HERITAGE COUNCIL OF WESTERN AUSTRALIA

REGISTER OF HERITAGE PLACES - ASSESSMENT DOCUMENTATION

11. ASSESSMENT OF CULTURAL HERITAGE SIGNIFICANCE

The criteria adopted by the Heritage Council in November, 1996 have been used to determine the cultural heritage significance of the place.

PRINCIPAL AUSTRALIAN HISTORIC THEME(S)

- 3.8.6 Building and maintaining railways
- 4.2 Supplying urban services

HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)

- 202 Rail and light rail transport
- 404 Community services & utilities

11. 1 AESTHETIC VALUE*

Railway Water Tower, Broad Arrow is highly valued by the Goldfields community as an identifiable built representation of the railway presence that was previously in the town. (Criterion 1.1)

Railway Water Tower, Broad Arrow has a landmark setting in the Broad Arrow town. It is dominant in the vista west from the Kalgoorlie-Menzies Road. It is integral within, and contributes to, the townscape and character of Broad Arrow. (Criterion 1.2)

Railway Water Tower, Broad Arrow, together with the adjacent Broad Arrow Tavern and two dwellings, forms a unique cultural environment that is the township of Broad Arrow. (Criterion 1.4)

11. 2 HISTORIC VALUE

Railway Water Tower, Broad Arrow was part of the extensive Eastern Goldfields railway system that enabled the successful exploitation of the gold deposits in the region. The place illustrates the importance of the railway system in this process and in the development of the supporting townships. (Criterion 2.1)

Railway Water Tower, Broad Arrow is an example of a water supply system fashioned to fit prevailing conditions and environment. The place illustrates the difficulties of providing steam-powered rail transport over long distances in Western Australia. (Criterion 2.2)

---

* For consistency, all references to architectural style are taken from Apperly, R., Irving, R. and Reynolds, P. *A Pictorial Guide to Identifying Australian Architecture: Styles and terms from 1788 to the present,* Angus & Robertson, North Ryde, 1989.

Railway Water Tower, Broad Arrow is one of three remaining elements that represents the original railway presence in Broad Arrow and dates to the inception of the railway through Broad Arrow in 1897-8. (Criterion 2.2)

Railway Water Tower, Broad Arrow has been associated with the Water Corporation in providing a reticulated water supply to the residents of Broad Arrow since c. 1990, and as such is one of a small number of railway water tanks still in use in the State. (Criterion 2.3)

11. 3 SCIENTIFIC VALUE

---

11. 4 SOCIAL VALUE

Railway Water Tower, Broad Arrow contributes significantly to the local community and wider district's sense of place for its aesthetic appeal, and as a reminder of Broad Arrow's early railway and goldmining history. The desire to retain the tank as part of the local water supply scheme, despite its deteriorating condition, is indicative of this. (Criterion 4.2)

12. DEGREE OF SIGNIFICANCE

12. 1 RARITY

Railway Water Tower, Broad Arrow, is one of only two tanks of its design and vintage known to be still in use for water storage in Western Australia.

12. 2 REPRESENTATIVENESS

Railway Water Tower, Broad Arrow is representative of a particular style of tank design in evidence on many rural railways in the State.

12. 3 CONDITION

Railway Water Tower, Broad Arrow is in fair to good condition.

12. 4 INTEGRITY

Railway Water Tower, Broad Arrow operated continuously as a railway facility until the 1950s when diesel trains were introduced. The place continues to function for the purpose of water storage and therefore has a high degree of integrity, although the water is no longer used for railway purposes.

12. 5 AUTHENTICITY

The place shows minimal evidence of changes to the fabric except to the replacement and upgrade of some structural members, and the addition of an internal fibreglass water tank. Despite that, the place has a high degree of authenticity.

13. SUPPORTING EVIDENCE

The documentary evidence has been compiled by Irene Sauman, Historian. The physical evidence has been compiled by Laura Gray, Conservation Consultant.

