

Engineering Heritage

Inner Brisbane

A Walk/Drive Tour



**The
Institution of Engineers,
Australia**

Queensland Division

Contents

Introduction

1. Concrete drainage vent
2. WWII air raid shelters
3. Cast iron standpipe
4. Windmill
5. First service reservoirs
6. Wickham Terrace car park
7. Brisbane Central Railway Station
8. R.R. Smellie & Co. bulk store
9. A. Sargeant and Co. store
10. Electricity footpath pillar
11. Government Printing Office
12. Commissariat Store
13. Hart's Building – 4QG
14. Victoria Bridge
15. Bridge abutment

Map of Inner Brisbane

16. Riverside Expressway
17. Queensland Museum
18. John Oxley Library
19. William Jolly Bridge
20. Merivale Bridge
21. South Brisbane Railway Station
22. Queensland Maritime Museum
23. Captain Cook Bridge
24. Coal Wharf crane bases
25. Kangaroo Point quarry
26. Leopard Street tunnel
27. Naval Stores
28. Story Bridge IEAust plaque
29. Story Bridge
30. Reinforced concrete wharf
31. Dockside marina
32. Queen Street cast iron railing
33. Memorial drinking fountain
34. Stormwater outfall

Useful Contacts

Engineering and Industrial Heritage Sites
in Outer Brisbane

Suggested Further Reading

Acknowledgements

The Institution of Engineers, Australia, Queensland Division acknowledges with thanks the input to this publication by historical archaeologist Kay Brown for research and text development, historian Heather Harper of the Brisbane City Council Heritage Unit for patience and assistance particularly with the map, the Brisbane City Council for its generous local history grant and for access to and use of its BIMAP facility, the Queensland Maritime Museum Association for use of the cover photograph, the Queensland Museum for the photograph of the Avro Avian *Cimus*, the John Oxley Library for permission to reproduce the other photographs, and Robin and Robyn Black for loan of the pen and ink drawing of the coal wharf. The Institution also records its appreciation for the work of Jennifer Beale (editing) and the staff of Desktop Art (design and publishing). The material for much of the historical research for this publication has been accumulated over many years by members of the Institution's Queensland Division Heritage Panel, particularly Professor Emeritus Ray Whitmore AM, the late Evan Richard, Robin Black, Geoffrey Cossins and Bill Oliver.

© The Institution of Engineers,
Australia (Queensland Division),
2001.

Introduction

In 1981, the Institution's Queensland Heritage Panel published Brisbane's first engineering heritage trail. Since then, Brisbane has recognised that it retains some outstanding engineering heritage assets. Two of these, the Story Bridge and Cairncross Dock, have indeed been awarded Historic Engineering Marker plaques by the National Committee on Engineering Heritage of the Institution of Engineers, Australia. Several (marked * in this text) have been listed in the Queensland Heritage Register or by the National Trust.

Since 1981, some of our heritage assets have been destroyed, while the heritage values of others have been recognised. Engineers and historians of the Brisbane City Council have contributed significantly to this recognition, actively encouraged by the Council's elected members.

The Heritage Panel of the Queensland Division of the Institution hopes that this illustrated walk-drive tour will enrich the understanding and enjoyment of Brisbane's engineering heritage and history: for tourist, student, researcher and resident alike.

Numbers in parentheses in the text show map locations of the heritage sites. Sites and items in bold red type existed at time of publication.

Please take extra care with the driving and – good luck with the parking!

To start the tour

Drive to Wickham Terrace from College Road or Leichhardt Street. The Terrace turns 90° at Leichhardt Street and veers left at the top of Albert Street. Follow it and park as close as possible to the Tower Mill Motor Inn.

On the way, notice on the Wickham Terrace footway (opposite Twine Street) one of four remaining hexagonal **reinforced concrete drainage vents*** (1). Constructed in the 'Monier System', they are relics of Brisbane's first use of reinforced concrete, erected in the early years of the 20th century (c. 1902) to vent 'sectional' sewers designed to carry sullage (bath, laundry and kitchen wastes) and be flushed by stormwater to the river or the nearest creek.

Reinforced concrete frameworks of three of the City's **World War II air raid shelters** (2) can be seen in the adjacent parklands near the Albert Street intersection. Most were of a standard design and walled in brick.

On the kerbside 50 metres before the Windmill is a **cast iron standpipe*** (3). Cast by Evans Anderson Phelan & Co. of Kangaroo Point in about 1916, it is part of a long-since-abandoned system for watering streets and flushing drains with salt water pumped from the river.

The **Windmill* (4)**, 1828, in Wickham Terrace, is one of Brisbane's two oldest remaining building and engineering works. Convict-built as a tower mill (as opposed to a post mill) of stone and brick, it was used for milling grain to supply flour and maize meal for the penal settlement of Moreton Bay. There were two sets of millstones, one powered by a treadmill and the other by the windmill sails. The sails were tended from a perimeter gallery situated about one-third of the way up the tower. The wind-operated mechanism would not function when first installed and, in 1837, Queensland's first civil engineer, Andrew Petrie, was one of a succession of people called on to rectify it. With the advent of free settlement in 1842, the mill fell into disuse. The building became a signal station for shipping in 1861 and subsequently a lookout station for the fire brigade (c. 1890–1922). A time-ball was mounted on top of the Windmill. It signalled the time at 1:00 pm daily (except Sundays) and is still visible on the top of the tower's lookout cabin. It was electrically operated and used until the 1930s. The Windmill was used for pioneering experiments on radio in the 1920s and television in the 1930s.



The 1828 Tower Mill observatory and signal station c. 1910: a telephone post, a gas street light and stone kerb and channel are evident in the left foreground [JOL negative 185525]

Behind the Windmill are two covered **water supply service reservoirs* (5)**. The smaller, designed by Engineering Supervisor Charles Sigley of the Board of Waterworks, was built in 1871; the larger in 1882. Constructed in locally produced brick and fed by gravity from Enoggera Dam, they were balancing reservoirs for the first reticulated water supply in Brisbane and remained in service until 1962. The last of the original reticulation mains in use, a 5 inch (125mm) diameter cast iron pipe running under the centre of George Street, was retired in 1969.

