



**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
- 3.11.5 Establishing water supplies
- 3.14.1 Building to suit Australian conditions
- 4.1.1 Selecting Township sites
- 5.1 Working in harsh conditions

HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)

- 102 Aboriginal Occupation
- 105 Exploration and Surveying
- 106 Workers, (including Aboriginal, convict)
- 107 Settlements
- 108 Depression and Boom
- 202 Rail and light rail transport
- 507 Water, power, major transport routes

11.1 AESTHETIC VALUE*

Railway Rock Catchment Dams Group, Yilgarn contains significant landmarks on the goldfields railway line, the granite domes and the sizeable catchment dams lying in stark contrast to the landscape of surrounding low-lying bush. (Criterion 1.3)

Railway Rock Catchment Dams Group, Yilgarn represents a design approach resulting in a unique mix of cultural and natural landscapes, with the artificial catchment walls following the natural contours and water lines of the natural environment. (Criterion 1.3)

11.2. HISTORIC VALUE

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

For consistency, all references to garden and landscape types and styles are taken from Ramsay, J. *Parks, Gardens and Special Trees: A Classification and Assessment Method for the Register of the National Estate*, Australian Government Publishing Service, Canberra, 1991, with additional reference to Richards, O. *Theoretical Framework for Designed Landscapes in WA*, unpublished report, 1997.

Railway Rock Catchment Dams Group, Yilgarn demonstrates the development of Colonial settlement into the state's interior, where settlements grew in association with access to the goldfields railway line and access to water. (Criterion 2.1)

Railway Rock Catchment Dams Group, Yilgarn demonstrates the growth of infrastructure of the state in response to the Gold Boom, both in the method of construction used and how successive infrastructure projects built off the results of earlier projects. (Criterion 2.2)

Railway Rock Catchment Dams Group, Yilgarn is associated with the life and work of a number of Public Works Department Engineers, including C Y O'Connor, W H Shields and C Jobson. (Criterion 2.3)

Railway Rock Catchment Dams Group, Yilgarn is significant technical and logistic achievements during the gold boom period, the Public Works Department designing and co-ordinating the completion of a number of railway catchment dams in remote, arid areas in conjunction with the construction of the goldfields railway line. (Criterion 2.4)

11. 3. SCIENTIFIC VALUE

Railway Rock Catchment Dams Group, Yilgarn, particularly the archaeological remains of the WAGR housing and associated artefact scatters at Yellowdine, has the potential to yield information contributing to a wider understanding of the life of small remote settlements in the state's interior during the nineteenth and early twentieth centuries. (Criterion 3.2)

Railway Rock Catchment Dams Group, Yilgarn demonstrates a range of technical responses to the problem of obtaining water in remote, arid environments, with the catchment system at Bodallin representing a small adjustment to the natural water flow of the area while the catchment system at Yellowdine demonstrates an expanding, multi-layered attempt to obtain water from multiple catchment areas simultaneously. (Criterion 3.3)

11. 4. SOCIAL VALUE

The elements making up *Railway Rock Catchment Dams Group, Yilgarn* are recognised as historic sites in the Shire of Yilgarn, and contribute to the community's sense of place. (Criterion 4.2)

12. DEGREE OF SIGNIFICANCE

12. 1. RARITY

Railway Rock Catchment Dams Group, Yilgarn has moderate rarity as an example of railway catchment dams and associated structures associated with the goldfields railway line, and as a demonstration of a large government infrastructure project linking Perth to the goldfields. (Criterion 5.1)

The remains of three WAGR Houses at Yellowdine have moderate rarity as an example of a small interior settlement developing in conjunction with the goldfields railway line and access to water. (Criterion 5.1)

The Stone Bread Oven is a very rare example of an outdoor oven used to support a work force in the construction of a work project. (Criterion 5.2)

12.2 REPRESENTATIVENESS

The Catchment Dams are excellent representative examples of this type of construction and function with masonry catchment walls capturing and directing a flow of water off a granite dome and into a large puddle-walled dam. (Criterion 6.1)

The ruins and associated artefacts within *Railway Rock Catchment Dams Group, Yilgarn* are representative of the accommodation and lifestyle of WAGR staff during the gold boom period. (Criterion 6.2)

12.3 CONDITION

The catchment dam systems of *Railway Rock Catchment Dams Group, Yilgarn* are in fair condition, although some of the catchment walls at Yellowdine damaged due to construction of power lines.

The Stone Bread Oven is in fair condition.

The remains of three WAGR Houses at Yellowdine are in poor condition.

12.4 INTEGRITY

The catchment dam systems of *Railway Rock Catchment Dams Group, Yilgarn* have a high integrity, and the original function and intention of the catchment system is still identifiable and still performing its original function.

The Stone Bread Oven has a high integrity as the original function of the structure is still clearly legible.

The remains of three WAGR Houses at Yellowdine have a moderate to low integrity; while the original function of these structures is still legible, the ruins would need extensive repairs and are unlikely to be capable of providing accommodation in the future.

12.5 AUTHENTICITY

The catchment dam systems of *Railway Rock Catchment Dams Group, Yilgarn* have a high authenticity, with the fabric mostly in its original state, minus some elements that have been damaged or removed.

The Stone Bread Oven has a high authenticity.

The archaeological remains of three WAGR Houses staff housing at Yellowdine has a moderate to high authenticity, with artefacts from later historical periods mixed in with the original artefacts.

13. SUPPORTING EVIDENCE

The documentation for this place is based on the heritage assessment completed by Senior Heritage Officer Moss Wilson, in 2014-2015, with amendments and/or additions by the State Heritage Office and the Register Committee.

13.1 DOCUMENTARY EVIDENCE

Railway Rock Catchment Dams Group, Yilgarn consists of catchment dams built around granite outcrops at Yellowdine (1894-1897) and Bodallin (1897), as well as a stone bread oven at Bodallin (1897), and the structural remains of three WAGR Houses at Yellowdine established 1896-c.1911. Collectively, these structures demonstrate the development of water sources servicing the goldfields railway and their influence on the development of small settlements along this route.

