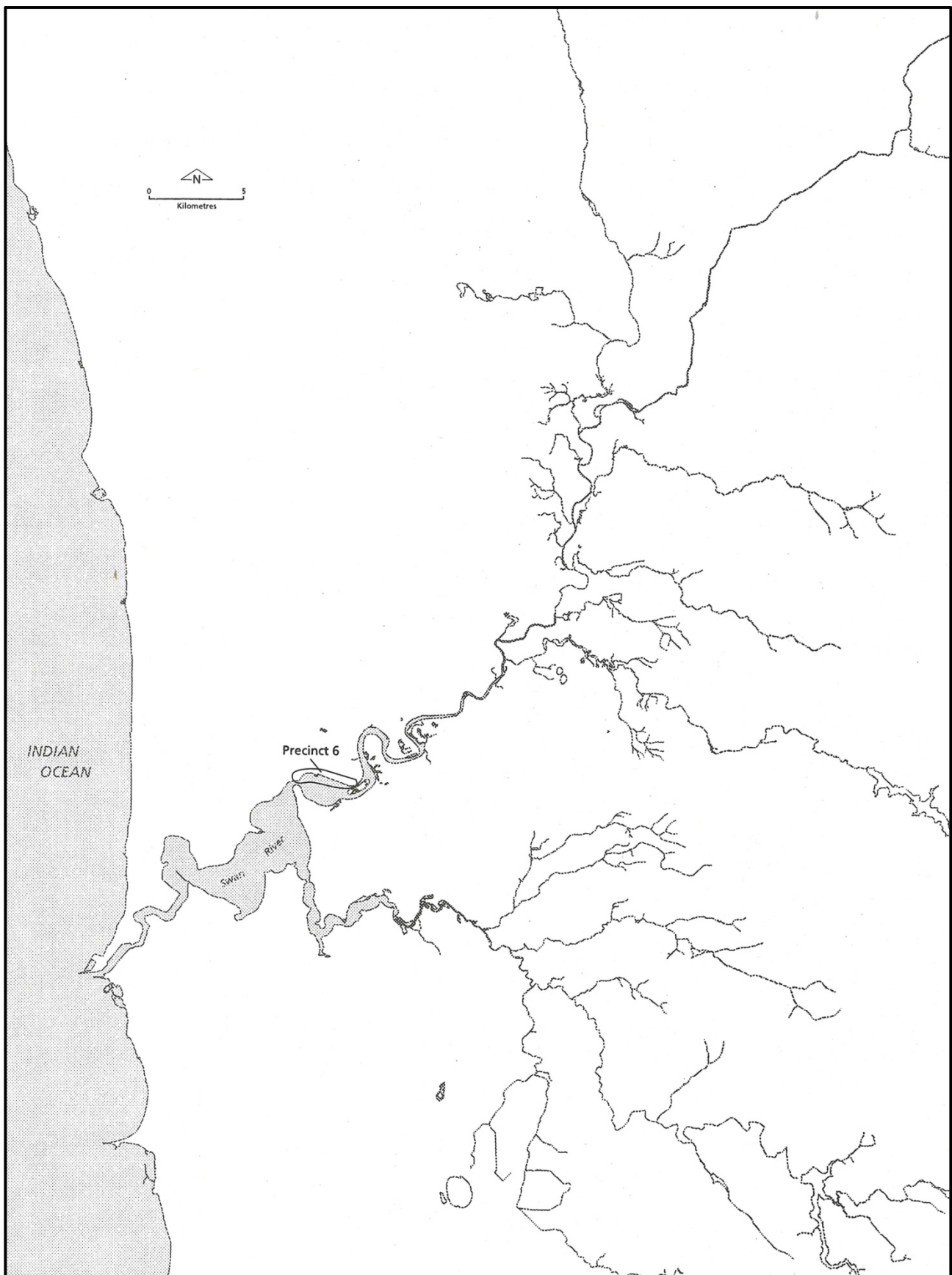


Precinct 6

Perth Water – Perth City Foreshore



Summary

Perth Water – Perth City Foreshore

The precinct is defined as the northern half of Perth Water between Point Lewis and the Causeway. The basin has an attractive wide form which tapers towards the Narrows and Heirisson Island.

Historically, the foreshore has been dredged and infilled several times which has resulted in a topographically flat and linear foreshore. There is a limestone retaining wall along most of the foreshore which acts as a visual barrier and limits access to the water. However, one of the most dominant and restrictive land uses of the river foreshore is the Narrows interchange and Riverside Drive. These roads are extremely busy and act to serve both the city and the metropolitan area. The foreshore user is physically restricted to the narrow belt of grassed foreshore by the roads and visually these road systems are strongly linear and geometric in form. The Esplanade and Langley Park are open grassed areas which run parallel to the river. The geometric form of the green lawns is emphasised by the linear planting of exotic trees around the park boundaries.

The dominant landscape features in this precinct are the high rise buildings which are orientated parallel to the river in an east-west direction. The buildings provide a strong vertical element to a basically flat topography of the city area. Kings Park originally would have been the most vertically dominant element, however, the escarpment is visually diminished due to the city skyline and the loss of prominence due to the infilling of Mounts Bay and construction of the freeway interchange.

Biophysical Processes

Geological Processes

The original foreshore of Perth Water is the marine deposit termed the Vasse. These are poorly drained plains with variable undifferentiated estuarine and marine deposits (DCE, 1980). Behind these deposits are the Karrakatta aeolian deposits which are deep yellow sands over limestone. The underlying Tamala Limestone formation is composed of coarse to medium grained calcarenite consisting mainly of fossil skeletal fragments and quartz sand which were laid down in the Quaternary.

Topography

The precinct is part of the undulating topography of the Spearwood Dune System which is higher and less leached than the adjacent Bassendean Dunes. The city town site was originally quite undulating; however much of the higher land was levelled last century to allow for building construction. Most of the foreshore is flat reclaimed land which was built using dredging spoil and infilling the wetlands.

Hydrological Processes

Water features

Previous to reclamation the river foreshore edged Mount Eliza forming the scalloped shaped Mounts Bay. The Perth basin edge was a relatively linear foreshore until Point Fraser, an isthmus of mud flats which curved into the water in a south-westerly direction. At present, Perth Water is a large basin which tapers at Heirisson Island and the Narrows. The Perth foreshore is linear and has no remnants of the original curve of Mounts Bay and Point Fraser. It is also interesting to note that Perth had abundant freshwater lakes and springs, however these have been reclaimed and the sites dewatered for building land uses.

Bathymetry

The basin covers approximately 327 hectares but is very shallow with an average depth of 1 metre. The hydrological condition of the Perth Water changes seasonally, depending on the volume of river flow. The winter conditions of the water body are relatively fresher due to high river runoff in winter. The salinity increases over summer due to the fall in river runoff and the increase in surface evaporation. In winter, the surface salinity in the basin is around 25ppt which rises to over 30ppt in the summer months. Tidal movements also influence the hydrology of the water conditions.

There are two wide banks of clay deposits which stretch in a north-south direction across Perth Water. There are also shell deposits in the Heirisson Island area. Several navigation channels have been dredged in the Perth basin.

Flooding

Perth foreshore is seldom subject to severe flooding due to the limestone retaining walls which support the reclaimed banks. However, historically the low lying land was frequently inundated. Some of the major floods were: July 1847 Perth jetty and low land was submerged; June 1907 and May 1908 the low lying land of Perth was created; and 1932 the banks overflowed at Mounts Bay Road.

Erosion and accretion

There is no bank erosion along the Perth foreshore at present due to the presence of the limestone retaining wall. Without the wall, the river bank would be dynamic and subject to the fluvial processes of the river. The fast flowing winter floods would cut the banks quite dramatically and the dominance of estuarine factors in summer would allow these banks to build up once more.

Vegetation Communities

Native

Vasse Complex

The flora of the Vasse Complex would have been the original vegetation at this site (DCE, 1980). It consisted of a mixture of closed melaleuca scrub and a fringing woodland of flooded gum (*Eucalyptus rudis*) and melaleuca species. It would have also included an open forest of tuart (*Eucalyptus gomphocephala*), jarrah (*Eucalyptus marginata*) and marri (*Eucalyptus calophylla*) on higher land. The wetlands would have originally supported swamp paperbark (*Melaleuca raphiophylla*), moonah (*Melaleuca pressiana*) and saltwater paperbark (*Melaleuca cuticularis*), swamp sheoak (*Casuarina obesa*), Christmas tree (*Nuytsia floribunda*), robin redbreast bush (*Melaleuca lateritia*) and coojong (*Acacia saligna*). The Perth precinct has few remaining indigenous species and those which occur have been planted.