13. 1 DOCUMENTARY EVIDENCE

Railway Water Tower, Broad Arrow is a 25 000 gallon (113 kl) square cast iron water tank on a thirteen foot (4 metre) timber pole stand. The place is situated on Broad Arrow Lot 587, gazetted Reserve 4836 as a railway reserve.[1] *Railway Water Tower, Broad Arrow* was constructed in 1897 or 1898, by railway contractors Smith and Timms to provide water for the steam engines on the Kalgoorlie-Menzies line. Circa 1990, it was taken over by the Water Corporation to provide a water supply for the town. A fibreglass tank was fitted inside the cast iron tank c. 1995.

The discovery of gold at Southern Cross and the subsequent declaration of the area as the Yilgarn goldfield in 1888 prompted the State Government to commence construction of a railway to service the area. The line, initially known as the Yilgarn and later the Eastern Goldfields railway, began at Northam.[2] The line reached Southern Cross on 1 July 1894, and was opened to Kalgoorlie in September 1896. Gold was discovered north of Kalgoorlie at Broad Arrow in 1893, and the Broad Arrow goldfield was gazetted on 11 November 1896. A line from Kalgoorlie to Menzies was begun in August 1897, and reached Broad Arrow on 6 November that year. The line to Menzies was opened on 23 March 1898, and was handed over to the government on 13 February 1899. The railway provided efficient transport of mining machinery, timber, food and other goods for which the local population had previously relied on camels and horses.[3]

Smith and Timms were the contractors for the Kalgoorlie-Menzies section of the Eastern Goldfields line. Henry Teesdale Smith and Joseph Timms, both from Victoria, had built railway lines in Tasmania and New South Wales before arriving in Western Australia in the early 1890s. Their first contract in the State was for the Boyanup-Busselton line in 1893, followed by the Kalgoorlie-Menzies and Kalgoorlie-Kanowna lines, and the York-Greenhills line. Smith was General Manager of Millars Timber Co until 1907, having started with the company in Victoria as a railway contractor in 1874, and was MLA for Wellington from 1901-1904. Despite his other interests, he and Timms continued to build railways, including the Port-Hedland-Marble Bar line (1909-1911), and other lines in South Australia and New South Wales.[4]

The town of Broad Arrow developed rapidly, as was usual with goldmining settlements. The first shelters of canvas and hessian were soon replaced with timber and iron buildings as the importance of the gold finds was confirmed. The railway buildings were constructed of stone and brick. Broad Arrow was gazetted a municipality in 1897. The town had a Resident Magistrate, mining registrar, hospital, three churches, Salvation Army Hall, chemist, two banks, a stock exchange, police station, post office, two breweries, a cordial factory, eight hotels, six grocery stores and two draperies, blacksmith and bakers' shops. Broad Arrow provided administrative and public facilities for the population employed in the mines, including the smaller mining areas of Smithfield, Black Flat, White Flag, Grant's Patch and Ora Banda.[5]

---

1 DOLA, Reserves Index Enquiry.

2 The name 'Yilgarn Railway' was replaced with 'Eastern Goldfields Railway' in 1899-1900 (WAGR Annual Report, 1900, p. 2).

3 Gunzberg, Adrian & Austin, Jeff *Rails Through the Bush*, Light Railway Research Society of Australia, Melbourne, 1997, p. 207 & 229.

4 Gunzberg, Adrian & Austin, Jeff, op cit, pp.229-230.

5 Ware, Harry G. J. 'A History of Broad Arrow: 1893-1955', typescript, 1976, 4 pages.

One of the major issues for the goldmining districts, and the railways that supported them, was the supply of water. Large amounts of good quality water were required for mining operations, the operation of railway steam engines, and for the use of the population. Water storage dams, called 'tanks', were constructed by the Mines Department and by railway contractors. The dams were fed from large catchment areas, often utilising the natural landforms of the area. Tenders were called by the Public Works Department Water Supply Division for the construction of one such dam at Broad Arrow in 1897.[6] This provided water for the growing township, the mining operations and the operation of the railway.[7] The Broad Arrow dam held over 10,000,000 gallons (2,200 kl). Water was pumped from the dam by a steam pump.[8]

