HERITAGE COUNCIL OF WESTERN AUSTRALIA

REGISTER OF HERITAGE PLACES

Assessment Documentation

Permanent Entry

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 THEMES

- 3.6 Recruiting labour
- 3.8.7 Building and maintaining roads
- 3.14.2 Using Australian materials in construction
- 4.1.2 Making suburbs
- 4.2 Supplying urban services (power, transport, fire preventio roads, water, light and sewerage)
- 5.1.1 Coping with unemployment
- 8.1.1 Playing and watching organised sport
- 8.5.4 Pursuing common leisure interests

HERITAGE COUNCIL OF WESTERN AUSTRALIA THEMES

- 106 Workers (including Aboriginal, convict)
- 203 Road Transport
- 209 Technology and technological change
- 405 Sport, recreation and entertainment
- 504 Depression and Boom
- 507 Water, power, major transport routes

11. 1 AESTHETIC VALUE*

Garratt Road Bridge comprises two adjacent bridges that present as a coherent and aesthetically pleasing whole, as the 1972 bridge was based on E. W. C. Godfrey's design for the 1935 bridge. (Criterion 1.1)

Garratt Road Bridge clearly displays the simple 'no frills, economical' structural techniques of the Main Roads Department in the 1930s, and the influence of Main Roads engineer, E. W. C. Godfrey, through its robust aesthetic and use of unshaped timber piles and logs. (Criterion 1.1)

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* 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Canberra, 1991, with additional reference to Richards, O. *Theoretical Framework for Designed Landscapes in WA,* unpublished report, 1997.

Garratt Road Bridge, with its timber construction in sympathy with the natural environment and its distinctive rustic look, is a significant element of the adjacent recreational areas and a landmark on the Swan River. (Criteria 1.3 & 1.4)

11. 2. HISTORIC VALUE

Garratt Road Bridge is historically important as an arterial traffic route for the northern suburbs to the current Perth Domestic (and former International) Airport, evidenced by the construction of Garratt Road Bridge Downstream (1972) to accommodate increasing traffic. (Criterion 2.1)

Garratt Road Bridge's close proximity to Ascot Racecourse is integral to the provision of easier access for the growing racing fraternity. Since 1852, Ascot has been the headquarters for the Western Australian Turf Club and river crossings were developed in the vicinity from the 1850s to facilitate the racing industry. (Criterion 2.1)

Garratt Road Bridge has been the site of a river crossing since 1856, first as a horse pulley to Ascot Racecourse, then as a footbridge from 1881, and a railway bridge from 1887 to 1956. (Criterion 2.2)

Garratt Road Bridge Upstream (1935) was constructed using the Depression-induced sustenance labour scheme, and is an example of the 1930s State Government plan to construct major transport infrastructure and roadworks using this scheme. (Criterion 2.2)

Garratt Road Bridge Upstream (1935) was designed and its construction supervised by E. W. C. Godfrey, Chief Engineer for the Main Roads Department from 1928 until 1957. Godfrey designed all major bridges in Western Australia during this period. (Criterion 2.3)

11. 3. SCIENTIFIC VALUE

Garratt Road Bridge demonstrates innovative maintenance techniques developed since the 1970s by the Main Roads Department through modifications to the decking and structure, including concrete overlay and the introduction of galvanised steel channels. (Criterion 3.3)

11. 4. SOCIAL VALUE

Garratt Road Bridge is used as the landmark finishing point for the Avon Descent, the longest white water competition in the world. (Criterion 4.1)

Garratt Road Bridge is highly valued by the community for its many social associations and diverse cultural activities, especially its use as a site for water activities such as kayaking, swimming and fishing. (Criterion 4.1)

Garratt Road Bridge Downstream (1972) was opened due to increased traffic, demonstrating the importance of a river crossing at this site. (Criterion 4.1)

Garratt Road Bridge is important to the local community as shown by its inclusion in the Municipal Inventory of Bayswater, and its classification by the National Trust. (Criterion 4.2)

12. DEGREE OF SIGNIFICANCE

12. 1. RARITY

Garratt Road Bridge is rare as the longest extant timber road bridge in Western Australia, and possibly the longest ever constructed in the State. (Criterion 5.1)

Garratt Road Bridge Upstream (1935) is rare as a substantial timber bridge, many of which are progressively being replaced. (Criterion 5.1)

12. 2 REPRESENTATIVENESS

Garratt Road Bridge Upstream (1935) is a good representative example of Main Roads Department Chief Engineer E. W. C. Godrey's design oversight of bridges in Western Australia in the 1930s. (Criterion 6.2)

Garratt Road Bridge Upstream (1935) demonstrates the work and use of sustenance labour during the Great Depression of the 1930s. (Criterion 6.2)

12. 3 CONDITION

Garratt Road Bridge is in good condition and shows evidence of ongoing maintenance and repairs.

12. 4 INTEGRITY

Garratt Road Bridge has a high degree of integrity because it has been in continual use as a road bridge since its construction in 1935.

Garratt Road Bridge has long term viability due to its construction and ongoing maintenance program, and is in good condition for future use.

12. 5 AUTHENTICITY

Garratt Road Bridge has a high degree of authenticity because the original fabric remains substantially intact. Sections of both bridges have been replaced during maintenance works including sections of the timber substructure, which have been replaced with new timbers and steel. The timber decking on Garratt Road Bridge Upstream (1935) remains intact under the concrete overlay, as maintenance procedures, which have been applied in sympathy with the original structure, have resulted in the body of Garratt Road Bridge Upstream (1935) remaining intact.

13. SUPPORTING EVIDENCE

The documentation for this place is based on the heritage assessment completed by Curtin University Heritage Studies students, in November 2007, with amendments and/or additions by Heritage Council of Western Australia (HCWA) staff and the Register Committee.