*Drive down Wickham Terrace across Edward Street, past the **Wickham Terrace Car Park* (6)** on the right.*

Thiess Bros Pty Ltd constructed stage 1 of this multi-storey car park in 1959–60 to a structural design by consulting engineers McDonald Wagner and Priddle for Brisbane City Architect James Birrell. Pan formwork was adopted for the pre-stressed floor members, this innovation enabling significant economy in construction and elegance in appearance. The same forms were used for the addition of two further storeys, increasing the capacity from 480 to 620 cars, in 1974.

*Continue along Wickham Terrace to Turbot Street, moving as soon as possible to the right-hand lane. Turn right at the next traffic signal at Wharf Street and then 90° right again at the next intersection at Ann Street. Keeping to the left lane (or bus lane outside peak hours), drive two blocks along Ann Street past the 1901 **Brisbane Central Railway Station* (7)** on the right.*

The first building on this site was a small ‘timber and tin’ structure, opened in 1889 when the line from Roma Street Station terminated here. The tunnel to Brunswick Street Station was opened in the next year, connecting Central to the northern rail network. The station was one of several major constructions completed when A.B. Brady, MInstCE, was both Government Architect and Engineer for Bridges (positions he held from 1892 to 1922). A notable feature of the station was an arched roof – of corrugated iron and glass inserts supported by steel trusses – over the platforms. This was removed in 1966 during a refurbishment. Another loss of original fabric and scale occurred when the elegant Ann Street portico was modified to accommodate a widening of Ann Street.

An electro–pneumatic signalling system was introduced in 1904, the first of its type in Australia. Electrical switches activated compressed air valves to change points and signals to their required position, replacing the heavy manually operated levers and linkages of previous systems.

By 1915, six platforms had been provided to accommodate the many workers who relied on the railways as their major form of transport. Tall buildings constructed to utilise the air space over the railway crowded the Central Station site by 1974.

Diesel locomotives replaced steam in the 1960s and were succeeded by electric trains from 1978.



Central Railway Station, completed 1901 [JOL negative 157261]

Turn left into Edward Street and cross 6 major intersections, the last of which is Margaret Street. Pause near the entrance to the City Botanic Gardens at the Alice Street corner.

For over 60 years, the block bounded by Edward, Alice, Margaret and Albert Streets was the centre of heavy engineering in Brisbane. On the right, the red brick building dated 1895 was the **bulk store** of **R.R. Smellie and Company* (8)**, well known 19th century engineers, ship builders and machinery merchants. On the left is the former Port Office, headquarters of the Queensland Harbours and Marine Department for almost a century. All floods in the Brisbane River are measured on the Port Office gauge (now called the City gauge), the two largest on record being within a fortnight in February 1893, when flood levels reached 29 feet (9m) above low tide level.

Turn right into Alice Street.

On the corner was Smellie's main building. It later accommodated the Brisbane State Industrial High School. The old building which can be seen from Alice Street immediately beyond Smellie's building was once a **store and office** for **A. Sargeant and Company* (9)**, another important Brisbane engineering company, which celebrated its centenary in 1981 as ANI-Sargeant.



Telephone poles, a street light, Smellie's machinery depot, a flood and an unusual observation post in Edward Street, February 1893 [JOL negative 74951]

Drive up Alice Street, keeping in the right-hand lane.

At the second intersection, kerbside on George Street outside the Queensland Club premises on the right, is one of nine remaining **inner city electricity supply footpath pillars (10)**, a feature of low-rise inner city development. Most of these distribution control switch pillars were installed by the City Electric Light (CEL) Company between 1900 and the mid-1950s. All the pillars are still functional, enabling control of circuits in their vicinity.

At the left along George Street lies the Queensland University of Technology, situated on what was the University of Queensland campus from 1910 until its move to St Lucia in the 1940s.

At the third set of traffic signals, opposite Parliament House, turn right into William Street. Drive across Margaret Street and park in William Street.



William Street c. 1873 viewed from Parliament House, showing the first permanent Victoria Bridge under construction, with Pettigrew's sawmill in the left foreground [JOL negative 163181]



The William Street Power Station of the CEL Co. Ltd functioned from 1910 to 1931; a wharf in South Brisbane, Brisbane's first port, is across the river in the background [JOL negative 39182]

On the left in William Street was the site of William Pettigrew's 1856 sawmill, the first steam-powered sawmill in Brisbane.

A later use of the site was for the City Electric Light Company power station, which operated between 1910 and 1931.



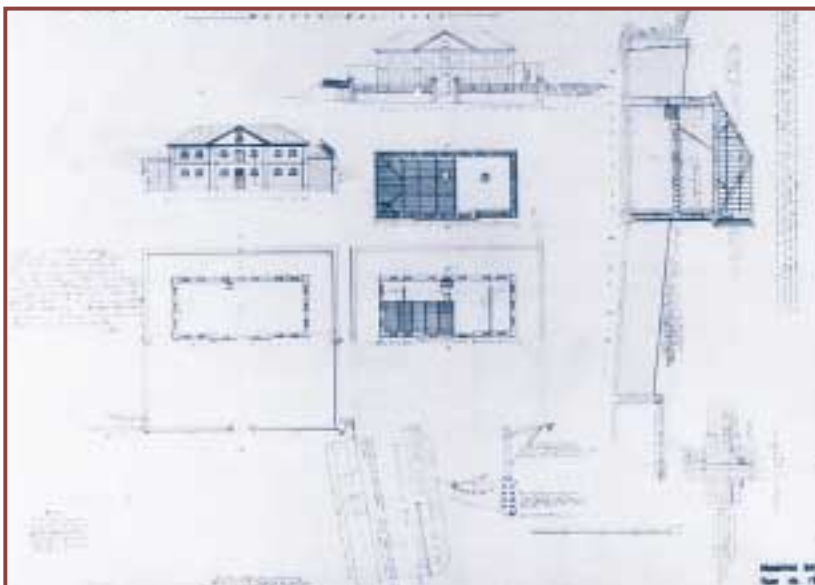
Advertisement for Brisbane's first steam-powered sawmill, established 1856 [JOL negative 64896]

A further 150m on the right is the former **Government Printing Office*** (11), 1872, which can be identified by the high Gothic arches on the facade. Brisbane's first permanent electric generating system, installed here in 1883, was initially driven by the steam engine used for driving the printing machine. In 1886, the plant was augmented and supply extended to Parliament House through cables laid under William Street. The Queensland Museum has recovered and preserved short segments of the cable. Part of the former printing office has been successfully adapted in recent years as the interactive Sciencentre, part of the Queensland Museum.