Throughout the 19th century, the barren eastern interior of Western Australia had been left unsettled by the British colonisers as it had considered too dry for agriculture and pastoralism. However the discovery of gold in the Yilgarn by Harry Anstey in 1887, followed by gold strikes by Bayley & Ford at Coolgardie in 1892, saw a surge of interest in the relatively unexplored region. Water was the most vital resource in the arid interior, with prospectors travelling out to the new goldfields along the pastoral track and chain of wells established by Charles Cooke Hunt in 1864-1866.¹ The discovery of gold at Kalgoorlie in 1893 by Patrick Hannan saw a population boom into the area, with books, guides and maps made available to prospectors looking for the safest routes and watering holes in the area that had been provided by the government.² As a result of this population increase, calls were made to build a railway into the interior regions, which would allow further settlement and avoid the perils of an overland journey through a largely waterless interior. The prospect was also raised that such a development would be a significant step in the creation of a trans-continental railway.³

After a public struggle between Northam and York over which town the proposed rail route would travel through, Northam was selected as the starting point for an extension into the state's interior, part of the established Eastern Line which already extended out to Northam in 1886.⁴ After calling for public tenders in late 1892, the Public Works Department awarded the contract for the construction of

¹ *The West Australian*, 30 November 1887, p. 3; *The Inquirer and Commercial News*, 16 November 1887, p. 5; *Western Mail*, 3 December 1887, p. 21; *Western Mail*, 24 December 1892, p. 22; *Eastern Districts Chronicle*, 17 March 1888, pp. 4-5; *The West Australian*, 24 September 1892, p. 3; *Western Mail*, 5 November 1892, p. 21

² *The Daily News*, 29 June 1893, p. 3; Edward Stanford Ltd, 'The Western Australia goldfields [cartographic material]', Trove Digital Map Collection, <http://nla.gov.au/nla.map-rm1202>, accessed 6 May 2015; Western Australia Department of Mines, 'Plan showing routes to Yilgarn, Coolgardie & Dundas goldfields [cartographic material]', Trove Digital Map Collection, <http://nla.gov.au/nla.amp-rm2913>, accessed 6 May 2015; McCarron, Stewart & Co., *Western Australia. The Coolgardie and Murchison Goldfields: How to get there: What it costs*, 1894, pp. 11-13; J S H Le Page, *Building a State: The Story of the Public Works Department of Western Australia 1829-1985*, Water Authority of Western Australia, 1986, p. 263

³ *The West Australian*, 21 November 1887, p. 3; *The West Australian*, 23 February 1888, p. 2; *Western Mail*, 10 March 1888, p. 24

⁴ 'The Yilgarn Railway', *The Daily News*, 14 January 1892, p. 2; 'Yilgarn Railway York and Northam Routes', *The Inquirer and Commercial News*, 15 January 1892, p. 3; P3933 *Bullabulling Rock Water Catchment and Dams*, (RHP) assessment documentation, pp. 4-5; P1859 *Northam Railway Station (fmr)* (RHP) assessment documentation, pp. 4-5

the Northam-Southern Cross railway line to Joseph McDowell. The tender called for construction of the line and buildings; however construction of the water supply initially remained with the Public Works Department.⁵ By the time the railway was under construction there were already calls for the extension of the line from Southern Cross to Coolgardie, as well as for use of the line as it was completed.⁶

While the railway route was influenced by the existing prospector's tracks and the location of the earlier wells by Hunt, there was a portion of the route approximately 400 miles with no ready water supply of sufficient volume for the steam trains.⁷ To further complicate matters, the steam trains required good quality water with little mineral content for optimum use, as the high salt content of bore water was damaging to the expensive boilers.⁸

Soaks located around granite outcrops were well known as a water supply, and were used by the Aboriginal people and later European explorers, sandalwood cutters and settlers. The granite outcrops in the Yilgarn area would have been of particular importance to the Kaparn (aka Gubrun) Indigenous groups who inhabited the region.⁹ However, the problem was conserving the water, as noted by travellers to Southern Cross in 1889:

*The salvation of the roads are the granite rocks. Over expanses varying from ten acres to hundreds...every drop of water that falls upon these rocks is collected into one or at most a few channels, but for the most part is allowed to run off to waste.*¹⁰

Engineer-in-Chief of the Public Works Department Charles Yelverton O'Connor therefore sent his newly appointed Assistant Engineer William Herbert Shields to search for a solution to this problem.¹¹ William Herbert Shields was born in County Meath, Ireland in 1870 and graduated from the University of Glasgow in 1891 with a Bachelor of Science degree in civil engineering.¹² Shields' significant contribution to engineering in Western Australia was recognised by the award of an honorary Science degree (*ad eundem gradum*) by the University of Western Australia in 1914 at its inaugural Graduation Ceremony in Government House

5 *Western Mail*, 3 December 1892, p. 19; *The West Australian*, 17 February 1893, p. 6

6 *The West Australian*, 12 August 1893, p. 3; *The West Australian*, 24 August 1893, p. 3; *The Daily News*, 20 October 1893, p. 2; *The Daily News*, 23 August 1893, p. 3

7 Shields, W H, 'Water-Supply on the Yilgarn Railway, Western Australia', *Minutes of proceedings of the Institution of Civil Engineers*, Institution of Civil Engineers, 1901, vol. 146, p. 242; P3933 *Bullabulling Rock Water Catchment and Dams*, (RHP) assessment documentation, p. 4-5

8 Higham, G, *One Hundred years of Railways in Western Australia 1871-1971*, Australian Railway Historical Society Inc, WA Division, 1980, p. 8; Whitford, D, *The Kalgoorlie 1897-1971*, Australian Railway Historical Society Inc, WA Division, 1971, p. 1; P1279 *Kalgoorlie Railway Station*, (RHP), assessment documentation, pp. 3-4; Le Page, J, *Building a state*, Water Authority of Western Australia, 1986, pp. 347-348

9 Aboriginal Heritage Inquiry system, <http://maps.dia.wa.gov.au/AHIS2/>, accessed 18 June 2015; 'Research Report Bibliography Central Goldfields Regional Report No. 190/2003, National Native Title Tribunal website, <http://www.nntt.gov.au/Information%20Publications/Central%20Goldfields%20Region.pdf>, accessed 18 June 2015

10 'The Road to Southern Cross', *The West Australian*, 5 June 1889, p. 3

11 Assessment documentation for P13523 *Railway Dam, Merredin*, p. 4

12 'Graduate Record for William Herbert Shields', *University of Glasgow Story*, <http://www.universitystory.gla.ac.uk/biography/?id=WH16278&type=P>, accessed 17 June 2015.

