



**HERITAGE  
COUNCIL**  
OF WESTERN AUSTRALIA

## REGISTER OF HERITAGE PLACES

**DRAFT – Register Entry**

1. **DATA BASE No.** P3410
2. **NAME** *Chapman River Road Bridge* (1863-1864)  
**FORMER NAME (or OTHER NAMES)** MRWA Bridge 1362
3. **LOCATION** Chapman River Road, Sunset Beach
4. **DESCRIPTION OF PLACE INCLUDED IN THIS ENTRY**  
Portion of Chapman Road, starting at the easternmost corner of Reserve 27553 and extending northeasterly to the southernmost corner of Reserve 28176; thence southeasterly along the northeastern side of that road to Latitude 28.4380 degrees South, thence southwesterly to the southwestern side of that road at Latitude 28.4381 degrees south and then northwesterly along that side of the road to the starting point, as defined in Heritage Council of WA Curtilage Map P3410-A
5. **LOCAL GOVERNMENT AREA** City of Greater Geraldton
- 6a. **CURRENT OWNER**  
State of Western Australia  
City of Greater Geraldton
7. **HERITAGE LISTINGS**
  - Register of Heritage Places: -----
  - National Trust Classification: -----
  - Town Planning Scheme: 17/04/1998
  - Municipal Inventory: 23/06/1998
  - Register of the National Estate: rejected; no date
  - Aboriginal Sites Register crosses P30063 Chapman River
8. **ORDERS UNDER SECTION OF THE ACT**  
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9. **HERITAGE AGREEMENT**  
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## 10. STATEMENT OF SIGNIFICANCE

*Chapman River Road Bridge*, a medium sized masonry (1863-1864) road bridge with later reinforced concrete additions, has cultural heritage significance for the following reasons:

the place is an exceptionally rare and the oldest extant example of a masonry road bridge in the State, with the convict-constructed core of the structure still functioning in its original purpose;

the place is a rare and relatively intact example of a bridge designed by the Royal Engineers, demonstrating a technical excellence in masonry construction using the blade pier technique;

the place demonstrates the work and impact of convict labour and the Royal Engineers during the Colonial period.

the place demonstrates the colonial history of the region, in particular the development of the earliest mineral fields of the colony; and,

the place is a striking visual landmark in the region.

The reinforced concrete deck and abutments, pedestrian access extension, safety guard rails and walkway underpass is fabric of little heritage significance to the place.



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**DRAFT – Assessment Documentation**

### 11. ASSESSMENT OF CULTURAL HERITAGE SIGNIFICANCE

Cultural heritage significance means aesthetic, historic, scientific, social or spiritual value for individuals or groups within Western Australia.

In determining cultural heritage significance, the Heritage Council has had regard to the factors in the *Heritage Act 2018* and the indicators adopted on 14 June 2019.

#### 11(a) Importance in demonstrating the evolution or pattern of Western Australia's history

*Chapman River Road Bridge* demonstrates the work and impact of convict labour and the Royal Engineers during the colonial period.

*Chapman River Road Bridge* demonstrates the economic development of the region, forming part of the pathway between Champion Bay and the mineral field around Northampton.

#### 11(b) Importance in demonstrating rare, uncommon or endangered aspects of Western Australia's heritage

*Chapman River Road Bridge* is a rare example of an active bridge still utilising structural members from its original convict construction, and an exceptionally rare example of a stone with a cement render blade pier bridge type, being the earliest extant example.

*Chapman River Road Bridge* is rare as a relatively intact example of a bridge designed by the Royal Engineers.

#### 11(d) Its importance in demonstrating the characteristics of a broader class of places;

*Chapman River Road Bridge* demonstrates the characteristics of the Royal Engineer's approach to masonry construction, and demonstrates the characteristics of blade pier bridge construction.

**11(f)<sup>1</sup> Its importance in exhibiting particular aesthetic characteristics valued by any group or community;**

*Chapman River Road Bridge* forms a striking visual landmark in its area, a rare example of a stone blade pier and an encounter with the region's colonial history.

**11(g) Any special association it may have with the life or work of a person, group or organisation of importance in Western Australia's history;**

*Chapman River Road Bridge* is a demonstration of the training and skills of the Royal Engineers.

**11(h) Its importance in demonstrating a high degree of creative or technical achievement;**

*Chapman River Road Bridge* demonstrates a high degree of structural achievement in the masonry blade piers designed by the Royal Engineers, with these elements still capable of bearing a modern reinforced concrete deck.

**12. DEGREE OF SIGNIFICANCE**

**12.1 CONDITION**

The bridge appears to be in good repair.

