Statement of Heritage Impact

HAMPDEN BRIDGE

MURRIMBIDGEE RIVER, WAGGA WAGGA

MAY 2013

ngh heritage

www.ngh-heritage.com.au

Document Verification

Project Title: Hampden Bridge Demolition

Project Number:	5160
Project File Name:	\\WAGGA\Active\Projects\2013\Southern Cross Demolitions\Hampden Bridge SEE and SoHI\Report\SOHI Final\Hampden Draft SOHI FINAL.docx

Revision	Date	Prepared by (name)	Checked by (name)	Approved by (name)
Final	19/08/13	Samantha Leah	Erwin Budde	Erwin Budde

nghheritage is a registered trading name of **ngh**environmental Pty Ltd; ACN: 124 444 622.
ABN: 31 124 444 622

suite 1, 39 fitzmaurice st (po box 5464) wagga wagga nsw 2650 australia
t (02) 6971 9696

www.nghenvironmental.com.au e ngh@nghenvironmental.com.au

room 15, 341 havannah st (po box 434)
bathurst nsw 2795 australia
0488 820 748

18/21 mary st
surry hills nsw 2010 australia
t (02) 8202 8333

suite 1, 216 carp st (po box 470)
bega nsw 2550 australia
t (02) 6492 8333

unit 17/27 yallourn st (po box 1037)
fyshwick act 2609 australia
t (02) 6280 5053

37 peron ave (po box 1037)
dunsborough wa 6281 australia
t (08) 9759 1985

CONTENTS

1 INTRODUCTION

1.1 PROPOSAL BACKGROUND

The heritage division of **ngh**environmental was commissioned to prepare a Statement of Heritage Impact (SoHI) relating to proposed works to the historic Hampden Bridge over the Murrumbidgee River between Wagga Wagga and North Wagga Wagga, NSW.

Southern Cross Demolition (SCD), on behalf of Wagga Wagga City Council, proposes to demolish Hampden Bridge over the Murrumbidgee River. Hampden Bridge is the second of three bridges that have served as a crossing in this location, the third (and currently operational) being the Wiradjuri Bridge, opened in 1995 downstream of the Hampden Bridge. Up until 1995, the Hampden Bridge was managed and maintained by the then NSW Roads and Traffic Authority (RTA – now Roads and Maritime Authority). Upon the completion of the Wiradjuri Bridge, ownership of the Hampden Bridge was transferred from the RTA to Wagga Wagga City Council. Hampden Bridge continued to serve as a footbridge and cycleway for some years after vehicular traffic was moved to the Wiradjuri Bridge. It was closed at various times for maintenance work, and in August 2006 it was permanently closed to all public access as it was in a degraded condition and a potential threat to health and safety. Since then, it has continued to degrade, with minimal maintenance works being conducted on it. Stabilisation has been carried out during this period. In August 2008, a large metal truss was used to stabilise the first span.

This SoHI is required by SCD as part of the Development Application requirements, as the proposed works would directly impact on the Hampden Bridge, which is listed as a heritage item on the Wagga Wagga Local Environment Plan (LEP) 2010.

The SoHI assesses aspects of the heritage significance of the bridge, and determines the significance of the impact on the heritage item, and as a representative of its type in NSW. The assessment follows the guidelines set out by the NSW Heritage Branch (Office of Environment and Heritage) publication *Statements of Heritage Impact* and the principles of the Australia ICOMOS *Burra Charter*. The Charter sets the standard of practice for providing advice or making decisions about, or undertaking works at places of heritage or cultural significance, including owners, managers and custodians (ICOMOS 1999). All Australian states have adopted the Charter as the basis for the conservation assessment and management of heritage places in Australia.

A site inspection was carried out by the **ngh** heritage consultant in May 2013 in order to determine the existing physical aspects of the site.

1.2 LOCATION

The proposed bridge demolition works are located between the city of Wagga Wagga and the village of North Wagga Wagga (Figure 1.1), located approximately 450 km to the south west of Sydney.

Figure 1-1: Study Area

1.3 REPORT STRUCTURE

This report:

- Outlines the background of the current study/proposal (Section 1).
- Discusses issues such as statutory heritage listings and legislative requirements (Section 2).
- Provides a contextual framework in terms of an historical overview of the area (Section 3).
- Based on the site visit and condition assessment, identifies and describes the present physical overview of the heritage items and potential heritage items in the area of investigation (Section 4).
- Provides a description and evaluates the significance of affected items (Section 5).
- Provides a description of the proposed works and assesses the potential impacts from the proposal (Section 6).
- Makes recommendations regarding the items in regard to those impacts (Section 7).

1.4 APPROACH

Our approach to the SoHI has been to determine factors contributing to the heritage significance of the site and assess the significance of the impact of the proposed works on the intrinsic heritage values of the site. The assessment has been prepared in accordance with the NSW Heritage Branch guideline *Statements of Heritage Impact* and the particular Heritage Provisions of Wagga Wagga City Council were considered.

The report specifically included the following:

- Review of existing heritage assessments for the heritage item.
- A review of the Timber Truss Bridge Conservation Strategy: Submissions Report and Revised Conservation Strategy (RMS 2012).
- Searches of Commonwealth, national and state heritage databases. This has included the Australian Heritage Database and the NSW Heritage Branch State Heritage Register.
- Search of the Wagga Wagga Local Environmental Plan (LEP) 2010.
- Review of all other relevant literature.
- A site inspection was carried out in order to determine the physical aspects of the site.
- Historical research to help determine the heritage significance of the item.
- Assessment of the heritage significance of Hampden bridge, and determination of the impacts on these items and if they are acceptable.

The report has been prepared in accordance with the NSW Heritage Branch guidelines in addition to any further requirements that need to be considered in order to satisfy legislative and management obligations of SCD.

Recommendations are provided accordingly that would help to avoid, minimise or mitigate against impacts to the identified cultural heritage values of the heritage item.

2 LEGISLATIVE CONSIDERATIONS

Places of heritage value can be subject to different levels of recognition and protection. This protection (at local, State and Commonwealth levels) includes specific measures for the protection of heritage items. The text below provides a summary of the legislative framework at each level of government.

2.1 NSW STATE HERITAGE LEGISLATION

State Heritage Register

The NSW *Heritage Act 1977* is a statutory tool designed to conserve the cultural heritage of NSW and used to regulate development impacts on the state's heritage assets. Administered by the NSW Heritage Office, the Act details the statutory requirements for protecting historic buildings and places and includes *any place, building, work, relic, movable object, which may be of historic, scientific, cultural, social, archaeological, natural or aesthetic value.*

Places or objects can be nominated by anyone for listing on the State Heritage Register. Following a nomination, the owner has the opportunity to make a submission in response to the nomination.