The fringing vegetation around the freshwater lakes of Kwinana Freeway exit points has been planted. There are reeds of marsh club rush (*Bolboschoenus caldwellii*) and planted native species including sheoak (*Allocasuarina fraseriana*), slender banksia (*Banksia attenuata*) and peppermint tree (*Agonis flexuosa*) which stand as isolated specimens.

From Plain Street to the Causeway there are saltwater sheoak (*Casuarina obesa*), flooded gum (*Eucalyptus rudis*), and marri (*Eucalyptus calophylla*). The understorey is couch grass (*Cynodon dactylon*). The Causeway has gardens with planted native flora including everlastings (*Helipterum roseum*) and kangaroo paws (*Anigozanthos* sp), which are planted for show rather than reflecting the type of flora indigenous to the precinct area (Mains Road Department, 1973).

Exotic

The Perth City Council has a policy of encouraging native species in the foreshore vegetation at the Causeway and Narrows city gateways. Towards the centre, historical gardens have been planted predominantly with exotic species. Along Mounts Bay Road, English plane trees (**Plantanus X acerifolia*) and Moreton Bay Figs (**Ficus macrophylla*) have been planted. The understorey is grassed with couch (**Cynodon dactylon*) and kikuyu (**Pennisetum clandestinum*) grasses all along the precinct foreshore. Several palm species have been planted including cotton palm (**Washingtonia* sp) and date palms (**Phoenix dactylifera*) along Riverside Drive. There are several gardens within the Perth foreshore area such as Government House Gardens and Barrack Square which have been planted using classical formal designs using predominantly exotic species, especially perennials for colour.

Historical Land use & Resulting Environmental Changes

In 1697, the Dutch East India Company trade ship led by Willem de Vlamingh sent three row boats up the Swan estuary to the mudflats east of the present Perth City. Vlamingh's men found nothing which would be of profit to their trade company and gave an unflattering report of the 'Swarte Swaene-Revier'. He considered the land to be arid, barren and wild and the vegetation decidedly inferior to that found in the East Indies. The unrewarding experience was repeated by various French and Dutch explorers in the seventeenth and eighteenth centuries. In 1801, a French exploratory trip on the vessels *Naturaliste* and the *Geographe* sent a small scientific and exploratory party under the command of Heirisson. This party again explored the 'Riviere des Cygnes' up to the present day Causeway and the mouth of the Canning River. Heirisson Islands were named 'Iles Heirisson' after the leader of the French exploratory party in 1801.

In 1827 the cutter and gig from His Britannic Majesty's ship *Success* explored much of the Swan River under the command of Captain James Stirling. Within a fortnight Stirling's party had mapped the river course to the Ellen Brook confluence and gave detailed descriptions of the area.

Stirling was convinced that the whole Swan Coastal Plain was an ideal location for colonisation (an option he held before even exploring the area). He named it *Hesperia* which is Greek for 'western land'. Within two years of Stirling's brief exploration the British Government had officially annexed it to the Empire and had given permission for it to be colonised.

Stirling was sent out on the *Parmelia* to take charge of the settlement and was given the position of Lieutenant-Governor. After much it was decided to locate the new town 12 miles up stream on the northern bank of the river. The choice was justified by the fact that there were alluvial flats near Point Fraser which would be useful for growing food and fresh water was near by (Battye, 1912). The site was within reach of the port but inaccessible to hostile naval forces. The location however, was inaccessible to sea going ships and being sheltered by Mount Eliza was denied the early sea breeze in the summer afternoons.

Captain Stirling had decided to lay the first stone of the town of Perth on King George IV's birthday on 12 August 1829. Captain Fremantle records that there was 'no stone contiguous for our purpose, to celebrate the commencement of the new town, Mrs Dance cut down a tree: fired volleys, made speeches and gave several cheers, named the town Perth, according to the wishes of Sir George Murray.'

An area of three square miles was reserved as the site of the new town. This area was divided into allotments of nine to ten acres each and these were leased for twenty one years. By September 1829, Captain Roe had made sufficient progress with the surveys and the first allotments were sold by auction to F.C. Irwin, Rev J Wittenoom, M. Hodges, P. Smith and George Leake. The civil population which was at this time located at Fremantle was moved to Perth and camped in tents until small cottages and barracks were built.

The first plan for the city of Perth was made in 1833 from 'documents furnished' to the Colonial Office by the first Surveyor General, John Septimus Roe, which were prepared by George Smythe, the Assistant Surveyor General (Stephenson, 1975). The plan was similar to the street layout of today except for a central square at Irwin Street which was lost due to subdivision. The waterfront had been allocated as a separate domain; however by 1834 all but the Government House grounds were subdivided. The Colonial Draftsman, A. Hillman, in 1838 prepared a plan for the city from an actual survey and his map shows the dimensions of the narrow north-south orientated blocks which are still evident today.

The Barrack Street Jetty (Coles Jetty) was the first jetty in operation at the Perth Port.

In 1841 the decision was made to build a new jetty at William Street (Steamer Jetty) which would be the berthing point for steamers. The construction of Mill Street Jetty (Stone Jetty) allowed punts to unload stone conveyed from the quarries at Point Resolution. The jetties were not constructed in the same straight line as the streets but rather were deflected to the south-west in order that they might be in a direct line with the prevailing wind, which facilitated the mooring of the boats.

In the early days of the settlement one of the difficulties facing the settlers was getting to the south side of the river. Before the erection of the Causeway Bridge, boats were taken across the Perth Flats (Fraser Point and Heirisson Islands) by dragging boats through the mud. Fraser Point was named after Charles Fraser who was the botanist in Stirling's 1827 exploratory party. The point was originally a curved promontory and its form can be seen on maps prior to the reclamation of Riverside Drive. In 1830-31 a canal was dug through the Burswood isthmus creating a passage adjacent to the newly created island. The Causeway bridge was built in 1842 using the plan produced by Mr Trigg and the bridge was subsequently leased as a tolling point. In 1865, chain gangs were used to widen and deepen the Perth causeway channel (Battye, 1912).

The first ferry service between Fremantle, Perth and Guildford was begun in 1831 using whaling boats. By 1842 a daily service between Perth and Fremantle was in operation. The first steam ship Lady Stirling reduced the transport time between Perth and Fremantle to two hours in 1856. Passengers and cargoes of wool were the dominant traffic and there was fierce competition between steamers for their patronage. There were boat yards at the foot of Mount Eliza and on Perth Foreshore.

Access to the river through Pier Street was inhibited by the construction of Government House which was built right across the designated road way. Between Mill and William Streets, the water front was the focus of the port activities and the quays were linked by Bazaar Street which ran along the foreshore. The Public Works Department in the early 1880s, created the area of foreshore known as the Esplanade by using the soil from the levelling of St Georges Terrace. The Esplanade was a popular centre for outdoor activities for many years. The original Supreme Court was build quite close to St Georges Terrace and on the river bank. The river foreshore in front of it was reclaimed in the late 1880s by 'shell infilling' (Stephenson, 1975).

During the early 1900s the Public Works Department had plans to extend the quays to Point Fraser, however improved road transport eventually made the inland port of Perth redundant. After World War I, major reclamation was undertaken to widen Mounts Bay Road between Mill Street and Crawley between the road and river.

During the depression of the 1920s and 1930s the Metropolitan Town Planning Commission implemented large scale dredging, filling and rubbish disposal along Langley Park, as well as, constructing a limestone wall between the Causeway and Barrack Square. Riverside Drive was constructed to act as a city bypass and was completed in 1937. Its construction involved filling in the section of river between William and Mill Streets where boat sheds and wharfs were located.

In 1955, the Stephenson-Hepburn Report was produced as an authoritative guide to planning for Perth's future. This report highlighted the benefits of constructing the Kwinana Freeway as a north-south transport access though Perth city and suburbs. The freeway was to bridge the river at Pt Belches and the reclaimed Mounts Bay. Previously, Mounts Bay had very soft organic, silty clay, varying in depth between 10 and 30 metres overlying limestone at approximately 30 metres. The Main Roads Department stabilised the mud layer in four years by using three million cubic metres of sand to squeeze the mud dry and to build embankments. The original interchange plan had 12 traffic lanes merging into six lanes over the bridge; however some of the roads through the Mounts Bay areas were altered so that there were fewer lanes. The project people realised that the intersection would have a dramatic impact on the foreshore landscape and a landscape advisory committee lead by Mr. J. Oldham, a landscape planner, designed the series of freshwater lakes and islands in between the roads. The plan allowed for four pedestrian tunnels, a visually pleasing pedestrian bridge, an extensive dual use pathway and public toilets. For many years the landscaping remained very sparse and the waterforms simply bland, however, now 20 years later the interchange vegetation has matured so as to be more attractive.

The area which is at present occupied by Trinity College was reclaimed using landfill up until 1972. The area reclaimed was 1.5 hectares and extended to a depth of 1.5 metres (Riggert, 1978).

