.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☒ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to remain on call to monitor work in the precinct of any material evidence either suspected or unexpectedly exposed and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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Site Details
Site 39 – Brick Culvert

Location (km)
198.613

cf also the following, not committed to Inventory at this stage: Sites 17 (km 224.141, 18 (km 220.439), 19 (km 219.650), 21 (km 218.318), 23 (km 213.892), 25 (km 212.725), 26 (km 212.333), 27 (km 211.944), 28 (km 210.703), 30 (km 209.639), 32 (km 206.519), 33 (km 205.091), 34 (km 203.844), 35 (km 202.858), 36 (km 202.103), 37 (km 201.480), 38 (km 199.242), 40 (km 197.165), 45 (km 196.069), 48 (km 194.192);
and the following accompanying Inventories for: Sites 20 (km 214.488), 22(km 214.586), 44 (km 196.280), 42(km 196.481), 47 (km 195.133);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group of the assemblage'.

Location Plan

Historical Overview

As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arches were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

One of the earliest engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as chief Engineer based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by the railway and burnt on site in brick 'clamps'.

Survey Results

This culvert presented as a brick arch structure Down side. Both Up and Down side brickwork of arch, headwayll, wingwall, dished floor and aprons was in excellent condition. On the Down side, red brickwork indicated this as a component of original construction c. 1860. Maintenance of the integrity of the structure had included the insertion of a concrete pipe liner throughout.

Photograph/s

Upside of culvert showing intact brick arch with concrete pipe iliner.

Downside of culvert showing intact brick arch with concrete pipe liner.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR,and are a specific reflection of mid 19th Century railway construction style, design and execution

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The early parts of this and other culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the substantial use of bricks in the drainage arches, headwalls, wingwalls and aprons. Furthermore, the brick arch culverts stand as a memorial to the railway workers who, tradition insists, quarried local clay to burn bricks along the corridor, and the tradesmen bricklayers who converted design into a finely constructed drainage system.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning, not only at the inception of the GNR but also about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 198.613km is a good representative of the medium-large form of culvert, distinguished by an arch of four soldier courses, and presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

This culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part is an important reflection of the structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)Draft Project Description and construction methodology (2/12/2009)

Project Works

At all brick arch culverts referred to above as forming this group of the assemblage, track construction will occur on the Up side. The existing culvert arch will be extended with corrugated steel pipe and the headwall and wingwalls on the Up side will be removed which may entail a notional detrimental impact on heritage values locally and cumulatively. Earthworks proximate to the culvert would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work will ensure the preservation of the headwall(s), wingwalls and surviving apron(s) on the Down side (the original construction) and structure of the brick arch drain, and the other component drains of this group of the assemblage although..

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

…the headwall and wingwalls on the Up side will, of necessity, be demolished and relatively modern extension materials will be removed. Any earthwork formation can be undertaken in such a way as to avoid damage to, and consequent loss of heritage values by, the drainage structure(s) and Down side headwall(s), wingwalls and surviving aprons.

The following sympathetic solutions have been considered and discounted for the following reasons:

Because of the nature of the Project, the proximity of elements of the culvert/culverts and their physical constraints, it has not been possible to achieve a sympathetic solution.

The net impact of the Project upon the heritage values of this site is expected to be:

- [x] Negative - due to modification or demolition
- [ ] Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- [ ] Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- [ ] Neutral – through the offset of negative impact by mitigation measures
- [x] Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

While the demolition of the Up side headwall(s), wingwalls and surviving apron(s) will result in a loss of heritage values related to the duplication period of the railway, the preservation of the Down side and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- [x] Negative - due to modification or demolition
- [ ] Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- [ ] Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- [ ] Neutral – through the offset of negative impact by mitigation measures
- [x] Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The nominal loss of heritage values on a cumulative basis resulting from the demolition of the Up side headwall(s), wingwalls and surviving apron(s) may be minimised by appropriate mitigation strategies, and substantially compensated by the preservation of the Down side elements and the drainage arch as a whole, together with the preservation of excellent examples of Down side (duplication period) headwall(s), wingwalls and surviving aprons at other sites in the study area (eg: Sites 24, 29, 31, 41, 43).

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- [x] Archival recording prior to commencement of works
- [ ] On site monitoring during project works
- [x] On call monitoring (in the event of unexpected relics)
- [ ] Archaeological investigation/excavation
- [ ] No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the Old North Road over bridge and to monitor its demolition in order to salvage and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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Site Details
Site 41 – Brick Culvert

Location (km)
196.561

cf also the following, not committed to Inventory at this stage: Sites 43 (km 198.340
and the following accompanying Inventory for: Sites 24 (km 213.158, 29 (km210.522),
52 (km213.158);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group'.

Location Plan

Historical Overview

As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arches were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

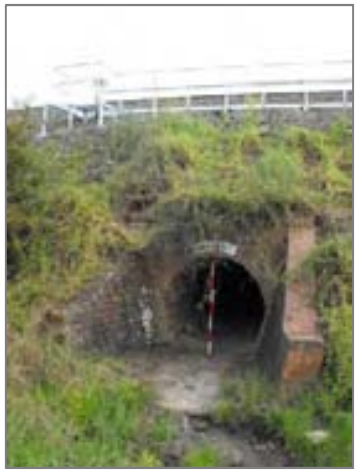
One of the earliest engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as chief Engineer based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by railway workers and burnt on site in brick 'clamps'.

Survey Results

This culvert presented as a brick arch structure, with complete headwalls, wingwalls and aprons in brick on both Up and Down sides. The intact drainage arch reflected the evolution of the original red brick arch of the 1860s and the yellow brick extension of the duplication period.

Photograph/s



Down side of culvert 196.561 showing intact red brickwork of arch and brick floor (above and below).

Up side of culvert 196.561 showing yellow brickwork of extension structure c1915-16 (above). The interface of the extension to the original c 1860 brick arch structure can be clearly seen (below).

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR and, in this case, contains a specific reflection of early 20th Century evolutionary railway construction style, design and execution.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

The early parts of this and other culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the substantial use of bricks in the drainage arches, headwalls, wingwalls and aprons. Furthermore, the brick arch culverts stand as a memorial to the railway worker who, tradition insists, quarried local clay to burn bricks along the corridor, and the tradesmen bricklayers who converted design into a finely constructed drainage system.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction and, in this case, the continuity of these aspects in the course of evolution.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 196.561km is a good representative of the larger form of culvert, distinguished by an arch of four soldier course, and presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

This culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part are an important reflection of the structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway.