When items are listed on the State Heritage Register (SHR) applications to carry out works on those items need to be made to the Heritage Council under Section 60 of the Act.

The Hampden Bridge is not listed on the State Heritage Register. A search of the study area and surrounds indicated that no items in the vicinity of the Hampden Bridge are included on the SHR; therefore no Section 60 applications are required.

State Agency Heritage & Conservation Registers

State agencies and authorities in NSW are required to keep a register of heritage places under their management under Section 170 of the Act. The s.170 registers are also held in the NSW Heritage Branch's State Heritage Inventory (SHI), an electronic database of statutory listed heritage items in NSW.

Hampden Bridge is not located on any s.170 register; therefore no Section 170 applications are required. As a point of note, the Hampden Bridge was removed from the then Roads and Traffic Authority's (RTA's) s170 register at the time of the opening of the Wiradjuri Bridge.

2.2 NSW ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

The *Environmental Planning & Assessment Act 1979* (EP&A Act) controls land use planning in NSW. The planning system established by the EP&A Act includes Local Environment Plans (LEPs) and other provisions relating to development control.

Heritage items are added to a heritage schedule of a LEP often following identification and assessment from a local shire heritage study. These items are then given protection by the heritage provisions within the relevant plan, which will then require consent of Council for certain developments.

Hampden Bridge is listed on the Wagga Wagga LEP 2010.

2.3 COMMONWEALTH ENVIRONMENT PROTECTION AND BIODIVERITY CONSERVATION ACT 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) enhances the management and protection of Australia's heritage places. Any action that is likely to have a significant impact on the matters protected under the EPBC Act must be referred to the Commonwealth Environment Minister for further consideration.

The Australian Heritage Database (AHD) includes the National Heritage List, which includes the natural, historic and indigenous places that are of outstanding national heritage value to the Australian nation. The AHD also contains the Commonwealth Heritage List that comprises those places on Commonwealth lands and waters or under Australian Government control. Items on both of these lists are protected under the EPBC Act.

Hampden Bridge is not included on the National or Commonwealth Heritage lists, under the EPBC Act. No other items are located within the proposal area. No referral is required to the Minister.

3 HISTORICAL OVERVIEW

3.1 EARLY SETTLEMENT

The following is summarised from the Thematic History, 2013 (nghenvironmental 2013). Other sources of information are referenced.

Prior to European settlement, the area that became the town and city of Wagga Wagga was located in Wiradjuri country. Wiradjuri tribes had moved through the area for approximately 30,000 years before British colonisation of Australia. The Murrumbidgee River was a central feature of life for Wiradjuri, not only as a water and food source, but as a focus of spiritual practises and beliefs. Ceremonies were held on its banks, and creation stories linking the river to the larger cultural landscape feature strongly in Wiradjuri culture (Green, 2002). After the arrival of Europeans into the area, Wiradjuir populations were negatively affected by disease and frontier conflict. Many fled to safer areas. However, the connection felt by Wiradjuri to the river, its banks and the surrounding landscape remains.

Following exploration by Hume and Hovell in 1824-25 and in 1829 by Charles Sturt, positive reports of the potential for farming in the area reached Sydney. The first settlers were stockholders from Sydney who illegally moved into the region in the 1830s. They took up selections along riverbanks, building basic accommodation from wood and bark, often with the help of Aboriginals. From 1836 they were able to obtain licenses to depasture stock on their runs. Following demands for security of tenure, fourteen year leases were granted in the Orders in Council in 1847. In addition to the leases, squatters were able to purchase unlimited quantities of their runs from £1 per acre. In the early stages of settlement, water was imperative for maintaining stock and as a result the earliest settlements were located on the Murrumbidgee. On the northern bank of the Murrumbidgee Charles Tompson and his sons Frederick and Edwin took up a run and named it Eunonyhareenyha, a Wiradjuri word roughly translated to ‘sanctuary of the Emus’. George Best and his sons initially took up a run on the southern banks, but relocated following the 1852 floods. They moved to higher country and built ‘Flowerdale’ in the area now known as Ashmont.

As a way to control growth and development and encourage the emergence of European style towns, surveyors were sent out by the colonial government to select suitable locations for towns and villages. Surveyor Thomas Scott Townsend’s plan for a settlement at Wagga Wagga was approved by the colonial government in 1849. The plan drawn up by Townsend was for a settlement stretching across the river, with the larger part of the town on the western side, and a smaller settlement of North Wagga on the more flood prone northern banks. Access to water was a crucial component of town plans at the time, and many of Townsend’s plans are for villages on both sides of a river. Cadastral maps were placed over the landscape, streets were laid, house allotments measured and centres of civic life began to emerge.

3.2 TIMBER TRUSS BRIDGES

From the earliest days of the New South Wales colony, the need for river crossings, roads and transport was a constant need and a source of disagreement between the government and local communities. This was particularly so in regional areas away from Sydney, where residents felt that their needs were not understood by the city people. From the earliest periods of European settlement, rivers were crossed by punts or where possible simple timber bridges. These bridges were often privately constructed.

Toward the end of the century the colonial government began to appreciate the wealth of the interior of NSW, and so began to take steps to help divert the money and resources of the interior toward Sydney. Previously it had shifted through Melbourne, due to better transport networks. The road and rail

networks were expanded to help meet this need, and bridges were an essential component of the expanding transport system.

During the period of 1880 until 1936, over 400 timber truss bridges were constructed in NSW. As a result of this, NSW was often referred to as the 'Timber Truss Bridge State' (North, 2012). These crossings opened up the colony to trade and increased settlement. One key component of the works undertaken was that they be constructed as cheaply as possible. This requirement led to various innovations by engineers working for the Department of Public Works (DPW). It also meant that the vast majority of the bridges constructed were made from local hardwoods, which were cheaply available to the DPW, as opposed to steel and iron which needed to be imported from England. Five designs were primarily used, these being Allan, Dare, Deburgh, McDonald and Old PWD trusses (Figure 3.1).