The curtilage comprises two timber traffic bridges constructed by Main Roads WA linking Garratt Road in Bayswater to the north with Grandstand Road and Resolution Drive in Ascot to the south; a portion of the Swan River foreshore and river bed; and timber barriers connecting the bridges.

13. 1 DOCUMENTARY EVIDENCE

Garratt Road Bridge consists of two timber traffic bridges, Garratt Road Bridge Upstream (1935) and Garratt Road Bridge Downstream (1972), constructed by Main Roads WA linking Garratt Road in Bayswater to the north with Grandstand Road and Resolution Drive in Ascot to the south; as well as a portion of the Swan River foreshore and river bed; and timber barriers connecting the bridges.

Traditionally, the *Garratt Road Bridge* site was occupied by Indigenous tribal groups, the Mooro people on the northern side of the river, led by Yellagonga, and on the southern side of the river, the Beeloo people, led by the tribal leader Munday.[1] Beeloo territory lay between the banks of the Canning, Swan and Helena rivers and back over the Darling Range and included, adjacent to the south western side of *Garratt Road Bridge,* the Martagarup (meaning leg deep) flats, which was a fishing ground.[2]

The Ascot Racecourse Swamp, a traditional hunting ground bounded by the river and immediately adjacent to *Garratt Road Bridge,* is identified on the Aboriginal Heritage Register covering the existing Ascot Racecourse. It is identified as site 3750 on the Aboriginal Heritage Register as stored data;[3] however, an archaeological field survey of the site recorded 'no archaeological sites, as defined by Section 5 of the Aboriginal Heritage Act, 1972-1980, or isolated finds were located'.[4]

The Swan River was listed on the Aboriginal Heritage Register permanent register (site 3536) for its mythological value.[5] This listing relates to the Swan River being created by the mythical creature the Wagyl, during the Dreamtime. It is said that the scales shaken from the male Wagyl can be seen imbedded in the riverbank at Ascot.[6]

Aboriginal occupation of the lands near *Garratt Road Bridge* was first recorded during a survey of the Swan River in March 1827 by Captain Stirling pre-

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1 HCWA, n.d., *Yaberoo Budjara heritage trail.* p. 9.

2 Laurie, M., 1999, *Ever flowing forward: the story of Belmont.* City of Belmont, Belmont, pp. 44, 45.

3 Department of Indigenous Affairs n.d, *Report No. 103470 Swan River and Ascot Racecourse Swamp, Perth, Section 2.3.*

4 Hammond, M 1995, *Report of an Aboriginal heritage survey Ascot Fields project, Belmont Jan 1995*, edited by Indigenous Affairs.

5 Department of Indigenous Affairs n.d., *Aboriginal Heritage Sites, Site 3536.*

6 White, J n.d., *Urban ecotourism: recommendations for tourism development at the wetlands in the City of Cockburn*. Murdoch University, WA, p. 36.

colonisation. Stirling recorded 'natives' on his chart just east of the site, on the southern side of the river.[7]

In 1829, James Birkett and James Henty were the first European settlers to take up land on the site of *Garratt Road Bridge*. Each received 1000 acre river frontage blocks, under the ribbon grant scheme, surveyed by John Septimus Roe.[8] Birkett's holding was location W on the northern side of the Swan River but he died soon after taking up the land and it was sold to James Drummond in 1839.[9] Henty took up Lot 33, Belmont, upon arrival on the *Caroline,* which was land promised to him by Captain Stirling.[10] Henty preferred the northern side of the river and sold Lot 33 to nineteen year-old Philip Dod, whose father provisioned the *Caroline*. Dod was unhappy with the marshiness of the land and exchanged it with John Wall Hardey, one of the devout Wesleyans who arrived on the *Tranby* in 1830 and formed the Wesley Church in Perth.[11]

Hardey named the land Grove Farm and expanded his riverfront holdings as other settlers left due to the difficulty of farming the swamps and sandy soils.[12] Hardey championed road works in the Belmont district and was highly influential in the early development of Belmont through his various roles as a Justice of the Peace, magistrate and member of the Legislative Council.[13]

In 1837, Hardey agitated for a river crossing and in 1843 the first river crossing was constructed at the Causeway, followed by a crossing over the Helena River. In 1848, horse racing began on a track on Grove Farm.[14] Convict labour was used to create road access to the site on Hardey's property from the Guildford Road (renamed Great Eastern Highway in 1935), to the objection of local media who felt the money was best utilised elsewhere. In 1850, Hardey, whose brother Joseph believed horseracing to be the 'gun shot of the devil', stopped allowing racing on his land and T. R. C. Walters donated land from his adjoining property for a permanent race track, this being the site of the current Ascot Racecourse.[15] In 1852, the West Australian Turf Club was established, with their headquarters at Ascot Racecourse. The purpose of the Turf Club was to be a regulatory body for horse racing in WA, due to its popularity as a pastime. This cemented Ascot as the primary horse race course of WA and led to improved transport in the district.[16]

In 1856, horse training facilities were opened at Ascot Racecourse and a horse pulley system was installed across the river between Bayswater and Belmont to

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7 Appleyard, R. T., and Manford, T., 1980, *The beginning: European discovery and early settlement of Swan River Western Australia*. UWA Press, p. 2.

8 May, C, 1997, *Changes they've seen: the city and people of Bayswater, 1827-1997*. City of Bayswater, Perth, p. 8; Laurie, *Ever flowing forward*, pp. 18, 22-24.

9 Friends of Baigup n.d., *History of Baigup Reserve.* Downloaded 4 September 2007 from http://www.members.iinet.net.au/~ubc/html/newgroups/baigup/historyofbaigup.htm .

10 May, *Changes they've seen*, p. 8; Laurie, *Ever flowing forward*, pp. 18, 22-24.

11 Stannage, C. T., 1979, *The people of Perth: a social history of Western Australia's capital city*. Perth City Council, p. 38; Laurie, *Ever flowing forward*, p. 22.