Present Land Use and Social Patterns

Perth Water is the one of the dominant landscape features of Perth City. It provides a focus for a variety of recreational, commercial and transport activities (SRT, 1988).

The Barrack Street Jetty handles more than 1 million passengers per year (SRT, 1988). The area has recently been redeveloped to improve facilities by providing public toilets, and improving pedestrian access and parking. The Barrack Square project involved the reconstruction of the buildings on jetties 1,2,3,4, and 5 as well as refurbishment of the existing Department of Transport office adjacent to jetty 5. The development is in Federation architecture and is in keeping with the original Old Perth Port with timber cladding and buildings of 1 to 2 storeys with a gabled roof. Some of the older jetty ticket boxes have yet to be refurbished.

The Western Australian Rowing Club located adjacent to the Perth Port jetties was recently repaired and restored to good condition.

Riverside Drive is an important arterial road which acts as a bypass and access route to the city. It is built very close to the river foreshore and is planted with palms and flame trees. It links the Causeway to the several ramps of the Kwinana Freeway interchange.

There is a large amount of land designated to parking including the large open areas of Car Park 1, adjacent to Langley Park and Car Park 2, adjacent to the city busport. The Perth busport is a modern, relatively horizontal building which is used as the terminus for many of the metropolitan bus services. It is located in a prominent position close to the interchange.

Government House Gardens originally would have been adjacent to the river foreshore. At present they are closed to the public except on special open days.

Parallel to the river are the high-rise buildings of the city centre. These are predominantly for office use, although other functions such as commercial and hotels are also served. There are a number of prestigious houses and units on the Mount Helena escarpment and these range from turn of the century single residences to late twentieth century style units. At the eastern end of the city centre there are a few less prestigious flats which were built in the 1940-60s and are now being replaced with more modern units.

Recreation nodes

The Narrows interchange is a one of the busiest transport convergence nodes in Perth. The area has been planted with native species and has waterforms. A dual use pathway runs adjacent to the river and freeway changes, allowing both pedestrian commuters and cyclists to access the city. The area is rarely a spot for stopping rather is used by people on their way to other city and foreshore activities; however a number of recreational fishermen are frequently seen under the Narrows Bridge.

The Esplanade is an important gathering place for public meetings. The open space is rarely used for recreational activities but it provides an important green place. It is lined with Moreton Bay figs and has the Alf Curlewis Gardens along the northern boundary. There is also the Allan Green Conservatory which houses a small jungle of exotic tropical plants.

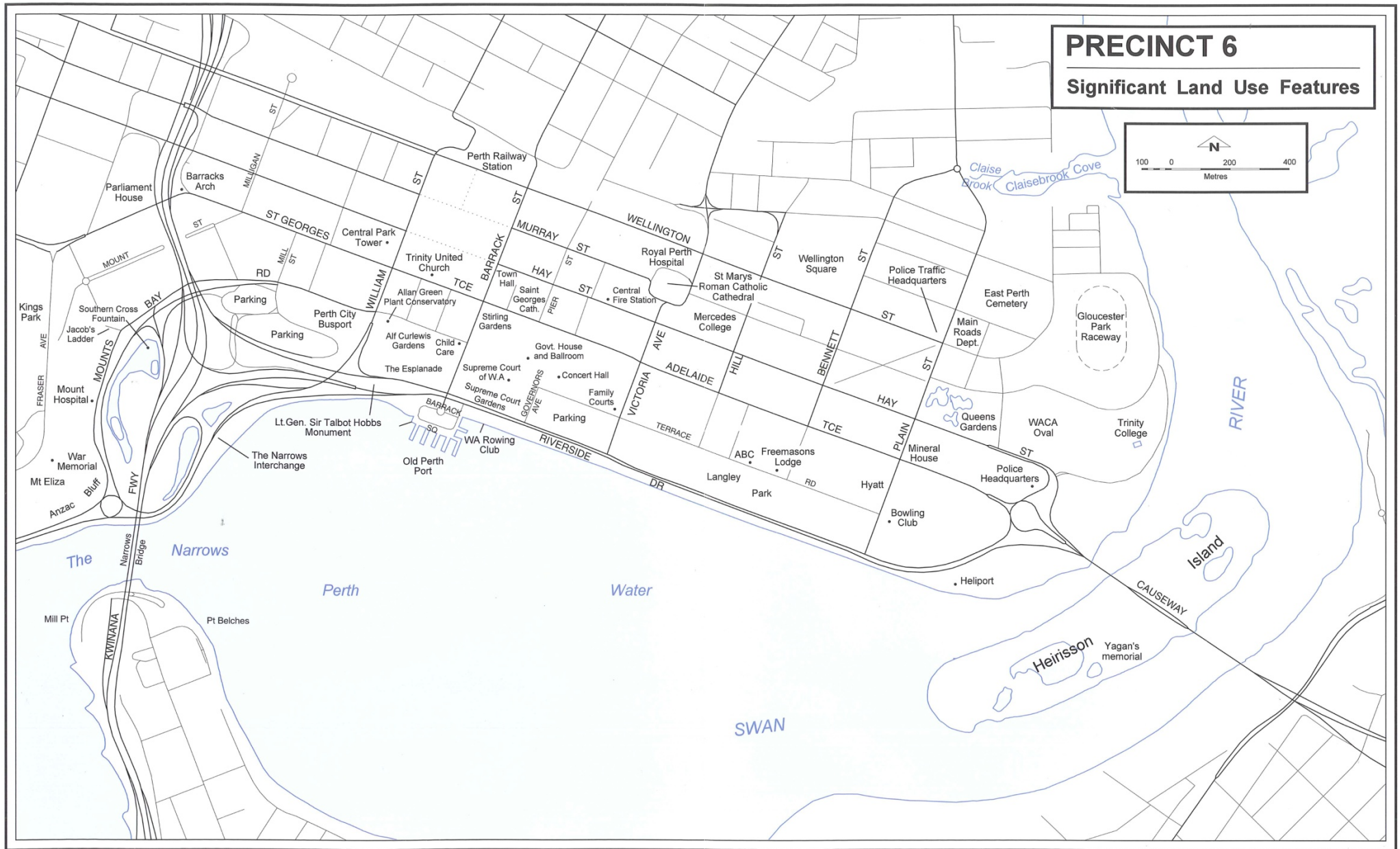
Supreme Court Gardens were planted in the 1880s and have a number of very attractive exotic trees. They have been planted in the eclectic style of the nineteenth century and form a lawn with a boundary of trees. The park was the site for outdoor concerts at the 'Shell' stage; however this was recently removed, leaving only a shed in the centre of the lawn.

Perth Concert Hall is the location for many concerts and is an important function centre for Perth. It has a cafe and bar where people tend to congregate for the short time before and after the concerts. The building is a modern 'brutalist' style and is quite a dominant feature on the landscape due to its many red brick stairs leading to the entrance way.

Langley Park is a playing field which stretches along Riverside Drive between Victoria Avenue and Plain Street. The playing field is used by a number of sports clubs and is a valuable area of open space in the city.

Fraser Point is currently a small recreation node which has a bicycle hire outlet and a dual use pathway. It is also the site of a helipad which takes up a small amount of room.

Heirsson Island has a number of small man-made wetlands which are accessible by dual use pathways. It also has a commemorative statue of Yagan, who was the son of the tribal elder Midgegooroo of the Beelair people. The historic significance of Yagan is outlined below.



Public access

Public access along the foreshore is greatly restricted by Riverside Drive and the Narrows interchange. However, once on the foreshore there is a dual use pathway which runs the entire length of the river and has several underpasses and a footbridge at the Narrows interchange. Parking is at a premium at the foreshore as most of the bays are taken by city users. From the pedestrian level, river views are rarely evident except for a glimpse on William and Barrack Streets.

Sites of Nyungar & Wider Australian Community Significance

Nyungar significance

The Perth city area is a place of great significance for many Nyungars. It is an important meeting place for many Nyungars who used this area as a camping site. In addition it was frequently visited by members who lived inland, such as Gingin and Moore River people (Vinnicombe, 1989). It was known to Nyungars as 'White City'. The *Pinup* springs which flowed at Spring Street marked the site of the Goodinup Camp which looked over *Karrgatup* (Mounts Bay) and *Goodroo* (Eliza Bay) (Vinnicombe, 1989). Before colonisation the *Byerup* area near the rise of *Yogarin* or Kings Park, meaning the 'place of Zambia plants and its nuts', was seasonally the location of a kangaroo hunt which culminated in the driving the animals to the cliff edge (Bates, 1992). Within the area of Kings Park, there is a Nyungar meeting place called *Wandaraguttagurup* where 'there were holes towards the ocean' (Collard *et al*, 1996). Near where the statue of Queen Victoria is today at Kings Park, there was once an old hollow tree which collected rain water. This area is known as *Gabbikalga* (Collard *et al*, 1996).