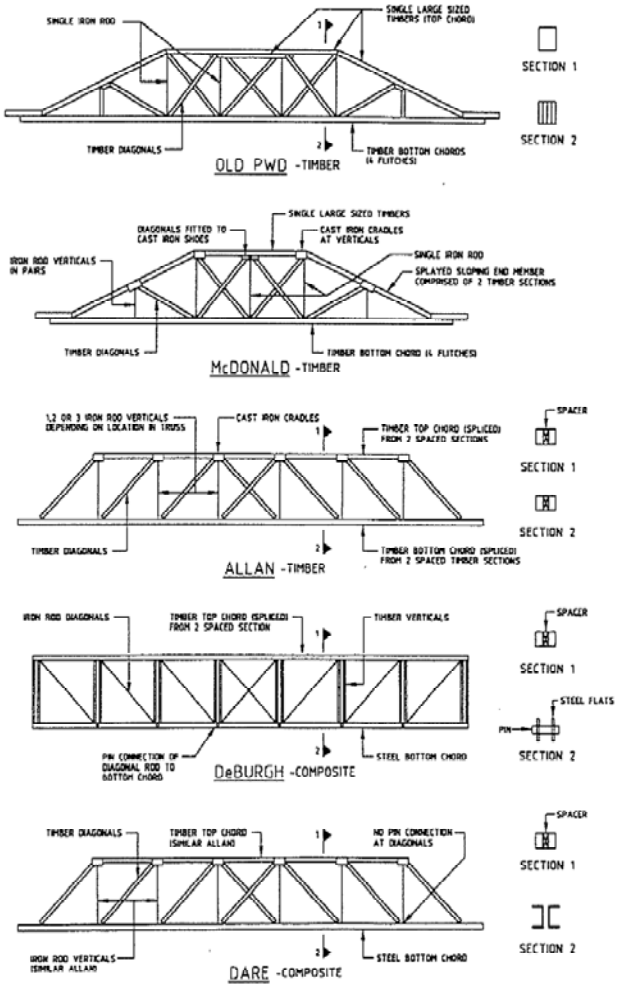

Figure 3-1: Bridge designs, from MBK 1998

Chief engineer and draftsman Percy Allan began a revision of the timber truss bridge in 1890 using research on the proper engineering science on the structural behaviour of trusses, combined with research from Sydney University on the strength of Australian Hardwoods. His goal was to reduce the cost of construction and maintenance. He introduced a new truss in 1893, based on the American Howe truss. Allan's revisions allowed for the use of shorter lengths of timber along with a more economical use of timber. The average saving in material on each bridge was approximately 20 per cent, but with a 50 per cent increase in load bearing. The key aspects of Allan's design were summarised in a report by MBK in 1998, and are reproduced here for the succinctness and clarity of the descriptions:

- "All timber members were assembled from relatively smaller and shorter sized, spliced at regular intervals for the top and bottom chords, laid parallel in pairs but held apart by spacer timber blocks. This allowed rain water to fall through, gave easy access for painting and for the compression members it increased their buckling strengths.
- External iron clamps at the joints meant that the vertical rods could be placed within the space between the top and bottom chord timbers or outside these members. One, two or three vertical rods could be accommodated depending on the magnitude of the sheer force at the member.
- Cast iron shoes at all joints ensured proper truss action and good transfer of member forces at the joints.
- Simple triangulations, mostly without cross diagonals allowed the truss to be kept tight simply by applying large spanners to the nuts at the vertical rods along the top chord.
- Any member could be renewed without temporary staging from below and without taking the bridge out of service.
- These above are improvements in the details of construction and maintenance, but Allan's REAL INNOVATION was the concept of building two parallel half trusses and bolting them together to form a complete truss, one on each side of the deck. Member replacements in effect only involved half members, making repairs easier and quicker to do, and yet enough of the structural integrity of the truss was retained to keep the spans in use."

In effect, Allan's design was cheaper, stronger and easier to maintain than previous designs. From 1894 the earliest Allan trusses were completed. The first overhead brace truss was completed in 1895 over the Murrumbidgee River at Wagga Wagga. It was also the longest bridge built at the time.

3.3 HAMPDEN BRIDGE

For a social history of the bridge, please see Sherry Morris' *The Hampden Bridge, Wagga Wagga*, (2012). The following is a basic history of the construction, use recent maintenance and other issues associated with the bridge. It is not, and does not intend to be, a thorough history of a well documented construction.

Hampden Bridge is an Allan truss road bridge completed in 1895. Prior to the construction of the Hampden Bridge, a bridge built by a group of local businessmen and property owners had been located over the river, and was known as the Company Bridge. The bridge was a much needed resource for the growing town. However, in order to recoup the cost of building the bridge, the Company placed a toll on the bridge, and this caused a considerable amount of local conflict. In 1884 the colonial government purchased the bridge. However, it began to decay and by the early 1890s it was in need of replacement. It was decided to try to build a bridge with a larger span, to avoid many of the problems that occurred with the shorter 70 foot span of the Company Bridge during times of flood. Initially tenders were called for an iron bridge, but when these were deemed too expensive, a timber bridge using Allan's design was decided upon (Allan, 1895). The Hampden Bridge was one of the earliest bridges built using the innovative design of Percy Allan, and was the first overhead brace truss constructed. It was completed and opened in 1895.

Given its location at an important crossing, the bridge has had considerable use during its years of service. As a result, it has also undergone many periods of maintenance and the replacement of many components of the bridge. Ease of replacement of damaged or decayed timbers was a key feature of Allan's design. Another feature contributing to the extensive life of the bridge is Allan's factor safety of

seven, which at the time was 'somewhat in excess of actual requirements' (Allan, n.d) but meant that in recent times the bridge was able to handle the heavier loads of modern traffic.

A recurring issue with the Hampden Bridge has been the issue of maintenance. The cost of maintaining timber bridges is generally high (North, 2012), as maintenance often does not last for as long as anticipated, and the initial cost is usually more than first estimated. The inconvenience caused to local traffic during times when the bridge was out of regular service placed an increased burden on the Wagga community in a way that is difficult to measure. In 1992, the City Engineer in a report to council noted that since 1970, there had been three 'major refurbishments' of the bridge. Each refurbishment was intended to fix the larger issues with the bridge, with the hope that only minimal maintenance would be required thereafter. In practice, each major refurbishment had a life cycle of approximately eight years. The routine maintenance each year along with the major refurbishments cost in excess of early estimates (Hampden Bridge Local History Collection, Riverina Regional Library).

In 1996, a stabilisation report prepared on the condition of the bridge by engineers Hughes Trueman Ludlow noted that following a period of intense maintenance carried out by the RTA, the bridge had been in good condition, but at the time the report was prepared the bridge was in danger of decay if maintenance was not regularly carried out.

By August 2006, the bridge was in a poor condition, and it was closed to the public indefinitely as it was discovered that one of the decks had dropped 50 centimetres. Stabilisation action occurred at the time, but no rehabilitation strategy was implemented, and the bridge continued to decay. Estimates at the time suggested the bridge may cost in excess of a million dollars to rehabilitate. $300,000 was committed to stabilisation works in 2007. By August 2008, there was genuine concern that the bridge could fail, and a large steel truss was positioned to help lift up the failed deck. Since this period minimal maintenance has been carried out, as the public and council wrestle with the decision to keep an item of local heritage significance that incurs considerable expense, or make the difficult decision to demolish the bridge. In March 2012 Wagga Wagga City Council voted to demolish the bridge.