References

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At all brick arch culverts referred to above as forming this group of the assemblage, track construction will occur on the Up side. The headwall and wingwalls on the Up side will not require modification, and there will be no detrimental impact on heritage values locally and cumulatively on this account. Earthworks proximate to the culvert would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work ensures the preservation of the headwall(s), wingwalls and surviving apron(s) on the Up side and structure of the brick arch drain, and the other component drains of this group of the assemblage.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail
The preservation of the Up side and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail
The unavoidable modification of a number of Up side headwalls, wingwalls and aprons will be substantially compensated by the preservation of the Up side elements and the drainage arch of this culvert and of the assemblage.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☐ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☒ No heritage/archaeological management required

Detail
Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to remain on call to monitor work in the precinct of any material evidence either suspected or unexpectedly exposed and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments
This inventory sheet may require review and update following any changes to the final design works package.

Attachments
None

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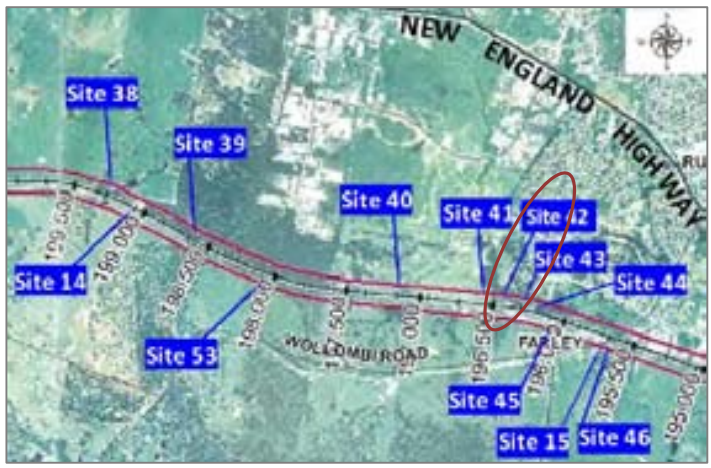
Site Details
Site 42 – Brick Culvert

Location (km)
196.481

cf also the following, not committed to Inventory at this stage: Sites 17 (km 224.141, 18 (km 220.439), 19 (km 219.650), 21 (km 218.318), 23 (km 213.892), 25 (km 212.725), 26 (km 212.333), 27 (km 211.944), 28 (km 210.703), 30 (km 209.639), 32 (km 206.519), 33 (km 205.091), 34 (km 203.844), 35 (km 202.858), 36 (km 202.103), 37 (km 201.480), 38 (km 199.242), 40 (km 197.165), 45 (km 196.069), 48 (km 194.192);
and the following accompanying Inventories for: Sites 20 (km 214.488), 22(km 214.586), 39 (km 198.613), 44 (km 196.280) 47 (km 195.133);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group of the assemblage'.

Location Plan



Historical Overview

As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arches were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

One of the earliest engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as chief Engineer based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by the railway and burnt on site in brick 'clamps'.

Survey Results

This culvert presented as a complete and brick arch structure, with old modification on the Down side and with intact wing walls both sides. The red brickwork of the Downside indicated it to be an original of GNR construction c.1860 while the yellow brickwork of the Up side indicated a duplication extension c.1914-16. A concrete pipe sleeve had been installed in the 1860 culvert, prior to the 1915 extension works. The cavity between the pipe and brickwork had then been infilled with concrete. The interface of the two phases of construction could be clearly seen internally. The brick floor was intact and functioned effectively. This culvert provided a good example of its type, and displayed the phases of evolution including a very early example of maintenance.

This culvert precinct also yielded relevant material evidence: a deep red brick with diamond frog (see photograph below).

These bricks date to c.1860 and were made by early commercial brickmakers in and around Maitland. Given the site's close proximity to the Maitland, it is likely these bricks originated from a local brickyard.

Another feature of this culvert was a survey marker placed on the Up side wingwall brickwork (see photograph below).

Photograph/s

Downside of culvert 196.481 showing very early concrete pipe insert and concrete infill.

Upside of culvert 196.481 showing intact brick arch and brick floor.

Red brick with diamond frog found on site precinct, probably made by Maitland brickmaker.

Survey mark on the upper surface of Up side wingwall.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR, and are a specific reflection of mid 19th Century railway construction style, design and execution

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The early parts of this and other culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the substantial use of bricks in the drainage arches, headwalls, wingwalls and aprons. Furthermore, the brick arch culverts stand as a memorial to the railway workers who, tradition insists, quarried local clay to burn bricks along the corridor, and the tradesmen bricklayers who converted design into a finely constructed drainage system.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a modified representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning and maintenance, not only at the inception of the GNR but also about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 196.481km is a good representative of the medium-large form of culvert, distinguished by an arch of four soldier courses on the Down side and three soldier courses on the Up side, and presenting common features

of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication..

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

The physical integrity of this culvert has been compromised by an old modification, but is an example of culvert design and style while also demonstrating the technology then employed in maintenance and/or augmentation. The assemblage of which it forms part is an important reflection of the structural style and design rationale of the construction, evolution and maintenance of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design, construction and maintenance/augmentation of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At all brick arch culverts referred to above as forming this group of the assemblage, track construction will occur on the Up side. The existing culvert arch will be extended and the headwall, wingwalls and residual apron on the Up side will require demolition, which may entail notional detrimental impact on heritage values locally and cumulatively. Earthworks proximate to the culvert would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work will ensure the preservation of the headwall(s), wingwalls and surviving apron(s) on the Down side (the original construction) and structure of the brick arch drain, and the other component drains of this group of the assemblage although…

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

…the headwall and wingwalls on the Up side will, of necessity, be demolished. Any earthwork formation can be undertaken in such a way as to avoid damage to, and consequent loss of heritage values by, the drainage structure(s) and Down side headwall(s), wingwalls and surviving aprons.

The following sympathetic solutions have been considered and discounted for the following reasons:

Because of the nature of the Project, the proximity of elements of the culvert/culverts and their physical constraints, it has not been possible to achieve a sympathetic solution.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

While the demolition of the Up side wingwalls and surviving apron(s) will result in a nominal loss of heritage values related to the duplication period of the railway, the preservation of the Down side and the drainage arch will achieve a significant positive result. Furthermore, at this site, the integrity of the headwall, arch and floor of the culvert has been compromised in the course of maintenance and significance in this regard, if any, resides in the example of adaptive re-use in maintenance..

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The nominal loss of heritage values on a cumulative basis resulting from the demolition of the Up side headwall(s), wingwalls and surviving apron(s) will be minimised by appropriate mitigation strategies, and substantially compensated by the preservation of the Down side elements and the drainage arches as a whole, together with the preservation of excellent examples of Down side (duplication period) headwall(s), wingwalls and surviving aprons at other sites in the study area (eg: Sites 24, 29, 31, 41, 43).