Nyungar tradition and knowledge records that a spring and traditional camping place were located in the grounds of Government House, near the present day junction between Terrace Road and Governor Avenue (Vinnicombe, 1989). This camping ground would have been on the foreshore of the Swan River. It is recorded that there were Nyungar camps along the Esplanade between Barrack and William Streets at the time of colonisation (O'Connor *et al*, 1989). It is believed that the *Dyeedyallup* campsite was located near Burt Way.

Perth Water is known as *Buneenboro* and the flat muds of Heirisson Island(s) as *Matagarup*. This refers to the place where the river is only leg deep (Collard *et al*, 1996). One of the original islands of Heirisson Islands is known as *Kakaroomup* which is the island between the bridges where Balbuk's mother was born (Collard *et al*, 1996).

Most of the original lakes and wetlands of the Perth city area have been filled in. To Nyungars living in the region prior to colonisation, these wetlands were important for food collection and also spiritually significance. Lake Henderson is referred to as *Danjanberu*. This means the 'place of the shallow lake' or three island lake where the zamias or byers grow (Collard *et al*, 1996). Lake Henderson is referred to as *Goongarnula yarreenup* meaning 'the place of the stinking spring with moss'. Hyde Park area is referred to as *Boodjamooling* meaning the 'earth- ground where it looks like a nose pegging takes place' referring to the initiation of young men (Collard *et al*, 1996). The north bank of Perth Water is known as *Booneenboro* meaning 'very big river'. *Beeabboolup*, which is somewhere near the original Pt Fraser, means 'the place of many fish' (Collard *et al*, 1996).

When Vlamingh explored the Swan River he claimed to have not seen any Nyungars. He did record that on the river banks there were '*several footsteps, also some pits with fresh or somewhat brackish water and three ruined huts*'. One can surmise that Nyungars continued to be elusive and were only glimpsed by explorers when Stirling's exploratory party arrived in 1827. One of the earliest records of contact between Nyungars and the British explorers can be found in Fraser's journals. He said that the few Nyungars '*were not disposed to behave ill; on the contrary, they seemed much alarmed at first, but soon gained confidence. We gave them some black swans, which they eagerly accepted, and we dressed several of them in the old jackets of our marines. They had, indeed a most ludicrous appearance, and seemed like men in shackles.*'

Today at *Boodjar-Gorden* or Heirisson Island there is a commemorative statue of Yagan, who at the time of colonisation was a Nyungar *boodir* or important person. Strictly speaking the statue might not seem to be within Beelair Nyungar *boodjar* or land, rather it is in the territory of the Beeloo Nyungar. However Yagan's family affiliation would have given access to this area. Yagan is now recognised for his resistance to the colonists who divided Nyungar hunting grounds into fenced farms and allotments, therefore reducing Nyungar means of existence and access to country. He led a number of raids on properties which resulted in four colonists being fatally speared. As a result of these incidents and the political conflicts between the colonisers and Nyungars, Yagan was wanted by the Swan River authorities for murder. He was caught but quickly escaped and eluded his convectors for 'a considerable time'. He was eventually shot dead by two teenagers, James and William Keates (Carden, 1968). During the skirmish, William was fatally speared. However, his brother escaped to get help. Yagan's body was quickly taken by armed settlers and was horribly mutilated by flaying his tribal tattoo from his shoulders and removing his head to be sent to England as an example of a 'Swan River Chieftain'.

Other significance

The land in Precinct 6 is significant to Western Australians as the site of their capital city centre and one of the earliest white settlements in Western Australia. The foreshore has been significantly reclaimed, infilling much of the original foreshore including the original Perth Port site. The port was an important link to the new settlement and provided both communication and supplies. Its role has now been usurped by the dominance of the road and rail system. There are several significant buildings within the Perth City, these include those of historical significance and architectural interest. Several buildings were erected with convict labour and remain today in various altered forms, including the Court House and Goal (1854), old Government House (1859), the Pensioner Barracks (1863), the old Trinity Church (1864), the St Mary's Roman Catholic Cathedral (1865) and the Perth Town Hall (1870). The railway was built in 1881 and has influenced the city shape and growth dramatically. At the turn of the century the Town Hall, bath house and St Mary's Cathedral were the dominant features on the Perth skyline.