3.4 RECENT TIMES

During the 1990s, significant delays caused by maintenance work on the bridge led to the construction of two new bridges across the Murrumbidgee close to the city of Wagga Wagga. A bridge at Eunony was completed in 1975 which helped to alleviate some of the traffic pressure on the Hampden Bridge and through town, but other constructions were required. The Gobbagombalin deviation was constructed between 1991 and 1997. Construction began on the Wiradjuri Bridge in 1994, and it was officially opened to traffic on 12 February 1995. Hampton Bridge was closed to vehicle traffic the same day that the Wiradjuri Bridge was opened. It operated as a footpath and cycleway for a period. Due to concerns about public safety, the bridge was closed to foot traffic on 16 August 2006.

4 PHYSICAL DESCRIPTION

4.1 HAMPDEN BRIDGE

Hampden Bridge is a three span, overhead brace Allan Timber Truss Bridge. The Hampden Bridge is located off Fitzmaurice Street, Wagga Wagga at the northern end of the main commercial spine of the city. Spanning the Murrumbidgee River, the Hampden Bridge once provided the main link between north and south Wagga Wagga, but was replaced in 1995 with the Wiradjuri bridge 150 metres downstream. The main spans of Hampden Bridge consist of three 33.6m span 6.4m deep Allan trusses on cylindrical iron piers. The carriageway measures 7.39m wide with a 1.37m wide pedestrian walkway. The walkway is located on the upstream side of the bridge.

The Hampden Bridge is a modified "Allan truss" type timber structure using sloping and top chord timbers as compression members and vertical steel rods as tension members. The bottom hardwood chords of the trusses are tension members. The tops of the trusses are tied together and braced by horizontal timber struts and steel rod horizontal bracing. Node points for trusses comprise custom fabricated cast iron bolted joints. The decking comprises a bitumen wearing surface on heavy plywood with hardwood stringers supported at intervals corresponding to the truss nodes by heavy hardwood cross beams supported in turn at each end by the bottom chord of the trusses on each side of the bridge.

The bridge is supported by two steel towers founded in the Murrumbidgee River, one steel stub tower at the eastern abutment and by a concrete wall at the western abutment. The tower foundations are unknown being concealed below water level but believed to comprise steel tower tubes continuing below water level into concrete filled steel caissons probably to rock.

The bitumen wearing surface and plywood decking of the road deck are carried by heavy log hardwood stringers spanning up to eight metres onto hardwood cross beams, the cross beam supported in turn by a series of closely spaced cross braced hardwood poles founded on the natural ground using hardwood sole plate or spreader. Some larger span stringers have retrofitted log props to reduce their effective span.

Span 1 is the most severely degraded of all the spans, to the point where it may not be able to support its own dead weight in parts.

Figure 4-1: Span 1, with the yellow steel stabilisation truss

Span 2 (Figure 4.2) has not been accessible for safety reasons in order for comprehensive testing to be undertaken. Its exact condition is not known.

Figure 4-2: Span 2

Span 3 is less degraded than Span 1, although it still contains areas that are significantly degraded. Its slightly better condition is perhaps caused by better air flow around the span.

Figure 4-3: Span 3

The walkway contains many missing wooden planks along the length of the bridge, including the eastern approach (Figure 4.4). The handrail has fallen away in some places (Figure 4.5).

Figure 4-4: Missing parts of the walkway can be clearly seen

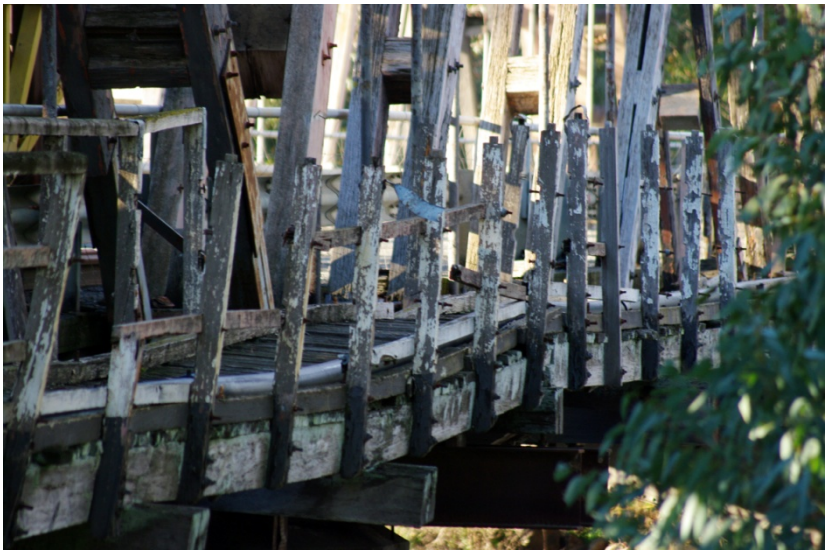

Figure 4-5: Handrail along span 1

The eastern abutment is reinforced with rocks (Figure 4.6), while the western abutment is reinforced with a concrete wall. The western abutment is collapsing laterally under the combined weight of the truss and the steel truss. The abutments were not designed to carry such heavy loadings for an extended period of time, and will eventually collapse under pressure if not stabilised (Figure 4.7).

Figure 4-6: The Eastern abutment is reinforced with rough laid rocks

Figure 4-7: Western abutment

The super structure is supported by three steel piers. Two of these are in the river; the third stub pier is on the eastern side (Figures 4.8, 4.9, 4.10).

Figure 4-8: Eastern steel pier

Figure 4-9: River piers, viewed from the eastern abutment

Figure 4-10: In ground pier on the western side

The bridge has received various historic markers and interpretive displays in the past. Some of these have been vandalised and damaged (Figure 4.11-4.15).

Figure 4-11: Interpretative signing on the history of the bridge

Figure 4-12: Damaged historical commemoration plaque

Figure 4-13: Historic flood marker

Figure 4-14: Engineers historic commemoration plaque

Figure 4-15: Date plaque commemorating the year the bridge was built, although it is unknown if this forms part of the original fabric of the bridge.

4.2 SETTING

Hampden Bridge is located across the Murrumbidgee River. Prior to the construction of the Wiradjuri Bridge it formed a crossing point between Fitzmaurice Street and Hampden avenue, connecting the city of Wagga Wagga to the village of North Wagga. The bridge is easily viewed from Fitzmaurice Street, one of the main and oldest streets of Wagga Wagga.