12 City of Belmont 2002, *Revised municipal heritage inventory 2002.* City of Belmont, Belmont, p. 4.

13 Laurie, *Ever flowing forward*, p. 23.

14 City of Belmont, *Municipal heritage inventory*, p. 5.

15 Laurie, *Ever flowing forward*, pp. 51, 66.

16 City of Belmont, *Municipal heritage inventory*, p. 5.

provide a quicker access for the horses. The site of this pulley system was east of the racecourse.[17]

In 1881, a footbridge was constructed over the river enabling Belmont residents to catch a train to Perth from the Bayswater station on the newly constructed Perth-Guildford railway line. The footbridge was also constructed so that northern suburb residents could access the race meets without having to take circuitous trips up or down stream. The footbridge featured a mechanical drawbridge to allow large river vessels to pass.[18]

In 1885, a railway crossing was constructed over the Swan River, east of the *Garratt Road Bridge* site, in response to growing demand for transport across the river. This was the third railway crossing of the Swan/Avon River after Fremantle and Guildford.[19] The line was a spur from the Perth-Guildford track and was located to the east of the racecourse, terminating at a station on the south side of the course. The construction allowed for special horse carriages to deliver horses straight to Ascot track and crowd numbers at the races increased as the journey became quicker and easier. However, the train only ran on race days, providing limited transport benefits to Belmont residents.[20] The footbridge and the railway line remained the only river crossings between Bayswater and Belmont until the construction of *Garratt Road Bridge* in 1935.

In 1904, the first official request to the Perth Roads Board was made for a vehicle crossing point connecting Bayswater and Belmont. The request was rejected in 1905 on the grounds there was not enough trade between the two suburbs to warrant a crossing. In 1907, a deputation was made to the State Government by the Belmont and Bayswater Road Boards stating a bridge would increase trade of local industries.[21] Trades operating along and near the river included kilns, pottery factories, equestrian and stock traders, Chinese market gardens, piggeries, poultry farms and dairies.[22] The industries argued the bridge was needed to end the ten mile road trip via Guildford or the Causeway Bridges to cross the river. The Road Boards were advised the estimated £6000 needed to construct the bridge was not available as more urgent works required funding.[23]

There is evidence that between 1900 and 1914 Aboriginal people camped near the Belmont Spur Train Station (now demolished), holding Corroborees during the summer racing carnivals. They welcomed locals as onlookers.[24]

In 1922, construction of a traffic bridge was mooted again, this time with lobbying for a circular tram route.[25] Another deputation by the Belmont Park and Bayswater Road Boards was made on 23 February 1923 with a response on 13

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17 Laurie, *Ever flowing forward*, p. 67.

18 Laurie, *Ever flowing forward*, pp. 77, 100.

19 Institution of Engineers Australia. Western Australia Division. Engineering Heritage Panel 1998, *Large timber structures in Western Australia,* Perth, vol. 3, p. 2270.

20 Laurie, *Ever flowing forward*, pp. 87-88.

21 Priestner, P., 1957, 'The bridges over the Swan River'. HS/PR/1234 Thesis, Claremont Teacher's College, Claremont, p. 14.

22 City of Belmont, *Municipal heritage inventory*, p. 5.

23 Priestner, 'The bridges over the Swan River', p. 15.

24 Laurie, *Ever flowing forward*, p. 137.

25 Laurie, *Ever flowing forward*, p. 280.

April 1923 again stating the £9100 now required for construction was neither available nor warranted.[26]

In 1924, a public meeting of Bayswater and Belmont residents led to a deputation to the Premier, arguing that the bridge would relieve traffic on the Causeway Bridge, which would cost £200,000 to rebuild. Acting on behalf of the Bayswater Road Board, W. D. Johnson MLA sought further construction details on the proposed new bridge, leading to a government survey of the area and three alternative estimates of £38,064, £36,140 and £35,120. However, there was no likelihood of funding that year.[27]

In 1928, three possible sites were identified for the bridge. Belmont Park Road Board favoured a crossing at Abernethy Road, Bayswater Road Board favoured a crossing at Epsom Avenue, and the Government selected Garratt Road as the final choice. However, no progress was made due to the Depression and consequential loss of economic stability.[28]

In 1933, plans for a two-lane bridge were developed, with construction beginning in 1934.[29]

The bridge was designed by Main Roads Chief Engineer, Ernie W. C. Godfrey. Godfrey, the first bridge engineer employed by Main Roads, worked as head of the specialist bridge section from 1928 to 1957, during which time he supervised the construction of all Main Roads bridges in the State.[30] He oversaw the design of the landmark Causeway and Narrows Bridges, as well as other metropolitan crossings at Fremantle, Canning Bridge, Guildford Road, and the Helena River Guildford. He also designed bridges in the State's expanding north that required design specifications to withstand climatic extremes and annual flooding.[31]

A mound constructed in the centre of Ascot Racecourse for training men based there in World War I was removed and used as fill for the bridge on the Belmont side. This removal disappointed many local children who had fond memories of playing in the trenches the soldiers had built.[32]

Sustenance labourers worked on Garratt Road Bridge Upstream (1935) as well as many local projects on both sides of the river. Sustenance labour was a form of relief work for unemployed men provided by the Government during the Depression, and much of South Belmont was developed as a result.[33] They cleared the 'Hampton Cheeses' in the Guildford Road and a name change to Great Eastern Highway took place.[34]

On 1 January 1935, Garratt Road Bridge Upstream was opened, coinciding with the running of the Perth Cup horse race. The bridge cost £35,000 with the

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26 Priestner, 'The bridges over the Swan River', p. 16.

27 Priestner, 'The bridges over the Swan River', p. 17.

28 Laurie, *Ever flowing forward*, p. 281.

29 *Large timber structures in Western Australia,* Perth, vol. 2, p. 1061.