The Printing Office as designed, showing the engine rooms [JOL negative 139909]

On the left opposite is the **Commissariat Store*** (12), convict-built in 1828–29 and now the headquarters of the Royal Historical Society of Queensland. Andrew Petrie drew plans of the building in 1840. The original sandstone retaining wall below William Street, some 6m high, is worth an inspection. The building has been used mainly as a store, but has also been an immigrant hostel (1850s), police barracks and library archive store. The upper storey was added in 1912. The building now houses a museum and is open for inspection. Constructed from porphyry stone with some sandstone, it has many of the original components still visible. The original timber bearers and beams can be seen; the timbers show a progression of timber milling techniques from pit saw to modern circular saw. Most of the bars placed over the windows to secure the stores are original. The glass was added around the 1860s. The front of the building faces the river, as stores were delivered from the wharf close by. The original brick and sandstone drain under the building, which drains the site to the Brisbane River, is still visible. It is one of the most significant convict-built structures to remain in Queensland, the others being the Windmill and the convict jetty at Dunwich, Stradbroke Island.



Plan and section of Commissariat Stores and wharf, Moreton Bay (constructed 1829, drawn 1840)
[JOL negative 139910]

Continue along William Street and pause opposite Queen's Park on the right.

In August 1924 the Queensland Government applied for an 'A' class broadcasting licence (i.e. subsidised by licence fees) and in September that year let a contract to Amalgamated Wireless (Australia) (AWA) for the transmission equipment. The Queensland Radio Service, with call sign 4QG, commenced broadcasting on 27 July 1925 from the Executive Building on a wavelength of 385m with 500W of power. By April 1926, the service was improved, with permanent studios, a new 5kW transmitter, and an upgraded aerial on top of the **eight-storey building (13)**, now Hart's Building, on the corner of Elizabeth and George Streets across from Queen's Park. The roof of the building was adorned with two square lattice towers 30m high and 39m apart supporting the aerial. Each tower had 5m crossarms to hold the aerial wires. The station initially carried advertising as well as being supported by licence fees. In 1930, the station was taken over by the Australian Broadcasting Company, the forerunner of the Australian Broadcasting Commission (ABC) formed in 1932. The Post Master General's Department carried out all broadcast engineering from 1930. The towers were a prominent city landmark until May 1942 when all the city radio towers were removed as a defence precaution. The ABC transmission facility was then relocated to Bald Hills, 24km north of Brisbane.



View from William Street across Queen's Park before May 1942, showing twin 4QG aerial support masts, each 30m high [JOL negative 185526]

*After crossing Elizabeth Street, turn left and drive over the **Victoria Bridge* (14)** to South Brisbane, turning left immediately at the end of the bridge (before reaching the traffic lights at Grey Street). Park in the surrounding streets or in the public car park with entrance opposite the **stone***

abutment of the 1897 Victoria Bridge* (15). *Climb the steps to road level to read the plaques that describe the history of the bridges.*

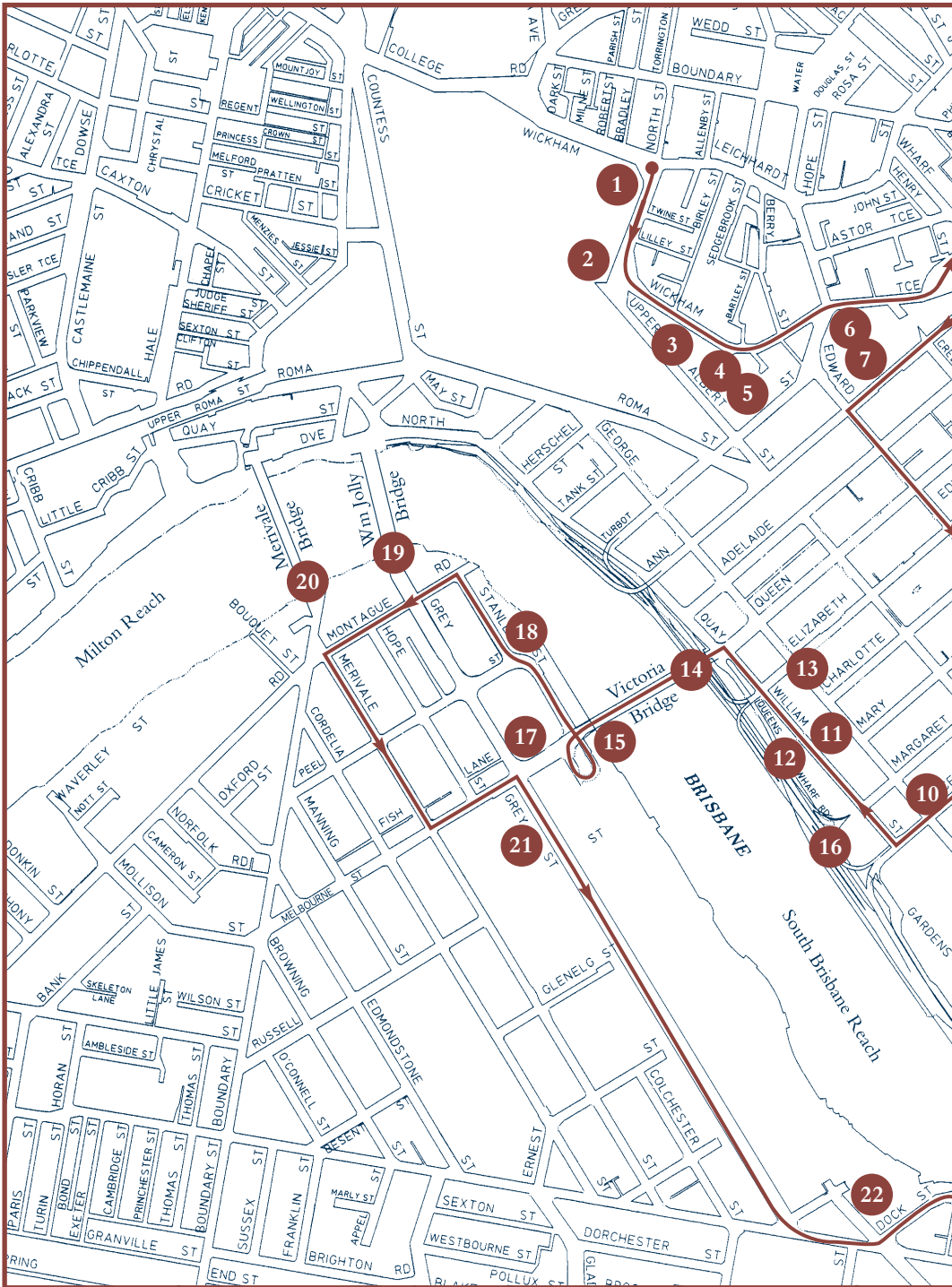
The abutment is all that remains of three previous bridges built to connect Queen Street to Melbourne Street. The first crossing was a temporary wooden bridge opened in 1865 to facilitate the construction of the first permanent bridge. It collapsed during a minor flood in 1867. The first permanent Victoria Bridge, of wrought iron with cast iron piers and sandstone abutments, was opened for traffic in 1874 but was destroyed by the first 1893 flood.