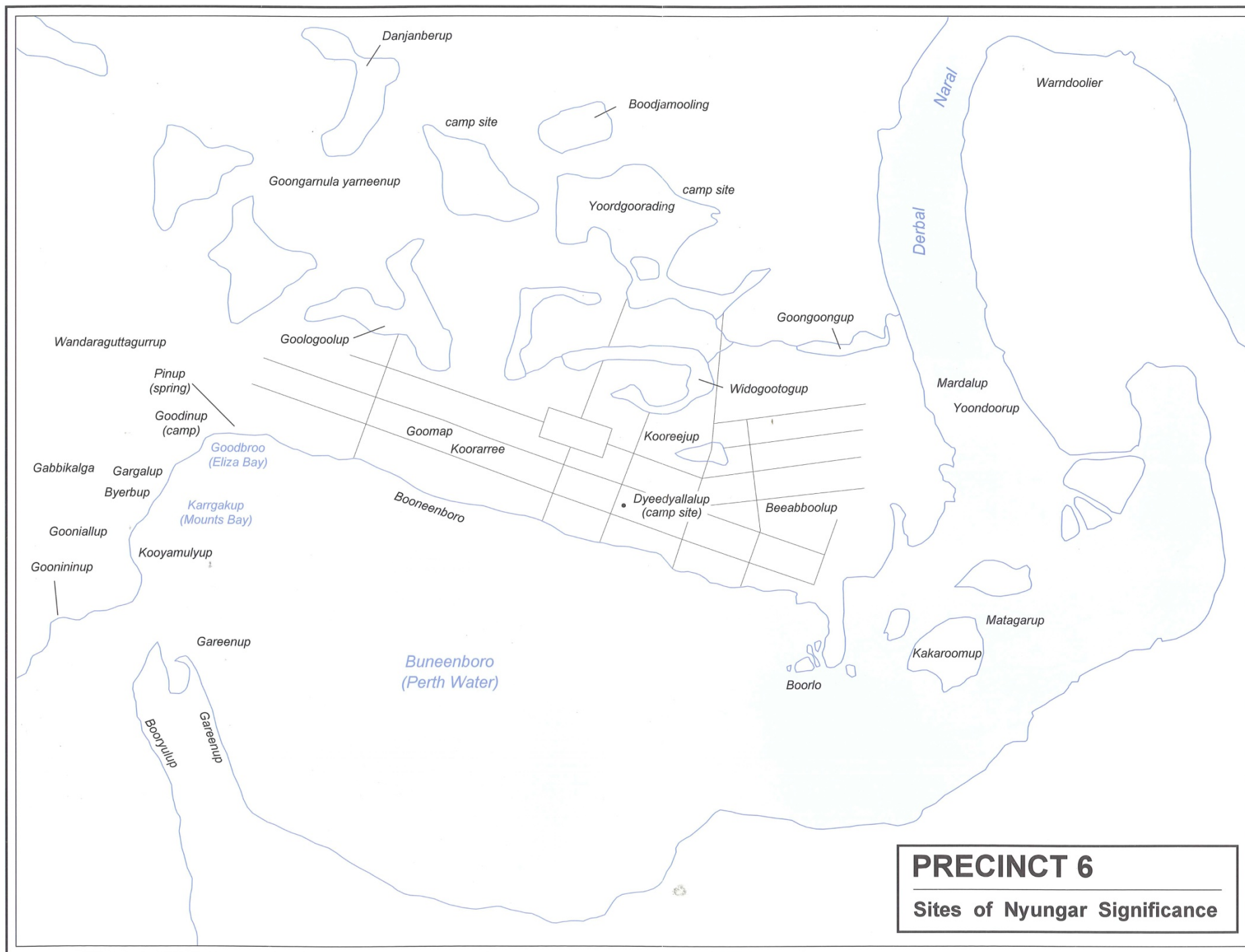
Conservation areas

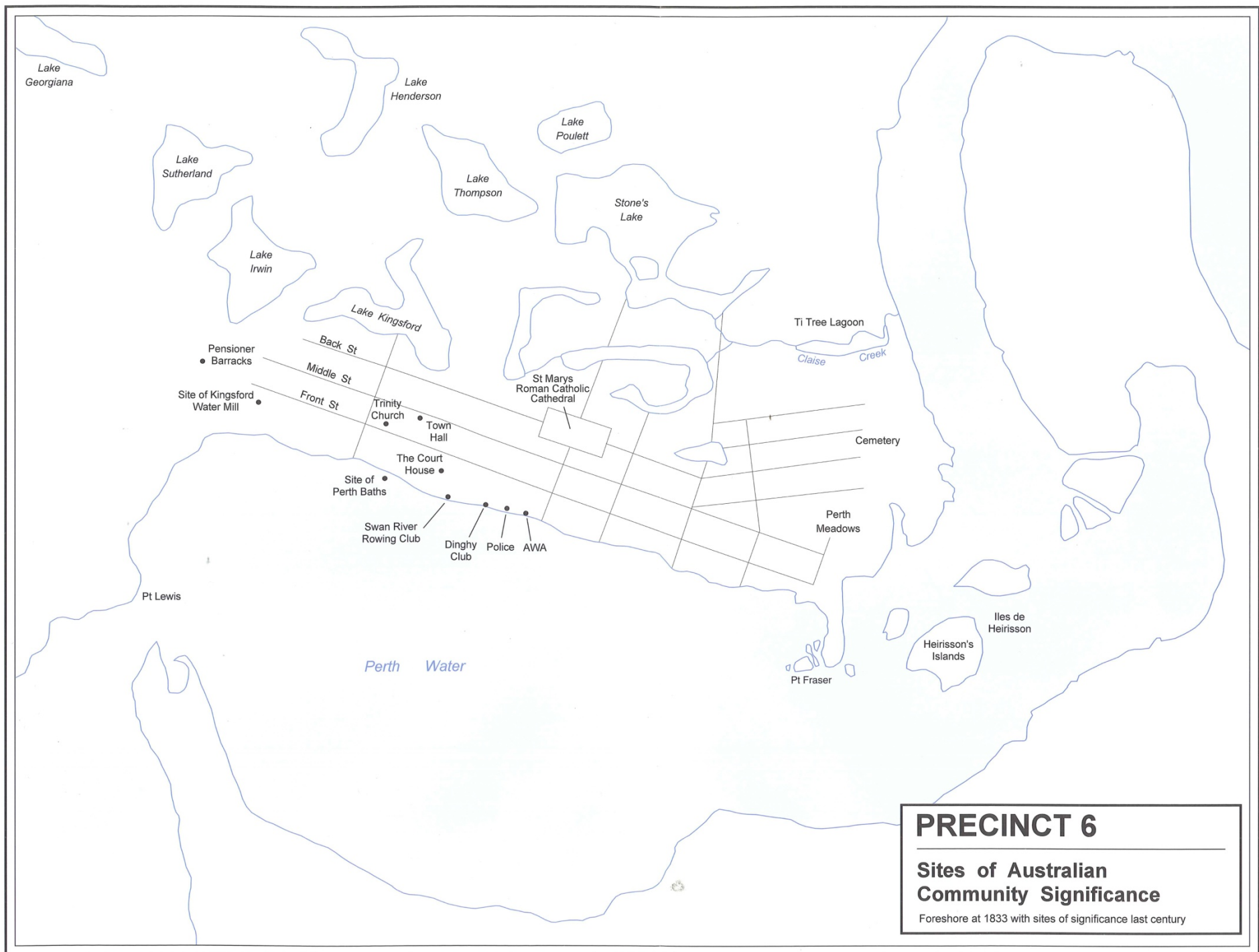
Wetlands

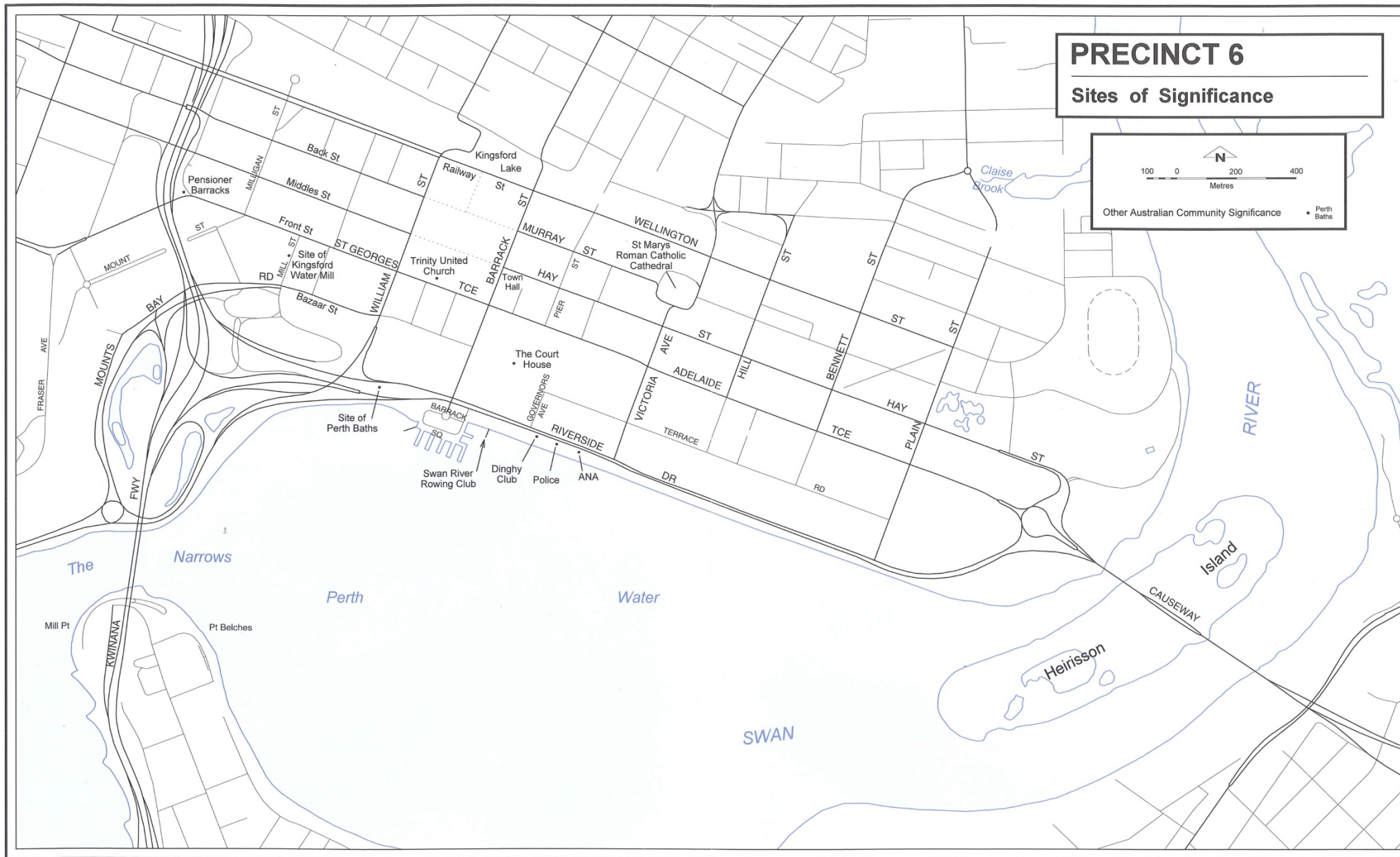
There are no wetlands identified as significant in Precinct 6.

System 6

There are no areas identified in the System 6 recommendations in Precinct 6.







Landscape Description

Precinct Description

Waterform

The Perth basin is a wide sheltered body of water. On the southern side, the water forms a curved 'c' shape while on the northern side reclamation has changed the foreshore to a straight east-west line. Mounts Bay has been filled in to form a shallow concave curve in sharp contrast to the original foreshore which was a deep concave line which hugged the base of Mount Eliza. The river originally tapered towards the Point Fraser isthmus; however, reclamation has created a smooth curve around the causeway. The river divides into two around Heirisson Island which is a smooth elongated oval shape due to the dredging and reclamation of the original mud flats.

Natural riparian zone

There are no natural riparian foreshores along this stretch of river due to extensive reclamation and the construction of limestone retaining walls. However, there is a small sandy beach west of Barrack Square. This is a white crescent which meets the grassed banks, and is an attractive enclave compared with the adjacent walled foreshores. The original foreshore ran along roughly where the Esplanade Parade is today. There was a narrow beach at the base of Mounts Bay probably similar to the narrow beach at Mosman Park. The Perth City foreshore would have been a flat sandy to silty beach which was subject to regular inundation. Charles Fraser described Heirisson Island as having 'a rich sandy deposit carried down by the floods. Their margins are covered with *Metrosideros* and *Casuarina*. At Point Fraser there are a number of artificially created small sandy beaches which have been replanted with riparian vegetation.

Landform

Perth City is adjacent the steeply sloping ANZAC Bluff of Mount Eliza. The escarpment shelters the city from the sea breeze and acts as a limit to the city centre. From Point Lewis the escarpment originally curved around to the river foreshore, with the steep slope decreasing quite rapidly to the flatter wetlands. The foreshore at the escarpment would have been quite narrow, somewhat similar to the remnant foreshore at Mosman Park and Blackwall Reach. The wetland area (now the city centre) was locally undulating and subject to inundation. The foreshore slope would have varied from relatively flat to quite steep under high water conditions. The eastern end of the precinct would have been low lying flats subject to inundation and relatively devoid of any undulations in topography. The Heirisson Island area would have originally been a number of mud flats which were seasonally isolated from the main banks.