30 Edmonds, L 1997, *The vital link: a history of Main Roads Western Australia 1926-1996*. UWA Press, Nedlands, WA p. 154; HCWA Assessment documentation P4659 *Canning Bridge.*

31 Heritage Council of WA 2003, *Register of heritage places assessment documentation – Gascoyne River Bridge (fmr)* p. 10; HCWA Assessment documentation P4659 *Canning Bridge.*

32 Laurie, *Ever flowing forward*, p. 260.

33 Stannage, C. T., 1981, *A new history of Western Australia*. UWA Press, Nedlands, p. 264.

34 Laurie, *Ever flowing forward*, pp. 259-60. The original road had been constructed of discs cut from trees and laid in the soft soil, with the gaps filled with hardened soil and small rocks. This method of construction became known as 'Hampton Cheese' after Governor Hampton (1862-68). p.50.

Belmont Park and Bayswater Road Boards jointly contributing a further £9000 for the approaches.[35]

Garratt Road, and subsequently *Garratt Road Bridge,* was named after Mrs. Mary Anne Traylen (nee Garratt), wife of William Traylen who subdivided land he owned in Bayswater around 1890, naming several roads after family members.[36] Traylen was an influential man in Perth. Having arrived in Western Australia as a Wesleyan minister, he also owned a printing business and held the positions of Greenough MLA from 1890-98, Chairman of the Metropolitan Water Board and Mayor of Guildford.[37]

Garratt Road Bridge Upstream (1935) was constructed using a combination of Wandoo, Jarrah and Karri Western Australian hardwoods.[38] It was standard practice in Western Australia at the time to use timber as the costs were low and the material well understood.[39] The Garratt Road Bridge Upstream (1935) plan and materials developed because they espoused a design of 'no frills such as shaped beams, pressure treated piles or any other relatively costly treatments' which was considered one of the 'secrets of economical timber bridging'.[40]

Garratt Road Bridge Upstream (1935) was built to a length of 237.89m (785' 5½") and width of 8.38m (27 '6"), which included a 1.52m (5') wide footway. It had one steel navigation span and carried a 76.2cm (30") diameter watermain pipe supported on the eastside halfcap extension.[41] Garratt Road Bridge Upstream (1935) was built to a standard 6.1m (20') span design developed by the Main Roads Department.[42]

Garratt Road Bridge Upstream (1935) had 38 spans comprising 37 x 6.1m (20') spans and one 12.49m (40') steel navigation span. Each span was supported by a pier of five jarrah piles, joined by fluorised karri halfcaps and connected by round wandoo stringers and anchored by an abutment of 6 x 45.72cm (18") minimum diameter wandoo piles. The road surface was bitumen on a base of gravel and 12.7cm (5") timber decking.[43] The round wandoo stringers replaced the sawn version of stringers (which had been the usual design) because they were flexible and were able to carry the heavier axle loadings.

In the 1930s, swimming lessons were held at *Garratt Road Bridge* on the Bayswater side. John Quinn, who attended lessons through Bayswater Primary School in 1935, recounts that local children would also swim there on weekends, and considered it an act of daring to dive off the rails at *Garratt Road Bridge* because the drop to the water was significant, but the depth of the water was shallow.[44]

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35 Stannage, *A new history of Western Australia*, p. 280.

36 Jeff Murray, Geographic Names Section, WA Land Information Authority, email to Virginia Giles 13 and 22 August 2007.

37 Stannage, *The people of Perth*, p. 238.

38 Lloyd Margetts, Main Roads WA Engineer, conversation with Elisia Fowler 6 August 2007.

39 Edmonds, L 1994 OH 2599/46, John Gilbert Marsh, Engineer at Main Roads Department, UWA Press, Perth.

40 Main Roads WA n.d., *International training course in road engineering*. Vol. 6 Bridges and Contracts, p. 5.2.

41 Margetts, L 1995, 'Metro bridge history (as at 1995*)'.* Main Roads WA, Perth, p. 28.

42 Conversation between Lloyd Margetts, Main Roads WA Engineer, and Elisia Fowler, 6 Aug 2007.

43 Margetts, L 1995, 'Metro bridge history (as at 1995)'. Main Roads WA, Perth, p. 28.

44 Email from Rowena Holland to Kim Holland, August 22, 2007.

During World War II, Ascot Racecourse was the site of an army camp, and race meetings were held every second Saturday. In 1943 conscription started. Some men in the racing industry, who were manpowered, avoided the regulatory hours. The police would raid the racecourse looking for men not fulfilling their duties. Army engineers found water at Ascot and installed a bore. Temporary accommodation for American soldiers was provided at the racecourse and also at Brisbane and Wunderlich's Belmont factory.[45]

When the war finished a number of trainers set up near the racecourse, some acquiring properties of several acres. In 1955, the Government repaired one of the Ascot Railway bridges and closed the other, as they were in bad state of repair. Up to 60 horses would travel to Ascot, from South Fremantle, by train. Stable hands and jockeys would hide in the boxes with the horses to avoid fares. Some were able to use motorised transport, but the train was the most popular form of transport until a fire destroyed the railway bridge in 1956.[46] The railway bridge was subsequently demolished, leaving only pile and waling remnants on the eastern bank at the waterline and underwater pile remnants and embankment earth on the western bank.[47] At that time, 30 tons of coal per day was being delivered to Brisbane and Wunderlich, who had to make alternative arrangements when Ascot Railway Bridge closed. Courtlands Pottery (who received coal from Collie and Newcastle) and George Rowlands' produce store, were other businesses that were seriously affected by the closure of the railway bridge.[48]

Buses became the main form of transport to the races with services taken over by the Metropolitan Transport Trust (MTT) in 1958.[49]

The Bayswater Swimming Club was reconstituted in 1959, and in 1960, two jetties positioned 50 metres apart to form an Olympic-sized pool were opened. In the summer of 1960, 100 children were taught to swim at the Garratt Road facility. Throughout the 1960s, Bayswater people continued to use the river for competitive swimming, for lessons and for general recreation.[50]

A mineral boom in the 1960s saw Belmont's population grow. Land was subdivided into smaller blocks and many of the semi-rural agricultural businesses gave way to houses. The population grew from 20,393 in 1961 to 26,978 in 1966.[51] Modern communications meant that businesses could decentralise and companies such as Western Mining Corporation moved to the Great Eastern Highway.[52]

In 1960, Garratt Road Bridge Upstream (1935) was widened by adding two jarrah piles to each pier and three to each abutment, taking the bridge width to 10m (32' 10") and enabling a 107 cm (42") diameter water main to be supported on the west side.[53]

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45 Laurie, *Ever flowing forward*, pp. 297, 303.