Ballroom.¹³ Shields immediately recognised the potential importance of the granite domes dotting the interior as watering places used by earlier travellers.¹⁴

Shields first sent a surveyor along the line of work to report on possible reservoir sites, with locations identified at Horse Valley (near Northam), Cunderdin Hill, Kellerberrin Hill, Merredin, Burracoppin and Parker's Road (Moorine). Shields performed a number of experiments to try to calculate the likely rate of evaporation from reservoirs at these locations, and decided upon a strategy of a small number of large tanks, of 6 million gallons each, rather than numerous smaller wells along the rail route.¹⁵

While construction of the railway from Northam to Southern Cross by McDowell's team took place throughout 1893, Shields oversaw the construction of a test dam (P10065 Moorine Rock Dam) at Parker's Road (also known as Parker's Range) from January to June 1894. The method of water conservation that had been suggested in 1893 by commentators and Superintendent of the Water Supply Fred Renou was the use of earth drains extending from the granite domes to a storage dam, however in building the test dam it was found:

*the officer recommended building the contour drains on the rock, of slabs of stone set on edge and cemented together and to the rock, instead of constructing them of concrete as proposed by the resident engineer. An improvement of this type was afterwards adopted very generally.*¹⁶

In 1894, McDowell's team also accepted a new contract from the government to construct similar railway dams along the Northam-Southern Cross line, including dams at Cunderdin, Merredin and Kellerberrin.¹⁷

During this time, the Public Works Department embarked on a massive programme of water provision, sinking numerous shafts and wells, and building numerous tanks (dams) from Southern Cross to Coolgarie and Hannan's (Kalgoorlie), despite the fact that the tender for construction of a railway from Southern Cross to Coolgardie had not yet been announced.¹⁸ To facilitate this construction, C Y O'Connor hired Charles Jobson as Assistant Engineer for the Yilgarn Goldfields Water Supply, who accompanied C Y O'Connor on a tour of the

13 'The First UWA Graduation', *The University of Western Australia*, <http://www.convocation.uwa.edu.au/home/firstgraduate/firstgraduation>, accessed 17 June 2015.

14 Le Page, *op cit.*, p. 265; 'Public Works Department, Statement of Works Carried Out During the Year Ending 30th June 1894', *Votes and Proceedings: Parliament of Western Australia*, 1895, paper 22, p. 4; Gunzburg, A, Austin, J, *Rails through the bush: timber and firewood tramways and railway contractors of Western Australia*, Light Railway Research Society of Australia, 1997, p. 206; Granite domes are here defined as conspicuous geomorphological features comprising large monoliths rising about their surrounding landscape, see Bayly, I A E, *Rock of ages; human use and natural history of granite outcrops*, Tuart House: Nedlands, 1999, in Harvey, M, 'Two new species of *Synsphyronus* (Pseudoscorpiones: Garypidae) from southern Western Australian granite landforms', *Records of the Western Australian Museum*, 2010, vol. 26, p. 11

15 Shields, *op cit.*, pp. 242-245;

16 'Coolgardie', *Western Mail*, 1 April 1893, p. 25; 'Southern Cross and Coolgardie', *Western Mail*, 19 August 1893, p. 3; Shields, *op cit.*, p. 245; *The Daily News*, 10 May 1894, p. 3; there is some confusion in the sources as a dam site built at York by the PWD was also known 'Parker's Road.'

17 Shields, *op cit.*, pp. 245-246; *The Daily News*, 22 May 1894, p. 2;

18 Shields, *op cit.*, p. 246; 'Public Works Department, Statement of Works Carried Out During the Year Ending 30th June 1894', *Votes and Proceedings: Parliament of Western Australia*, 1895, paper 22, pp. 4, 18-19

goldfields in February 1894 to provide immediate advice on the construction of water sources.¹⁹

Among the list of works undertaken by the Public Works Department in 1894 was fencing and tank construction at 'Yelladine,' 18 miles from Southern Cross.²⁰ The dam, also known as 'Reen's Soak' due to a small soak between the rocks that was used by travellers, was constructed along the lines outlined by Shield, using a series of masonry catchment walls to collect and direct the runoff from the granite dome into a clay-lined 'puddle wall' dam that held the water.²¹

Yellowdine rock was surveyed by a member of Jobson's team in March 1894, and by this point three wells had already been sunk at Yellowdine to supply teams travelling to Coolgardie.²² The catchment area for the dam was constructed using horses and camels to bring equipment to the site and pull rock slabs down from the dome while teams of stonemasons cut, shaped and mortared the slabs into long walls and sluice drains. Steam scoops were used to construct the puddle dam.²³

The dam was completed by July 1894, the capacity quoted as 850,000 gallons.²⁴ Observers of the dam noted that:

*The catchment area of this tank... is formed of huge granite rocks, quite devoid of vegetation. The water is caught and conveyed to the tank by means of pitched drains which run around the rock, and are so constructed as to collect the water direct from the rock without allowing it to soak into the ground.*²⁵

A map of the catchment dam at Yellowdine dated to August 1895 signed by William Ripper, Temporary District Engineer assisting the Yilgarn railway project, shows the south-eastern granite dome as ringed with catchment walls that were connected to a long sluice drain that extended east from the rock, emptying into a large tank. Four other rocks in the immediate area were not used; however the map notes that these rocks were already earmarked for future expansion of the catchment.²⁶ Once the dam was completed, it became a temporary base at the head of the rail line, where contractors, materials and carriers converged to plan the next section of the railway and associated catchment dams. The dam also provided a vital water resource for the construction crews and miners who worked the area.²⁷

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- 19 'Public Works Department, Statement of Works Carried Out During the Year Ending 30th June 1894', *Votes and Proceedings: Parliament of Western Australia*, 1895, paper 22, statement no. 6; *The West Australian*, 5 February 1894, p. 7; *The West Australian*, 22 March 1894, p. 6; *Western Mail*, 28 April 1894, p. 3; *Western Mail*, 2 June 1894, p. 4; *Western Mail*, 30 June 1894, p. 4
- 20 'Public Works Department, Statement of Works Carried Out During the Year Ending 30th June 1894', *Votes and Proceedings: Parliament of Western Australia*, 1895, paper 22, p. 19
- 21 Woore, J, 'The Yilgarn Railway Water Service, Western Australia', paper read before the Sydney University Engineering Society on 3 November 1898, p. 60, University of Sydney eScholarship Journals Online, <http://openjournals.library.usyd.edu.au/index.php/SUES/article/viewFile/2318/2732>, accessed 29 May 2015
- 22 *Western Mail*, 3 March 1894, p. 14; *The Inquirer and Commercial News*, 9 March 1894, p.13
- 23 Howlett, D, *op cit.*, pp. 19-22
- 24 *The West Australian*, 3 July 1894, p. 2
- 25 'The Coolgardie Water Supply', *The West Australian*, 28 September 1894, p. 6
- 26 'Coolgardie Railway. Reens Soak Water Supply', State Records Office, Item no. 4762, Consignment no. 1647, Series 399
- 27 P3933 *Bullabulling Rock Water Catchment and Dams*, (RHP) assessment documentation, pp. 7-9; Howlett, *op cit.*, p. 25; 'Yellowdine! O Yellowdine!', *Sunday Times*, 13 January 1935, p. 10

A list of wells and tanks by the Public Works Department for the financial year 1894-1895 indicates that 15 tanks were completed during this time with the the final capacity at Reen's Soak (Yellowdine) quoted as 1.1 million gallons. It was noted that construction of the tanks due to 'the skill and exceptional efforts of Mr Jobson.'²⁸

McDowell's railway construction team completed the Northam-Southern Cross line on 1 July 1894, with the railway formally taken over by the government with little fanfare. The contract with McDowell was not formally completed until December that year.²⁹

The Public Works Department opened tenders for the extension of the railway from Southern Cross to Coolgardie in June 1895, which was awarded to the Wilkie brothers from New Zealand. The Public Works Department annual report noted that 'the amount of the contract is very low, the contractors relying upon the goldfields traffic to redeem the low tender.'³⁰ In essence, the Wilkie brothers hoped to make money from their own use of the line as it was constructed and before the government took control of the line once construction was complete.