Vegetation

There is very little endemic vegetation within this precinct. Mount Eliza escarpment has a low lying closed scrubland which is an attractive backdrop to the city. The clumped forms, scrubby-dusty texture and the grey-green colour of the shrubs enhance the cliff face and provide an important visual focus from the river and city. The line of sugar gums are an important linear feature along the escarpment and serve to give vertical definition to Mount Eliza which has had its vertical dominance diminished by the tall city skyline.

The Narrows interchange has been planted with native tree species and lawn. The trees are now quite mature, although appear to be isolated individuals in many cases as there is no understorey. The interchange islands have quite dense vegetation which is attractive and may serve as a model to enhance the other interchange gardens. East of the interchange the roadside has been historically planted with exotic palms, flame trees and lawn which give Riverside Drive a 'boulevard' effect. The vegetation planting is completely urban and unlike the interchange vegetation has no pretence to be 'natural'. The Supreme Court Gardens are particularly attractive as an example of transformist attitudes of the early twentieth century. The gardens are formally designed and are attractive for their eclectic qualities and maturity of the trees. The Alf Curlewis gardens are less attractive being a mix of isolated native flora and rose bushes. The garden would be more attractive if a single design was adhered to. The large elongate grassed areas of the Esplanade and Langley Park are important open spaces in the city. They are essentially rather bland as they are topographically flat and the vegetation that is planted along the boundaries consists of a single row of single spaced, homogenous trees.

Heirisson Islands have had riparian species planted in more sheltered areas such as the man made bays. There are also some indigenous tree species along with other native species not endemic to the area. Lawn is the predominant understorey on the island.

Riparian land use

Most of this section of the river has limestone retaining walls which were built in the 1920s along the entire northern stretch of the Perth basin. Due to the high erosive processes, much of this wall has had a concrete slope constructed in front of it. The concrete is an unattractive addition to the limestone and does little to abate the wind or boat induced wave energy. A slightly more attractive wall is the limestone gabion wall adjacent to the Narrows interchange.

The need to protect the urban land use has demanded that the limestone walls are not replaced with small sandy beaches, however the walls are particularly bland and their linearity is uninteresting.

Barrack Square has recently undergone some redevelopment and is at present a mixture of architectural designs. The recently constructed tourist shop, kiosks and restaurants have been modelled on Federation boat houses similar to the adjacent Western Australian Rowing Club. The new buildings have been constructed with horizontal wood battening and gabled corrugated metal roofs. Each building has a unique style, however, similar paint and roof colours give these buildings coordination. Jetties 1,2,4 and 5 have not yet been upgraded and have low concrete modern ticket boxes, which appear rather shabby and out of context with the new and tidy buildings. The WA Rowing Club for many years was derelict, however a recent initiative has restored the two storey club house to an attractive feature. One of the most appealing features is that the sheltered location allows the water to be reflected on the high gloss painted wooden walls. Barrack Square originally was in the form of a 'Union Jack', however the diagonals are no longer present and the square has a cross with a focal point of a circular flower bed with a line of flag poles at the southern axis. This gives a corridor of focus between the exotic vegetation to the jetty or back along Barrack Street.

All along the foreshore is a dual use pathway which has recently been widened. The pathway is now two strips of bitumen, one of red stone and one of black asphalt which gives an inconsistent and careless impression. There are several benches along the foreshore which are of differing designs and colours. Consistency in street furniture would be more harmonious.

The original mud flats of Heirisson Island have now been reformed into a elongated oval shape which is retained by limestone rocks on a more steeply sloped angle than the natural gradient. On the eastern end of the island, the reclamation material of bricks and other building material has been exposed. The area has extensive dual use pathways and a number of picnic tables. There are a couple of small lakes in the centre of the island and there is a small man-made bay with a narrow mouth which acts as a retreat from the faster flowing river.

Land use

The dominant land use of this precinct is the city of Perth. The buildings range in height some being over a 100 metres others only one storey high. The buildings have a strong vertical presence as the proportionally narrow blocks restrict horizontal development at the prime sites.

There are a range of building materials and designs, however the river user is drawn to the tall, narrow late twentieth century designs. These are often built with highly reflective glass or have large flat surfaces which attract the viewers attention. Towards the eastern end of the city the buildings are predominantly only a few storeys high due to height restrictions. This gives a flatter less vertically dramatic skyline. The city plan has restricted the depth of the city centre and as a consequence the buildings are lined adjacent to the river in an east west direction. They are predominantly used as offices, although some floor area is allocated to retail and accommodation land use. In the past land use has been relatively isolated into precincts, such as commercial and financial areas, partly due to the economic need to be close together and partly due to the planning restrictions. More recently with improved communications and the less restrictive planning there is increasing diversity in land use.

The green lawns of the Esplanade and Langley Park emphasise the east-west orientation of the foreshore and city zone and the gardens and planting of trees somewhat minimise the harshness of the city landscape. However, the planting of trees in linear forms only serves to emphasise the geometric forms of the city.

Dominant Landscape Character

The dominant landscape character for this precinct is urban. The landscape is dominated by the high rise buildings of the city centre and the Narrows interchange. Originally, the landscape would have been dramatically different with numerous wetlands on a gently undulating alluvial terrace. The residential area at Bellevue Terrace and Mount Street has been included in the urban landscape character type, as the Narrows interchange is a strong landscape element in the area. The open melaleuca woodlands and fringing estuarine vegetation would have covered the plain and foreshores. The Kings Park limestone embankment has been classified as parkland, as the lookout, formal tree plantings and the memorial are quite visible from the city area.

Significant Viewscapes

One of the Perth area's most significant viewscapes is the view of the city, Perth Water and the Darling Scarp from Fraser Avenue at Kings Park. This is the most frequently visited site by tourists and is a popular viewing position for locals. All along Riverside Drive the view of the Perth Water is an important viewscape although the road itself is a strong detracting element in the landscape. Unfortunately, from the Esplanade and Langley Park the view of the river is limited by the flat landform and Riverside Drive. From the high rise buildings the views of Perth Water are very attractive and highly sought after. From the river the viewscape is of the city skyline which is one of the main viewscapes used to identify Perth. The plantings along the foreshore are important in presenting a green parkland landscape in the urban environment.

Conforming and Non Conforming Elements in the Landscape

The urban landform is by its very nature uncompromising on the natural landscape. There is little to indicate the original landscape, and original landscape elements may now appear as non conforming elements in the urban landscape. The desirable landscape for the Perth City, and in particular its foreshore, has been a long contentious and difficult issue. Several plans and concepts have been suggested, and a few of these ideas have been implemented. Agreement on how the Perth landscape should reflect an 'identity' would allow the identification of conforming and non conforming landscape characters.

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The city foreshore land use is a highly contentious issue and has been the subject of many competitions and political rhetoric. The relatively flat and straight foreshore is almost a 'blank page' for which a wide range of ideas and proposals can be made, if given unlimited funding. Below the author suggests a number of ideas which are not representative of the Swan River Trust's view but have been outlined so readers may begin to consider what type of landscape they would desire for this important section of the Swan River.

One of the first features which strikes the viewer of the Perth foreshore from Kings Park or the water is the formal straight line of the foreshore. This geometric arrangement is continued with the east- west orientation of the city and the tall vertical forms of the city. The city is fortunate that it has the attractive waterform at its base, however the visual landscape, for example, could be enhanced by creating a more undulating foreshore. The present line is artificial and visually it would be more interesting and attractive to return to a more natural form by creating cove or beach like shapes.

Unfortunately, the reclaimed foreshore would be subject to high erosive processes and due to the roads and pathways on the foreshore a natural sandy bank would not be practical. The creation of enclaves could be facilitated by having curved limestone embankments with have steps (similar to those at Kennedy Springs) in the form of an amphitheatre into the water. The number of steps exposed would depend on the water conditions. These could have seats in keeping with the Federation theme of the Perth port area, such as park benches or a semi circle wooden bench similar to those in Forrest Place. It may be possible to plant *Juncus* and other riparian vegetation if ample room was allowed for a sheltered gradual beach face, otherwise the water would be too deep and the velocity too fast.