46 Laurie, *Ever flowing forward*, pp. 313, 319.

47 *Large timber structures in Western Australia,* Perth, vol. 1, p. 2270.

48 Laurie, *Ever flowing forward*, p. 320.

49 Laurie, *Ever flowing forward*, p. 319.

50 May, *Changes they've seen,* p. 271.

51 Laurie, *Ever flowing forward*, pp. 341-43.

52 Laurie, *Ever flowing forward*, pp. 347-48.

53 Margetts, L 1995, 'Metro bridge history (as at 1995). Main Roads WA, Perth, p. 28.

The Empire Games in 1962 saw the opening of a new passenger terminal at the airport.[54] Garratt Road Bridge Upstream (1935) was the most direct route from there to the Empire Games Village in Floreat, as well as the many new sporting facilities in the western and northern suburbs.[55] Air services gradually increased throughout the 1960s resulting in growth in motels along Great Eastern Highway. The racecourse nearby proved an added attraction.[56]

In the late 1960s and 70s, the area under Garratt Road Bridge Upstream (1935) proved to be a popular recreational area for many children. Children, as well as adults, also fished from the bridge, sitting on the water pipe.[57]

Large machinery companies, used car yards, scrap metal yards, boat dealerships, mechanics, hire companies, cabinetmakers, and other businesses continued to mushroom along Great Eastern Highway.[58] Service stations began to appear, with a concentration along Great Eastern Highway as car numbers began to grow. Cars parking on the side of the road created congestion in the area.[59]

By the late 1960s the level of traffic flow across the upstream bridge, was such that it was recognised a second bridge was required to double the crossing's capacity.[60] A second bridge (Garratt Road Bridge Downstream) was constructed at the site in 1971 and opened on 4 July 1972,[61] adjacent to the original bridge on the downstream side, to enable a four-lane dual carriage of traffic.[62]

The two-lane Garratt Road Bridge Downstream (1972) was dedicated to north-bound traffic, whilst the Garratt Road Bridge Upstream (1935) was converted to cater for south-bound traffic. Garratt Road Bridge Downstream (1972) was constructed as a temporary measure to cater for increased traffic volume prior to the construction of Tonkin Highway Bridge at Redcliffe (1988). Garratt Road Bridge Downstream (1972) had an expected lifespan of forty years as it was not considered that a dual bridge crossing would be required once Tonkin Highway Bridge was constructed.[63]

Garratt Road Bridge Downstream (1972) had a length of 236.95m (776' 2½") and a width of 8.2m (26' 11") and was also built to the specifications of 37 x 6.10m (20') timber spans and one 12.19m (40') steel navigation span with five piles per pier and eight piles per abutment.[64] This not only was in keeping with the aesthetics of the original bridge, it ensured the navigational spans were identical.[65]

The stakes for the Perth cup were raised to $100,000 in 1972. Interest in racing increased greatly with horses from New Zealand and the eastern states

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54 Laurie, *Ever flowing forward*, p. 348.

55 Gregory, J 2003, *City of light: a history of Perth since the 1850s.* City of Perth, Perth. pp. 81, 87.

56 Laurie, *Ever flowing forward*, p. 349.

57 Interview between Jeff Kickett and Pauline Eliopulos at the WA Museum, Perth, 30 Sept 2007. Mr Kickett offered an Indigenous perspective of Garratt Road Bridge upstream (1935).

58 Laurie, *Ever flowing forward*, pp. 351-52.

59 Laurie, *Ever flowing forward*, pp. 357-58.

60 Laurie, *Ever flowing forward*, p. 358.

61 Anon, 4 July 1972, *Off the old and across the new.* Daily News, Perth, p. 7.

62 Large timber structures in Western Australia, Perth, vol. 2, p.1062.

63 Conversation between Lloyd Margetts, Main Roads WA Engineer, and Elisia Fowler, 6 Aug 2007.

64 Margetts, L 1995, 'Metro bridge history (as at 1995)'. Main Roads WA, Perth, p. 28.

65 Conversation between Lloyd Margetts, Main Roads WA Engineer, and Elisia Fowler, 6 Aug 2007.

competing. Extensive road works were carried out to cater for the increasing crowd numbers. A 'one-way system around Daly Street and Grandstand Road' was created. *Garratt Road Bridge* connected with Garratt Road to the north and the newly constructed Resolution Drive to the south, which was named after Sir Ernest Lee Steere's 1963 Perth Cup winning steed. Space was needed for cars and the land where the demolished Ascot Railway Station had stood was converted into a car park.[66]

In the 1970s, Main Roads developed maintenance techniques that are demonstrated on Garre*tt Road Bridge*. These include: concrete decks; concrete pile and abutment overlays; removal of decayed timber and replacement with structural epoxy filler; sealing endgrain decking and tops of wingwall piles; diffusible fungicides; clearance of undergrowth to decrease surrounding humidity; skilled inspections, and treatment of metal components are some of the means which make it possible for timber bridges to remain in use 'almost indefinitely'.[67] The addition of concrete decks in 1972 to Garratt Road Bridge Upstream (1935) and in 1980 to Garratt Road Bridge Downstream (1972) keeps the timbers underneath dry, thus controlling rot and deterring termites, and spreads the bridge load more evenly over the stringers.[68] The replacement of original timber half-caps with steel girders in both bridges is also a common method of prolonging timber bridge use under heavy loads and widened roadways. In 1972 Garratt Road Bridge Upstream (1935) was resurfaced with a reinforced concrete overlay with a minimum thickness of 762mm (3") with expansion joints added at every third pier.[69]