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring (in the event of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the Old North Road over bridge and to monitor its demolition in order to salvage and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.
Further Recommendations/Comments This inventory sheet may require review and update following any changes to the final design works package.
Attachments None.

Site Details
Site 44 – Brick Culvert

Location (km)
196.280

cf also the following, not committed to Inventory at this stage: Sites 17 (km 224.141, 18 (km 220.439), 19 (km 219.650), 21 (km 218.318), 23 (km 213.892), 25 (km 212.725), 26 (km 212.333), 27 (km 211.944), 28 (km 210.703), 30 (km 209.639), 32 (km 206.519), 33 (km 205.091), 34 (km 203.844), 35 (km 202.858), 36 (km 202.103), 37 (km 201.480), 38 (km 199.242), 40 (km 197.165), 45 (km 196.069), 48 (km 194.192);
and the following accompanying Inventories for: Sites 20 (km 214.488), 22(km 214.586), 39 (km 198.613), 42(km 196.481), 47 (km 195.133);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group of the assemblage'.

Location Plan

Historical Overview

As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arches were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

One of the earliest engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as chief Engineer based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by the railway and burnt on site in brick 'clamps'.

Survey Results

This culvert presented as a brick arch structure, notably on the Down side, where the red bricks indicated this as an element of original construction of circa 1860. On both sides, it appeared that both the headwalls and drainage arch had previously been assessed as needing support: on the Down side, where red brickwork indicated this as an element of original GNR construction c.1860, the brickwork had been bagged around the portal, on the Up side (yellow brickwork dating to the duplication period)an new portal and lintel had been placed in concrete while the arch had been reinforced with galvanised steel liner and backfilled with pumped concrete.

Photograph/s

Downside of culvert 196.280 showing intact brickwork (above) and corrugated iron liner with concrete infill (below).

Up side of culvert 196.280 showing residual intact brickwork (above) and corrugated iron liner with concrete lintel with concrete infill (below).

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR,and are a specific reflection of mid 19th Century railway construction style, design and execution

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The early parts of this and other culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the substantial use of bricks in the drainage arches, headwalls, wingwalls and aprons. Furthermore, the brick arch culverts stand as a memorial to the railway workers who, tradition insists, quarried local clay to burn bricks along the corridor, and the tradesmen bricklayers who converted design into a finely constructed drainage system.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a modified representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning and maintenance, not only at the inception of the GNR but also about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 196.280km represents a modified and adaptively re-used small-medium form of culvert, appearing to have been constructed of an arch of four soldier course, and presenting common features of headwall and splayed wingwalls in operational condition and showing evidence of adaptation in the process of duplication and subsequently in maintenance.

Assessed Significance

☐ National ☐ State ☒ Local

it forms part is an important reflection of the structural style and design rationale of the construction, evolution and maintenance of the railway.

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

While the physical integrity of this culvert has been compromised by relatively recent and visually unsympathetic maintenance, it is an example of sound design and the accessibility of the type for adaptive re-use. The assemblage of which it forms part is an important reflection of the structural style and design rationale of the construction, evolution and maintenance of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design, construction and maintenance of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At all brick arch culverts referred to above as forming this group of the assemblage, track construction will occur on the Up side. The existing culvert arch will be extended with corrugated steel pipe and the headwall, wingwalls and residual apron on the Up side will require demolition, which may entail limited notional detrimental impact on heritage values locally and cumulatively. Earthworks proximate to the culvert would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work will ensure the preservation of the headwall(s), wingwalls and surviving apron(s) on the Down side (the original construction) and structure of the brick arch drain, and the other component drains of this group of the assemblage although…

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

…the headwall and wingwalls on the Up side will, of necessity, be demolished. Any earthwork formation can be undertaken in such a way as to avoid damage to, and consequent loss of heritage values by, the drainage structure(s) and Down side headwall(s), wingwalls and surviving aprons.

The following sympathetic solutions have been considered and discounted for the following reasons:

Because of the nature of the Project, the proximity of elements of the culvert/culverts and their physical constraints, it has not been possible to achieve a sympathetic solution.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

While the demolition of the Up side wingwalls and surviving apron(s) will result in a nominal loss of heritage values related to the duplication period of the railway, the preservation of the Down side and the drainage arch will achieve a significant positive result. Furthermore, at this site, the integrity of the headwall, arch and floor of the culvert has been compromised in the course of maintenance and significance in this regard, if any, resides in the example of adaptive re-use in maintenance..

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☒ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The nominal loss of heritage values on a cumulative basis resulting from the demolition of the Up side headwall(s), wingwalls and surviving apron(s) will be minimised by appropriate mitigation strategies, and substantially compensated by the preservation of the Down side elements and the drainage arches as a whole, together with the preservation of excellent examples of Down side (duplication period) headwall(s), wingwalls and surviving aprons at other sites in the study area (eg: Sites 24, 29, 31, 41, 43).

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring (in the event of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the Old North Road over bridge and to monitor its demolition in order to salvage and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None.

Site Details
Site 46 – Probable pedestrian underpass

Location (km)
195.666

Location Plan

Historical Overview

A station was opened on the western side of the intersection of the GNR with Wollombi Road on 2 July 1860 and was originally called 'Wollombi Road' (see. The station was at this time represented by a typical platform serving the present down line, with brick building(s) and platform awning on iron cantilever frames similar to those surviving at Greta and Branxton. In 1882, the station was renamed 'Farley' but was closed 20 September 1975. The building(s) were demolished sometime after 1987. As an integral part of the evolving form of the railway lines between the 1850s and 1920s, this feature appeared to be intimately connected with the development and expansion of the railway station at Farley.

Survey Results

This culvert presented as a box culvert underpass, possibly designed as a pedestrian underpass for connection between the Up and Down sides at Farley Railway Station. Brickwork was laid in English Bond and this part of the structure probably dates from the duplication of the railway. The structure had undergone modifications for reinforcement and the floor was of recent concrete, likely replacing an original brick floor. There was no obvious interface between different types of bricks or brickwork and the need for a pedestrian underpass was unlikely to have arisen for a single track, and was nor a common feature of 19th Century station design, suggesting that the brick structure had been constructed originally under the duplicated tracks.

Photograph/s

Downside of culvert 195.666 (above) and upside (above right). (see also overleaf)

Detail of culvert 195.666: English Bond brickwork.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☐ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

☐ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

☐ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☐ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

May yield information about the establishment and infrastructure of the former Farley Railway Station, an integral feature of the original construction of the GNR and subsequently augmented as an element of duplication of the railway between Maitland and Singleton.