**12.2 INTEGRITY**

This section explains the extent to which the fabric is in its original state.

*Chapman River Road Bridge* has a low to moderate integrity, while the original core of the masonry blade piers constructed by convicts is still present, the piers have been impacted by later additional of concrete render and wartime drill holes. The deck of the bridge has been completely replaced, and a new pedestrian access expansion has been created along the southwest (downstream) face.

**12.3 AUTHENTICITY**

This section explains the extent to which the original intention is evident, and the compatibility of current use.

*Chapman River Road Bridge* has high authenticity, the original intention and form of the bridge readily apparent, and the current structure still retaining its original use as a traffic bridge.

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<sup>1</sup> 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.

### 13. SUPPORTING EVIDENCE

The documentation for this place is based on the heritage assessment completed by Department of Planning, Lands and Heritage - Heritage Services staff, in August 2020, with amendments and/or additions by the Heritage Council and the Department.

#### 13.1 DOCUMENTARY EVIDENCE

*Chapman River Road Bridge* is a medium sized masonry and reinforced concrete road bridge located in the City of Greater Geraldton, oriented northwest-southeast along Chapman Road where it crosses the Chapman River. The place demonstrates the development of Colonial settlement and early mining industry of the region and the abilities and impact of convict labour directed by the Royal Engineers.

The region in which *Chapman River Road Bridge* is found was occupied by Aboriginal families for tens of thousands of years, with the area inhabited by the Amangu and Naaguja Aboriginal groups.

A search of the Register of Aboriginal Heritage Places for the area reveals that *Chapman River Road Bridge* crosses over the registered site of Chapman River, which was significant to the Amangu and Naaguja groups as a fresh water source and as a place of spiritual significance.<sup>2</sup>

In 1839 these Aboriginal groups came into contact with Captain George Grey, a British explorer who had been stranded at Gantheaume Bay after his boats and provisions were lost, who with his men trekked some 160 kilometres back to Perth.<sup>3</sup> Grey made notes of his journey, including the distinctive huts, as well as giving the British name of Chapman to the river over which *Chapman River Road Bridge* would later be built. On his return to Perth, Grey described the “extensive tracts of fertile country” in the area and advocated British settlement.<sup>4</sup>

While this sparked interest in the area from British pastoralists in the 1840s, it was the discovery of coal and lead ore in the region by the Gregory brothers in 1846-1848 that sparked British expansion. In 1848, the Geraldine Mining Company was formed to take advantage of the minerals in the area, however this expansion was resisted by the local Aboriginal people, resulting in Governor Fitzgerald being speared in the leg when he visited the area.<sup>5</sup> Clashes between the two groups continued through the period 1848-1860, and British expansion was slow in the early years.<sup>6</sup> With help of Surveyor A C Gregory, the Geraldine Mining Company sketched out a direct route from P3455 *Geraldine Lead Mine Site* (RHP) to the nearest sheltered boat landing, known initially as “Boat Harbour” in 1849, but by 1850 was named “Port Gregory.”<sup>7</sup> With the lack of free labourers, the Geraldine

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2 Inquiry Aboriginal Heritage Register Search, 20 September 2019

3 'Grey, Sire George (1812-1898), *Australian Dictionary of Biography*, website visited 13 June 2019, <http://adb.anu.edu.au/biography/grey-sir-george-2125>

4 'Expedition to the Northward', *The Perth Gazette and Western Australian Journal*, 8 February 1840, p. 23

5 Considine and Griffiths Architects, *Lynton Heritage Conservation Plan*, Northampton Historical Society, 1996A, p. 2; 'Return of H E the Governor from the Northward – Unfortunate affray with the Natives – His Excellency wounded in the leg', *The Perth Gazette and Independent Journal of Politics and News*, 19 December 1848, p. 1

6 Gratte, *op cit.*, pp. 4-9

7 'Settlement at Champion Bay – Geraldine Mining Company', *Inquirer*, 19 September 1849, p. 2; 'Mining Journal', *Inquirer*, 2 October 1850, p. 2

Mining Company requested convict labour in 1850 when transported prisoners began to be sent to the Colony, and convicts were working at the mines by 1852.<sup>8</sup> In response, two townsites in the area of Port Gregory were surveyed in 1853, Pakington and Lynton, the latter of which became the nucleus for convict labour in the region with the establishment of P1915 *Lynton Convict Hiring Depot (Ruins)*.<sup>9</sup>

Unfortunately, Port Gregory was plagued by mishap, the storms and reefs of the area contributing to a number of shipwrecks.<sup>10</sup> In addition, the costs of operating regional convicts forced the government to announce the closure of these establishments in 1856, with the Lynton Hiring Depot (P1915 *Lynton Convict Hiring Depot (Ruins)* – RHP) abandoned in December that year.<sup>11</sup>

