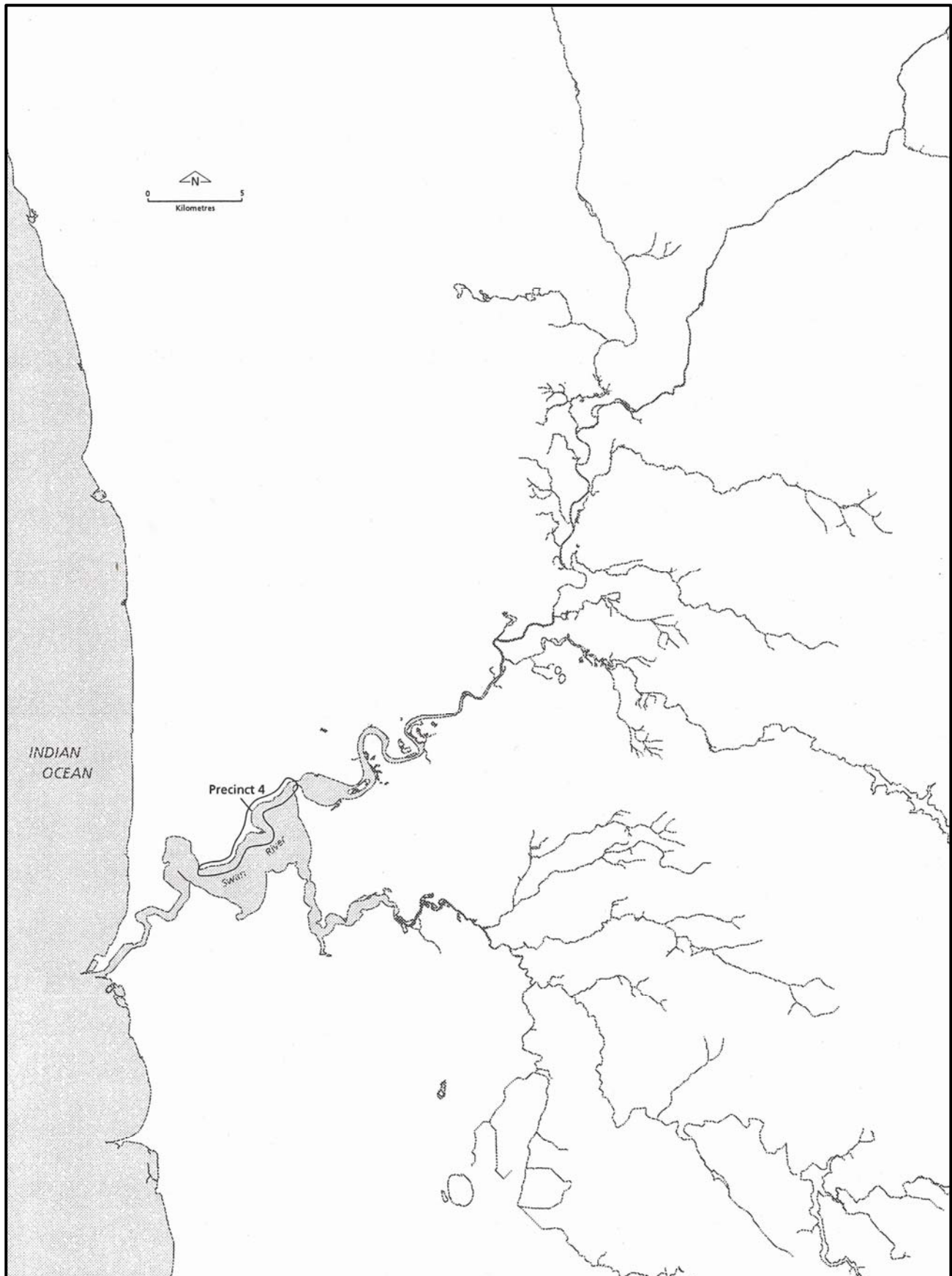


Precinct 4

Point Resolution to the Narrows Bridge
(North Melville Water and Matilda Bay)



Summary

Point Resolution to the Narrows Bridge (North Melville Water and Matilda Bay)

The precinct ranges from Point Resolution to the Narrows Bridge and includes the northern half of Melville Water and Matilda Bay. The area includes such natural features as steep outcrops of coastal limestone along Dalkeith and Kings Park, and low lying estuarine deposits which form the flat land of Nedlands and Crawley Bay. Pelican Point juts out into the river forming the curve of Matilda Bay and providing shelter from the prevailing weather conditions.

In contrast, Nedlands foreshore is flat reclaimed land and the river bank has been made from limestone blocks and as a result is relatively linear, flat and unnatural.