The Wilkie brothers completed the railway line to Coolgardie by March 1896, which was opened with great ceremony by the Governor Sir Gerald Smith and the premier Sir John Forrest.³¹ During this period the Public Works Department continued its work along the goldfields line, establishing roads and maintaining water sources, and performed surveys for new railway catchment dams at Boorabbin and Woolgangie.³² The Public Works Department was also reorganised to better cope with the volume of work being carried, out, which included the establishment of a sub-department under C Y O'Connor dedicated to goldfields water supply.³³

By the end of 1896 the increase in rail traffic led to W H Shields being called upon to improve the water supply along the goldfields line, as he had been entrusted to oversee expansions and other improvements to the established catchment dams at Cunderdin and Parker's Road in 1895.³⁴ Shields recommended the construction of a number of new dams between Northam and Southern Cross, which included a dam at Bodallin, 140 miles from Northam.³⁵

A survey of Bodallin carried out in October and November 1896 by government surveyor Edward Brice proposed the usual square dam, however instead of

28 'Public Works Department, Statement of Works Carried Out During the Year Ending 1895', *Votes and Proceedings: Parliament of Western Australia*, 1896, paper 20, pp. 12-13, 23

29 *The West Australian*, 11 December 1894, p. 5; *The Daily News*, 2 July 1894, p. 2; *The Daily News*, 4 July 1894, p. 2

30 'Southern Cross-Coolgardie Railway', *The West Australian*, 12 June 1895, p. 3; 'Public Works Department, Statement of Works Carried Out During the Year Ending 1895', *Votes and Proceedings: Parliament of Western Australia*, 1896, paper 20, pp. 12-13

31 'Opening of the Coolgardie Railway', *The West Australian*, 24 March 1896, p. 3; 'Coolgardie Railway', *The Inquirer and Commercial News*, 27 March 1896, p. 10

32 *The West Australian*, 8 November 1895, p. 6; 'Public Works Department', *The Inquirer and Commercial News*, 22 November 1895, p. 12; *Western Mail*, 15 November 1895, p. 3

33 'The Public Works Department', *The Inquirer and Commercial News*, 24 January 1896, pp. 4, 15

34 Shields, *op cit.*, pp. 246-247

35 *ibid.*, p. 247

plotting out an extensive catchment wall, Brice's survey simply followed the contour of a natural drain that flowed across the area and into the dam.³⁶

Shields' assistant, J Woore, made further notes on the construction of the dam:

*Good clay for puddle was obtained about 1 foot below the surface... the clay was ploughed up with a heavy muck-plough, and thoroughly watered, after which it was re-ploughed, watered, and ploughed again, and the operation repeated until a thorough mixture was obtained. The puddle was then conveyed to the trench in drays, where it was tipped and rammed.*³⁷

Woore also noted that construction of the dam cost £9,365, which included the use of 13 draught horses and 14 tip drays, and took a total of seven months to complete.³⁸ However, Shield's notes for this place state that 'more than the authorised work was carried out for the original sum; the storage capacity at Bodallin being... enlarged from 120 acres to 640 acres.'³⁹

The manpower required for the construction of the Bodallin catchment dam required the establishment of a private store and boarding house, which was accused of being run by government officials to the exclusion of private business that might cater to the workmen. The Public Works Department practise of using day labourers serviced by government-run stores and accommodation rather than independent contractors was also publically criticised until the department agreed to the closure of the stores in May 1897.⁴⁰

The Yellowdine catchment dam also underwent expansion sometime in late 1896, as the 'Yellowdine reservoir' was listed as 'incomplete' in March 1897 by the Public Works Department in their report of water provision in the goldfields.⁴¹ The Annual Report for the Public Works Department mentions that the 'excavated tanks at Yellowdine, Boondi, and Woolgangie... which were commenced towards the close of last year, have been completed Departmentally, at a cost of about £16,500.'⁴²

In January 1898 Railway Department report noted depths of water in the original and the 'new dam' at Yellowdine after a flash rainstorm, indicating that the work had been completed by this time.⁴³

The cost to the government of opening new water sources for the growing goldfields population, as well as maintaining the water sources already established for domestic, mining and railways use, led C Y O'Connor to develop the Coolgardie Water Supply Scheme as early as 1895. O'Connor proposed a

36 'Yilgarn Railway. Water Service. Bodallin, Yerbillon. Levels taken round Tank Boundary. Cross Sections of Tank where left unexcavated. Levels from Yerbillon Rocks to Lagoons. Levels along Main Contour Drain. Burracoppin. 01/11/1897. Ed. E. Brice', State Records Office, Item no. 03217, Consignment no. 3465, Series 85

37 Woore, J, 'The Yilgarn Railway Water Service, Western Australia', paper read before the Sydney University Engineering Society on 3 November 1898, p. 62, University of Sydney eScholarship Journals Online, <http://openjournals.library.usyd.edu.au/index.php/SUES/article/viewFile/2318/2732>, accessed 29 May 2015

38 *ibid.*, pp. 65-66

39 Shields, *op cit.*, p. 254

40 'Government Officials and Store-Keeping', *The West Australian*, 26 May 1897, p. 5; *The West Australian*, 27 May 1897, p. 4;

41 'Goldfields Water Supply', *The West Australian*, 18 March 1897, p. 6

42 'Report of the Department of Public Works for the Year 1897-1898', Railway Construction Branch, *Votes and Proceedings: Parliament of Western Australia*, 1898, paper 42, p. 63

43 'Railway Water Supply', *The Inquirer and Commercial News*, 7 January 1898, p. 5

pipeline from the Darling Range to the goldfields to alleviate both the water shortage and spiralling government costs.⁴⁴ Construction of the pipeline made heavy use of the goldfields railway line and the railway catchment dams supporting them.⁴⁵ The pipeline was opened in January 1903 however the catchment dams remained in constant use, as the pipeline water was still considered too saline for steam engines.⁴⁶