The Wiradjuri bridge which was opened in 1995 is located downstream of the bridge, and the Hampden bridge can be easily seen from this newer structure. Located within the surrounds of the bridge is a sculpture park, which was created in 1996. It includes a grassed tiered amphitheatre and provides easy access to the Wiradjuri walking track. Located within the sculpture park is a flood gague plaque, recording the height of the river at significant floods.

Figure 4-16: Sculpture park, amphitheatre and the western side of the bridge

The sculpture park and garden adjacent to the bridge is in good condition. Some discarded alcohol bottles were observed during the site inspection.

4.3 CONDITION ASSESSMENT

Given the high profile and public reliance on the bridge as a road bridge, there have been numerous assessments and studies undertaken. The main studies since 1990 are summarised below, with full copies located in the appendices.

Report of the City Engineer submitted to the Works Committee

21 August 1990

- Cost of annual maintenance and rehabilitative works is not sustainable
- Routine maintenance will not be enough to keep the bridge operational
- Roofing the structure may extend the life of the bridge by 15-20 years, but is not economically justifiable

Report of the City Engineer submitted to the Works Committee

21 July 1992

- Since completion of the bridge it has required substantial maintenance work and caused great inconvenience

- Substantial maintenance work was carried out in the 1970s and 1980s
- Major maintenance has been required at approximately eight year intervals, along with regular annual maintenance
- Cost of maintenance is always significantly higher than initial estimates suggest

HTL Reinhold Stabilisation Report

April 1996

- Many structural timber members replaced in previous twenty years
- Bridge was not designed to handle the weight of modern traffic
- Recommended a series of preservation measures be undertaken to extend the life of the bridge

MBK Study of Relative Timber Significance of all timber Truss Bridges

1998

- Timber truss bridges ranked according to significance, assessed against criteria of technical, historical, social, aesthetic and regional significance
- Hampden ranked as fourth as a significant bridge, and third as an Allan truss. Its role as a 'first' bridge was a significant part of this ranking
- Similar Morpeth bridge ranked as second in both categories ahead of Hampden
- It should be noted that while the 1998 study was important in establishing the RMS Timber Bridge Strategy, it had significant limitations in assessing significance across heritage and operational criteria (North, 2012)

Rappoport Hampden Bridge Conservation Management Plan

2008

- The structure was observed to be in a seemingly sound condition when assessed in December 2006, although it did require some maintenance
- Some members in a dilapidated condition due to age and a lack of maintenance
- Foundations, deck, truss members and connections in seemingly good condition
- Truss 1 deformed and some evidence of dry rot
- Walkway in state of collapse
- Corrosion of steel rods, plates, nuts, washers and bolts due to lack of protective coating

Dan Tingley Hampden Bridge Inspection Report

2011

- Span 1 is in a seriously degraded condition, and is falling down under its own dead weight in places
- The western abutment is in danger of lateral collapsing as a result of the extra strain placed on the abutment with the steel truss
- Span 2 could not be fully surveyed for safety reasons
- Span 1 is a serious health hazard and public access should be immediately limited
- A loss of lateral brace support is demonstrated by the three trusses leaning downstream

5 HERITAGE SIGNIFICANCE

5.1 INTRODUCTION

'Heritage significance' is a term used to describe the inherent cultural and historical value of an item. Significance may be contained within the fabric of a building or other place, in its setting and its relationship with other nearby items.

The main aim in assessing significance is to produce a succinct statement of significance, which summarises an item's heritage values. The statement is the basis for policies and management structures that will affect the item's future (NSW Heritage Office 2001).

The NSW Heritage Branch recommends assessment of heritage items in a number of situations, which include:

- Making decisions about whether to retain an item
- Considering changes to an item
- Preparing a heritage study
- Preparing a conservation management plan
- Considering an item for listing on the SHR or on the schedule of heritage items in a local environmental plan, or
- Preparing a statement of environmental effects or a heritage impact statement as part of the development and building approval process.

The following assessment of significance is based on the NSW heritage assessment criteria. The criteria encompass the four values in the Australia ICOMOS Burra Charter (1999), which are commonly accepted as generic values by Australian heritage agencies and professional consultants:

- Historical significance
- Aesthetic significance
- Scientific significance
- Social significance

The above are expressed as criteria in a more detailed form than this to:

- Maintain consistency with the criteria of other Australian heritage agencies
- Minimise ambiguity during the assessment process; and
- Avoid the legal misinterpretation of the completed assessments of listed items.

5.2 HERITAGE ASSESSMENT

During research and assessment for this SoHI, **ngh**environmental found that although the Hampden Bridge had been considered to be of state significance, it had never been formally listed as being so.

By way of its inclusion on the LEP, the bridge is considered at least of local heritage significance. A 2002 heritage study of the Wagga Wagga LGA (Freeman 2002) identified that the Hampden Bridge should be recommended for listing on the State Heritage Register. The recently completed review of heritage in the Wagga Wagga LGA (**ngh**environmental 2013) concluded that due to the impending demolition of the

Hampden Bridge, it is not beneficial for listing on the State Heritage Register. It is also worthwhile to consider the role of the bridge within a class of bridges, and to look at the significance of the item within a larger grouping of Timber Truss Bridges. It is important to consider the group as a whole, not only the individual item being assessed (White & Baskerville, 2005). Within the larger grouping of Timber Truss Bridges, the overhead brace bridge is represented in the collection being preserved by RMS.

Other statements of Hampden Bridge's heritage values can be found from several sources. The Engineers institute (Engineering Heritage Committee, 1992) described the significance of Hampden Bridge as follows:

> *"Hampden Bridge was the first example of a longer span (33.6m) version of the famous Allan truss. At the time of its construction it was described by its designer, Percy Allan, as "by far the largest timber structure yet attempted in the colony". There is only one other remaining example of these long span Allan truss Bridges and the Hampden bridge remains in excellent condition."*
>
> *Date of significance: (1992)*

The National Trust documented a statement of significance in its listing proposal (1992):

> "An historically and culturally significant example of timber truss construction."

Assessment of Significance

An item will be considered to be of state or local heritage significance if it meets one or more of the seven NSW heritage criteria as listed below.

a) an item is important in the course, or pattern, of NSW 's cultural or natural history.

b) an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW 's cultural or natural history.

c) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW.

d) an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons.

e) an item has the potential to yield information that will contribute to an understanding of NSW 's cultural and natural history.

f) an item possesses uncommon, rare or endangered aspects of NSW 's cultural or natural history; and/or

g) an item is important in demonstrating the principal characteristics of a class of NSW 's cultural or natural places; or cultural or natural environments.