The area was left predominantly undeveloped until the First World War and now the suburbs of Nedlands and Dalkeith are characterised by large ample blocks and a mix of architectural designs, the majority of homes being single storey bungalows. Along the southern Dalkeith foreshore the landform is a steep cliff face which continues to Sunset Hospital. The narrow foreshore and properties built to the edge of the escarpment make the foreshore inaccessible. In contrast, the reclaimed land at Nedlands and wide flat reserve at Matilda Bay are ideal for public access. As a result the foreshore is popular for passive recreation and more active sports such as swimming, cycling, windsurfing and boating. Kings Park provides a regional recreation node and also is important for including a large area of native bushland. The park has spectacular views of the river and adjacent land, however along the foreshore the river access is severely inhibited by Mounts Bay Road which is a major arterial road.

Biophysical Processes

Geological Processes

The precinct is part of the Tamala Limestone which is aeolian calcarenite which is lithified, calcretised and leached to quartz sand (Riggert, 1978). The limestone was formed in the Pleistocene and the cemented dunes made up of aeolianite, beach and shallow marine deposits, whose structures are overprinted by solution pipes, calcrete and root cast (Collins, 1987).

The soils of the precinct are predominantly of the Karrakatta Association which are deep yellow and brown sands overlying aeolianite (McArthur and Bettenay, 1974). In the Matilda Bay area, the soil is made up of variable and undifferentiated deposits associated with estuarine processes (Seddon, 1972). The offshore features consist of thin films of dark clay and sandy banks of the Vasse Association.

Topography

Point Resolution is a topographically high point of the undulating Spearwood Dune System. It has a steep escarpment from the Point to Sunset Hospital. From here the land slopes more gently towards the fluvially formed Matilda Bay. Pelican Point is a topographic low, and originally would have been subject to severe inundation. Kings Park is another outcrop of the Spearwood Dune System which forms a headland forming jugged much further than present into Perth Water. There is a steep scarp along the southern edge of Kings Park, which would have originally had a very narrow foreshore. Behind the 30 meter scarp of Kings Park is the gently undulating ancient dune system.

Hydrological Processes

Water features

Melville Water is a wide basin which opens from Point Walter and Pt Resolution and expands into a large stretch of water that curves around the northern shore up to the Narrows. The northern foreshore is a relatively linear bank which has a gentle curve around south Nedlands and continues to the sharp peninsula of Pelican Point. The water body curves into a protected and shallow bay at Matilda Bay and edges the escarpment of Mount Eliza.

There have been several stages of infilling along the foreshore near Mt Eliza. Between 1921-1935 a thin line of foreshore on the southern side of Mt Eliza was infilled allowing Mounts Bay Road to be widened. The infilling of Mounts Bay will be discussed in the Perth Water Section. At Nedlands foreshore, the land was infilled and held in place with a linear limestone retaining wall during the 1930s as part of the process to 'improve the river flow' (Riggert, 1978).

Bathymetry

In cross-section the river channel has a relatively wide shallow bathymetry at the banks of the channel. Armstrong spit is a shallow bank of under 2 metres water depth which is exposed at high tide and is approximately 200 metres off the Dalkeith foreshore. From Pelican Point, a shallow bank of under 2 metres in depth extends in a southerly direction for a kilometre. The channel cross-section widens to over a kilometre of water more than 5 metres deep at Melville Waters. This basin is the widest body of water in the river and is seldom flushed out. Overlying the stale seawater is a layer of lower salinity water. The change in salinity or halocline between these two bodies is often abrupt. The lower water often becomes deoxygenated as a result of biological activity. The mean tidal range within this precinct is 0.8 metres.

The channel is made up of light coloured sands consisting of shell material and quartz grains around the foreshores. In the deeper waters, mud consisting of silt particles and organic matter are found. There are also extensive fossil shell deposits in Melville Water.

Flooding

The degree of inundation along the foreshore between Sunset Hospital and J.H. Abrahams Reserve and from the Perth Dinghy Sailing Club to the Narrows Bridge has been modified from its natural regime. Limestone retaining walls were built from grouted rock in the 1930s along Mounts Bay Road. This has prevented major flooding of the Mounts Bay Road foreshore, such as, that which occurred in June and July of 1932. The Nedlands foreshore was reclaimed by dredging and the spoil was used to extend the foreshore. The new land was protected from wave action by a limestone wall. At Pelican Point, the land was also dredged and reclaimed, however no retaining walls were constructed. As a result the point is subject to seasonal inundation allowing a small remnant wetland to exist. There is a small lake which is present throughout the year, as well as small tidal flats.

Erosion and accretion

The beaches in the precinct are subject to localised erosion from tidal or wind action. In areas such as Matilda Bay, there is quite severe erosion due to mainly non natural causes such as boat wash and the removal of foreshore flora. This problem is being addressed by increasing the beach area so that the slope is more gradual, planting native species and constructing walls of logs or ungrouted rock. Along the Nedlands walled foreshore small sandy beaches often form in summer, however in winter the wall restricts erosive processes and often creates a narrow gully where the wave action has removed sediment from the channel banks.