However the prospects of the northern mineral region received a boost in 1855 when copper lodes were discovered near Wanerenooka Spring, between Port Gregory and Champion Bay (Geraldton). The Western Australian Mining Association (commonly known at the time as the Wanerenooka Company) was formed in 1858, and in response the Comptroller of Convicts, E Henderson, resolved to establish a road from Champion Bay to the new mining area.<sup>12</sup>

In 1859 Governor Kennedy announced that a convict road party had been formed to open a route from Champion bay to the “mineral districts,” however other reports from this year indicate that there was already a route at this time, so the convict work party may have been performing improvements to the road.<sup>13</sup> However by 1861 complaints were raised regarding the ford at Chapman River:

*The Chapman, being the most powerful stream, became impassable for a short time. Now this river has to be crossed by all the teams carting copper ore, which have to pass over a few rough stones thrown into the river to form a ford. I believe that the Government have promised to bridge this river next summer.*<sup>14</sup>

Tenders for the supply of materials for a bridge over the Chapman were advertised the following year,<sup>15</sup> however these plans were interrupted by a series of severe storms and floods across the colony in June and July 1862, with smaller floods still occurring throughout settled areas until October that year.<sup>16</sup> During this time the northern mineral fields were completely cut off from Champion Bay, although given the devastation wrought by the floods on the bridges of the southern areas, one

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8 Rundle, D, *The History of Port Gregory*, 1987, pp. 3-6; Considine and Griffiths 1996A, *op cit.*, p. 3

9 *Pakington 4. Victoria District. Plan of Pakington & Lynton Townsites showing Hutt Lagoon, Port Gregory, Hutt River & various lots in vicinity. By A.C. Gregory Fieldbook 25 dated 1853-1954 (Later additions) [scale: 30 chains to an inch]*. State Records Office, AU WA S235- 284

10 'Loss of Barque – Mary Queen of Scots', *Inquirer*, 28 February 1855, p. 2; 'Port Gregory', *The Perth Gazette and Independent Journal of Politics and News*, 29 June 1855, p. 2; *Inquirer*, 28 December 1853, p. 2

11 See Assessment Documentation, P1915 *Lynton Convict Hiring Depot (Ruins)*; Considine and Griffiths Architects, *Lynton Heritage Conservation Plan*, Northampton Historical Society, 1996, pp. 13-15; Broomhall, F H, *The Veterans: A History of the Enrolled Pensioner Force in Western Australia, 1850-1880*, Hesperian Press, 1989, pp. 94-95

12 Considine and Griffiths Architects, *Historic Wanerenooka Mine Precinct Conservation Report*, Shire of Northampton, 1996A, pp. 13-18; 'Report on the works proposed to be carried out in the Colony be Public Meetings held in April and May, 1858', *The Perth Gazette and Independent Journal of Politics and News*, 17 September 1858, p. 3

13 *The Inquirer and Commercial News*, 2 February 1859, p. 2; *The Inquirer and Commercial News*, 16 March 1859, p. 2

14 'Champion Bay', *The Inquirer and Commercial News*, 14 August 1861, p. 3

15 *Government Gazette*, 25 February 1862, p. 10

16 Le Page, J S H, *Building a State*, pp. 85-86

correspondent wryly noted that “in this favoured region there are no bridges to be swept away.”<sup>17</sup>

Tenders for the supply of materials for a bridge over the Chapman River were called for again in October 1862, and work on the bridge began the following year.<sup>18</sup> By June 1863 it was noted:

*A considerable increase has recently been made in the number of convicts employed on purely Colonial works... A bridge over the Chapman, and a Bonded Store and Court House at Champion Bay, will shortly be completed by convict labour...<sup>19</sup>*

As outlined in the government tender, *Chapman River Road Bridge* was designed by the Royal Engineers, part of the British Army that specialised in construction and demolition. This group had been sent to Western Australia to direct convict construction projects and instruct the convicts in a trade. This work was initially undertaken by the Royal Corps of Sappers and Miners, as well as the officers of the Royal Engineers. These two groups were then amalgamated in 1856 to form the Corps of Royal Engineers.<sup>20</sup> The Royal Engineers earned distinction for their actions in the Crimean War, as educated and innovative soldiers capable of creating solutions from local materials, particularly in regard to building and demolishing bridges. These skills gave the British army operational flexibility that other armies lacked.<sup>21</sup>