Another development during this period was the erection of more permanent structures near a number of the dams where the trains had to stop for re-watering, and some of these developments grew into inland settlements. Merredin in particular became a local traffic hub.⁴⁷

In 1896, McDowell was contracted by the Public Works Department to construct three stone cottages at Yellowdine, two north of the line and one further to the south.⁴⁸ The two stone cottages were joined by a combined timber pump house and pumper's quarters in 1901, as well as a small orchard. These structures housed the men who were employed by the WAGR to maintain the dam and the rail line, as well as supply water from the Yellowdine dam to the steam train.⁴⁹ An additional timber station master's cottage was planned next to the existing stone cottages and timber pump house in 1905, but does not appear to have been constructed along these lines, with a smaller timber framed structure built c. 1911.⁵⁰

In 1927, the Union Plaster Works Pty Ltd leased land adjacent to the stone and timber houses for the extraction of gypsum from local deposits, which significantly increased rail traffic to Yellowdine.⁵¹ In 1934, a number of companies took an interest in gold mining in the Yellowdine area, resulting in a flurry of new settlers to the region.⁵² These new industries led to further development of the rail infrastructure in the area in the 1930s and 1940s, which included the rebuilding of the railway station, staff housing, the erection of new station sheds, and the building of loop lines, rail yards and a new water tank for use by the steam engines.⁵³

44 Strickland, R, *National Historic Engineering Landmark Nomination Coolgardie Goldfields Water Supply 1898-1903*, The Institution of Engineers, Australia, 1986, p. 1; 'The Coolgardie Water Supply Scheme', *The Western Mail*, 11 March 1898, p. 8

45 *Kalgoorlie Western Argus*, 20 January 1903, pp. 21-29; Ewers, J K, *The Story of the Pipe-Line*, 1935, Carroll's Ltd., pp. 67, 73

46 P3933 *Bullabulling Rock Water Catchment and Dams*, (RHP) assessment documentation, p. 10

47 P1353 *Railway Dam, Merredin*, assessment documentation, pp. 4-5; Howlett 2007, *op cit.*, pp. 33-38

48 Howlett, *op cit.*, p. 34

49 *ibid.*, pp. 24, 33-34; 'Yellowdine! O Yellowdine!', *Sunday Times*, 13 January 1935, p. 10

50 'Standard Employees' House Site Plan'; 'WAGR Standard Drawing 3 Roomed Wooden Station Master's House'; 'Yellowdine Proposed Siding Extension', 'Yellowdine Proposed Dead End', within 'Yellowdine, station yard layout showing proposed siding for Union Plaster Co. Ltd.' State Records Office, Item no. 25087, Consignment no. 1781, Series 2238

51 Howlett, *op cit.*, pp. 35-36; 'Local Industry', *Sunday Times*, 6 November 1927, p. 24; 'New Plaster Works', *The West Australian*, 27 August 1928, p. 13

52 'Gold Mining', *Geraldton Guardian*, 20 November 1934, p. 5; 'Yellowdine Options', *The West Australian*, 30 November 1934, p. 20; 'Yellowdine. A Walk through Canvas Town', *The West Australian*, 16 April 1935, p. 23

53 Howlett, *op cit.*, pp. 35-37; 'Yellowdine Proposed Siding Extension'; 'Yellowdine Propd. Additional Siding Accomodation', within 'Yellowdine, station yard layout showing proposed siding for Union Plaster Co. Ltd.' State Records Office, Item no. 25087, Consignment no. 1781, Series 2238

However, the gold mine was abandoned after 1944 and the equipment sold off.⁵⁴ The catchment dams at Yellowdine and Bodallin also fell out of use in the 1950s, when the steam engines servicing the goldfields line were progressively replaced with diesel engines.⁵⁵ As a result, the government staff buildings around Yellowdine fell into disuse and were abandoned after 1962.⁵⁶ A photo of Yellowdine railway station taken in 1966 shows the Union Plaster gypsum plant still standing in 1966, however this too was later abandoned.⁵⁷

The concept of using catchment walls on granite domes to channel and direct water into reservoirs was re-used after 1905 in the context of agricultural expansion at the edges of the wheatbelt. The government enacted a new series of rock catchment dams in this region in the 1920s, and again in the 1940s, and dams of this nature were built as recently as 1994.⁵⁸ This system of water conservation was further taken up at the Eyre Peninsula in South Australia between 1913-1932, and is still used in international contexts.⁵⁹

A by-product of the WAGR use of catchment walls on granite domes was they were among the first to note the link between clearing of natural bushland and rising salinity in water supplies as early as 1926. Despite making warnings on the link between clearing of natural bushland and rising salinity, action was not taken for many years.⁶⁰

Currently, the catchment dams at Yellowdine and Bodallin are popular tourist spots and still continue to collect and channel water into the dams, a significant engineering feat considering the age and basic nature of the materials used in their construction. One of the later (1940s) railway houses at Yellowdine is still standing facing the Great Eastern Highway, south of the original housing ruins.

13.2 PHYSICAL EVIDENCE

Railway Rock Catchment Dams Group, Yilgarn consists of masonry catchment walls and earth dams located around granite outcrops at Yellowdine (1894-1897) and Bodallin (1897), as well as a stone bread oven at Bodallin (1897), and the structural remains of three WAGR Houses at Yellowdine established 1896-c.1911. These structures have been abandoned; however the two catchment dams are still functional.

P10055 Bodallin Railway Dam (includes P16795 Stone Bread Oven)

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- 54 'Yellowdine Wind-up', *Toodyay Herald*, 21 January 1944, p. 3; *The West Australian*, 9 January 1952, p. 8;
- 55 P3933 *Bullabulling Rock Water Catchment and Dams*, (RHP) assessment documentation, p. 11; Higham 1980 *op cit.*, p. 15
- 56 'Yellowdine Proposed Extension to West End of Loop for Loop to Accommodate 80 singles', within 'Yellowdine, station yard layout showing proposed siding for Union Plaster Co. Ltd.' State Records Office, Item no. 25087, Consignment no. 1781, Series 2238
- 57 Photo by Geoff Griffiths, 'Yellowdine Station', *History of Western Australian Railways and Stations Website HOWARAS*, http://wastations.i8.com/EGR/Yellowdine/Yellowdine_Station.html, accessed 2 June 2015
- 58 Laing, I, Hauck, E, 'Water harvesting from granite outcrops in Western Australia', *Journal of the Royal Society of Western Australia*, 1997, vol. 80, pp. 181-182
- 59 Twidale, C, 'Granite outcrops: their utilisation and conservation', *Journal of the Royal Society of Western Australia*, 2000, vol. 83, pp. 118-120; Nissen-Petersen, E, Lee, M, *Harvesting Rainwater in Semi-Arid Africa, Manual No. 3 Rock Catchment Dam with self-closing watertap*, ASAL Rainwater Harvesting, Kenya, <http://www.ircwash.org/sites/default/files/217-8879.pdf>, accessed 18 June 2015
- 60 'Water Supply Problems', *The West Australian*, 28 August 1925, p. 12; 'Soil Salinity', *The West Australian*, 20 September 1929, p. 28; 'Saline Water', *Western Mail*, 6 February 1930, p. 54