The section between Barrack Street and Victoria Terrace has the potential to be an attractive and active foreshore. It is reasonable to suggest that this section of the foreshore is at present at the heart of the urban centre of Perth. It is subject to so much urban land use that to try and give a naturalistic impression would be extremely difficult, and many people argue that the foreshore should be 'urban'. At present, the foreshore is isolated from the city by pass roads and other physical barriers. The foreshore could be altered to create a more dynamic landscape. It would not be out of context to extend the foreshore into Perth Water between Governors and Victoria Avenues, therefore creating a focal point. A fountain enclosed with an amphitheatre like sitting area which is sheltered by trees and has an attractive promenade effect could be one of many alternative plans for visual and recreational nodes.

It may be suggested that a foreshore node should be the type of place where people can sit and have their lunch or a small picnic and appreciate the beauty of the riverform and their city. The node should not be highly developed within walking distance to cafes and other pedestrian drawing features. By removing car park No. 1 adjacent to Governors Avenue, there could be a square of land which could be dramatically changed to draw people to the foreshore. This could extend the Victoria Avenue 'vista' with an attractive focus. Extending the Perth Concert Hall precinct would allow this to be achieved. The car park could be turned into a cultural square which gives the opportunity to emphasise the historic and Aboriginal importance of the area. People will not come to an area without life and activity to keep them entertained, and small cafes and restaurants could be the solution. It is important that these areas are visually pleasant, and provide shelter, comfort and security for the user and a 'square' of buildings could facilitate this. Many people object to the idea of development near the foreshore, however many cities in the world bring life to their waterways by having urban use in the vicinity of the water. Since this is such a small section which has already been dramatically changed, the river would not be losing its natural foreshores or vegetation if urban development is built adjacent to (not on) the foreshore.

If ever implemented a foreshore recreation node or focus point should be easily accessible. It is important that it should be within walking distance of the city centre which would help draw people to the area. It is important that events, spontaneous and organised entertainment are allowed to occur in the area. It was shown that by having outdoor markets and Sunday trading in the City, the present Perth Cultural Precinct was used and visited by people.

Unfortunately, the city foreshore has recently not been part of our 'urban city culture' and Perth's population goes elsewhere for riverside interaction. It is possible that by a strong effort people could be encouraged into the area, both during weekdays and as well as the weekend.

If the decision is made not to remove Riverside Drive it may be an option to make a board walk in the area which would increase the amount of foreshore available to pedestrian access. This could only be justified if suitable attractions were located in the area.

At present, the majority of visitors to the foreshore are using the Perth Port jetties. The present port facility has a new restaurant and cafe which have been recently constructed in a Federation style with wood battening and gabled roofs. It is very important that the buildings at Barrack Square have a style and scale which are in keeping with the waterfront location and that the amenities such as signs and street lighting is sympathetic.

It is the attention to detail which makes an area attractive, and one fault with the new buildings is that the rubbish bin enclosure on the jetty does not have a gate and the viewer is presented with the bins adjacent to the main facade. At present, there are several jetties which have the flat low lying 1960s style entrances which are the antithesis of the new Federation buildings. It would be more aesthetically pleasing if these jetty ticket boxes were in keeping with the new buildings. The Western Australian Rowing Club has been restored to a fine condition and is particularly attractive at all times of the day as the sheltered location allows the river to reflect the water patterns on the high gloss wooden panels. The adjacent riverside pathway, however, is made from several different materials and almost every bench has a different design and colour along the foreshore. It would be more pleasing if there was a theme for the foreshore. It is important that the visual corridor down Barrack Street be maintained and that new structures do not interfere with the river views.

Riverside Drive is a source of contention as it acts as a physical and visual barrier to the river. At present, it is a main arterial road which services the city and through traffic between the Causeway and Narrows Bridge and Mounts Bay Road. There have been several proposals on how to reduce the traffic through the area and make the foreshore more accessible. One proposal suggests realigning Riverside Drive to Terrace Road, however it is believed that this would restrict access to the popular Langley Park and also the few townhouses would be exposed to noise. It is desirable that Riverside Drive is not widened to accommodate increased traffic as this would take up either the foreshore strip or decrease the recreation areas of Langley Park.

Another proposal is to sink Riverside Drive. This would remove the visual and physical barrier of the traffic. It would involve substantial earth works and be quite expensive. However, it would limit the commuters' view of the river as a scenic drive which it is argued makes a pleasant distraction from peak hour frustration. The tunnel option would be very expensive. The present Government is currently constructing a tunnel through the Northbridge area to reduce the use of Riverside Drive as a by pass. This, however, is not likely to solve pedestrian access across the road, which is likely to continue being a heavy traffic area. This maybe overcome by a pedestrian overpass or underpass, the former being preferable to the pedestrian who will be raised to see the foreshore, the latter being possibly unattractive for safety reasons.

A recommended design would be a structure which would have minimal impact on the river foreshore character. It is possible that a combination between tunnel and road be used, a small tunnel between Victoria Avenue and William Street would allow the river foreshore, Perth Port and the city parks to be linked without inhibition.

This would emphasise Barrack Street as a promenade and the Barrack Square could become an important end point as historical city planners designed. Similarly this section of Riverside Drive could be lowered creating a depression which could be bridged with pedestrian pathways. It is important that the pathways be suitable for bicycles, prams and wheelchair access.

Much of the foreshore has been allocated as parking, however it may be argued that the land is too valuable for this land use. It is ironic that one of the best views of the river can be attained by standing in car park 1, where it is one of the only reclaimed areas is high enough to command a wide strip of river. If are to remain car parks number 1 and 2 should be visually minimised by having single storey areas adjacent to the foreshore. It is also important to the pedestrian that these flat expanses be softened by suitable tree planting. A suggested alternative is to remove these topographically flat and unattractive areas which take up so much of the foreshore and build a replacement multistorey carpark in a less sensitive area. Much of this car parking serves the adjacent business and commercial sector and if the car parks were relocated closer to these precincts then the patrons would also benefit.

Langley Park is an important playing field and although it is a rather bland feature it should be maintained for this purpose. Some people argue that the foreshore should not be the site of organised' sport rather than more passive recreation, releasing the land for more people and giving opportunity to provide a more dynamic landscape. However, by encouraging a variety of different uses of the oval, and ensuring the oval is used at all times, the foreshore parkland will have a population which can be enticed to appreciate the river. Fields and clubhouses should' however, be maintained in excellent order and be kept to the present functional and low lying form.

The helipad at Fraser's Point is a contentious use of the foreshore. Visually it is not very intrusive; however it is rather out of keeping with the aim of maintaining this part of the foreshore for recreation. The Fraser Point foreshore is at present adjacent to one of the busiest traffic sections in Perth. For this reason, it is probably best that the foreshore recreation node remains low key with the establishment of restaurants and other facilities that have been suggested in recent years only adding to the congestion of the area. It is also an area which is difficult for pedestrians to access due to Riverside Drive. It is important to improve foreshore pedestrian access at Fraser Point.

There is very little visual access to the Government House Gardens due to a high white wooden fence. From the gardens there is very little view of the river. By replacing the fence with a

more open design this could create the visual access to these historic gardens. If it were to remain the fence should be less intrusive by painting it a less reflective and intrusive colour such as a soft green or brown. It would be a good opportunity to make the gardens more accessible to the public, for example for a short time a couple of days a week. Supreme Court Gardens have a wonderful selection of exotic trees planted in a 19th century Acadian design. There are some impressive specimens which form a boundary around the open grassed area. The area is cut off from the river and also the noise of the adjacent traffic. In contrast, the Esplanade is lined with Moreton Bay figs on the east and western boundaries. The southern side is grassed to the Lieutenant General Talbot Hobbs Memorial, and associated trees which once were part of the grassed area and is now part of the Riverside Drive traffic island. The isolation of this part of the park is unfortunate and makes the park very noisy. The Alf Curlew Gardens, although quite attractive, are a very narrow belt of vegetation and do not have the same consistency in garden design as the adjacent Supreme Court Gardens. The Allan Green Conservatory opened in 1980 is a fine pyramid shape and provides an interesting contrast against the rectangular forms of the city skyline.

Most of the trees along the foreshore are not native species. Many people have suggested that by planting indigenous species the road would become a tourist attraction and the city river foreshore a unique feature. Riverside Drive has date palms planted parallel to the foreshore wall. These are in clusters of eight which are more attractive than a single line of trees. The centre island has been planted with cotton palms which at present are much smaller than the date palms on either side of the road. The cotton palms will eventually be much taller than the adjacent date palms and will provide a different perspective to the river user. It may also be noted here that the dead leaves on the cotton palms should be retained, rather than having an unattractive clump of green on a 'stick' effect in contrast to the graded shades of the old fronds. Adjacent to Langley Park the flame trees provide a splash of red colour in winter which is a cheerful addition to the drive. It is necessary for safety reasons that some trees be pruned, however, there needs to be a decision on whether all trees along the foreshore should appear at least 'naturalistic' rather than heavily pruned. It is also important that the plane trees which line Victoria Avenue, Barrack Street and other roads perpendicular to the river be maintained as they provide a visual corridor to the river.

