

HERITAGE CITATION REPORT

Name	Gardiners Creek Bridge	
Address	Glenferrie Road KOOYONG	Significance Level A2
Place Type	Road Bridge	
Citation Date	2013	



The west side of the bridge showing the 1912 addition.

Recommended Heritage Protection	VHR No HI No PS Yes
Designer / Architect	Monash, Sir John
Maker / Builder	Reinforced Concrete & Monier Pipe Construction Company

History and Historical Context

Gardiners Creek

Gardiners Creek was originally named Kootongkoot, from the Woiwurrung language of the Wurundjeri people, which translates as 'haunt of the waterfowl'.^[1] The creek was later renamed in honour of early Melbourne settler and pastoralist John Gardiner.

In the early days of settlement Gardiner's Creek was a barrier for those travelling to and from the east between Malvern and neighbouring Hawthorn. Early creek crossings were fords, or logs placed across the creek or in the stream. Such crossings often became impassable glue pots of mud in wet weather.^[2]

A timber bridge was first constructed across Gardiner's Creek at Glenferrie Road in 1857. This was followed by timber

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bridges at Toorak Road in 1860 and High Street in 1861. By the latter part of the nineteenth century, the poor condition of these bridges prompted lengthy negotiations over improvement costs between Gardiner Road Board (later the Shire of Malvern) and the Road Boards of Hawthorn and Boroondara (later the City of Camberwell).

Gardiners Creek Bridge

In April 1891, the *Argus* reported that about £3000 worth of improvements were planned for the Glenferrie Road crossing of Gardiners Creek.[3] The works included a new brick bridge, the diversion of the creek to straighten its course and the construction of 'suitable' approaches. Hawthorn and Malvern Councils agreed to share the costs. Construction of the bridge was underway by May 1891.[4]

In 1912, the Prahran and Malvern Tramways Trust opened a new tramline along Glenferrie Road from Malvern Town Hall to Cotham Road, Kew.[5] In order to provide room for both trams and traffic, the existing bridge across Gardiners Creek had to be widened. With the agreement of Hawthorn Council, Malvern's engineer E F Gilchrist was instructed to draw up plans and specifications for the bridge widening using brick construction.[6]

Tenders for the bridge works were called in February 1912, the cheapest coming from John Monash's Reinforced Concrete & Monier Pipe Company. Their tender (for a bridge of their own design and specifications) was accepted in March.[7]

Monash's design used reinforced concrete girders, disguised by a more traditional looking arched spandrel wall on the outside face - evidently because Council had expected an arched bridge.[8] That Monash was able to convince Council's engineer of the advantages of concrete over traditional brick arch construction was presumably helped by the low price relative to the other tenderers.[9] Work on the bridge commenced in March 1912 and was completed by the end of June.[10]

John Monash

Reinforced concrete construction theory was in its infancy in the late nineteenth and early twentieth centuries. Civil engineer John (later Sir) Monash was a pioneer in this field. Monash also had a distinguished military career in the First World War and was eventually given command of all five Australian divisions on the Western Front.

In 1897, Monash formed a partnership with J. T. Anderson, and negotiated a licence in Victoria for the patented Monier system of reinforcing concrete with steel. They concentrated on designing and building Monier arch bridges and were highly successful from the late 1890s until the collapse of a bridge at Bendigo in 1901 ruined their finances and ended the partnership.

As the limitations of the Monier arch become evident, Monash moved gradually to the design of reinforced concrete slab and then T-girder bridges - the first of which was built in 1904 at Stawell Street, Ballarat. Unfortunately the Stawell Street Bridge was less than successful and required extra support structure (it was demolished after several years). In 1905, Monash formed the Reinforced Concrete & Monier Pipe Construction Company with John Gibson as managing director. After the failure of the Stawell Street Bridge, Monash spent time at the University of Melbourne conducting experiments into the behaviour of reinforced concrete girder construction. From the results of these tests, Monash was able to revise the method for the design of reinforced concrete construction and ensure that the next T-girder bridge of 1905 at St Kilda Street, Elwood was successful. From this point on, Monash always advocated the adoption of the T-girder in preference to the arch, and this eventually came to be the standard form for most Victorian road bridges.

[1] <http://boroondara.vic.gov.au/our-city/history/resources/gardiners-creek/aboriginal-settlement>

[2] Context Pty Ltd, *Stonnington Thematic Environmental History*, p.55.

[3] *Argus*. 16 April 1891, p.7.

[4] *Argus*. 8 May 1891, p.6.

- [5] Stonnington Local History Catalogue. Registration No.: MH14082.
[6] Lesley Alves, *Monash Bridges Typology Study Reinforced Concrete Bridges in Victoria 1897-1917*. p. 128.
[7] National Trust of Australia (Victoria) *Initial Draft Classification Report*. p.3. Reproduced in Gary Vines, *National Trust Study of Victoria's Concrete Bridges*.
[8] Ibid.
[9] Lesley Alves, op. cit. p. 128.
[10] Ibid.