Part of the strength of the Royal Engineers lay in their willingness to share and improve on building and demolition techniques. In the 1860s, lectures given at the School of Military Engineering and studies from the Institution of Civil Engineers were copied and supplied to Libraries of the Royal Engineers around the world, including Western Australia.<sup>22</sup>

Royal Engineers stationed at colonies in India, Canada, and the Caribbean also performed materials testing on building products such as lime mortar and cements. This involved creating standardised tests for determining the strength and durability of building materials, which allowed global testing and comparison. Samples of Western Australian Mahogany (Jarrah), the wood used in Fremantle Prison and in government bridges, was tested by Royal Engineer Henry Wray and Colonial Clerk of Works James Manning, proving the strength the material to an internationally-accepted standard. Royal Engineer Grain sent jarrah back to England to perform tests on why the wood was so durable, in particular why it was so resistant to white ants and sea worms. These efforts established the qualities and advantages of jarrah on a global scale, setting the scene for the timber industry exports in the following decades.<sup>23</sup>

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- 17 'Champion Bay', *The Perth Gazette and Independent Journal of Politics and News*, 1 August 1862, p. 2; *The Inquirer and Commercial News*, 6 August 1862, p. 2
- 18 *Government Gazette*, 28 October 1862, p. 45; *The Inquirer and Commercial News*, 15 July 1863, p. 2
- 19 'Legislative Council;', *The Perth Gazette and Independent Journal of Politics and News*, 12 June 1863, p. 2
- 20 'Correspondence', *The Inquirer and Commercial News*, 22 April 1857, p. 3; 'Domestic Sayings and Doings', *The Perth Gazette and independent Journal of Politics and News*, 25 December 1857, p. 2
- 21 Thomson, M S, *The Rise of the Scientific Soldier as seen Through the Performance of the Corps of the Royal Engineers During the Early 19<sup>th</sup> Century*, PhD Thesis, 2009, University of Sunderland, p. 211
- 22 Fox, A, 'Goats Mingling with Sheep? Professionalisation, Personalities, and Partnerships Between British Civil and Military Engineers, c.1837-1939', *War and Society*, 2019, vol 38, issue 4, (np)
- 23 Weiler, J, 'Colonial Connections: Royal Engineers and Building Technology Transfer in the Nineteenth Century', *Construction History*, 1996, vol 12, pp. 1-7

Royal Engineers also experimented with different types of bridges to suit local conditions.<sup>24</sup> A Royal Engineers handbook written in 1846 has a lengthy section devoted to bridge building, and notes of trestle bridges that “these are chiefly applicable to rivers in hilly countries, where the stream—liable to sudden swellings—is generally too deep to be forded... the trestles can be made of rough materials on the spot...” The design diagrams for the trestle bridge in this manual contains many of the elements common to timber trestle bridges designed by Royal Engineers in Western Australia.<sup>25</sup>

*Chapman River Road Bridge* was designed by the Royal Engineers Office in Fremantle, who were at the time led by Captain E M Grain.<sup>26</sup> Given the context of the severe 1862 floods, the resulting design opted for a trestle bridge with a blade pier design rather than the usual driven timber piles, the stone masonry with a cement render strong enough to withstand sudden floods and shaped to direct water and debris away from the bridge.

A plan of the bridge dated 18 October 1862, signed by the “R E Office Fremantle” shows the height of the bridge was based around the 1862 flood level line. The bridge was also designed with sawn timber stringers, a practice that pre-dated the use of timber log stringers – this may also have been influenced by the scarcity of suitable timber in the area.<sup>27</sup>

The works were completed by June 1864, and by this point had inspired a similar design in P1166 *Maley’s Bridge* (RHP) at Greenough River to the south.<sup>28</sup> The striking design of *Chapman River Road Bridge* was locally regarded, described by the newspapers of the day, as “a fine specimen of colonial work; [that] would do great credit to an English A1 Engineer.”<sup>29</sup> Due to material supply problems, P1166 *Maley’s Bridge* (RHP) was not completed until 1865.<sup>30</sup>

In 1872, calls were made to build a railway line from Geraldton to the mineral areas around Northampton, which was to become the first government railway in the state. Construction began 1874 and the line was completed in 1879.<sup>31</sup> This involved the creation of a timber trestle railway bridge across the Chapman River, approximately 400 m upstream from *Chapman River Road Bridge*, however both bridges appear to use the same name in the historic sources.

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24 Weiler, *op cit.*, pp. 7-11

25 Corps of the Royal Engineers, *Aide-memoire to the Military Sciences Framed from Contributions of Officers of the Different Services, and Edited by a Committee of the Corps of Royal Engineers in Dublin, 1845-1846*, John Weale, High Holborn, 1846, pp. 187-188, plate 11; in particular the design of Figure 4 is comparable to most Western Australian timber trestle bridge designs.