The Hampden Bridge was assessed as being significant against all seven criteria in a study undertaken by Rappoport Conservation Architects and Heritage in 2008. This has been in keeping with Heritage NSW guidelines, of assessing values first, and then the context of their significance (NSW Heritage Office, 2001).

a) an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)

The Hampden Bridge over the Murrumbidgee River at Wagga Wagga is a highly significant structure, having historical, associational and technical significance at the state level and historic, aesthetic and

social significance at the local level. It is both rare and representative. The Hampden Bridge is historically significant as the use of timber truss bridges was important in the development of the road network in NSW. Before the construction of these bridges, river crossings were often treacherous, and an impediment to efficient transport. Through this, the expansion of rural NSW, particularly the mining and agricultural sectors, was facilitated. Further, the Hampden Bridge replaced the Wagga Wagga (Company) Bridge. The Wagga Wagga Bridge, later the Hampden Bridge, was a major regional thoroughfare and was the only bridge across the Murrumbidgee at Wagga Wagga.

b) an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW 's cultural or natural history.

The bridge has strong associations with Percy Allan, senior bridge designer at the Public Works Department and designer of the Allan truss as well as other bridges. The Allan truss was so important because it was suitable for use with available materials, making it invaluable in periods of economic constraint. As a result of the cost efficiency of Alan's design, during the economic depression of the *1890s,* the government were able to build the necessary public infrastructure using what little money was available and in doing so relieve part of the burden of the Widespread unemployment at the time

c) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

The Hampden Bridge has aesthetic significance as the Murrumbidgee River and the river flats are important recreational areas for the local residents of the City of Wagga Wagga and the Hampden Bridge is a visually dominant and historically important feature of this part of the city.

d) an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons

It has social significance as it is a highly valued structure by many local residents for its historical connections to the development of Wagga Wagga town and for its contribution to the setting of the Murrumbidgee River at Wagga Wagga.

e) an item has the potential to yield information that will contribute to an understanding of NSW 's cultural and natural history

The Hampden Bridge has high technical significance as it utilises the Allan truss and was the first bridge to be constructed of the extended span in 1895. In its original form the Allan truss was used for 21.3 and 27.4 metres spans, but the Hampden Bridge incorporates Allan's extended design to span 33.5 metres. The span of 33.5 metres for a timber truss was, at the time of opening, exceeded only by the Lachlan River road bridge at Cowra (1893, 48.8 metres). Allan trusses were third in the five-stage design evolution of NSW timber truss bridges, and were a major improvement over the McDonald trusses which preceded them. Allan trusses were 20% cheaper to build than McDonald trusses, could carry 50% more load, and were easier to maintain. Allan trusses were the first truly scientifically engineered timber truss bridges, and incorporated American design ideas for the first time. This is a reflection of the changing mindset of the NSW people, who were slowly accepting that American ideas could be as good as or better than European ones. The high quality and low cost of the Allan truss design entrenched the dominance of timber truss bridges for NSW roads for the next 30 years

f) an item possesses uncommon, rare or endangered aspects of NSW 's cultural or natural history

The Hampden Bridge is very rare as it is one of only three overhead braced Allan truss bridges to survive. Timber truss bridges and timber bridges generally were once so common that NSW was known to travellers as the "timber bridge state". However of the more than 400 timber truss bridges in NSW only

about a quarter of that number survive. In 1998 of the 105 Allan truss bridges constructed in NSW, only 38 survive.

g) an item is important in demonstrating the principal characteristics of a class of NSW 's cultural or natural places; or cultural or natural environments.

The Hampden Bridge is an excellent example of overhead braced Allan timber truss road bridges and is therefore representative of the type.

5.3 SUMMARY STATEMENT OF SIGNIFICANCE

Based on the available information, the significance assessment above, and on previous informal assessments as to the heritage significance of the Hampden Bridge, it is considered that the Hampden Bridge is of potential State Heritage Significance on the basis of its technological significance.

6 IMPACT ASSESSMENT

6.1 THE PROPOSED DEVELOPMENT

6.1.1 Demolition and Disposal

SCD, on behalf of Wagga Wagga City Council, propose to demolish the Hampden Bridge. A new bridge at this crossing place was opened to the public in 1995, and the bridge was opened to public use as a pedestrian crossing and cycleway. The bridge was deemed dangerous and closed to the public in 2006. Due to continuing deterioration and the substantial costs involved in returning the bridge to a safe standard, it is proposed to demolish the bridge before it collapses and becomes a significant safety hazard to individuals and the environment.

A Disposal Plan is being prepared and will be submitted with the Development Application. Disposal options being considered include:

- Disposal of all bridge elements at a waste disposal facility capable of receiving this waste.
- Disposal of some bridge elements at a waste facility, with recycling of the remainder. Recycling options include:
    - Making elements available to the local community
    - Recycling by a recycling contractor
    - Distribution to RMS for use on other timber bridges in the region

Timber contamination due to lead paint and application of pesticides will be a factor in determining the disposal or reuse of the timber elements.

Piles are proposed to be cut at ground level. River piers are proposed to be cut at river bed level.

6.1.2 Retention of Western (city side) Abutment

It is proposed to retain the western (city side) abutment in its entirety. The western abutment contains several plaques including the Engineers Australia plaque. Restoration, retention and interpretation options are being considered by Wagga Wagga City Council. Recommendations have been made in this report.

6.2 RMS TIMBER BRIDGE STRATEGY

In recognition of the role of timber bridges in the history of NSW road and transport development, and to stem the ad hoc loss of bridges, the RTA worked with heritage consultants and the Heritage Council of NSW from 2009 until 2011 to devise a methodology for assessing timber bridges in NSW. The study was unique in many respects, as rather than assessing each potential heritage item individually, it assessed the entire group of bridges. These assessments considered questions of operational use and heritage, and identified a group of representative bridges that were good candidates for long term conservation. Timber bridges are expensive to maintain and use a disproportionate part of the RMS budget in maintenance and rehabilitation. The strategy aimed to create a long term plan for conservation that balanced issues of practical management with heritage considerations. The strategy was also part of a

lengthy public consultation process. At the end of the study, 26 bridges were recommended for retention, and 22 for replacement. The strategy was endorsed by the Heritage Council in August 2012.

At the time the study was undertaken, the Hampden Bridge was no longer an RMS asset, and therefore was not included in the study. However, Morpeth Bridge in Maitland and Dunmore Bridge in Woodville were included. Like Hampden, Morpeth Bridge is a three span overhead brace bridge with iron pillars. Morpeth is State Heritage listed, and as part of its conservation strategy, RMS has a management plan and funding allocated to the task. Dunmore Bridge is also marked for retention, and is an overhead braced Allan Truss Bridge.

As the most common bridge type to be built, the Allan Timber Truss Bridge is represented in the strategy by ten timber truss bridges, the highest number of retained bridge types in the collection.