☐ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

The pedestrian underpass was not otherwise represented at other stations in the study area, probably because the elevation of Farley Railway Station particularly lent itself to the exercise.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

Detail

At a broad local level, was representative by comparison with (much larger) similar pedestrian facilities at, for example, Broadmeadow.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 21st Centuries. The brick culverts, bridges and the underpasse are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

This pedestrian underpass is a unique example of its type in the study area, reflecting the adaptive use of topography in the early 20th Century in satisfying safe access requirements across the rail corridor patrons between and to platforms. The pedestrian underpass is regarded as of local and as making a moderate contribution to the heritage values of the study area as a whole

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☐ Unlikely
☒ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

In its capacity to shed light on the establishment of the Farley Railway Station, and in light of the limited residual material evidence of the station infrastructure, the pedestrian underpass may make a unique contribution to the understanding of the area, although its structural significance is limited.

References

www.nswrail.net/library/planned.php
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
O'Connor, 1985.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

Track construction will occur on the upside at this location. The underpass will be closed by the construction of concrete walls at each end and earth fill will raise the existing ground levels. This will result in an unavoidable negative impact upon heritage values. However, mitigation measures are available to offset this negative impact.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

None

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

The closure of the underpass will remove from community access one of the early features of the Main Northern Railway anad the study area in particular. On the other hand, the feature is not readily appreciated for any heritage value in the context of the removal of the majority of infrastructure of Farley Railway Station. The values of the underpass will be adequately communicated by the completion of mitigation strategies.

The following sympathetic solutions have been considered and discounted for the following reasons:

In view of impact of Project works, particularly earthworks for third track construction, and the absence of useful function as well as the demands of safe railway operation, the structure of the pedestrian underpass might have been demolished. However, in sympathy with its values and the possibility of its possessing future interest, the entrances will be sealed and the structure preserved.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☒ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

In that it may make some contribution to an appreciation of the former Farley Railway Station, the pedestrian underpass is considered to possess some limited heritage value, although that value may be well preserved by mitigation strategies recommended below. Apart from sealing, however, the structure will not be demolished.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☐ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The principal value of the pedestrian underpass is limited to a contribution to the values of the Farley Railway Station precinct, allowing for the fact that it remains the only pedestrian underpass in the study area. Its value at an expanded level is mitigated by absence of recognition, present access and apparent comprehension of its function. Apart from sealing, however, the structure will not be demolished.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring (in the event of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential for relics to be exposed during the course of Project works in this precinct. works in the vicinity of the site. Due care should be taken in order to avoid inadvertent damage to the existing brick structure. An appropriately qualified and experienced historical and industrial heritage archaeologist should be engaged to make an archival record prior to Project works, (see Inventory, Site 15, Farley Railway Station) to monitor physical modification of the Farley Railway Station precinct in the course of the Project and archivally record material evidence of iany former structural development and operation as may be related to the pedestrian underpass, and for on-call consultation in the event that material evidence is otherwise suspected or exposed. In the event of suspicion or exposure of significant material evidence, work should cease in that area until an appropriate management strategy is resolved.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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Site Details
Site 47 – Brick Culvert

Location (km)
195.133

cf also the following, not committed to Inventory at this stage: Sites 17 (km 224.141, 18 (km 220.439), 19 (km 219.650), 21 (km 218.318), 23 (km 213.892), 25 (km 212.725), 26 (km 212.333), 27 (km 211.944), 28 (km 210.703), 30 (km 209.639), 32 (km 206.519), 33 (km 205.091), 34 (km 203.844), 35 (km 202.858), 36 (km 202.103), 37 (km 201.480), 38 (km 199.242), 40 (km 197.165), 45 (km 196.069), 48 (km 194.192);
and the following accompanying Inventories for: Sites 20 (km 214.488), 22(km 214.586), 39 (km 198.613), 42(km 196.481), 44 (km 196.280);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group of the assemblage'.

Location Plan

Historical Overview

As an integral part of the original construction of the railway lines in the 1850s and 1860s, small brick arches were used to construct culverts, cross drainage structures, that allowed catchment runoff from outside the rail corridor to flow through the rail corridor.

One of the earliest engineers to contribute substantially to bridge design and construction in Australia was John Whitton. John Whitton arrived in Sydney at the time of the completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as chief Engineer based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by the railway and burnt on site in brick 'clamps'.

Survey Results

This culvert presented as a brick arch structure on the Up side, where yellow brickwork indicated this as a modification of the original culvert in the duplication period. Access to the Down side was not possible due to the treacherous terrain, however there is little doubt that this side, the culvert, Headwall, wingwalls and apron will have been original GNR construction. There were no indications of modification on either side and the culvert appeared complete.

Photograph/s

Up side of culvert 195.133 showing the elevated rail corridor (left) and unmodified brick arch of the 1915-16 extension (above).

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar brick-arch culverts comprise a significant part of the railway construction attending the development of the GNR, and are a specific reflection of mid 19th Century railway construction style, design and execution

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

Detail

The early parts of this and other culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the substantial use of bricks in the drainage arches, headwalls, wingwalls and aprons. Furthermore, the brick arch culverts stand as a memorial to the railway workers who, tradition insists, quarried local clay to burn bricks along the corridor, and the tradesmen bricklayers who converted design into a finely constructed drainage system.

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of brick arch drainage culverts reflect at the outset a unitary style and design, whatever the physical dimensions of the culvert, while the assemblage of brick arch culverts reflect the dominant Victorian and English style of the original railway construction.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a modified representative of the assemblage of brick arch culverts, this culvert has the potential to reveal information about design and execution of planning and maintenance, not only at the inception of the GNR but also about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of brick arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There are also brick arch culverts surviving in the abandoned original corridor of the railway north and east of Lake Liddell and in the present corridor around Muswellbrook

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 195.133km is a good representative of the smaller form of culvert, distinguished by an arch of three soldier courses, and presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication..

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The brick culverts are collectively regarded as contributors to the overall significance of the Railway Resources. In this context, the resources are assessed as episodically rare and otherwise generally representative at the local level, where the locality is expressed as the Hunter region and the northern area of New South Wales.