The 1874 Victoria Bridge in February 1893: good news for ferry operators (view from the north bank)
[JOL negative 91660]



The 1893 demolition by flood of Victoria Bridge severed every type of engineering service: tram rails, water main, gas main and telephone (view from the south bank) [JOL negative 55983]



1

2

3

4

5

6

7

19

20

18

17

14

13

12

11

10

21

15

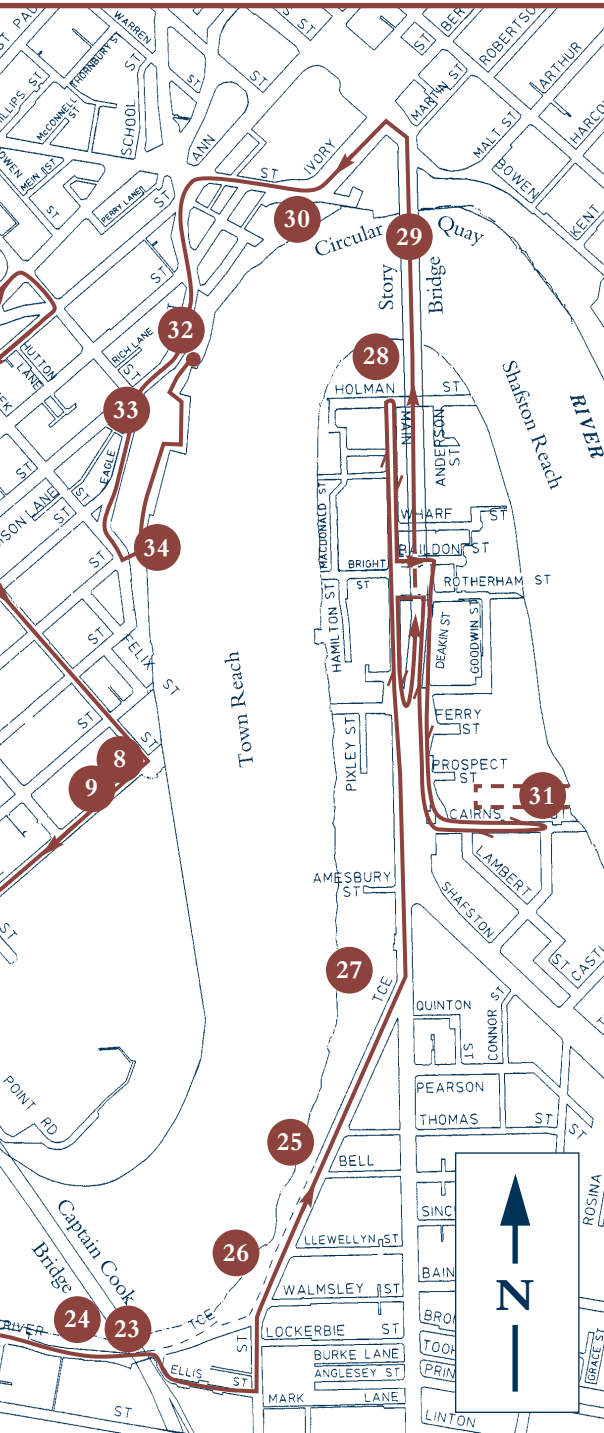
16

22

Map of Inner Brisbane

Map Legend

1. Concrete drainage vent (c. 1900)
2. WWII air raid shelters (1942)
3. Cast iron standpipe (c. 1916)
4. Windmill (1828)
5. First service reservoirs (1871, 1882)
6. Wickham Terrace car park (1960)
7. Brisbane Central Railway Station (1901)
8. R.R. Smellie & Co. bulk store (1895)
9. A. Sargeant and Co. store (1881)
10. Electricity footpath pillar (c. 1902)
11. Government Printing Office (1872)
12. Commissariat Store (1829)
13. Hart's Building – 4QG (1925)
14. Victoria Bridge (1969)
15. Bridge abutment (1897)
16. Riverside Expressway (1973)
17. Queensland Museum
18. John Oxley Library
19. William Jolly Bridge (1932)
20. Merivale Bridge (1978)
21. South Brisbane Railway Station (1891)
22. Queensland Maritime Museum (1881)
23. Captain Cook Bridge (1973)
24. Coal Wharf crane bases (1884)
25. Kangaroo Point quarry (1860–1960)
26. Leopard Street tunnel (1890)
27. Naval Stores (1887)
28. Story Bridge IEAust plaque (1988)
29. Story Bridge (1940)
30. Reinforced concrete wharf (1916)
31. Dockside marina (1964)
32. Queen Street cast iron railing (1882)
33. Memorial drinking fountain (1879)
34. Stormwater outfall (1875)