26 ‘Fremantle’, *The Inquirer and Commercial News*, 20 November 1861, p. 2

27 ‘Plan and Elevation of proposed Bridge over the Chapman River, Victoria District’, *North West Coastal Highway No 400 Geraldton Municipality Chapman River Bridge*, Geraldton Regional Library, G10560

28 See assessment documentation P1166 *Maley’s Bridge* (RHP); ‘The Governor’s Speech’, *The West Australian Times*, 23 June 1864, p. 3 – the article also notes that the bridge at Greenough River was already underway at this point.

29 ‘Champion Bay’, *The Inquirer and Commercial News*, 13 September 1865, p. 3

30 “Victoria District”, *The West Australian Times*, 10 March 1864, p. 2; ‘General Intelligence’, *The Perth Gazette and Independent Journal of Politics and News*, 29 July 1864, p. 2; ‘Greenough Flats’, *The West Australian Times*, 14 July 1864, p. 2; ‘Geraldton’, *The Inquirer and Commercial News*, 7 December 1864, p. 2; ‘Champion Bay’, *The Perth Gazette and West Australian Times*, 3 February 1865, p. 2

31 See Assessment Documentation, P1068 *Original Railway Station (1878-93)*, Geraldton (RHP) pp. 5-7



By 1889 safety concerns were raised regarding the *Chapman River Road Bridge*, with white ants damaging the joists and decks, and the cement piers in need of repair.<sup>32</sup>

As a result of these concerns, an assessment of the bridge was made by Frederick Tapscott, Inspector of the Permanent Way (a reference to the Geraldton-Northampton Railway). Tapscott recommended repairs to a number of timber joists and decking, as well as to the masonry piers. Of the latter, Tapscott made a number of observations in his notes:

*The Masonry of the first Cut Water Peir (sic) is split into 3 parts. I am of opinion that only the excellence of the lime used in its construction keeps it from falling. (in Explanation,) on north side of this pier, the footing is undermined to a depth of 18" – 3 Stones of the footing teir (sic) being suspended by the jam of the drop and the mortar combined, this should be fill'd by Cement Concrete the mud being previously cleaned out to the Rock. The Rest of masonry should be stopt and jointed in Cement to an average height of 7 ft 6 Inches, this would make the peir perfectly safe the present very low water would be a very good time to do this work. The Whole of the Cut Water Peirs requires stopping and pointing and should be in best Portland Cement, as if done in lime, it would I am of opinion soon fret...*<sup>33</sup>

These minor repairs were carried out under Tapscott's direction later that year, however by 1903 the bridge was again in need of repair.<sup>34</sup> A total of £415 was put aside for these works in 1904.<sup>35</sup>

Images of *Chapman River Road Bridge* from the inter-war period show the bridge was well-maintained, and it was noted during this period that the convict-built bridge "is in a wonderful state of preservation and is still used for traffic... Truly a wonderful tribute to the perspiring wretches who laid its foundations!"<sup>36</sup>

One change that did occur to the bridge was the drilling of charge fuses into the stone blade piers during World War II, designed to be able to blow the structure if the State was invaded.<sup>37</sup> By the end of the war, time was beginning to take its toll on the structure, and in the post-war period calls were made for the bridge to be replaced.<sup>38</sup> This replacement involved the construction of a new bridge frame and road surface, however the stone blade piers were incorporated into the new design.

Work began on the 'replacement' bridge in 1950, but delays were encountered due to the supply of prefabricated steel from the Eastern States.<sup>39</sup> While the work was delayed, complaints were raised that the "relatively small recapping job" had been dragging on too long, however the upgraded bridge was partially re-opened by

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32 'Geraldton Town Council', *The Victorian Express*, 26 January 1889, p. 6; 'The Chapman Bridge', *The Victorian Express*, 2 February 1889, p. 6

33 *Mayor Geraldton - Grant to repair Chapman Bridge, asking for*, State Records Office, AU WA S675- cons527 1889/0348, np.