While the physical integrity of this culvert has been compromised by relatively recent and visually unsympathetic maintenance, it is an example of sound design and the accessibility of the type for adaptive re-use. The assemblage of which it forms part is an important reflection of the structural style and design rationale of the construction, evolution and maintenance of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☐	☒	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

As an assemblage, the brick arch culverts of the study area may contribute to an better understanding of the insights of construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design, construction and maintenance of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At all brick arch culverts referred to above as forming this group of the assemblage, track construction will occur on the Up side. The existing culvert arch will be extended with corrugated steel pipe and the headwall, wingwalls and residual apron on the Up side will require demolition, which may entail notional detrimental impact on heritage values locally and cumulatively. Earthworks proximate to the culvert would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work will ensure the preservation of the headwall(s), wingwalls and surviving apron(s) on the Down side (the original construction) and structure of the brick arch drain, and the other component drains of this group of the assemblage although…

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

…the headwall and wingwalls on the Up side will, of necessity, be demolished. Any earthwork formation can be undertaken in such a way as to avoid damage to, and consequent loss of heritage values by, the drainage structure(s) and Down side headwall(s), wingwalls and surviving aprons.

The following sympathetic solutions have been considered and discounted for the following reasons:

Because of the nature of the Project, the proximity of elements of the culvert/culverts and their physical constraints, it has not been possible to achieve a sympathetic solution.

The net impact of the Project upon the heritage values of this site is expected to be:

- [x] Negative - due to modification or demolition
- [ ] Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- [ ] Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- [ ] Neutral – through the offset of negative impact by mitigation measures
- [x] Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

While the demolition of the Up side wingwalls and surviving apron(s) will result in a nominal loss of heritage values related to the duplication period of the railway, the preservation of the Down side and the drainage arch will achieve a significant positive result. Furthermore, at this site, the integrity of the headwall, arch and floor of the culvert has been compromised in the course of maintenance and significance in this regard, if any, resides in the example of adaptive re-use in maintenance..

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- [x] Negative - due to modification or demolition
- [ ] Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- [ ] Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- [ ] Neutral – through the offset of negative impact by mitigation measures
- [x] Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The nominal loss of heritage values on a cumulative basis resulting from the demolition of the Up side headwall(s), wingwalls and surviving apron(s) will be minimised by appropriate mitigation strategies, and substantially compensated by the preservation of the Down side elements and the drainage arches as a whole, together with the preservation of excellent examples of Down side (duplication period) headwall(s), wingwalls and surviving aprons at other sites in the study area (eg: Sites 24, 29, 31, 41, 43).

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- [x] Archival recording prior to commencement of works
- [ ] On site monitoring during project works
- [x] On call monitoring (in the event of unexpected relics)
- [ ] Archaeological investigation/excavation
- [ ] No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the Old North Road over bridge and to monitor its demolition in order to salvage and record any significant archaeological material evidence and information exposed or revealed in the process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None.

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Site Details
Site 50 – Stone Culvert

Location (km)
214.566

cf also the following accompanying Inventory for: Sites 51 (km 213.690), 52 (km 213.158), 53 (km 198.040), and for the Up side of Site 52: 24 (km 213.158);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group'.

Location Plan

Historical Overview

Stone culverts were first constructed in Australia in the 1820s in association with early roads, notably along the Great North Road. These early stone culverts covered a range of standards due to the variable quality of workmanship available in the convict workforce in the first years of settlement. The stone culverts associated with the study area may be taken to be associated with original construction of the single track in the very early 1860s and were almost certainly designed, if not supervised, by John Whitton, the earliest engineer contributing to railway bridge design and construction in NSW.

Whitton arrived in Sydney at the time of completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as Chief Engineer, based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by railway workers and burnt on site in brick 'clamps'.

Stone structures such as that at Down side 214.566km now occur rarely along the Great Northern Railway due to maintenance, modification and replacement during 150 years of continued use and development.

Survey Results

This culvert presented as a stone structure on the Down side, designed site- specifically in form and material – the proximity of other stone culverts of the group suggests a local source. . The Up side had been modified during track duplication works c.1914-16 by demolition of the former stone headwall, wingwalls and apron and extension by brick arch under the present Up track, brick headwall, wingwalls and apron. The corrugated steel pipe and concrete infill in the drainage arch appeared to be a more recent placement. The culvert was otherwise in good condition and maintained integrity despite internal modification.

Photograph/s

Downside showing original stone culvert with fine gauge corrugated iron sleeve insert (left) and wing wall (below).

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar stone arch culverts comprise a particularly significant part of the railway construction attending the development of the GNR and, in this case, contains a specific reflection of early 20th Century evolutionary railway construction and maintenance style, design and execution.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

This and the two other stone culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the limited use of appropriate stone, when readily available, in the drainage arches, headwalls, wingwalls and aprons. .

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of stone arch drainage culverts reflect at the outset an opportunistic and variable style and design, two similar but with one radically different, and all designed for the discrete local topography. The assemblage of stone arch culverts again reflects the dominant Victorian and English style of the original railway construction so apparent in the brick arch culverts, while presenting engaging and striking form.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the small assemblage of stone arch culverts, this culvert has the potential to reveal information about design and execution of planning, about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of stone arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There one (at least) stone arch culver surviving in the abandoned original corridor of the railway north and east of Lake Liddell.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 214.566km is a fine representative of the large form of stone culvert, presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The stone culverts located within the study area have historical significance for the Great Northern Railway because they are a part of the range of works and structures which were designed in order to overcome the terrain constraints during construction in the 1860s.

This Down side of this culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part is an important reflection of the sometimes opportunistic structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Individually and as an assemblage, the stone culverts of the study area will contribute to an better understanding of the insights of design and construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At the culvert at 214.566km, track construction will lie on the Down side, but at all other culverts forming the group of stone culverts, track construction will occur on the Up side. At this culvert (214.566km), despite the need to remove the existing corrugated steel liner and further extend the culvert with a corrugated steel pipe, the stone culvert, headwall and surviving apron will be preserved intact. and there will be no detrimental impact on heritage values locally and cumulatively on this account. Earthworks proximate to the culverts would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work ensures the preservation of the headwall(s), wingwalls and surviving apron(s) on the Up side) and structure of the brick arch drain, and the other component drains of this group of the assemblage.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The preservation of the heritage values of the Down and Up side complexes and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The unavoidable modification of a number of Up side brick arch headwalls, wingwalls and aprons will be substantially compensated by the preservation of both side elements and drainage arch of this culvert and the Down side elements and surviving stone Up side elements and the drainage arches of the group. For this reason, archival recording of the stone drainage facilities is warranted.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring (in the event of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the culvert and for on-call consultation in the event that a relic is suspected or exposed and to salvage and record any significant archaeological material evidence and information exposed or revealed in the Project process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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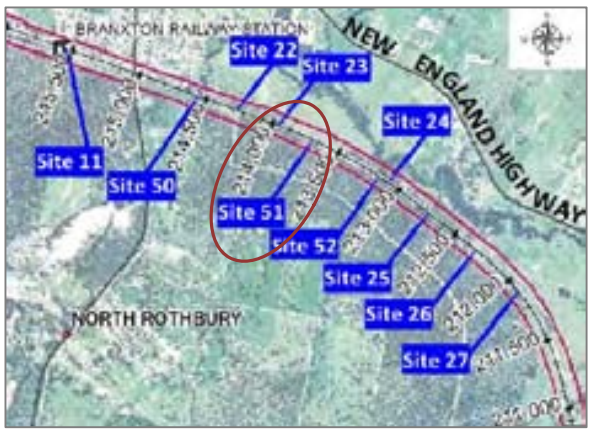
Site Details
Site 51 – Stone Culvert

Location (km)
213.690

cf also the following accompanying Inventory for: Sites 50 (km 214.566), 52 (km 213.158), 53 (km 198.040), and for the Up side of Site 52: 24 (km 213.158);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group'.