The second permanent bridge was formally opened for traffic (including trams) in June 1897. By 1943, the bridge had suffered considerably from a lack of maintenance and overload. In 1947, the removal of part of the concrete slab that had been substituted for the original timber deck in 1917 reduced the bridge's dead load. Load limits were imposed but it was apparent that the bridge had become obsolete. The present Victoria Bridge, which employs pre-stressed concrete box girders, has two spans of 85m and a centre span of 142m, and was opened to traffic in August 1969. The south bank immediately downstream was the heart of the original Port of Brisbane, lined with wharves until 1970, after which the area was re-developed, first for the 1988 World Expo, and then later again as South Bank Parkland.

The Riverside Expressway (16), on piers in the north side of the South Brisbane Reach of the Brisbane River, was one of five major inner-city road projects of the early 1970s.

The expressway extends from the Grey Street Bridge along the South Brisbane Reach superstructure to Gardens Point and then across the Captain Cook Bridge to the Stanley Street interchange in South Brisbane. Planning and design started in 1965 in the Department of the Co-ordinator General after the completion of the Brisbane Transportation Study of 1964–65, under the supervision of engineers including Humphrey Brameld, John Galton, Jack Hardman and Erik Finger. Wilbur Smith and Associates of the United States adjusted the initial design after referral of the design to them in 1967. The Captain Cook Bridge was designed to carry 43,000 vehicles per day. The estimated cost in 1968 was \$24 million. Work started on the project under three main contracts awarded in 1969 to Thiess Bros (the southern approach and the Stanley–Vulture Streets interchange), Transfield (the bridge) and McDougall–Ireland (the South Brisbane Reach superstructure). The lowest level of the expressway (6.8m above mean sea level) is at the Victoria Bridge underpass. After the commissioning of the expressway in early 1973, the 1974 flood occurred without affecting expressway traffic.

Immediately across Melbourne Street are the **Queensland Museum (17)**, the Art Gallery and the State Library. The Museum is open from 9.30 a.m. to 5.00 p.m. seven days a week, with free admission. It is closed only on Christmas Day and Good Friday. It has a diversity of heritage engineering displays, and is worth a visit of several hours. These displays include the **40-tonne German World War I tank, Mephisto**, the only known surviving example of its type. *Mephisto* is in its own special display area near Grey Street, and can be seen without going into the museum.

Of the six aircraft on display in the museum, the most important is the **Avro Avian Cirrus** in which pioneer Queensland aviator Bert Hinkler made the first solo flight from England to Australia in 1928. There is also information on other early aviators.



Bert Hinkler's Avro Avian Cirrus aeroplane [Queensland Museum diapositive]

There are four horse-drawn vehicles with a reproduction c. 1900 blacksmith's shop on display nearby. The 1909 **American International Harvester Company Auto Buggy** was used as a taxi in Brisbane, and there are several other pre-1927 vintage cars on display. The *Acrohc Australis*, the smallest yacht (3.36m) to sail solo around the world, was built by a Brisbane owner, Serge Testa, and is on permanent display. There are steam engines and many other items of interest to engineers which are displayed on a changing basis, as well as many displays of general interest.

The **John Oxley Library (18)**, on the fourth floor of the State Library (at the intersection of Peel and Stanley Streets), is a prime research facility for early Brisbane and Queensland history. It houses a large collection of books, manuscripts, photographs and some engineering records.

*The next two sites are some distance from Melbourne Street: a short drive but not a prohibitively long walk. Proceed along Stanley Street past the library. Turn into Montague Road at Kurilpa Point, from which there is a riverside walk running under the 1932 **William Jolly Bridge (19)** and the 1978 **Merivale Bridge (20)**.*

In 1932, the newly formed Greater Brisbane Council, under its first Lord Mayor, William Jolly, constructed the Grey Street Bridge (since re-named William Jolly). It was designed in 1927 by a team of Brisbane engineers led by J. Baldwin and supervised by A.E. Harding Frew. They used a Swiss approach to reinforced concrete in which the contractor Manuel Hornibrook constructed six 66.4m steel arches which were then encased in concrete. The method used little formwork and both the steel and concrete took deck and traffic loads. The steel arches were raised into position only

days before the February 1931 flood. The approach spans used sprayed concrete (gunite). The bridge was designed for two events that never eventuated: the central thickening under the bridge was to support two tram lines; also, the short arch on the south bank was to cross an avenue to mirror Coronation Drive. The bridge was opened in 1932, the same year as the Sydney Harbour Bridge.



The 1897 Victoria Bridge and the recently completed City Hall seen through an arch of the Grey Street (later William Jolly) Bridge during construction in 1931 [JOL negative 63830]

Upstream of the William Jolly Bridge are the 133m span inclined arches of the **Merivale Bridge**. This railway bridge carries both narrow gauge Queensland Rail and standard gauge interstate trains, requiring three rails instead of the usual two. A bridge was designed for this location and some drilling was performed in 1889; however, the depression of the 1890s halted the South Coast line at South Brisbane for almost a century. The project was re-examined six times before the design was commissioned in 1972. The bridge was opened in 1978 and cut the distance between South Brisbane and Roma Street stations from 21km to 1.2km! One of the design considerations was to locate the bridge out of the shipping lane and to enable the piers to be able to withstand a sideswipe from the coral barge *Cemenco* on its regular trips (since ceased) to the Darra cement works (since closed and re-developed). The bridge, with its 754m of pre-stressed concrete approaches, was designed and supervised by the Brisbane firm of Cameron, McNamara and Partners under the direction of John Snelling. John Christsen was the design manager and Ken Ross the leader for the main span design. Transfield were the contractors for the link, which cost \$21 million in 1978.