The ten Allan truss Bridges to be retained as part of the strategy are (RTA 2011):

Bridge	Truss	Notable Characteristics
Wee Jasper	1	
Beryl	2	
Paytens	2	
Carrathool	2 + lift	• Liftspan
Swan Hill (via adaptive reuse)	2 + lift	• Liftspan • Fabric • Piers • Border
Hinton	2 + lift	• Liftspan • Piers (iron)
Morpeth	3	• Bracing overhead • Piers (iron) • >2 trusses
Rossi	3	• Fabric • >2 trusses
Victoria	3	• Fabric • Piers (high timber) • >2 trusses
Dunmore	3 + lift	• Liftspan • Bracing overhead piers (iron) • >2 trusses

6.3 HERITAGE IMPACT STATEMENT

The following questions are presented in the NSW Heritage Manual document *Statements of Heritage Impact* to address proposals on heritage items which would result in the *Demolition or removal of the item* (NSW Heritage Office 1996).

Have all options for retention and adaptive re-use been explored?

The option of retaining the historic Hampden Bridge at the existing site or for adaptive re-use has been extensively considered over a period of nearly 20 years (Hampden Bridge File, Local History Collection, Riverina Regional Library). Several reports were commissioned by Wagga Wagga City Council to investigate retention options and assess the bridge condition. Reports included likely costs associated with restoring the bridge to a condition where it can be retained, as well as ongoing maintenance costs (Hughes Trueman Ludlow, 1996; Rappaport, 2008; Tingley, 2011). In addition, the Heritage Council reviewed the potential to restore and retain the bridge in 2012 (Heritage Council of NSW Minutes, 2012). However, restoration and retention has not been found to be viable, due to:

- Retaining the bridge in whole or in part as a non-accessible landscape element is not feasible, as the bridge is in a seriously deteriorated condition and poses a significant public and environmental health and safety concern.
- Ongoing maintenance remains a concern because maintenance costs and frequencies are disproportionately high with timber truss bridges compared to modern bridges. Timber truss bridges require ongoing and often significant routine maintenance whether under traffic load or not.
- The most recent restoration cost estimated was $1, 533, 419 from 2007 (Heritage Council Minutes). Wagga Wagga City Council determined that funding this by local government is not possible. No other funding offers have been made. The Heritage Council has noted that the cost of restoration is beyond any local council and potential grants from the heritage council (Heritage Council Minutes).
- Adapting the bridge into a public space is an issue because of the advanced state of deterioration, particularly at the western abutment, as indicated in the Tingley (2011) report. The cost of adapting the bridge to a suitable safety standard would be considerable.
- Any covering placed over the bridge to stop or slow deterioration of the wood could potentially have the effect of increasing deterioration. If the timber does not get some moisture, the structure could dry out and crack. In addition, any roofing or covering would add considerable weight and place pressure on the abutments. The Tingley report indicated that the weight of the bridge combined with the temporary steel truss had placed considerable pressure on the western abutments. Placing additional weight onto the structure and its supports could potentially damage the abutments even further. Both The Heritage Council and Wagga Wagga City Council explored this option through its own advisor and both found it to be an unsuitable solution.
- The bridge is in overall poor condition and is a continuing safety issue for the public.

In summary, the existing state of the bridge is poor and poses an immediate safety risk. Long term deterioration caused through a lack of on-going maintenance and repair has caused advanced and irreversible decay that could only be remedied through a total reconstruction of the bridge (Heritage Council Minutes). Without restoration and ongoing maintenance, the deterioration of the bridge will

continue and safety risks will increase. Restoration costs are prohibitive for the local Council, and no alternative funding sources have been found. Even if restoration could be funded, the predicted ongoing maintenance costs would be prohibitive to the local Council, and an alternative on-going funding source would need to be found.

Therefore, it is concluded that all retention and adaptive re-use options have been considered and retention or adaptive re-use is not considered possible.

Can all of the significant elements of the heritage item be kept and any new development be located elsewhere on the site?

Based on heritage assessments conducted in the past, and documented in Section 5, the significant heritage elements of the bridge lie in its technological achievements, namely the technological advances made to timber trusses in the late 1800's to allow for a 33m span to be constructed. Consideration has been given to retaining the trusses, including consideration within the Riverside Precinct Master Plan (2010) and by several local developments including the Hospital and the Mill developments.

Whilst technically it is possible to retain the trusses (through demolition and reconstruction, or in-situ lift and relocate) either nearby the site or within the city of Wagga Wagga, retention would not preclude the need for significant investment to be made to at least partially restore the trusses and/or truss spans. A relocation of the bridge to a park or nearby area would also raise issues of health and safety, which would increase, rather than decrease, the ongoing maintenance burden.

Part of the significance of the bridge is in its role as a river crossing. Removing the bridge from the river would remove part of its heritage significance. It is preferable for items to remain in their heritage context to be appreciated and studied in the appropriate location. If the bridge is removed from the river and placed in a park, it no longer functions as a river crossing, and the technological achievement of crossing the river is no longer able to be seen and appreciated. One observation on industrial heritage notes "*a bridge can be used for little else apart from as a bridge*" (Heritage Office, 2005). In addition to continuing to be a financial burden, relocation would also significantly reduce the heritage significance of the bridge.

Consideration was also made to retaining the steel in-stream piers. Initially, Council considered there would be benefits in retaining the piers, which was subsequently supported by the Heritage Council.. However, in a closed session Council decided to demolish the piers at the same time as the bridge. At the same meeting, Council also resolved to communicate to the public plans for retention at a later date. At the time of writing, this has not yet eventuated and information concerning these plans is currently not available (WWCC Minutes, 25 February 2013).

Is demolition essential at this time or can it be postponed in case future circumstances make its retention and conservation more feasible?

Council considers the demolition necessary at this for the following reasons:

- Demolition has been postponed for an extended period of time to investigate feasible alternatives. During this period, the bridge has continued to deteriorate and is now a significant safety hazard.
- Further postponement will result in further deterioration of the bridge, and pose further safety risks to users of land and water resources in the vicinity of the bridge. It is considered that further

postponement will require significant investment be made to restore parts of the bridge to ensure the safety of the public. To date, no source has been found for this funding.

6.4 SUMMARY OF IMPACTS

In summary, the demolition of the Hampden Bridge will result in the following heritage impacts:

1. Removal of the first overbeam Allan truss bridge constructed in NSW
2. Removal of the first 33m Allan truss span bridge constructed in NSW

The following elements of heritage significance will not occur as a result of the proposal:

1. There will remain in place a crossing over the Murrumbidgee River in this location, that is, the Wiradjuri Bridge. Hence, there will be continuity of the social significance of a river crossing at this location.