34 'News', *The Victorian Express*, 20 April 1889, p. 6; 'News', *The Victorian Express*, 4 May 1889, p. 6; 'Municipal Council', *Geraldton Advertiser*, 21 January 1903, p. 3; 'Geraldton', *The West Australian*, 24 August 1903, p. 3

35 'Works and Buildings', *The West Australian*, 16 November 1904, p. 3

36 *Chapman River Bridge, Geraldton*, Battye Image Collection, 029023PD; *Chapman River Bridge, Geraldton [picture]* Battye Image Collection, 006085PD; 'Geraldton – its early history and development', *Geraldton Guardian*, 24 December 1927, pp. 10-11

37 *City of Greater Geraldton Municipal Inventory of Heritage Places*, City of Greater Geraldton, 2017, Place Record 331

38 'New Chapman Bridge', *Geraldton Guardian*, 16 February 1950, p. 6;

39 'Geraldton Municipal Elections', *Geraldton Guardian*, 23 November 1950, p. 4

August 1951.<sup>40</sup> This may have been when the concrete render was added to the surface of the stone piers, given that images of the bridge in 1946 still show the original masonry.<sup>41</sup>

In the 1970s, the timber deck on *Chapman River Road Bridge* was renewed. A member of the Main Roads work crew died during these repairs, and a small bronze plaque was hidden within the members of the bridge structure as a memorial from his co-workers.<sup>42</sup>

Photos of the place from 1994 show that the southwest pedestrian access extension had been constructed by this date. Historic aerial imagery from 2001 shows that the northeast pedestrian access extension had been added to the other side of *Chapman River Road Bridge*.<sup>43</sup>

Since this time, *Chapman River Road Bridge* has continued to perform its role as a road traffic bridge.

### 13.2 PHYSICAL EVIDENCE

*Chapman River Road Bridge* is a medium sized masonry and reinforced concrete road bridge located in the City of Greater Geraldton, oriented northwest-southeast along Chapman Road where it crosses the Chapman River. The place physically demonstrates the nature of convict period stonemasonry and the adaption of this work to later expansions of the bridge.

The bridge has 9 spans and is approximately 49 m long, 9 m wide, and stands 2-3 m above the river bed at its highest point.

The southeast abutment of the bridge consists of a reinforced concrete wing wall, which is provided with additional structural support from a reinforced concrete block under the bridge and rubble masonry walls to either side. A concrete walkway has been constructed under the bridge along the southeast bank, with the bank itself provided additional support in the form of a revetment wall constructed of random rubble covered with a thick layer of concrete.

The northwest abutment consists of a single, substantial reinforced concrete block, set into the natural limestone wall of the bank. Rubble masonry walls also provide additional support either side of the central concrete block.

The bridge rests of eight masonry blade piers, the core of which represent the original convict-era stonework of the bridge. The blade piers rest on a foundation of large limestone blocks, shaped to a point at either end, with smaller limestone blocks rising from this pedestal in a battered shape, again shaped to a thin point at either end. These piers have at some point (likely in the 1950s-1970s) been covered in a thin cement render. Also noted were groups of three 10 cm drill holes in a number of piers, apparent through the depression in the render. It is understood

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40 'Letter to Editor', *Geraldton Guardian*, 9 June 1951, p. 2; 'Ford at Bluff Point', *Geraldton Guardian*, 26 July 1951, p. 1; 'Letter to Editor', *Geraldton Guardian*, 2 August 1951, p. 2; 'Chapman Bridge Opened', 'Letter to Editor', *Geraldton Guardian*, 4 August 1951, p. 2

41 *Chapman River Bridge*, *Geraldton [picture]*, 1946, Batty Library Image Collection 007926D

42 Don Golding, former Main Roads supervisor, *pers. comm.* 20 August 2020

43 *Chapman River Road Bridge*, April 1994, Batty Image Collection, 129071PD; Landgate historic aerial imagery, 2001, accessed via online InQuery DPLH mapping system, accessed 30 September 2020

that these holes represent the places where explosive charges could have been laid during World War II.

At the top of each blade pier is a reinforced concrete cap, rounded at each end, which spreads the load from the deck above to the pier below. It is unknown how each cap has been affixed to the masonry pile, however there appears to be a loading pad between each pier cap and the bridge deck. The original timber bridge stringers and deck planking has been completely removed in favour of a single reinforced concrete slab. On the northeast (upstream) side, a water main has been slung underneath the bridge deck via steel straps, with a second, newer water main attached alongside the deck, resting on steel brackets. The bridge deck is topped by bitumen, and kerbed in concrete. Galvanised steel safety barriers have been erected along the sides of the road, set directly into the concrete or bolted to the underside of the deck via an underslung bracket.

The pedestrian access on the southwest face is a separate concrete slab extension to the main bridge, which has been attached underneath by paired galvanised steel "I" beams bolted to the pier caps. The pedestrian expansion rests on a single central line of galvanised steel "I" beam piles, each set into a large reinforced concrete foundation, which like the blade piers is also set into a larger pedestal. The concrete pedestal of the pedestrian expansion piles has been connected to the pedestal of each blade pier. The exception to this is the northernmost pier of the southwest face, where the pedestrian expansion pile has been angled to rest directly on the blade pier pedestal. The pedestrian access on the northeast face appears to have been constructed by narrowing the roadway, creating a pathway space that has been topped with cream concrete.