Railway Water Tower, Broad Arrow was most likely constructed by the railway contractors, Smith and Timms, during construction of the Kalgoorlie-Menzies line. The place was built to a standard WAGR plan, and water was supplied from the Broad Arrow dam. *Railway Water Tower, Broad Arrow* was part of the wider system of over 100 dams and tanks managed by WAGR along its many kilometres of railway line.[9]

Railway Water Tower, Broad Arrow was situated at the southeastern end of the Broad Arrow railway yard. The railway reserve comprised a station building about 80 feet (24.4 metres) in length with a 350 foot (106.6 metre) passenger platform, goods shed, station master's house, and at least three two-room platelayer's cottages. The station building and the railway employee's residences were all constructed of stone.[10] Broad Arrow was a major stop on the Kalgoorlie-Menzies line, with a refreshment room provided at the station, especially important when the line was extended to Leonora in 1903.

A site plan, dated 1901, indicates a proposal to relocate *Railway Water Tower, Broad Arrow* to a more central position in the railway yard. The relocation did not take place, according to the current position of the structure in relation to the streets and the town.[11]

The boom period for gold production was between 1893 and 1906. As early as 1903, population numbers were declining. That year, the Broad Arrow and Paddington councils amalgamated. By 1909, gold production had dropped considerably and the population had declined further. In 1910, the amalgamated councils became the Broad Arrow Road Board District. The State batteries that serviced the smaller mines in the district had closed by 1917. In 1925, Broad Arrow Road Board was absorbed by Kalgoorlie Road Board, and services at the railway station were downgraded with the removal of the resident stationmaster.[12]

---

6 *Western Australian Government Gazette*, 9 April 1897, p. 622.

7 West Australian Government Railways & Tramways Annual Report, 1905/06, p. 74.

8 West Australian Government Railways & Tramways Annual Report, 1900, p. 57.

9 *WAGR annual report*, 1905/06, p. 74; WAGR standard drawings, CCF 27893, 13 ft tank stand for a 25,000 gallon Engine Water tank & EEL 2873, engine water tank 25,000 gallons. **Note**: No separate tenders for the construction were located.

10 WAGR plan, Kalgoorlie-Menzies railway, EEL No. 5199, undated.

11 WAGR plan, Broad Arrow, EEL 5248, 22 November 1901; photograph, 1989, in Barber, Simon *Changing Before our Eyes: a photographic account of the changing face of the Westrail system 1982-1998*, PK Print, Hamilton Hill, 1998, p. 39.

12 Ware, Harry G. J., op cit; Webb, M. & A. *Golden Destiny: The Centenary History of Kalgoorlie-Boulder and the Eastern Goldfields of WA*, (2 vols.), Hocking & Co and St George Books, Perth, 1995, pp. 606-607.

Railway Water Tower, Broad Arrow supplied water to the steam engines on the Kalgoorlie-Leonora line until the introduction of diesel engines in the 1950s. The diesel engines were first put into service on the Eastern Goldfields and Northern railways, which ran through the drier areas of the State.[13] In the 1960s, the issue of rail gauge standardisation was finally addressed. At Parkeston, 4 kms east of Kalgoorlie, the narrow Western Australian gauge line met the standard gauge line from the east. Freight was transferred here from one line to the other, and through passengers transferred at Kalgoorlie station. Construction of the standard gauge line from Perth to Parkeston began in 1962, and the first standard gauge train ran to Fremantle in November 1966.[14]

Freight services continued on the Kalgoorlie-Leonora narrow gauge line, to service the ongoing mining operations, but the station buildings were removed. In the early 1990s, a standard gauge line was built from Kalgoorlie to Leonora. This line passed to the east of the narrow gauge line. The narrow gauge line tracks were removed from the old railway reserve. Although Broad Arrow and surrounding districts have been subject to continued mining, with the mineral boom in the 1950s and 1960s and more recent open pit mining, the workers for these operations commute from Kalgoorlie and Boulder. Very little remains of the original town of Broad Arrow.[15]