In summary, the assessment of heritage impacts for the proposal to demolish the Hampden Bridge has found that a heritage impact is likely but unavoidable. This is due to:

- The demolition of Hampden Bridge would reduce the risk to public safety and eliminate the need for ongoing maintenance costs.
- The current condition of the bridge and individual components was assessed as poor in 2011 (Tingley). Complete restoration is required owing to the poor condition of the bridge, and this has been acknowledged by the Heritage Council as being beyond the means of Wagga Wagga City Council, or any other local council (Heritage Council Minutes, 2012). There is at this time 'no option left other than the demolition of all the bridge's timber elements' (Heritage Council Minutes, 2012).
- If retained in place, it is highly likely that the Hampden Bridge would be a safety hazard in the future.

The cumulative impact of the proposed demolition of Hampden Bridge on the remaining Allan truss bridges extant in the state is considered to be moderate. The remaining seven nationally significant and four state significant Allan truss bridges are operable and RMS is prepared to maintain 10 of these to ensure the intactness of the bridge portfolio (RMS 2012). These bridges have historic, aesthetic, social and technological values, and they would not be affected by this proposal. It is these bridges that would be retained as part of the RMS Timber Truss Bridge Strategy (RMS 2012).

7 CONCLUSION AND RECOMMENDATIONS

The proposal to demolish the out of commission Hampden Bridge (timber truss) is considered to lead to a significant impact in accordance with the NSW *Heritage Act 1977, Environmental Planning and Assessment Act 1979,* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, in terms of heritage, but this is unfortunately unavoidable owing to the degraded condition of the bridge.

The following recommendations are made for the proposed activity:

- The western (city side) abutment should be retained. This would include the concrete abutment itself, the earth fill behind the abutment, and the stone parapets inclusive of all name and date plaques.
- Wagga Wagga City Council should prepare a management plan detailing how the western abutment would be restored and maintained. The management plan should identify a sustainable funding source for restoring and maintaining the abutment.
- The western abutment should be recommended for listing as a Heritage item on Wagga Wagga City Council's LEP 2010.
- The Heritage Council should be notified of the decision to remove the in-stream piers.
- The two concrete date posts should be retained in situ.
- The Hampden Bridge should be removed as a heritage item from the Wagga Wagga LEP 2010.
- Wagga Wagga City Council should develop a professional interpretative display at the western abutment. The interpretive display should be accessible to the general public, and should contain information and pictures detailing the historical context of the Hampden Bridge. Information from this SoHI and from other published sources into the heritage significance of the site should be used in the interpretive display.
- An archival recording should be prepared for Hampden Bridge. This should follow the guidelines for Items of Local Heritage Significance as outlined in the NSW Heritage Branch publication *How to Prepare Archival Records of Heritage Items.* The Archival Recording should be made permanently available to the public.
- Demolition of Hampden Bridge should follow the requirements in the RMS *Recycling of Used Bridge Timbers policy.* All useful parts of the bridges should be salvaged and stockpiled for possible future use, where feasible, and subject to appropriate scientific testing and resulting recommendations.
- In the unlikely event any unexpected archaeological remains are discovered, works must cease in the vicinity and the Wagga Wagga City Council's Heritage Officer be contacted.

It is recommended the proposed works at the Hampden Bridge indicated in this SoHI, be approved subject to the above conditions.

8 REFERENCES

Allan, Percy (1895). "Timber Construction in New South Wales", Extract Royal Society of NSW.

Allan, Percy (n.d). "The Wagga Wagga Timber Bridge", Paper 2994. The Inst. Civil Engineers Vol CXXVIII.

Australia ICOMOS (1999). *The Burra Charter (The Australia ICOMOS Charter for Places of Cultural Significance)* Canberra.

Engineering Heritage Committee (1992). Hampden Bridge Wagga Wagga: Historic Engineering Marker Report.

Green, Dick (2002). *Wiradjuri Heritage Study*, Go Green Services.

Hampden Bridge File, Local Studies Collection, Riverina Regional Library.

Heritage Council of New South Wales, Minutes Meeting, 3 October 2012, accessed May 13 2013:

http://www.parliament.nsw.gov.au/prod/parlment/committee.nsf/0/1053c8c19b340fd7ca257aae00212c3f/$FILE/Answers%20to%20QoN%20during%20hearing_Environment,%20Heritage_Attachment%201.pdf

Morris, Sherry (2012). *The Hampden Bridge*. Active Print, Wagga Wagga, NSW.

Morris, Sherry (1999). *Wagga Wagga: A History*. Council of the City of Wagga Wagga, NSW.

nghenvironmental (2013). Wagga Wagga Community Heritage Study, Wagga Wagga City Council.

NSW Heritage Office (2005). State Agency Heritage Guide: Management of Heritage Assets by NSW Government Agencies. Sydney, NSW.

NSW Heritage Office (2001). Assessing Heritage Significance: A NSW Heritage Manual Update.

NSW Heritage Office and Engineers Australia (2005) Engineering and Industrial Heritage. Sydney, NSW.

NSW Heritage Office (1996). Statements of Heritage Impact. Sydney, NSW.

NSW Heritage Office (2012). Minutes of Meeting, 3 October 2012 accessed 13 May 2013 at:

http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/heritagecouncil/hcmin2012Oct386.pdf

NSW Heritage Office (2012). Agenda Item 6.1, 3 October 2012, File 12/06034 & S91/00042-002

North, M (2012) "Spreading the load: the management of heritage timber truss bridges in the NSW road network", *Australian Journal of Multi-Disciplinary Engineering,* Vol. 9, No. 1, pp.79-86.

Rappoport Conservation Architects (2008). Hampden Bridge Wagga Wagga Conservation Management Plan.

Wagga Wagga City Council Riverside Precinct Master Plan (2010).

RMS (2012) Timber Truss Bridge Conservation Strategy: Submissions Report and Revised Conservation Strategy.

RTA (2011) Timber Truss Road Brides: A Strategic Approach to Conservation.

RTA (2010) RTA Timber Truss Bridge Strategy. Appendix C – Allan Truss Bridge Profiles.

Wagga Wagga City Council Minutes, 25 February 2013, accessed 17 May 2013 at:

http://www.wagga.nsw.gov.au/__data/assets/pdf_file/0015/21381/OC_25022013_MIN.pdf

White, C. & Baskerville, B. (2005). "Sustaining Heritage- Conserving Sets & Classes of Heritage Items – Assessing Sets & Classes of Heritage Items for the New South Wales Heritage Register", In: Sustaining Heritage: Second International and Thirteenth National Engineering Heritage Conference and NSW Railways Seminar. Sydney, Engineers Australia.