Overall, the bridge is in good condition, albeit heavily modified from its original structure.

### **13.3 COMPARATIVE INFORMATION**

#### **PRINCIPAL AUSTRALIAN HISTORIC THEME(S)**

- 2.3 Coming to Australia as a punishment
- 3.8.7 Building and Maintaining Roads
- 3.14.1 Building to suit Australian conditions

#### **HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)**

- 106 Workers (including Aboriginal, convict)
- 203 Road Transport
- 604 Innovators

#### **Comparative Analysis**

##### *Bridge Design*

A search of the Historic Heritage database for places with the use "Transport/Communications: Road: Bridge" produces 204 results. By refining this search to places where stone was used as a construction material, a total of 10 places are returned, two of which are listed on the RHP. The places comparable to *Chapman River Road Bridge* include:

- P1166 *Maley's Bridge* (RHP): a trestle bridge with stone blade piers, this bridge was constructed by convicts at Greenough in 1864-1865. This bridge is considered significant as an example of a convict-built structure and as part of the Greenough colonial landscape. The bridge has been modified for modern road traffic and is currently in use.
- P25058 *Katrine Causeway* (Assessment Program): a road bridge at Northam of recent construction (1991), built upon a rubble masonry causeway of which only the ends still exist as stone abutments. The stone causeway was constructed by convicts between 1853 and 1867.
- P12059 *Geraldton-Northampton Railway Precinct* (Assessment Program): constructed after 1874, this historic rail line contains examples of masonry rail bridge/culverts.

While trestle bridges are ubiquitous in Western Australia, stone construction appears to be a rare. This is unsurprising given that Jarrah was generally easy to obtain, and was resistant to both parasites and bushfires.

A search for the use of blade piers cannot be directly obtained through the Historic Heritage database, however places where blade piers were known to have been used includes:

- P1166 *Maley's Bridge* (RHP): discussed above.
- P3401 *Concrete Road Bridge over Fortescue River* (Does Not Warrant Assessment): concrete bridge with low blade piers constructed c.1929 in the Shire of East Pilbara.
- 16927 *Greenough River Bridge* (Does Not Warrant Assessment): concrete road bridge with large blade piers built in 1953 at Greenough.
- P25707 *Bridge 602, Salt River, York-Merredin Road, Shackleton* (Does Not Warrant Assessment): concrete road bridge with low blade piers built in 1953 in the Shire of Merredin.
- P26188 *Bridge 404 over Davies Brook, Pinjarra-Williams Road, Dwellingup* (Does Not Warrant Assessment): concrete road bridge with low blade piers built in 1950 in the Shire of Dwellingup.

Of the 2,935 bridge structures recorded with Main Roads, 1,428 are prestressed or reinforced concrete. It is unknown how many of these incorporate blade piers, however it is assumed that bridge designs utilising blade piers, while uncommon, are not unique in the state.

Research on the history of bridges in Western Australia suggests a masonry bridge structure was built across the Murray River at Pinjarra by colonists in 1841, but was rebuilt in 1842 and finally destroyed 1847. In 1855 convicts built a new timber trestle bridge at the same crossing.<sup>44</sup>

A search of the Historic Heritage database for places with the use "Transport/Communications: Road: Bridge" and "Construction Material (General): Stone" returns a total of ten places, of which two are listed on the RHP. The oldest place within this group is P25058 *Katrine Causeway* (discussed above), however

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<sup>44</sup> Menck, C, *A Thematic History of Bridges of the South West Region Western Australia*, Main Roads Western Australia (South West Region), 2019, pp. 20, 124

the causeway is not a bridge in the technical sense that it is a flat earth embankment through a water course, rather than a raised structure that spans over a watercourse. The evidence therefore indicates that the stone masonry piers of the *Chapman River Road Bridge* are the oldest extant masonry bridge structures in the State.

#### *Royal Engineers/Convict Establishment Association*

A thematic study of convictism in the Historic Heritage database performed from 2017-2019 identified the sub-theme of “Public Works,” public structures created by convicts under the direction of the Royal Engineers. This review identified a total of 73 places in the Historic Heritage database, including 29 places on the RHP. This larger group included roads, bridges, culverts, jetties, wells, drainage and other public buildings. Within this larger group, a total of 21 bridges are identified, with 4 listed on the RHP, with most of these bridges being newer construction with only a historical association with convicts and Royal Engineers. The bridges comparable to *Chapman River Road Bridge* as demonstrating Royal Engineer design include:

- P1166 *Maley’s Bridge* (RHP): discussed above.
- P4027 *Fremantle Traffic Bridge & Ferry Capstan Base* (RHP): the extant Ferry Capstan Base was operated by convicts, and convicts worked on the construction of the stone embankments.
- P3517 *Old Hay River Bridge* (Does Not Warrant Assessment): timber trestle bridge constructed by convicts in 1858, however little physical evidence remains.