Location Plan



Historical Overview

Stone culverts were first constructed in Australia in the 1820s in association with early roads, notably the convict built Great North Road. These early stone culverts were typically of a poor standard due to a lack of engineering and construction know how in the first years of settlement. The stone culverts associated with the railways would be associated with original construction of the single line in the very early 1860s and were likely designed, if not supervised, by John Whitton.

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by the railway and burnt on site in brick 'clamps'.

Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Present research suggests that this box culvert and its inflow arrangement is unique along the GNR/Main Northern Railway.

Survey Results

This culvert presented as a unique style of stone structure on the Down side: a box culvert with a substantial two level stone flume, designed site-specifically in form and material – the proximity of other stone culverts of the group suggests a local source. The Down side was in good, functional condition. The Up side had presumably been modified during track duplication works c.1914-16 and appeared to have been subsequently modified again, presenting as a concrete pipe extension with concrete wing walls (of no abiding heritage interest). At least part of the drainage culvert appears to be very old cast-in-place concrete.

Photograph/s

General view showing downside box culvert.

Detailed view of sluice stone work.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar stone arch culverts comprise a particularly significant part of the railway construction attending the development of the GNR and, in this case, contains a specific reflection of early 20th Century evolutionary railway construction and maintenance style, design and execution.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

This and the two other stone culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the limited use of appropriate stone, when readily available, in the drainage arches, headwalls, wingwalls and aprons. .

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of stone arch drainage culverts reflect at the outset an opportunistic and variable style and design, two similar but with one radically different, and all designed for the discrete local topography. The assemblage of stone arch culverts again reflects the dominant Victorian and English style of the original railway construction so apparent in the brick arch culverts, while presenting engaging and striking form.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the small assemblage of stone arch culverts, this culvert has the potential to reveal information about design and execution of planning, about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of stone arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There one (at least) stone arch culver surviving in the abandoned original corridor of the railway north and east of Lake Liddell.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 213.690km is a fine representative of the large form of stone culvert, presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The stone culverts located within the study area have historical significance for the Great Northern Railway because they are a part of the range of works and structures which were designed in order to overcome the terrain constraints during construction in the 1860s.

This culvert is outstanding and unique. Confronted by twin challenges of substantial level differences and shallow fall in the immediate catchment, the gathering wings, flume and culvert stands as an example of site-specific and ad hoc .problem solving. At least part of the drainage culvert appears to be very old cast-in-place concrete.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Individually and as an assemblage, the stone culverts of the study area will contribute to an better understanding of the insights of design and construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At the culvert at 214.566km, track construction will lie on the Down side, but at all other culverts forming the group of stone culverts, track construction will occur on the Up side. At this culvert (213.690km), the box culvert will be decommissioned without modification and replaced by a new culvert in parallel. At 213.158km (see Inventory: Site 52) and at 198.040km (see Inventory: Site 53) the headwall and wingwalls and surviving aprons possessing heritage values on the Up side will not require modification*, and there will be no detrimental impact on heritage values locally and cumulatively on this account. Earthworks proximate to the culverts would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

* At 198.040km (see Inventory: Site 53), the already part demolished and modified headwall, wingwalls and apron will be demolished, with no heritage detriment.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work ensures the preservation of the headwall(s), wingwalls and surviving apron(s) on the Up side) and structure of the brick arch drain, and the other component drains of this group of the assemblage.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The preservation of the Up side complex and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The unavoidable modification of a number of Up side brick arch headwalls, wingwalls and aprons will be substantially compensated by the preservation of the all elements and drainage arch of this culvert and the Down side elements and surviving stone Up side elements and the drainage arch of the group. For this reason, archival recording of the stone drainage facilities is warranted.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring (in the event of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the culvert and for on-call consultation in the event that a relic is suspected or exposed and to salvage and record any significant archaeological material evidence and information exposed or revealed in the Project process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments
This inventory sheet may require review and update following any changes to the final design works package.
Attachments None

Site Details
Site 52 – Stone Culvert

Location (km)
213.158

cf also the following accompanying Inventory for: Sites 50 (km 214.566), 51 (km 213.690), 53 (km 198.040),and for the Up side of Site 52: 24 (km 213.158);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group'.

Location Plan

Historical Overview

Stone culverts were first constructed in Australia in the 1820s in association with early roads, notably along the Great North Road. These early stone culverts covered a range of standards due to the variable quality of workmanship available in teh convict workforce in the first years of settlement. The stone culverts associated with the study area may be taken to be associated with original construction of the single track in the very early 1860s and were almost certainly designed, if not supervised, by John Whitton, the earliest engineer contributing to railway bridge design and construction in NSW.

Whitton arrived in Sydney at the time of completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as Chief Engineer, based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by railway workers and burnt on site in brick 'clamps'.

Stone structures such as that at Down side 213.690km now occur rarely along the Great Northern Railway due to maintenance, modification and replacement during 150 years of continued use and development.

Survey Results

This culvert presented as a stone structure on the Down side, designed site specifically in form and material – the proximity of other stone culverts of the group suggests a local source. The concrete render in the drainage arch appeared to be an early placement and possibly pre-dates the track duplication period: 1914-16. The Up side had been modified during track duplication works c1915-16 by demolition of the former stone headwall, wingwalls and apron and extension by brick arch, brick headwall, wingwalls and apron (see Inventory: Site 24).

Photograph

Wide view of the Down side elevation of the stone culvert (left) and detailed view of headwall, portal and insert (right).

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW's cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar stone arch culverts comprise a particularly significant part of the railway construction attending the development of the GNR and, in this case, contains a specific reflection of early 20th Century evolutionary railway construction and maintenance style, design and execution.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

This and the two other stone culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the limited use of appropriate stone, when readily available, in the drainage arches, headwalls, wingwalls and aprons. .