This catchment area and dam lies in a large bush reserve surrounding Bodallin Rock, south of the Great Eastern Highway. Bodallin Rock is an extensive granite dome with a very low elevation, the catchment area sloping east with the rock and surrounding landscape forming a natural bowl to the northern and eastern edge of the rock. The dam is located adjacent to the eastern end of Bodallin Rock, with an unsealed track running roughly north-south further to the east. Beyond this road lies a picnic area and carpark in which P16795 Stone Bread Oven is located. The site lies within a dense low bushland of woody perennials including *Acacia* sp., *Mimosaceae* sp. and *Atriplex* sp., with dense patches of *Eucalyptus* sp. and an understorey of thick grass. On the dome, *Eremophila* sp. are prevalent.

Construction in the catchment area consists of a single intermittent masonry wall along the northern edge of the main dome, leading into a main sluice drain feeding into a puddle dam along the eastern edge of the dome. Construction of the catchment walls is small and simple, with rectangular granite blocks approximately 30-50 cm high by 60-80 cm wide, mortared together by a dark, granular tar. The wall takes advantage of a small natural watercourse that flows along the northern edge of the dome, and therefore represents only a small adjustment to the natural water flow of the area. It is also possible that the natural watercourse, which is straighter and more regular where it meets the sluice drain, has also been modified. The sluice drain is larger, stone lined on the walls and floor, and extends for approximately 60 m between the dam and the end of the natural watercourse. Other structures noted in the catchment area include fence posts, some of which were timber and others are recycled railway tracks.

The puddle dam is approximately 58 m², and is approximately 3 m in depth. To the north, south and east there is a substantial raised earth embankment beyond the edges of the dam. The visible walls are white, compact clay mixed with gravel.

The dam, sluice drain and catchment walls all appear to be in good condition and still functional, and the fabric appears largely unmodified since its establishment.

Further east of the puddle dam lies P16795 Stone Bread Oven, consisting of a 1.5 m by 2 m structure oriented NW-SE. The structure is built of large granite slabs, cemented together with a light cream mortar. A cement render has also been applied over the structure. Despite vandalism, the render falling off in patches and some erosion near the oven base, the structure appears in fair condition and capable of still performing its original function. One fragment of a 'DAVIS' brand medicine bottle was found next to the oven, believed to be a bottle of 'Perry Davis's Vegetable Pain Killer,' an opiate medicine developed in America and advertised for sale in Western Australia after 1870.⁶¹

P10069 Yellowdine Catchment and Dams

This catchment area and dam lies in open bushland, north of the Great Eastern Highway and approximately 31 km east-southeast of Southern Cross. The catchment area consists of two large domes interspersed by three smaller domes, with natural drainage areas between each dome. The large domes are high, with the smaller domes much flatter in topography. There are two dams located east of a large domes, and southeast of the group as a whole. East of these dams lies the structural ruins associated with the Yellowdine railway station. The site lies within open scattered bushland of *Eucalyptus* sp., *Acacia* sp. and *Atriplex* sp., with

⁶¹ *The Herald*, 8 January 1870, p. 4;

an understorey of patchy grass. On the dome, there are small isolated patches of *Acacia* sp. shrubs.

Construction in the catchment area consists of a complex series of catchment walls, leading into two main sluice drains which merge to feed into the smaller dam, which in turn feeds into the larger dam. The 1895 map of the area indicates that the catchment dams and east-west sluice drain leading into the small dam were the first to be constructed, with later construction taking in the other domes.⁶² While the earlier catchment walls (1894) follow precisely around the base of the large dome, the more extensive later walls (1897) take a more haphazard approach, at some points closely following the edge of the granite and at others veering away from the domes. Another difference is that while the earlier walls represent a closed circuit around the single dome, the later walls are open-ended, the walls receding in size until they end in small slabs, leaving large patches open and unwallled. A number of sluice drains were found; the smaller ones appear to channel and protect the water flow through areas of broken ground before feeding the back into a walled catchment area. Of note was a small sluice drain along the northwest portion of catchment wall, which recedes into the sand and may have been the beginning of construction to link another much smaller granite dome immediately west of the main group. The larger sluice drains connect the domes to each other to feed into the original (1894) catchment or bypass the original catchment to feed directly into the dam from the northwest.

At two points within the sluice drain network are square stone-lined troughs that sit below the level of the sluice floor. These troughs would have originally held water gates that would have allowed better control to stop overflows of the dam by cutting off water flow from the 1897 catchment area into the 1894 catchment area, and by cutting off the flow of the northwest sluice drain into the dam.⁶³

Construction of the catchment walls varies considerably in size across the catchment area (15 cm to 1 m in height); however it follows the overall pattern of rectangular slabs of granite set upright and mortared together. Where the walls are set in an open area, they have been laid upon a raised earth embankment. The sluice drains also vary in size but follow the same construction pattern of stone lining on the walls and floor.

Other structures found include two stone cairns in the northwest portion of the catchment area. The cairns are constructed of unshaped granite rubble, and less than 1 m high, with a timber post in or lying next to the structure. A number of broken telegraph insulators were also noted lying adjacent to one of these cairns.

The smaller (1894) puddle dam is approximately 37 m by 28 m, and is approximately 2-3 m in depth. A stone lined overflow channel extends from the southwest edge of the small dam to feed into the larger (1897) dam, which measures 35 m by 63 m, and is of unknown depth (likely approximately 3-4 m).

The dams appear to be in good condition, although there is some erosion damage to the overflow channel between them. The sluice drains are in generally good condition, although the smaller drains appear to have suffered from some erosion damage. The catchment walls are in variable condition, for while the majority of

⁶² 'Coolgardie Railway. Reens Soak Water Supply', State Records Office, Item no. 4762, Consignment no. 1647, Series 399

⁶³ The use of these gates is described by Shields in the context of the Merredin reservoir in Shields, *op cit.*, p. 255

the walls intact and in good condition damage was noted in a number of places, particularly along the northwest and northern portions of the wall where small sections have been demolished for the construction of power lines.