In 1987, a section of the Garratt Road Bridge Upstream (1935) collapsed due to termite damage.[70] A detailed inspection of the bridge found karri halfcaps were hollow with only the exterior shell preserved by a fluorising treatment for termites, which had been applied during construction. During the 1930s, karri was routinely coated with a mixture of sodium fluoride and arsenic trioxide as it was susceptible to termite damage.[71]

In 1989, the original fluorised karri halfcaps on Garratt Road Bridge Upstream (1935) were replaced with 380 x 100 x 55.2 kg galvanized steel channels and the abutments were concreted. The deck of Garratt Road Bridge Upstream (1935) was resurfaced with a 120mm minimum reinforced concrete overlay. The Garratt Road Bridge Downstream (1972) was also resurfaced with a 150mm minimum reinforced concrete overlay.[72]

In 1989, Hinds Reserve, on the Bayswater side of the bridge, was identified as a site of unsocial behaviour, with the police routinely dredging under the bridge to uncover stolen goods and criminal evidence.[73]

In 1992, the A.N.A. Rowing Club, in conjunction with the Amateur Rowing Association of WA, constructed a rowing shed on Hinds Reserve following the

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66 Laurie, *Ever flowing forward*, pp. 352-53.

67 Margetts, Lloyd 1990 'Timber Bridges Need Loving Care' in *Western Roads*, 15:2, Aug 1990 pp. 6-7; 'Western Australia's Old Timber Bridges' in *Western Roads*, 13:3, Oct 1988 p. 12.

68 Margetts, 'Timber Bridges Need Loving Care', p. 7.

69 Margetts, L 1995, Metro bridge history (as at 1995)'. Main Roads WA, Perth, p. 28.

70 Amalfi, C 1987, 'Part of bridge falls in'. *The West Australian*, June 17, 1987, p. 6.

71 Conversation between Lloyd Margetts, Main Roads WA Engineer, and Elisia Fowler, 6 Aug 2007.

72 Margetts, L 1995, 'Metro bridge history (as at 1995)'. Main Roads WA, Perth, pp. 28-29.

73 Wilson-Clark, C, 'Police dive deep in search for evidence'. *West Australian*, 16 June 1998, p. 7.

Swan River Trust identifying the area as a node for a rowing/kayaking hub. The club leased an amenities building from City of Bayswater, converting a disused kiosk into clubrooms.[74]

In 1998, Garratt Road Bridge Upstream (1935) was identified by Main Roads WA as having high heritage value during a statewide survey of bridges.[75] That same year it was also included on the City of Bayswater Municipal Heritage Inventory[76] and was classified by the National Trust.[77]

In 2000, after approval of plans by Main Roads WA, metal pedestrian barricades were built on each side of Garratt Road Bridge Upstream (1935) over the navigation spans, in response to concerns from commercial ferry operators about swimmers jumping from the bridge.[78]

In 2002, the Water Corporation announced plans to construct a new structure between the two bridges to carry a water pipe, as the traffic bridges were unsuitable for this purpose. The pipe was to carry water from the Yarragadee Mound to the southern suburbs to supplement dwindling dam water supplies. Aboriginal representatives from the Combined Metropolitan Working Group were consulted about the pipeline and opposed a separate structure as it would interfere with the riverbed. A series of alternatives were mooted which addressed this issue; however, the Water Corporation subsequently received permission to construct the pipeline between the bridges.[79]

In 2005, the timber halfcaps supporting the water pipe on Garratt Road Bridge Upstream (1935) were replaced with galvanised steel.[80] On completion of the work, contractors left a pontoon chained to the downstream side of Garratt Road Bridge Downstream (1972) by. The pontoon is still in place in 2007.

In 2006, new approach slabs and expansion joints were added to both bridges to lessen the stress from increased traffic loadings.[81]

In 2007, *Garratt Road Bridge* is a landmark entry statement for the suburbs of Bayswater and Belmont, and acts as a reference site for the eastern suburbs of Perth. *Garratt Road Bridge* is a four-lane dual carriage arterial road servicing the eastern suburbs of metropolitan Perth. A walkway on the eastern side of Garratt Road Bridge Upstream (1935) provides pedestrian access across the river. The road is also a key access route for Ascot Racecourse.

On the Bayswater side of *Garratt Road Bridge*, the Hinds and Baigup Reserves are popular sites for active and passive recreational pursuits. Hinds Reserve to the east is a popular picnic, swimming and fishing site while Baigup Reserve to the west is a popular passive recreation site for walking, cycling and bird watching in the wetlands.[82] The rowing shed is known as the Bayswater Rowing

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74 ANA Rowing Club (18 February 2006), *Submission to Swan River Trust*. correspondence, p.5.

75 *Large timber structures in Western Australia,* Perth, vol. 1, pp. 2-5.

76 City of Bayswater, *City of Bayswater Municipal Inventory Draft* May 2006.

77 National Trust Classification, 14 April, 1998.

78 Conversation between Wayne Giles, Main Roads WA, and Elisia Fowler, 19 September 2007.

79 Dobson BK, Macintyre et al. 2002, *Yarragadee transfer main, crossing of the Swan River, Garrett Road Bridges, Bayswater*. Department of Indigenous Affairs, Perth, WA

80 Structural Systems Ltd. n.d., *Garratt Road Bridge case study fact sheet*. Accessed 20 September 2007 from http://www.structuralsystems.com.au/SSL/Cases/Rem007-SSGarratt.asp.