The 1988 Central Perth Foreshore Study suggests that the foreshore at present has a orderly and interesting mixture of exotic and native planting within the central gardens graduating to informal native planting at the western and eastern extremities'. It was suggested that it was appropriate to maintain

the heritage and botanical aspects of the exotic gardens and continue this graduation in future planting.

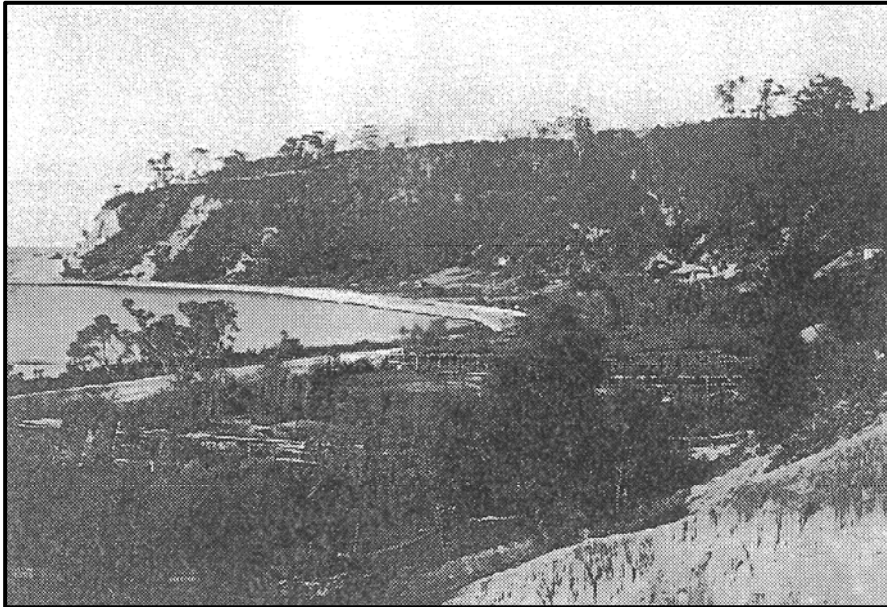
The precinct has residential development on the Kings Park escarpment and adjacent to the eastern foreshore. Many of the units along Langley Park are getting to be rather blighted and aesthetically would be more appealing if they were restored or renewed. Further high quality design apartments should be made available which would cater for a cross section of the community and attract more people back to the city. The presence of activity is an important attraction for the visual element of a city foreshore.

Unfortunately, the best that can be made of the Narrows interchange is to encourage the planting of native species which may naturalise and reduce the impact of the strong geometric road form. This area is a typical modified landscape. The vegetation is well maintained lawn and tree landscaping. The question arises, as to whether this vegetation in keeping with the city, or whether it would be beneficial to recreate 'naturalistic' native woodland and wetland communities adjacent to the city. If the Kings Park escarpment vegetation was reflected on the freeway reserves, then it would be a uniquely Western Australian green zone within the city. Planners need to decide which elements are important and need to be further encouraged, and which elements of the city are beneficial characteristics.

The city itself is one of the major features of the river landscape. The city skyline is constantly changing as new buildings stretch further upwards. From the Esplanade the viewer is presented with many colours, shapes, designs and heights, including small neoclassical and art deco styles and late twentieth century modern forms. It may be said that Perth's skyscrapers are quite modest buildings, the most extreme in design being relatively tame by other world cities' standards. The more radical designs have been limited by planning policies and clients' budgets. From the 1950s new high-rise buildings were constructed as monuments to their time. Their architecture is sometimes regarded as ugly by some people, however if one takes time to appreciate their designs it can be seen that these buildings reflect the attitudes and expectations of the builders and therefore are as valuable to Perth's history as the older smaller buildings. One of the flaws of the late twentieth century buildings is that the roof tops have not been addressed. Most of the buildings have large shed like air conditioning and other units on top, completely at odds with the rest of the building's design. Fortunately, many of the buildings constructed after the mid 1980s have learnt from this mistake and these features are incorporated into the total design; a good example of how these features can be made attractive is the Bank West Tower.

It is imperative that any building constructed is of the highest design standard. It is also important that old buildings are retained. It is often valuable to restore old buildings to their original condition but change their function, allowing the buildings to continue being a dynamic part of the city. Planning should address the needs of the pedestrian as well as the long distant viewer of the city. Planners should remember that some of the worlds' most attractive and visited buildings were often considered radical for their time, and sometimes a less conservative building is a great addition to a city landscape.

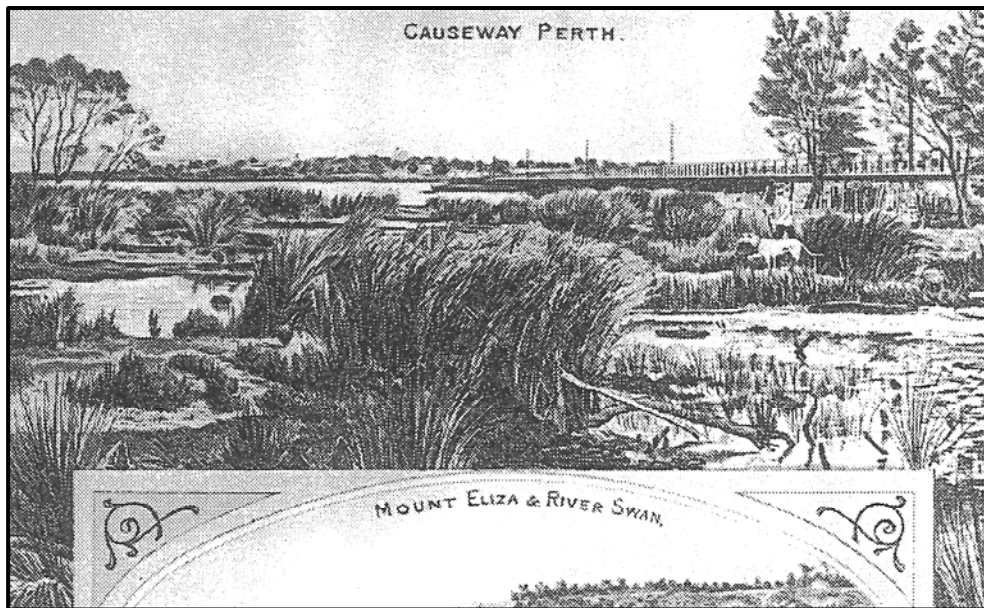
Perth City is fortunate that it has such an attractive location despite dramatic alteration of the river and the adjacent Mounts Bay. The foreshore at present is a place which most people just drive or ride by and there is little to encourage them to stop and appreciate the river and city views. By providing a focus point or reducing the amount of traffic along Riverside Drive the city foreshore may become more accessible.



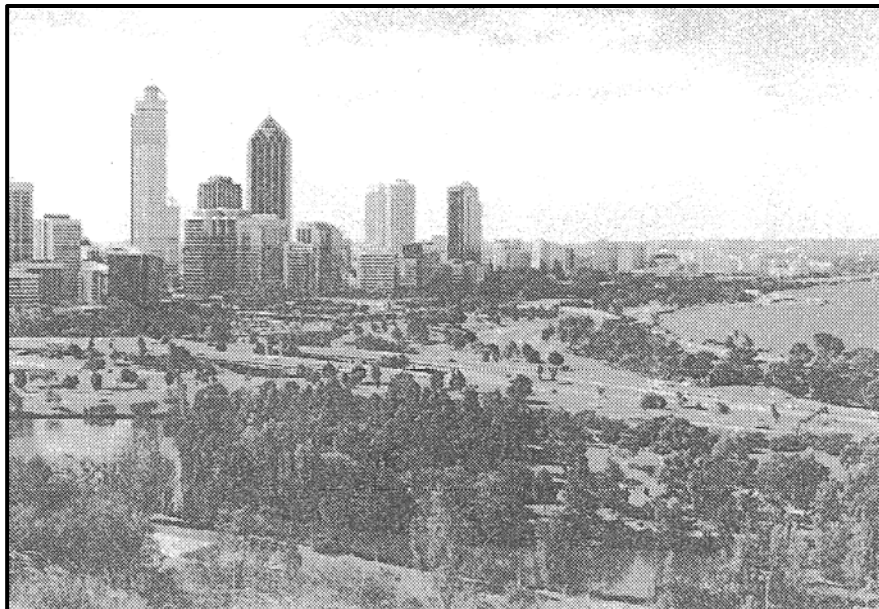
Causeway, Perth, c1900.
Battye Library 5032P.



City from Kings Park, 1997.
Swan River Trust.



Mount Eliza from top of clay quarry, 1862.
A.H. Stone. Courtesy of W.S. Croft. Swan River Trust.



Perth Water, c1880.
Battye Library 4888B.