Three structural ruins were noted east of the dams, representing the remains of the WAGR staff housing established after 1896. The first two ruins consist of two roomed structures constructed of a mixture of shaped granite slabs and granite rubble, cemented together and covered with thick white plaster. Each ruin is built on top of a concrete slab and there are the remains of a brick fireplace in each structure. A second concrete slab runs along the south side of each ruin and may represent a verandah. The western ruin has two rooms of similar size, approximately 4 m by 3 m, while the eastern ruin has a 4 m by 3 m room and a much larger 8 m by 3 m room.

Immediately east of these two ruins lies the remnant of a third cottage. All that remains is a concrete foundation approximately 4 m by 3 m, the squared corners and rippled sides of the concrete block suggesting that the building was constructed with timber frame with corrugated iron cladding, within which a concrete footing was poured. Broken concrete was noted adjacent to this structure and may represent an additional room. A piece of flat galvanised tin was also found adjacent to the concrete slab, marked "Lysaght K Queens' Head Australia" with a royal portrait, with newspaper advertisements for flat 'Queen's Head' brand Lysaght advertised in Western Australia from 1896 to 1917.⁶⁴

There are a number of small concrete slabs surrounding these two ruins, which may represent foundations of sheds or other outbuildings.

Also present at the site are a number of introduced plantings, remnants from the orchard planted in 1901. Species include Prickly Pear (*Opuntia* sp.) and American Aloe (*Agave* sp.).

Two surface artefact scatters were noted in the vicinity of the structural remains, one north of the eastern granite cottage and one immediately north of the foundation of the timber-framed cottage. These artefact scatters are composed of metal fragments, cans and bottles. Observed artefacts include rectangular flanged tin cans, introduced after 1870, Vinegar bottle common between 1870-1930, champagne-style beer bottles common between 1880-1920 and ring-pull beverage cans common between 1968-1984.⁶⁵

13.3 COMPARATIVE INFORMATION

Catchment Dams

There are a total of 23 railway catchment dams that are known to have been constructed in association with the Eastern Goldfields Railway Line, of which the majority were built during the gold boom period.⁶⁶ A search of the State Heritage

⁶⁴ *Norseman Esperance Guardian and Dundas Goldfields Advertiser*, 8 February 1896, p. 1; *The Midlands Advertiser*, 23 March 1917, p. 1

⁶⁵ Burke, H, Smith, C, *The Archaeologist's Field Handbook*, Australian Academy of Humanities, 2004, pp. 367, 376; Souter, C, *Archaeology of the Iron Barque Sepia – An Investigation of Cargo Assemblages*, MA Thesis, Centre for Archaeology University of Western Australia, 2007, p. 96; Noble, A, *An Analysis of the Potential of Roadside Rubbish to Provide Archaeological Information*, BA Honours Thesis, Flinders University, 1994, pp. 16-18

⁶⁶ 'Railway dams and reservoirs of Western Australia', Wikipedia website, https://en.wikipedia.org/wiki/Railway_dams_and_reservoirs_of_Western_Australia, accessed 18 June 2015

Office database for dams associated with any railway returns 75 entries, 7 of which are entered in the State Register. From this group 15 places were found to be associated with the goldfields railway line, the most comparable to *Railway Rock Catchment Dams Group, Yilgarn* including:

- P3933 *Bullabulling Rock Water Catchment and Dams* (RHP): a granite outcrop and with catchment walls feeding into a dam, established 1894-1898 to provide water for steam trains along the goldfields line. The place is a representative example of this water technology and is associated with PWD engineer W H Shields.
- P3933 *Woolgangie Catchment, Reservoir and Railway Settlement (ruin)* (RHP): comprises a granite outcrop and with catchment walls feeding into a dam, adjacent to a collection of railway buildings including cottages, a station-master's house, railway platform, hotel site and telegraph station site established 1894-1898 to provide water for steam trains along the goldfields line. The place is a representative example of railway settlements and is associated with the both the railway and the development of the Goldfields Water Supply Scheme.
- P10062 *Karalee Reservoir, Rock Catchment & Aqueduct* (RHP): comprises a granite outcrop with catchment walls feeding into a dam, established in 1897 to provide water to provide water for steam trains along the goldfields line. The place was a key component in the development of the railway from Southern Cross to Coolgardie and is an excellent example of its type. The place is associated with C Hunt (who established a dam in the area in the 1860s) and W H Hedges, who designed the reservoir.
- P13523 *Railway Dam, Merredin* (RHP): a granite outcrop and with catchment walls feeding into a dam, established 1898 to provide water for steam trains along the goldfields line. The place was a key water source in the construction of the Northam-Southern Cross railway line and for its location on the Goldfields Road. The place is a representative example of this water technology and is associated with C Hunt (who established a dam in the area in the 1860s), PWD engineer W H Shields and Engineer-in-Chief C Y O'Connor.

This comparative information reveals that *Railway Rock Catchment Dams Group, Yilgarn* has some rarity as an example of a railway catchment dam associated with the goldfields railway line, with a small number of other examples already present on the State Register. However *Railway Rock Catchment Dams Group, Yilgarn* additionally demonstrates the range of design approaches used in construction of railway catchment dams.

Public Works Department Staff

A search of the State Heritage Office database for places associated with PWD Engineer W H Shields returns 3 places, of which 3 are on the State Register:

- P3933 *Bullabulling Rock Water Catchment and Dams* (RHP): discussed above.
- P10062 *Karalee Reservoir, Rock Catchment & Aqueduct* (RHP): discussed above.

- P13523 *Railway Dam, Merredin* (RHP): discussed above.

A search of the State Heritage Office database for places associated with PWD Engineer-in-Chief C Y O'Connor returns 22 places, of which 19 are on the State Register. These places include private residences, public buildings and public infrastructure such as roads and bridges. The places comparable to *Railway Rock Catchment Dams Group, Yilgarn* as railway or water provision infrastructure projects include:

- P256 *Bridgetown Railway Station (fmr)* (RHP)
- P583 *Old Pumping Station* (RHP)
- P649 *No 3 Pumping Station* (RHP)
- P1557 *Niagara Dam* (RHP)
- P1677 *No 1 Pumping Station Museum* (RHP)
- P2660 *Eastern Railway Deviation* (RHP)
- P2663 *Eastern Railway – Three Bridges* (RHP)
- P3097 *Pinjarra Railway Yards* (RHP)
- P3273 *Midland Railway Workshops* (RHP)
- P13523 *Railway Dam, Merredin* (RHP)
- P1564 *No 4 Steam Pumping Station*
- P3660 *Toorak Hill, Goldfields Water Supply Reservoir*: part of the Assessment Program.