81 Conversation between Lloyd Margetts, Main Roads WA Engineer, and Elisia Fowler, 6 Aug 2007.

82 Friends of Baigup, *Friends of Baigup Reserve*, op. cit.

Centre and provides facilities for ANA Rowing Club, Perth College Rowing Club, Sorrento Kayaking Club and the WA Institute of Sport kayaking program.[83]

Regular kayaking and rowing fixtures are held at the location, which has also been the site of world marathon kayak championships and several national and state championships. The location's lack of exposure to summer winds also provides a training base for Australian rowing and kayaking teams preparing for world championship and Olympic events.[84] *Garratt Road Bridge* is the site of the finish line for the annual Avon Descent, held since 1973, the longest white water race in the world.

13. 2 PHYSICAL EVIDENCE

Garratt Road Bridge consists of two timber traffic bridges, Garratt Road Bridge Upstream (1935) and Garratt Road Bridge Downstream (1972), constructed by Main Roads WA, linking Garratt Road in Bayswater to the north with Grandstand Road and Resolution Drive in Ascot to the south; as well as a portion of the Swan River foreshore and river bed; and timber barriers connecting the bridges.

Garratt Road Bridge is located 6 km north-east of the Perth GPO and crosses the Swan River in a north-south direction between the suburbs of Bayswater and Ascot. The bridge connects with Garratt Road to the north and Resolution Drive (north bound traffic) and Grandstand Road (south bound traffic) to the south. Garratt Road to the north intersects Guildford Road and terminates at the Perth-Midland railway line between the stations of Meltham and Bayswater in the suburb of Bayswater. Resolution Drive and Grandstand Road (splits into Stoneham Street and Raconteur Drive) intersect with Great Eastern Highway in Belmont.

On the Bayswater side of the river, *Garratt Road Bridge* is sited between Hinds Reserve to the east and Baigup Reserve to the west. Hinds Reserve is vested as a recreational reserve and incorporates a grassed park area comprising playground and barbecue facilities, a jetty, an amenities block and the Bayswater Rowing Centre shed.

Baigup Reserve is a wetlands area sited on an alluvial plain approximately 1km long and 500m wide at its widest point.[85] The reserve forms a portion of the Swan River foreshore with indicative listing status on the Register of the National Estate. The listing also covers the foreshore and swamp lands from the south west of *Garratt Road Bridge* on the Ascot side of the river to Grove Farm Reserve, on Great Eastern Highway.[86]

On the Ascot side of the river, *Garratt Road Bridge* is sited between the Ascot Racecourse to the east and an unnamed wetland area to the west, which starts at the eastern edge of Garratt Road Bridge Downstream (1972) and extends around the river to Grove Farm Reserve. A radio antenna is situated within the wetlands area close to the downstream bridge. Behind the wetlands is the Ascot Waters' housing estate.

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83 ANA Rowing Club (18 February 2006), Submission to Swan River Trust, p. 2.

84 ANA Rowing Club (18 February 2006), Submission to Swan River Trust, p. 6.

85 Friends of Baigup n.d., *Friends of Baigup Reserve*, op. cit.

86 Australian Heritage Database n.d., *Swan River Foreshore, Maylands, Clarkson Rd, Maylands, WA, Australia.* Place ID 17879.

Residential housing extends behind the limits of the Hinds Reserve and Swan River Foreshore sites. Landmarks in the immediate vicinity of *Garratt Road Bridge* include Ascot Racecourse and the adjacent Bristile Kiln site between Resolution Drive and Grandstand Road in Ascot; the radio tower in the wetlands to the southwest of the bridge; and historic museum Ellis House to the north west of the bridge behind Hinds Reserve.

Garratt Road Bridge Upstream (1935) is 237.89m (780') long and 10m (33') wide, which includes a 1.52m (5') wide footway. It has one 12.49m (40') steel navigation span and 37 x 6.1m (20') timber spans and carries a 76cm (30") diameter water main pipe supported on the eastside halfcap and a 107cm (42") on the western halfcap. Each span is supported by a pier of eight jarrah piles (some of which have been concreted), joined by steel halfcaps, connected by wandoo stringers and anchored by an abutment of 9 x 46cm (18") minimum diameter wandoo piles, which are concreted. The road surface is also concrete.[87] A large steel pedestrian barricade is situated over the eastern side of the navigation span.

Garratt Road Bridge Downstream (1972) is 237m (777') long and 8.2m (27') wide and has one 12.5m (40') steel navigation span and 37 x 6.1m (20') timber spans with five jarrah piles per pier and eight jarrah piles per abutment (some of which have been concreted). The navigation span is identical to Garratt Road Bridge Upstream (1935). A timber barrier connects both bridges on either side of the navigation span. The road surface is concrete. A work pontoon is tethered to the downstream side of Garratt Road Bridge Downstream (1972) close to the southern foreshore.

Garratt Road Bridge is in good condition and shows evidence of ongoing maintenance and repairs.

13. 3 COMPARATIVE INFORMATION

E. W. C. Godfrey

There are ten road bridges on the HCWA database identified as having been designed by E. W. C. Godfrey. Of these, five are of timber construction and are comparable to Garratt Road Bridge Upstream (1935): Brunswick Road Bridge (1929), *Fremantle Traffic Bridge* (1939), *Clackline Bridge* (1939), *Guildford Road Bridge* (1937) Bassendean, and *Canning Road Bridge* (1937). All were designed according to a 1927 Main Roads Department plan.[88]

Of these five timber bridges, *Guildford Road Bridge* is most comparable to Garratt Road Bridge Upstream (1935), being constructed in the same decade and having similarities in physical description and construction. Both *Guildford Road Bridge* and *Garratt Road Bridge* followed the Main Roads policy of 'economic no frills' construction. However, *Garratt Road Bridge* incorporates a steel navigation span into the design. Both bridges have concrete overlay and abutments supported by eight piles of jarrah joined by steel halfcaps as well as the round timber stringers,[89] which were favoured at the time for strength.[90]

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87 Margetts, L 1995, 'Metro bridge history (as at 1995)'. Main Roads WA, Perth, p. 28.