Description

Physical Description

The bridge carrying Glenferrie Road across Gardiners Creek at Kooyong was built in two stages. The eastern part of the bridge, dating from c1891, has three segmental arched spans of red-brick construction. At road level, the bridge has a red-brick parapet wall with basalt coping. Recessed brick panelling on the spandrel wall and parapet provide a degree of architectural elaboration. The western part of the bridge is a 1912 addition with a triple arched concrete spandrel wall, broadly mirroring the geometry of the original brick arches on the other side of the bridge. The spandrel wall has a roughcast render finish and contrasting smoothrendered archivolt. The road deck is a reinforced concrete slab supported on concrete cross girders spaced at 5 foot 6 inch centres (1.68m). The slab and cross girders form T beams running across the width of the road deck. The 1912 addition also has a red-brick parapet wall with basalt coping matching the c1891 parapet wall on the east side of the bridge (it was possibly built using materials from the demolished c1891 west parapet wall).

Comparative Analysis

Gardiners Creek Bridge is unique within the City of Stonnington (and possibly the State) as a hybrid of traditional nineteenth century brick arched construction and emerging early twentieth century methods of reinforced concrete construction. The original c1891 Gardiners Creek Bridge, *per se*, provides the municipality's best example of nineteenth century methods of bridge building. There is an earlier (1860s) bridge over the railway line at Argo Street, South Yarra, but it is overall far less intact than the c1891 Gardiner's Creek Bridge. The 1912 addition to the Gardiners Creek Bridge is the only known example of a Monash bridge in the City of Stonnington. There was a Monash bridge over Gardiners Creek at Tooronga Road (built c1914-1915) but it was demolished to make way for the South Eastern Freeway (now 'Monash' Freeway). Outside of the municipality, there are a number of other reinforced concrete T-girder bridges that show the diversity of design approaches used when this method of construction was in its infancy. The earliest surviving Monash T-girder bridge of 1905 at St Kilda Street, Elwood is a comparatively small scale, utilitarian design (it is included on the Victorian Heritage Register - VHR H2080). Larger T-girder concrete bridges over the Loddon River at Janevale (VHR 1986) and the Broken River at Benalla (VHR H1043) have piers with arched elements - but the arches do not perform that same 'decorative' role as the arched spandrel wall of the 1912 Gardiners Creek Bridge.

Statement of Significance

Relevant themes from the City of Stonnington Environmental History are indicated by TEH.

What is Significant?

Gardiners Creek Bridge at Glenferrie Road, Kooyong is road bridge constructed in two stages. The eastern half of the bridge is a triple-arched red-brick structure dating from 1891. The western half of the bridge is a reinforced concrete girder structure with an arched spandrel wall. It was designed and built in 1912 by John (later Sir) Monash's Reinforced

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Concrete and Monier Pipe Construction Company.

Elements that contribute to the significance of the place include (but are not limited to):

- The form, materials and detailing of the bridge surviving from the 1891 and 1912 phases of construction.
- The bridge's high level of intactness to its 1912 state (including unpainted brickwork)
- Unimpeded views to sides of the bridge and the parapet walls at road level.
- The general absence of modern signage on the bridge and its immediate environs.

Modern fabric, including traffic lights, concrete drains and kerbs and road paving, does not contribute to the significance of the bridge.

How is it significant?

Gardiners Creek Bridge is historically, architecturally and technologically significant at a local level to the City of Stonnington.

Why is it significant?

Gardiners Creek Bridge is of historical significance as an early crossing point in to the municipality (TEH 4.2.4 Bridging Gardiners Creek) and for its associations with the expansion of the electrical tram network through Prahran and Malvern, having been widened specifically to allow for the laying of tramlines (Criterion A, TEH 4.5.2 Prahran-Malvern Tramways Trust). Gardiner's Creek Bridge is of additional historical significance for its association with Sir John Monash (Criterion H).

Gardiner's Creek Bridge is architecturally significant as a substantially intact nineteenth century bridge with a well proportioned arched spans and good quality brickwork (Criterion D). The arched spandrel wall of the 1912 addition is a considered design response to the arched format of the original bridge (Criterion E). The appearance of the 1912 bridge addition is further enhanced by its combination of smooth and textured concrete finishes and red-brick parapet wall.

The bridge is technologically significant for its ability to illustrate advances in bridge building methods, being a rare example in which nineteenth century arched brick construction can be found alongside a twentieth century concrete girder structure (Criterion F).

Recommendations 2013

External Paint Controls

No

Internal Alteration Controls

No

Tree Controls

No

Fences & Outbuildings

No

Prohibited Uses May Be Permitted

No

Incorporated Plan

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Aboriginal Heritage Place

No

Other Recommendations

It is recommended that Gardiners Creek Bridge at Glenferrie Road, Kooyong, be added to the schedule to the heritage overlay under the Stonnington Planning Scheme. The heritage overlay should extend to a curtilage of 5 metres on all sides of the bridge. An A2 grading should be assigned to the bridge. In the event that part of the bridge is found to be

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within the City of Boroondara, this document should be provided to Boroondara Council for their consideration.

This information is provided for guidance only and does not supersede official documents, particularly the planning scheme. Planning controls should be verified by checking the relevant municipal planning scheme.