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of stone arch drainage culverts reflect at the outset an opportunistic and variable style and design, two similar but with one radically different, and all designed for the discrete local topography. The assemblage of stone arch culverts again reflects the dominant Victorian and English style of the original railway construction so apparent in the brick arch culverts, while presenting engaging and striking form.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the small assemblage of stone arch culverts, this culvert has the potential to reveal information about design and execution of planning, about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of stone arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There one (at least) stone arch culver ssurviving in the abandoned original corridor of the railway north and east of Lake Liddell.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 213.158km is a fine representative of the large form of stone culvert, presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The stone culverts located within the study area have historical significance for the Great Northern Railway because they are a part of the range of works and structures which were designed in order to overcome the terrain constraints during construction in the 1860s.

This culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part is an important reflection of the sometimes opportunistic structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

☐ None
☐ Unlikely
☒ Possible
☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Individually and as an assemblage, the stone culverts of the study area will contribute to an better understanding of the insights of design and construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At the culvert at 214.566km, track construction will lie on the Down side, but at all other culverts forming the group of stone culverts, track construction will occur on the Up side. At this culvert (213.158km), at 213.690km (see Inventory: Site 51) and at 198.040km (see Inventory: Site 53) the headwall and wingwalls and surviving aprons possessing heritage values on the Up side will not require modification*, and there will be no detrimental impact on heritage values locally and cumulatively on this account. Earthworks proximate to the culverts would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

* At 198.040km (see Inventory: Site 53), the already part demolished and modified headwall, wingwalls and apron will be demolished, with no heritage detriment.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work ensures the preservation of the headwall(s), wingwalls and surviving apron(s) on the Up side) and structure of the brick arch drain, and the other component drains of this group of the assemblage.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The preservation of the Up side complex and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The unavoidable modification of a number of Up side brick arch headwalls, wingwalls and aprons will be substantially compensated by the preservation of the Down side elements and drainage arch of this culvert and the Down side elements and surviving stone Up side elements and the drainage arch of the group. . For this reason, archival recording of the stone drainage facilities is warranted.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call inspection/monitoring (in the event of suspicion or exposure of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the culvert and and for on-call consultation in the event that a relic is suspected or exposed and to salvage and record any significant archaeological material evidence and information exposed or revealed in the Project process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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Site Details
Site 53 – Stone Culvert

Location (km)
198.040

cf also the following accompanying Inventory for: Sites 51 (km 213.690), 52 (km 213.158), 52 (km 213.158), and for the Up side of Site 52: 24 (km 213.158);
for which Project works are substantially identical in effect, and assessments of significance, details of Project and heritage impact and mitigation strategies are common;
referred to in this Inventory Sheet as 'this group'.

Location Plan

Historical Overview

Stone culverts were first constructed in Australia in the 1820s in association with early roads, notably along the Great North Road. These early stone culverts covered a range of standards due to the variable quality of workmanship available in the convict workforce in the first years of settlement. The stone culverts associated with the study area may be taken to be associated with original construction of the single track in the very early 1860s and were almost certainly designed, if not supervised, by John Whitton, the earliest engineer contributing to railway bridge design and construction in NSW.

Whitton arrived in Sydney at the time of completion of the Newcastle to Maitland line in 1857. He was appointed to the government railways as Chief Engineer, based on his knowledge and experience in railway and bridge construction in England. In office, Whitton was responsible for the design of railway infrastructure ranging from small culverts to railway stations and termini and railway offices to residences. Whitton is recognised as a significant railway identity in Section 9.2 of the NSW Railway (Railcorp) Thematic History, where he is described as "formidable".

Whitton appreciated that the approach to the design of a bridge or culvert was intimately tied to the environment and was dictated by the circumstances under which the bridge was to be constructed or to function. Each site along the northern railway line was topographically different and the availability of materials and labour varied. Hence each bridge and culvert became a unique structure. In the more remote areas, culverts were often constructed of bricks which were produced on site by railway workers and burnt on site in brick 'clamps'.

Stone structures such as that at Down side 198.040km now occur rarely along the Great Northern Railway due to maintenance, modification and replacement during 150 years of continued use and development.

Survey Results

This culvert presented as a unique style of stone box culvert on the Down side, designed specifically for this site and comparatively small in dimensions. The upside had been modified during track duplication works c.1915-16 presumably by brick arch and head and wing walls, but after further modification, now presented as a concrete pipe extension and concrete head and wing walls (of no abiding heritage interest).

Photograph/s

View of downside stone culvert showing concrete sleeve insert.

Upside view of concrete pipe culvert extension and cast in place concrete wing walls.

Heritage Listings

- ☐ State Heritage Register (SHR)
- ☐ State Heritage Inventory (SHI)
- ☐ ARTC Section 170 Register
- ☐ Maitland Local Environmental Plan 1993
- ☐ Cessnock Local Environmental Plan (draft) 2009
- ☐ NSW National Trust
- ☒ No formal listing

ASSESSMENT OF HERITAGE SIGNIFICANCE

Assessment Criteria

☒ (a) Historical – important in the course, or pattern, of NSW' cultural or natural history

Detail

The Great Northern Railway/Main Northern Railway was and is an iconic feature of the cultural development of New South Wales, representing the recognition of the spread of settlement and the initial expansion of modern transport facilities from the coastal fringe and the centralized metropolitan areas. This and other similar stone arch culverts comprise a particularly significant part of the railway construction attending the development of the GNR and, in this case, contains a specific reflection of early 20th Century evolutionary railway construction and maintenance style, design and execution.

☒ (b) Historical – a strong or special association with the life or works of a person, or group of persons, of importance to NSW's cultural or natural history

This and the two other stone culverts remain, in assemblage, as a tangible link with the design and style of the first chief railway engineer in NSW, John Whitton, embodying the limited use of appropriate stone, when readily available, in the drainage arches, headwalls, wingwalls and aprons. .

☒ (c) Aesthetic – important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

Detail

The assemblage of stone arch drainage culverts reflect at the outset an opportunistic and variable style and design, two similar but with one radically different, and all designed for the discrete local topography. The assemblage of stone arch culverts again reflects the dominant Victorian and English style of the original railway construction so apparent in the brick arch culverts, while presenting engaging and striking form.

☐ (d) Social – demonstrates a strong or special association with a particular community of cultural group in NSW for social, cultural or spiritual reasons.

☒ (e) Scientific – demonstrates the potential to yield information that will contribute to an understanding of NSW's cultural or natural history

Detail

As a fine representative of the small assemblage of stone arch culverts, this culvert has the potential to reveal information about design and execution of planning, about adaptation of existing structures during the course of evolution and duplication of the railway.