88 Main Roads *Standard Type 16' Bridge Plan MRBWA 101 11,* drawn March 1927; Main Roads, *International Training Course in Road Engineering:* p. 5.11 Fig 1A; Edmonds, *The Vital Link*, p. 87.

89 *Large timber structures in Western Australia,* Perth, vol. 1, p. 1061.

90 *Large timber structures in Western Australia,* Perth, vol. 3, p. 2.

Guildford Road Bridge is comparable to Garratt Road Bridge Upstream (1935) as it exhibits evidence of Main Roads' maintenance procedures over the years and is in good condition, retaining its integrity through repairs which are sympathetic to the original.[91] *Guildford Road Bridge*, like *Garratt Road Bridge,* is still a main arterial traffic access, the purpose it was originally designed for, and similarly the surrounding natural setting of riverfront bushland and park area is largely unspoilt.[92] *Guildford Road Bridge* is a permanent placement on the HCWA register, with the statement of significance drawing attention to its high aesthetic and historical value for the area as well as its continuing use as a main access traffic bridge.

Fremantle Traffic Bridge is also highly comparable to *Garratt Road Bridge*, because they are the only two bridges designed by Godfrey that incorporated a steel navigation span into their design.[93] *Fremantle Traffic Bridge* is the second longest timber bridge in the state, exceeded only by *Garratt Road Bridge*.[94] *Fremantle Traffic Bridge* is in fair condition but has been assessed as being unable to retain its original state due to high traffic loads and natural degradation, and the difficulty in replacing timbers due to availability.[95] *Fremantle Traffic Bridge* was built in 1939 and so corresponds in age to Garratt Road Bridge Upstream (1935) but its surrounding environment is much changed.[96] *Fremantle Traffic Bridge* is a permanent placement on the HCWA register as of 2006.

Clackline Bridge was constructed in 1936 and is located on Great Eastern Highway at Northam. It is a 126m long and 9m wide timber bridge with a reinforced concrete overlay constructed in 1978. *Clackline Bridge* displays the typical timber superstructure construction methods of the 1930s and has an unusual horizontal/vertical curvature.[97]

Brunswick Road Bridge is not comparable because it has steel stringers while *Garratt Road Bridge* has round timber stringers. *Canning Bridge* is also less comparable as it is a three lane bridge and therefore much wider.[98]

The only other Godfrey bridge in the HCWA database built in the period from 1930 to 1940 is *Gascoyne River Bridge* (1931), which is a large concrete and steel bridge that is not comparable. Two other bridges from the period are included in the HCWA database but do not include information about their designer: Mogumber Bridge (1932, timber) on the Bindoon-Moora Road, and Barker's Bridge, Kwinana (1940, no further information).

Garratt Road Bridge is a good example of E. Godfrey's design oversight of bridges in Western Australia in the 1930s.

Timber Bridges

The HCWA database includes 81 timber road bridges, nine of which were constructed between 1930 and 1940. Lengths are not available for most of these listings. The Large Timber Structures survey includes 50 timber road bridges,

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91 *Large timber structures in Western Australia,* Perth, vol. 1, p. 1059.
92 HCWA, Guildford Road Bridge, Assessment Documentation, P14558.
93 *Large timber structures in Western Australia,* Perth, vol. 1, p. 1060.
94 *Large timber structures in Western Australia,* Perth, vol. 1, p. 1060.
95 HCWA, Fremantle Traffic Bridge, Assessment Documentation, P4027.
96 *Large timber structures in Western Australia,* Perth, vol. 1, p. 1060.
97 HCWA, Fremantle Traffic Bridge, Assessment Documentation, P4027.
98 *Large timber structures in Western Australia,* Perth, vol. 1, p. 1039.

noting length for all but four. Only two are over 200m long, being *Garratt Road Bridge* (238m) and *Fremantle Traffic Bridge* (206m). These are also the only two bridges in the survey that include steel navigation spans, although information received from Engineers Australia (WA Division) Engineering Heritage Panel indicates that at least another eight timber bridges in the State include steel navigational spans.[99] A further ten bridges in the survey are over 100m in length, including most of the timber bridges in the metropolitan area. As the survey includes ruins and sites of former important bridges, it is clear that most timber bridges were constructed much shorter than *Garratt Road Bridge*.

The survey also suggests that the last timber road bridge constructed in the State dates from 1993,[100] one of only two listed as built since the 1960s. However, information received from Engineers Australia (WA Division) indicates that from the 1950s to the 1980s at least four regional bridge crews operated constructing timber bridges, and it was only in the mid 1980s that policy changes resulted in new bridges rarely being constructed of timber.[101]

Garratt Road Bridge is rare as the longest extant timber bridge in Western Australia, and possibly the longest ever constructed in the State.

Main Roads Western Australia records show that the State has around 1,100 extant bridges which are substantially constructed of timber, with round stringers. *Garratt Road Bridge* is, therefore, representative of this style of construction.[102]

13. 4 KEY REFERENCES

Institution of Engineers Australia, Western Australian Division. Engineering Heritage Panel 1998, *Large timber structures in Western Australia*

National Trust Classification: Classified 14 April 1998.

13. 5 FURTHER RESEARCH

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99 Letter from Engineers Australia (WA Division) Engineering Heritage Panel, to HCWA, 6 Feb 2008.

100 *Large timber structures in Western Australia,* Perth, vol. 1, p. 1050.

101 Letter from Engineers Australia (WA Division) Engineering Heritage Panel, to HCWA, 6 Feb 2008.

102 Correspondence Main Roads (WA) to HCWA, 1 July 2008.