A search of the State Heritage Office database for places associated with PWD Engineer C Jobson did not return any results.

This comparative information reveals that *Railway Rock Catchment Dams Group, Yilgarn* appears to be very rare as a place associated with PWD engineers C Y O'Connor, W H Shields and C Jobson, however this may well be due to the fact that Shields' and Jobson's roles have not always been recognised.

Goldfields Infrastructure Projects

There were two other major government infrastructure projects aimed at linking the goldfields with Perth during the Gold Boom period; the linking of Coolgardie to telegraphic communications in 1897 and the development of the Coolgardie Water Supply Scheme 1895-1903.

A search of the State Heritage Office database for places associated with these two projects returns 16 places, of which 3 are on the State Register. The places most comparable to *Railway Rock Catchment Dams Group, Yilgarn* as representative of large government infrastructure projects includes two places associated with the telegraph line:

- P16522 *Eyre Bird Observatory* (RHP): established in 1897 as a telegraph station in Eyre, this place was a key component of the extension of the telegraph line from Esperance to the goldfields.

- P16817 Telegraph Line Track: established in 1896, this service track stretches from Widgemootha to Norseman to Balladonia, and still contains evidence of the original fabric of the line. Part of the Assessment Program.

And the following places associated with the pipeline:

- P25251 Goldfields Water Supply Scheme (National Heritage List), part of P16610 Mundaring to Kalgoorlie Pipeline (Heritage Council Assessment Program): established between 1895-1903, this pipeline extends for over 560 kilometres and includes 6 of the original 8 pumping stations, four of which are on the State register:
 - P1677 *No 1 Pumping Station Museum*, Mundaring (RHP):
 - P649 *No 3 Pumping Station*, Cunderdin (RHP):
 - P2789 *No 6 Pumping Station Museum*, Ghooli (RHP)
 - P583 *Old Pumping Station*, Coolgardie (RHP):

A government infrastructure project providing water to facilitate travel to the goldfields region that occurred before the gold boom period is P24806 Hunt's Wells Group, a chain of stone wells linked by a pastoral track established 1864-1866 by British surveyors, convicts and pensioner guards, with the water sources located by Aboriginal guides.

This comparative information reveals that *Railway Rock Catchment Dams Group, Yilgarn* is rare as an example of a large government infrastructure project linking the goldfields with the coastal settlement, and these projects appear complimentary in nature, with the early water provision allowing for later railway and telegraph construction, and the railway in turn allowing for later pipeline construction.

Labour Infrastructure

In regards to P16795 Stone Bread Oven, a search of the State Heritage Office database for places or structures that represent the process of construction or how such construction was supported is difficult, as this historical information is not always entered into the State Heritage Office database. A search for places with the heritage theme 'Workers – incl. Aboriginal, convict' returns 254 places, of which 97 are on the State Register. These places include private residences, public buildings and public infrastructure such as roads and bridges. The places were found to be comparable to *Railway Rock Catchment Dams Group, Yilgarn* as structures that represent the support of construction projects were residences for government workers, including:

- P877 *Warder's Cottages (fmr), 7-41 Henderson Street* (RHP): established at Fremantle in 1851, these buildings originally housed the prison warders and their families. An early example of purpose built public housing accommodation.
- P1915 *Lynton Convict Hiring Depot (Ruins)* (RHP): established at Yallabatharra in 1853, this complex of buildings housed and fed the convicts stationed at this place awaiting deployment for government projects.
- P5491 *Point Cloates Lightstation (ruin)* (RHP): comprising the ruins of the Point Coates Lighthouse and the lighthouse keeper's quarters, this place has

landmark value and demonstrates the earliest site of British occupation on the Ningaloo coast.

- P11381 *Pemberton Timber Mill Worker's Cottages Precinct* (RHP): a complex of timber weatherboard clad cottages built for State Sawmills c.1913-1926, the precinct is a rare surviving group of timber mill workers' homes.
- P15750 *Railway Housing Precinct, Merredin* (RHP): comprises 11 brick and iron residences established 1913-1915 as a group of WAGR workers accommodation. The group is a significant part of Merredin's townscape.

An example of a historic stand-alone bread oven in the State Heritage Office database is:

- P3343 *Sealer's Oven* (RHP): established in Waychinicup National Park c.1800, this primitive bread oven constructed of granite stone and pug is evidence of early sealer's activities prior to the establishment of British colonies in the state.

This comparative information reveals that *Railway Rock Catchment Dams Group, Yilgarn* appears to be very rare as a group that demonstrates the infrastructure needed to support a labour force, in this case P16795 Stone Bread Oven at Bodallin.

Railway settlements

A search of the State Heritage Office database for places associated with areas around the goldfields railway (the Shires of Northam, Cunderdin, Tammin, Kellerberrin, Merredin, Westonia, Yilgarn, Coolgardie and the City of Kalgoorlie-Boulder) during the period 1894-1915 returns 473 places, of which 101 are on the State Register. These places include private residences, public and commercial buildings, and public infrastructure such as schools, post offices or railway buildings. Most comparative examples of WAGR housing on the SHO database are located in larger towns and settlements such as Kellerberrin, Merredin and Southern Cross. The places comparable to *Railway Rock Catchment Dams Group, Yilgarn* places as demonstrating the growth of small communities along the goldfields railway line include:

- P3933 *Woolgangie Catchment, Reservoir and Railway Settlement (ruin)* (RHP): discussed above.
- P15750 *Railway Housing Precinct, Merredin* (RHP): discussed above.
- P7387 Bullabulling Historic Town: established in c.1895 at Bullabulling, 30 km west of Coolgardie.
- P13500 Hines Hill Hotel: established in 1906 at Hines Hill in the Shire of Merredin, this brick and iron building immediately adjoins the Great Eastern Highway.

This comparative information reveals that *Railway Rock Catchment Dams Group, Yilgarn* is not rare as a group of places demonstrating the growth of settlements associated with the goldfields railway line; however the place has rarity as an example of a place where a small settlement arose in the presence of a railway and dam. Further research may reveal other examples that are anecdotally known to have existed along the railway and also the pipeline.

13.4 KEY REFERENCES

13.5 FURTHER RESEARCH

The original soak established by Reen is visible in aerial photographs of Yellowdine Rock, but was not mapped due to time constraints. Future surveys in the area may determine if any fabric or artefacts associated with the soak are extant.

Further research into the growth of small settlements along the goldfields railway line may reveal further examples comparable to *Railway Rock Catchment Dams Group, Yilgarn*, which may better outline its rarity in this regard.