☒ (f) Rare – possesses uncommon, rare or endangered aspects of NSW's cultural or natural history

Detail

As an assemblage of stone arch culverts, those of the study area are not unique but are regarded as rare on the Main Northern Line and in the northern area of the State, at least. There one (at least) stone arch culver surviving in the abandoned original corridor of the railway north and east of Lake Liddell.

☒ (g) Representative – important in demonstrating the principal characteristics of a class of NSW' cultural or natural places, or cultural or natural environments.

Detail

The culvert at 198.040km is a fine representative of the large form of stone culvert, presenting common features of headwall, splayed wingwalls and dished brick floor, in good condition and showing evidence of adaptation in the process of duplication.

Assessed Significance

☐ National ☐ State ☒ Local

Statement of Significance

The resources of the railway, including artefacts, earthworks, crossings, culverts and bridges comprise material evidence of a great engineering endeavour of the 19th Century. They can be associated with the engineering era of John Whitton, Engineer-in-chief to the NSW Government Railways, from 1857 to 1890. Those items contained within the study area reflect the expansion of popular settlement west from Maitland in the mid-19th Century, while concurrently establishing the foundation for large scale extractive industry that created the environment for rapid and sustained population growth. They created the transport function that facilitated rural prosperity into distant north and north-western hinterland and they present, in microcosm, a snapshot of the original and evolutionary technology of railway construction and maintenance between the mid-19th and early 20th Centuries. The stone culverts located within the study area have historical significance for the Great Northern Railway because they are a part of the range of works and structures which were designed in order to overcome the terrain constraints during construction in the 1860s.

On the Down side, this culvert is an outstanding example of its type due to its sound condition and overall integrity, while the assemblage of which it forms part is an important reflection of the sometimes opportunistic structural style and design rationale of the construction and evolution of the railway.

ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Archaeological Potential in relation to Project works

- ☐ None
- ☐ Unlikely
- ☒ Possible
- ☐ Likely

Assessment of Research Potential

Yes	No	
☐	☒	The site contributes knowledge that no other resource can
☒	☐	The assemblage contributes knowledge that no other assemblage can
☒	☐	The site contributes knowledge that no other site can
☒	☐	This knowledge is relevant to substantive questions relating to Australian history or other major research questions

Detail

Individually and as an assemblage, the stone culverts of the study area will contribute to an better understanding of the insights of design and construction personnel into the demands of the topography over which the railway passed and the technological processes attending the design and construction of drainage facilities on the railway.

References

O'Connor, 1985.
Rowe, DJ, 1986.
McKillop, RF and D Sheedy, 2008.
Campbell, David S, 2007.
Revised construction impact zone (27/11/2009)
Draft Project Description and construction methodology (2/12/2009)

Project Works

At the culvert at 214.566km, track construction will lie on the Down side, but at all other culverts forming the group of stone culverts, track construction will occur on the Up side. At this culvert (198.040km), at 213.690km (see Inventory: Site 51) and at 213.158km (see Inventory: Site 52) the headwall and wingwalls and surviving aprons possessing heritage values on the Up side will not require modification*, and there will be no detrimental impact on heritage values locally and cumulatively on this account. Earthworks proximate to the culverts would nominally have the potential to damage the structure, but can be managed to avoid this outcome. Mitigation measures prior to the commencement of Project work will ensure that c any perceived negative impact is mitigated.

* At 198.040km (see Inventory: Site 53), the already part demolished and modified headwall, wingwalls and apron will be demolished, with no heritage detriment.

STATEMENT OF HERITAGE IMPACT

The following aspects of the proposal respect or enhance the heritage significance of the study area for the following reasons:

Design and management of Project work ensures the preservation of the headwall(s), wingwalls and surviving apron(s) on the Up side) and structure of the brick arch drain, and the other component drains of this group of the assemblage.

The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:

None

The following sympathetic solutions have been considered and discounted for the following reasons:

In the absence of aspects of the project causing negative impact, a need to address sympathetic solutions has not arisen.

The net impact of the Project upon the heritage values of this site is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The preservation of the Up side complex and the drainage arch will achieve a significant positive result.

The cumulative impact of this aspect of the Project upon heritage values of the study area is expected to be:

- ☐ Negative - due to modification or demolition
- ☐ Negative – due to disturbance and/or earthworks which will cause permanent obstruction and/or burial
- ☐ Neutral – there is no anticipated Project impact upon the heritage values of this site/item
- ☐ Neutral – through the offset of negative impact by mitigation measures
- ☒ Positive – through restoration, conservation, preservation and/or interpretation of this site/item

Detail

The unavoidable modification of a number of Up side brick arch headwalls, wingwalls and aprons will be substantially compensated by the preservation of the Down side elements and drainage arch of this culvert and the Down side elements and surviving stone Up side elements and the drainage arch of the group. . For this reason, archival recording of the stone drainage facilities is warranted.

Proposed Mitigation Strategies

Impact upon the heritage values of this site may be mitigated through:

- ☒ Archival recording prior to commencement of works
- ☐ On site monitoring during project works
- ☒ On call monitoring (in the event of unexpected relics)
- ☐ Archaeological investigation/excavation
- ☐ No heritage/archaeological management required

Detail

Project personnel should be briefed on their obligations regarding heritage management and the potential, although unlikely, for relics to be exposed during the course of Project works in the vicinity of this site. An appropriately qualified archaeologist should be engaged to prepare an archival record of the structure of the culvert and for on-call consultation in the event that a relic is suspected or exposed and to salvage and record any significant archaeological material evidence and information exposed or revealed in the Project process. In the event that significant material evidence is exposed in the process, work should cease until appropriate archaeological procedures have been completed.

Further Recommendations/Comments

This inventory sheet may require review and update following any changes to the final design works package.

Attachments

None

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Appendix 3

Risk Assessment Matrix

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Likelihood Table

Likelihood	Description
Almost Certain	The event is expected to occur in most circumstances
Likely	The event will probably occur in most circumstances
Possible	The event could occur
Unlikely	The event could occur but not expected
Rare	The event occurs only in exceptional circumstances

Consequence Table

Aspect	Insignificant	Minor	Moderate	Major	Catastrophic
Cultural heritage (Aboriginal and non-Aboriginal)	No impact to heritage sites	Disturbance or partial removal of a small number of heritage artefacts	Complete removal of one or more heritage artefacts confined to a small number of locations	Complete removal of many heritage artefacts across many locations. Disturbance of a heritage site of high scientific significance	Widespread removal of heritage artefacts across a region. Destruction of a heritage site of high scientific significance

Risk Matrix

Likelihood Level	Consequence Level				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	Low	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Negligible	Low	Medium	High	High
Unlikely	Negligible	Low	Medium	Medium	High
Rare	Negligible	Negligible	Low	Medium	Medium