#### *Captain E M Grain*

Places that are known to be associated with Captain Grain that are on the Historic Heritage database include:<sup>45</sup>

- P2095 *Government House and Grounds* (RHP): a substantial brick mansion completed in 1864 and used as the residence of the Western Australian Governor; Grain was involved with the construction of the place.
- P2120 *Barracks Arch* (RHP): the extant gatehouse of what was once a substantial brick barracks for the Enrolled Pensioner Guards, established in Perth 1863-1867; Grain was involved with the construction of the place.
- P1965 *Old Perth Gaol* (RHP), part of P1962 *Art Gallery & Museum Buildings* (RHP): established at Perth in 1856, this brick convict structure initially housed convicts; Grain was involved with the construction of the place
- P4027 *Fremantle Traffic Bridge (1939) & Ferry Capstan Base (date unknown)* (RHP): the original 1863 timber structure was designed by both Grain and Manning, and constructed using convict labour.

#### *Mining*

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<sup>45</sup> Bush, F, *The Convicts’ Contribution to the Built Environment of Colonial Western Australia between 1850-1880*, PhD Thesis, Curtin University, 2012, pp. 169, 235; Menck, C, *A Thematic History of Bridges of the Metropolitan Region Western Australia*, Main Roads Western Australia, 2019, p. 26

*Chapman River Road Bridge* was constructed as a land route between the port of Geraldton and the northern mineral fields, and demonstrates the development of the state's early mining industry. A search of the Historic Heritage database for places in the Midwest region with the use "Mining" returns a total of 101 places, of which eight places are listed on the RHP. The places most relevant to *Chapman River Road Bridge* in terms of demonstrating the early development of mining in the region (pre-Gold Boom) include:

- P3455 *Geraldine Lead Mine Site* (RHP): established 1849-1854 at Northampton, this mine site was the first commercial mining venture in the state, and demonstrates the workings of the early mining industry and the convict era development of the region.
- P4658 *Wanerenooka Mine Site* (RHP): established in 1855 at Northampton, this complex of archaeological sites is one of the state's earliest mining areas, demonstrating the nature and organisation of frontier community and industry.
- P15838 *Cuddy Cuddy Changing Station, Howatharra* (RHP): established in the 1860s at Chapman Valley, this complex of buildings serviced the horse teams carting ore from the mines to Champion Bay (Geraldton).
- P4474 *Coalseam Park* (Local Heritage Survey): consists of a steep plateau and mineral laying along the banks of the Irwin River; in 1846 the Gregory Brothers made the first colonial mineral discovery of the British settlement in the form of a rich coal seam.
- P4625 *Gwalla Mine Site* (To Be Assessed): a historic site with limited archaeological remains, the copper mine was established at Northampton in 1859 by Shenton and Horrocks.
- P5524 *Wheal Fortune Mine* (Ruins) (To Be Assessed): archaeological ruins of an 1860s lead and copper mine site established near Northampton.
- P16640 *North Geraldine Lead Mine* (To Be Assessed): ruin of an 1860s lead mine near Northampton, demonstrates the early mine propping process.
- P16811 *Geraldine-Warribanno Smelter ore Trail* (To Be Assessed): remains of an 1850s cart trail at Northampton, part of the road network from the Geraldine Lead Mine to the Warribanno Smelter.
- P16814 *Lady Florence Mine* (To Be Assessed): a complex of mine shafts and mining remnants dating to the 1870s and 1880s at Northampton.

### *Conclusion*

The comparative evidence indicates that *Chapman River Road Bridge* is a rare example of an active bridge still utilising structural members from its original convict construction, and is exceptionally rare as an example of a masonry blade pier bridge type, being the oldest intact example of a stone bridge with a cement render in the state. The place is similarly rare as an intact early example of a convict-built bridge designed by the Royal Engineers (as opposed to a place with little original fabric and only a historic association via the route). The place is a representative example of the work of the Royal Engineers, and is associated with their leader Captain E M Grain. The place is also representative of the historic theme of mineral

development, which is demonstrated on the register and historic heritage database via mine ruins, settlement ruins and infrastructure places.

#### **13. 4 KEY REFERENCES**

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#### **13. 5 FURTHER RESEARCH**

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