Across the river, downstream and for a short distance upstream of the northern abutment of the Merivale Bridge, the **1887 Mayor Hipwood ornamental brick wall and wrought iron fence** can be seen. This was built on a massive concrete infill of a subsidence that cut the River Road (re-named Coronation Drive in 1938).



Merivale Railway Bridge, completed 1978: viewed from Coronation Drive [JOL negative 94511]

*Continue along Montague Road past Hope Street. Turn left at Merivale Street. Cross Peel Street and turn left at Melbourne Street, taking care to use the right (non-bus) half of the carriageway. Turn right into Grey Street and proceed past the **South Brisbane Railway Station*** (21).*

As will be noted later in the tour, the first South Brisbane Station was built near the Dry Dock in 1884. It was built as an offshoot of the line from the vast Woolloongabba rail yards and it also served the wharves and industrial areas nearby. By 1891, the site of South Brisbane Station had been shifted to its present location on an embankment high enough to enable a flood-free crossing of the Brisbane River. That crossing took another 87 years to eventuate.

In 1930, the route to Sydney on standard gauge rail, via Kyogle and the famous spiral loop, was opened and an interstate station was built on what is now the Convention Centre site. This station continued to be used by interstate travellers until 1978, when the standard gauge line was extended across the River via the Merivale Bridge to the present interstate terminus at Roma Street Station.

*Continue to the end of Grey Street. Turn half left into Vulture Street and 135° left again into Stanley Street to park near the entrance to the **Queensland Maritime Museum** (22).*

This museum is arguably Australia's most authentically equipped maritime museum. It incorporates numerous items of marine engineering heritage including the tug *Forceful*, the frigate *Diamantina* and the **South Brisbane Dry Dock**. It is open between 9.30 a.m. and 5.00 p.m. every day except a few public holidays each year. The entrance road crosses a cutting of a railway line which once served the South Brisbane wharves.

The South Brisbane Dry Dock is Queensland's first **dry dock***. It was designed in 1875 by William Nisbet, Engineer for Harbours and Rivers, built by J. and A. Overend and commissioned in 1881. English Portland cement, Victorian granite, local sandstone and porphyry were used in the construction. R.R. Smellie and Co. fabricated the caisson (floating gate). The dock was extended in 1887 in unlined open cut. During World War II, it was used extensively for docking naval ships, including US submarines. The Department of Harbours and Marine operated the dock until 1973.

The dock holds the **River Class frigate** (formerly HMAS) *Diamantina*. Built by Walkers Limited of Maryborough, *Diamantina* was launched in 1945. She was used briefly for war duties, notably for three surrender ceremonies in September 1945, then for oceanographic surveys until being paid off in 1979 and steaming to South Brisbane. *Diamantina* is fitted with two four-cylinder triple expansion reciprocating engines and has two Admiralty three-drum boilers. Several of her cabins have been adapted as museum display areas. Her radio equipment is still fully functional, as is most of her machinery, including the main engines and boilers.

The 288 ton coal-fired tug *Forceful* steamed from Glasgow to Brisbane in 1925. She was used in the Brisbane River and in Queensland waters, until acquired by the Museum in 1971. Regular steamings to Moreton Bay in *Forceful* are part of the Maritime Museum program.

Many marine engines, both restored and model, are on display in the museum, along with scale models of sailing ships and other memorabilia in one of Brisbane's earliest remaining industrial sites.

The first South Brisbane passenger railway station, built in 1884 and called Stanley Street, was located within the Museum reserve, between the Dry Dock and Dock Street, with one end of the platform at Stanley Street.



South Brisbane Dry Dock and (formerly HMAS) *Diamantina* [Queensland Maritime Museum Association photograph]

*Drive down Dock Street to Lower River Terrace. Stop in one of the parking bays near the **Captain Cook Bridge (23)**. Walk along the Cliffs Boardwalk.*

Upstream, under and for a short distance downstream of the Captain Cook Bridge are the remains of Brisbane's **Coal Wharf**. Four large cylindrical **loading crane bases (24)** can be seen close offshore in the River. The riverside flat and the wharf were occupied from 1884 until the 1940s by railway marshalling yards for the coal trade.



The Coal Wharf, a view in November 1950 [Pen and ink illustration by Thomas N Mitchell, courtesy of Robin Black]

Further downstream are extensive **man-made cliffs (25)**, the result of a century of quarrying. 'Brisbane Porphyry' (vitrified volcanic tuff) was quarried here from the 1860s onwards for the dry dock, river revetment walls, etc. The quarry was operated by the Department of Harbours and Marine until the 1960s and was also the site of a hydraulic model laboratory used to design port structures.

About 250 metres downstream of the bridge is the outfall of the 3m diameter **Leopard Street tunnel (26)**. This tunnel was driven along the line of Leopard Street in 1890 to drain a chain of water holes on which the Woolloongabba railway yards were located (near the Fiveways and Sunmap). A further 500m along the walk, at the end of the quarry, is the remaining one of two **Queensland Naval Stores* (27)**, dating from 1887. The building is soon to have an interpretative display, mounted by the Brisbane City Council.

Return to Lower River Terrace. Drive up under the southern span of the bridge. Turn right up Ellis Street, then turn left into Leopard Street. Park in River Terrace near the circular lookout shelter on the left shortly after Walmsley Street. Walk to the lookout for a different view of the five items described immediately above.

Continue along River Terrace. Turn half left at the traffic signals into Main Street. Take the left turn lane. At the start of the bridge approach (Thornton Street), veer left and continue down to the end of Main Street, parking in Holman Street, along the southern boundary of John Burke Park.

Along the western (City) end of Holman Street were the engineering works of Evans Anderson Phelan & Co., occupying much of what is now John Burke Park. This company built many steam locomotives between 1890 and 1927. The locomotives were delivered under their own steam – usually in pairs, on sets of tracks leap-frogged along Main Street – to the Woolloongabba railway yards.