The water supply dams, which usually provided good quality water, were taken over for use by the Country Water Supply in a number of districts. Circa 1990, the Water Corporation provided Broad Arrow residents with a reticulated water supply, utilising *Railway Water Tower, Broad Arrow*. Water supplied from the dam to the tank was fed by gravity to the individual services. Following later problems with the turbidity of the dam water it was decided to transport water by road from Kalgoorlie, two to three times a week as needed. The deteriorating condition of the cast iron tank, however, required that another tank be provided. While the initial proposal was to remove the cast iron tank and install a new fibreglass tank on the tower, the local community requested that *Railway Water Tower, Broad Arrow* be retained for aesthetic reasons. This resulted in the fibreglass tank being fitted inside the cast iron tank, c. 1995.[16]

In 1999, Reserve 4836 was subject to a resumption plan. The Reserve was cancelled and the vesting order revoked in October 2000. The Water Corporation has an informal arrangement for use of the place.[17]

In 2001, *Railway Water Tower, Broad Arrow* provides a reticulated water supply for Broad Arrow tavern and two residences.

13. 2 PHYSICAL EVIDENCE

Railway Water Tower, Broad Arrow is located within the original railway reserve on the west side of the main street in Broad Arrow, directly in front of the Broad Arrow Tavern. There is no physical association with the existing railway line, which is located some distance east of the tavern.

---

13 Higham, G. J. *One Hundred Years of Railways in Western Australia, 1871-1971*, Australian Railways Historical Society, WA Division, 1971, p. 15.

14 WAGR, *A Brief History*, 1975, pp. 7-8.

15 Ware, Harry G. J., op cit; Webb, M. & A., op cit, pp. 606-607; Barber, Simon, op cit.

16 Information provided by Chris Haynes, Water Corporation, Northam.

17 ibid; DOLA, Reserves Index Enquiry.

Railway Water Tower, Broad Arrow is a significant element within the Broad Arrow town, being the tallest of the four structures that make up the settlement.

The place is centrally located within a flat gravelled area, approximately 100 metres west of the tavern.

Railway Water Tower, Broad Arrow was built to a standard WAGR design. The square cast iron tank is typical of the tanks usually constructed on the main lines.

The tank is supported by a square grid of three bush timber posts along each edge, comprising three rows of three posts. The posts may be original. Some are weathered, although this appears to be superficial. The posts are supported by bed logs of sawn timber on concrete foundations. The bed logs comprise milled timbers with steel plate connections bolted to the posts. The concrete foundations have chamfered edges, and appear to be original fabric. Each of the bed logs and foundations extend the length of three posts aligned north south. Milled timber cross bracing on the stand is not original fabric.

The tank platform comprises a series of pairs of milled timber bearers aligned north south, corresponding with the bed logs below, supporting sets of double joists, on which the tank is located. Timber angle brackets between the bearers and joists and the posts, have been inserted around the perimeter of the tank platform.

The square tank comprises a number of cast iron panels welded together. The corners of the tank are rounded. There are cracks in the tank, with a serious vertical crack evident on the northwest corner. The steel and iron water pipe and fittings are still in place beneath the tank. The steel ladder remains in place, although a flat iron covering on the lower sections prevents access. A steel platform and railing is in place at the top of the ladder.

The separate internal water tank was not visible from ground level inspection.

13. 3 COMPARATIVE INFORMATION

There are a number of timber stands with water tanks still extant in West Australian railway reserves. These vary in shape and size, being either square or round tanks on thirteen, forty or fifty foot stands. Some remaining timber stands with square tanks are situated at Cunderdin, Wongan Hills, Tambellup, Duggan, Merredin, Salmon Gums and Kwobrup. Timber stands with circular tanks are situated on the Binnu-Ajana section, and at Corrigin, Kwobrup, Formby and Mooliaman. The tank and stand at Kwobrup is believed to be still in use together with the associated railway dam. Most of the other remaining tanks are empty and unused.[18]

13. 4 REFERENCES

---

13. 5 FURTHER RESEARCH

---

18 Uhe, Phillip, *Survey of Railway Heritage in Western Australia*, National Trust of Australia (WA), March 1994, 'Typology: Water tanks and stands', and entries under individual places.