From John Burke Park, view the **Historic Engineering Marker plaque (28)** awarded to the **Story Bridge*** (29) by the Institution of Engineers, Australia. After completion of the Sydney Harbour Bridge in 1932, the Queensland Government appointed Dr. J.J.C. Bradfield to be consulting engineer for this bridge. It was designed and supervised by J.A. (later Sir James) Holt and constructed by Evans Deakin Hornibrook, a consortium of established Queensland companies formed especially for this unemployment relief project. It was the largest steel bridge designed and built by Australians, with the steelwork fabricated at the Evans Deakin Rocklea works. The main structure consists of a 282m river span (comprising 2 cantilever arms and a suspended span, all of equal length) and two anchor spans, each 82m in length. It was opened to traffic in July 1940.



Story Bridge approaching completion (1940): Evans Anderson Phelan & Co. works at left, City Hall tower at centre, Circular Quay wharves at right [JOL negative 150513]

The **concrete wharf (30)** across the river at Circular Quay was built in 1916 for the Brisbane City Council. It may be Brisbane's first major reinforced concrete structure. A different view of it can be seen from the boardwalk towards the end of the tour.

Return up along Main Street, turn left at Rotherham Street, drive under the bridge approach and turn right along Deakin Street.

The re-developed areas between Darragh Street and Cairns Street were previously the Evans Deakin shipbuilding yards, established in 1940 and closed in 1975. The Company began building ships to meet Australia's defence needs. Over 80 large vessels, including an oil-drilling rig, were constructed. The **Dockside marina (31)** was formerly a large dry dock for ship construction, built by the State Government and Evans Deakin and Co. between 1964 and 1967. It is on the site of a slip built by Hugh Moar in 1881. Evans Deakin used Moar's slip from 1940 until work started on the dry dock in 1964.

Turn left at the roundabout at Cairns Street. Park and walk to the Ferryman's Bridge for a closer view of the marina. Return via Deakin, Rotherham and Main Streets to Thornton Street. Turn left 180° into Bradfield Highway to cross the bridge. Keep to the left lane on the bridge, exiting to the left down Ivory Street and thence via Boundary, Adelaide, Queen and Eagle Streets to Charlotte Street.

There are several items of interest in this part of the drive. Adelaide Street passes through the site where the first gas works was established in 1864. In Queen Street, note the **cast iron railing (32)** on the left, cast in 1882 by Smith and Forrester Limited, another old Brisbane company. The small park at the junction of Queen and Eagle streets contains the 1879 **Memorial Drinking Fountain* (33)**. It is made from Spring Hill porphyry, Murphys Creek sandstone and imported granite and marble. It has a number of engineering associations, being designed by Brisbane's City Engineer from 1875-1886, W. H. Chambers. The Aldermen listed on the plaque include the prominent engineers and contractors, William Pettigrew, John Sinclair, and Alfred Doorey.

At Charlotte Street, park nearby or in the Eagle Street Pier parking station. Proceed to the riverside walkway.

Downstream along the riverside walkway from Alice Street, the **Contract No. 1 Stormwater Drainage Outfall (34)** at the end of Charlotte Street on the left is the discharge point of an early major drainage scheme designed by Engineer for Harbours and Rivers, W.D. Nisbet, and built between 1875 and 1877. It encloses Big Creek (also known as Wheat Creek), whose upper reaches were the source of Brisbane's water supply from 1829 to 1866. The original, finely detailed porphyry headwall was prematurely demolished in 1989. To the right of the outfall is a remnant of the **grooved ramp** for the steam-powered Charlotte Street 'horse ferries' Brisbane and

Transit, which operated from 1883 to 1920. The grooves in the ramp were to provide grip for the horses to pull their carts or carriages up the slope of the ramp. Beyond are the last relics of timber commercial wharves which extended downstream beyond the Story Bridge and made Eagle Street the second shipping centre of Brisbane, with the Customs House* as its focus.

Continue along the riverside walkway and view the Story Bridge and the 1916 concrete wharf.

Leave the walkway at the Customs House and continue up its right hand side to a rough, stone-slabbed path on the right, that leads through a small gate. On the left is a long **porphyry wall*** (32). This coursed rubble wall was built by Henry Patten in 1881 to permit the extension of Queen Street and is topped by the cast iron railings referred to previously. Buttresses were added to the northern end of the wall in 1887 to stabilise it.

This completes the tour, but why not treat yourself to a coffee at the Customs House or a ride in a CityCat or cross-river ferry? An even better idea would be to explore some, perhaps all, of the engineering and industrial heritage sites (listed on the opposite page).

Useful Contacts

The Engineering Heritage Panel of the Institution of Engineers, Australia, Queensland Division hopes that you have found the tour interesting and enjoyable. Further information on Brisbane's engineering and industrial history may be obtained from:

Australian Railway Historical Society – Queensland Division

GPO Box 682, Brisbane Q 4001

Brisbane History Group

Box 12, Kelvin Grove DC Q 4051
Telephone 3351 6371

Heritage Panel, Queensland Division, Institution of Engineers, Australia

Engineering House
447 Upper Edward Street, Brisbane Q 4000
Telephone 3832 3749

National Trust of Queensland

Old Government House, George Street
Brisbane (QUT Grounds)
Telephone 3229 1788

Queensland Energy Museum Inc.

Victoria Park, Bowen Bridge Road
Fortitude Valley
Telephone 3854 1266

Queensland Maritime Museum Association

Dry Dock, Stanley Street
South Brisbane
Telephone 3844 5361

Queensland Museum

Queensland Cultural Centre
South Bank, South Brisbane
Telephone 3840 7555

Queensland Women's Historical Association

'Miegunyah'
31 Jordan Terrace
Bowen Hills
Telephone 3252 2979

Royal Historical Society of Queensland

Commissariat Stores
William Street, Brisbane
Telephone 3221 4198

Engineering and Industrial Heritage Sites in Outer Brisbane

Public access	UBD Reference
Hornibrook Highway*, Brighton	100 N8
Sandgate Pier, Park Parade, Shorncliffe	111 F6
Brick chimney at the Prince Charles Hospital, Webster Road, Cherside	119 N15
Fokker trimotor aircraft <i>Southern Cross</i> , Kingsford Smith Memorial, Correa Street, Brisbane Airport	121 Q20
Tramways Museum, Tramway Street, Ferny Grove	137 L3
Newmarket Brickworks Chimney*, Mina Parade, Alderley	139 F12
Gateway Bridge, Gateway Arterial Road	141 M20
Fort Lytton National Park*, Lytton Road, Lytton	142 R5
Old mine shafts, Sir Samuel Griffith Drive, Mt Coot-tha	157 P13
Otis Steam Engine (ex Patterson's Sawmill), Oakman Park, Moggill Road, Toowong	158 Q20
Paddington Water Tower*, Garfield Drive, Paddington	158 R6
Gas Stripping Tower*, Davies Park, Riverside Drive, West End	159 E15
South Brisbane Gas Company gasholder*, Montague Road, West End	159 F16
Brick chimney at the Mater Hospital, Clarence Street, Woolloongabba	159 Q19
Brisbane Gas Company (Boral) gasholder*, Longlands Street, Newstead	160 E3
New Farm Power Station, Lamington Street, New Farm	160 J10
Albert (rail) and Walter Taylor (road) Bridges, Coonan Street, Indooroopilly	178 K7
Steam Roller, Graceville Memorial Park, Oxley Road, Graceville	178 L13
Tennyson Power Station, Sofstone Street, Tennyson	179 F16
Archerfield Airport, Beatty Road, Archerfield	199 J17
Railway Historical Centre, The Terrace, North Ipswich	213 E13
Wolston Park Hospital Power House*, Court Road, Wacol	216 R9
Private property: possible access by prior arrangement	
Bald Hills Radio Transmission Station*, 99 Kluver Street, Bald Hills [contact Broadcast Transmission Services]	109 J1
Gold Creek Dam, Gold Creek Road, Brookfield [contact Brisbane Water]	136 L14
Bulimba Power Station, Paringa Road, Murarrie [contact Visyboard]	142 B18
Enoggera Dam, Waterworks Road, The Gap [contact Brisbane Water]	157 G1
XXXX Brewery, Milton Road, Milton: a steam-powered ammonia compressor is visible from Milton Road [contact Castlemaine Perkins]	159 F10
Cairncross Graving Dock, Thynne Road, Colmslie [contact Forgacs Cairncross]	161 B1
Lake Manchester, Lake Manchester Road, Lake Manchester [contact Brisbane Water]	173 D1
Mt Crosby water treatment works, Mt Crosby Road, Mt Crosby [contact Brisbane Water]	174 F18
University of Queensland Mine, Isles Road, Indooroopilly	178 F6
Mt Crosby pumping station and weir, Stumers Road, Mt Crosby [contact Brisbane Water]	194 E1

* denotes a heritage-listed site

Suggested Further Reading

- Becconsall, B.J. 1992, *Electric Lighting in Brisbane – the First Decade 1882–1892: Power Supply*, Queensland Division Technical Papers Vol.33 No.4, Institution of Engineers, Australia (Queensland Division).
- Cossins, G. 1966, *One Hundred Years of Brisbane's Water Supply*, Brisbane Division Technical Papers (pre-print) Vol.7 No.10, Institution of Engineers, Australia (Brisbane Division).
- Cossins, G. (ed.) 1999, *Eminent Queensland Engineers Volume II*, Institution of Engineers, Australia (Queensland Division).
- Fisher, R.M. (ed.) 1991, *Brisbane Mining, Building, Story Bridge, The Windmill*, Brisbane History Group Papers No.10.
- Kennedy, M. and Pullar, M. 1998, *Commissariat Store Brisbane, Conservation Plan*, Department of Works and Housing, Queensland.
- Kerr, J. 1988, *Brunswick Street, Bowen Hills and Beyond*, Australian Railway Historical Society, Brisbane.
- Kerr, J. 1990, *The Railway System of South Brisbane*, Queensland Division Technical Papers Vol.31 No.7, Institution of Engineers, Australia (Queensland Division).
- Prentice, S.A. 1988, *Edward Barton, Pioneer Electrical Engineer*, Memoirs of the Queensland Museum Vol.27 No.1.
- Prentice, S.A. 1982, *Electricity in Early Brisbane*, Queensland Division Technical Papers Vol.23 No.19, Institution of Engineers, Australia (Queensland Division).
- Richard, E.L. 1980, [*Early Brisbane Drainage – Untitled Paper*], Queensland Division Technical Papers Vol.21 No.14, Institution of Engineers, Australia (Queensland Division).
- Richard, E.L. 1990, *Development of the South Brisbane Wharves to the 1890s, and the Graving Dock*, Queensland Division Technical Papers Vol. 31 No.6, Institution of Engineers, Australia (Queensland Division).
- Richard, E.L. and Whitmore, R.L. (eds.) 1981, *Brisbane's Engineering and Industrial Heritage – A Walk/Drive Tour*, Institution of Engineers, Australia (Queensland Division).
- Sanderson, D.G. 1989, *On Air – A History of the National Broadcasting Service in Queensland and Papua-New Guinea to 1988*, unpublished, in possession of John Oxley Library.
- Sanderson, D.G. 1995, *Broadcasting History and Heritage*, Engineering Update Vol.3 No.9, Institution of Engineers, Australia (Queensland Division).
- Simmers, J.M. 1992, *Electric Lighting in Brisbane – The First Decade 1882-1892: Lighting*, Queensland Division Technical Papers Vol.33 No.5, Institution of Engineers, Australia (Queensland Division).
- Whitmore, R.L. (ed.) 1984, *Eminent Queensland Engineers*, Institution of Engineers, Australia, (Queensland Division).
- Whitmore, R.L. 1990, *The Brisbane Coal Wharf*, Queensland Division Technical Papers Vol.31 No.8, Institution of Engineers, Australia (Queensland Division).
- Whitmore, R.L. 1989, *Industrial Archaeology of the Tower Mill*, Queensland Division Technical Papers Vol.30 No.5, Institution of Engineers, Australia (Queensland Division).