The wave action against these walls is reflected off the flat faces and as a result unnatural erosive processes take place. To reduce the reflective energy transfer some sections of the Mounts Bay Road walls have been replaced with more gently sloping gabion walling.

Vegetation Communities

Native

Vasse Complex

At Nedlands, the Vasse Complex occurs along the foreshore and is surrounded by the Karrakatta Complex. It is a mixture of closed melaleuca scrub to 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 the higher land. Pelican Point wetlands 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*). Remnants of this community are still present despite serious degradation. Also present is a sedgeland community consisting of *Isolepis nodosa* and a few emergent shrubs of wattle in places.

The foreshore near the Tawarri Restaurant in the late 1920s supported swamp sheoak (*Casuarina obesa*) and swamp teatree (*Agonis linearifolia*). There were also rushes and *Spinifex hirsutus* (Powell and Emberson, 1978). By the 1930s the sheoak and paperbarks had been removed and coojong had replaced these communities. Parrot bush (*Dryandra sessilis*), and basket bush (*Spyridium globulosum*) were also present on the cliffs.

Karrakatta Complex

Along the Karrakatta Complex is the main plant community in the area (DCE, 1980). This complex is predominantly tuart (*Eucalyptus gomphocephala*), jarrah (*Eucalyptus marginata*) and marri (*Eucalyptus calophylla*). The understorey consisted of slender banksia (*Banksia attenuata*), firewood banksia (*Banksia menziesii*) and bull banksia (*Banksia grandis*). In addition, sheoak (*Allocasuarina fraseriana*) and peppermint (*Agonis flexuosa*) are also found. The communities which make up the Karrakatta Complex are outlined below.

Dryandra communities

There is a closed scrub dominated by parrot bush (*Dryandra sessilis*). Stinkwood tree (*Jacksonia* sp) and smoke bush (*Conospermum triplinervium*) are also present. In the rockier areas, cockies tongues (*Templetonia retusa*), chenille honeymyle (*Melaleuca huegleyi*) and fan flower (*Scaevola nitida*) predominate. The closed scrub also supports Hackett's hop bush (*Alyxia buxifolia*) which is restricted to the Metropolitan area.

Eucalyptus communities

Kings Park has approximately 260 ha of native bushland which supports 465 recorded indigenous and exotic plant species and associated fauna communities (Bennett, 1989). There is open woodland forest dominated by sheoak (*Allocasuarina fraseriana*), slender banksia (*Banksia attenuata*), Menzies or firewood banksia (*Banksia menziesii*). Tuart (*Eucalyptus gomphocephala*), jarrah (*Eucalyptus marginata*), marri (*Eucalyptus calophylla*) are present in the park, however they have been particularly stressed due to fire and borer attack. Christmas tree (*Nuytsia floribunda*) and various *Acacia* are dominant in the open woodland.

Exotic

Pelican Point reserve was recently surveyed for CALM (1992) and it was found that approximately 95% of the flora not natural to the site. The non endemic species include Victorian tea-tree (**Leptospermum laevigatum*) and sheoak (**Casuarina glauca*) which are exotic to the Swan River, and are acting as weeds and replacing those species which are endemic to the point. Moreton Bay fig (**Ficus macrophylla*), Norfolk Island pine (**Araucaria heterophylla*) and London plane tree (**Platanus X acerifolia*) which provide shade during summer. These trees were planted as 'specimens' which was a common historical practice; the grounds of the University of Western Australia are a good example of transformist gardens.

Fire has been detrimental to the Kings Park tuart and jarrah communities and has encouraged the proliferation of veldt grass (**Ehrharta* sp). Exotic species have been introduced both by accident and by intentional planting and include prominent flora, such as sugar gum (**Eucalyptus cladocalyx*), gladiolus (**Gladiolus caryophyllaceus*) and Guildford grass (**Romulae rosea*).

Historical Land use & Resulting Environmental Changes

Captain Stirling named the whole lower estuary Melville Water and restricted the river upstream from Perth to the name Swan River. Melville Water has, however, come to refer to the wide body of water between Pt Resolution and the Narrows. The section of this river was named Melville Water by Stirling after Robert Dundas, 2nd Viscount Melville, First Lord of the Admiralty, 1812-30 (Seddon, 1970).

In 1831, Adam Armstrong was the first settler to take up an estate in the precinct, which he named Dalkeith after his home town in Scotland. The property extended between the present day roads of Birdwood and Waratah Avenues. The property was sold to John Lewis in 1839 and then to James Gallop in two parts in 1847 and 1865. James Gallop built a house in 1872 on a limestone hill and it is still present today as the oldest remaining house in Nedlands. The property was renowned for the fruit and vegetables it produced for Perth and Fremantle markets. The western side of Armstrong's original property (Lot 86) eventually became the land of the Bruce family whose son Edward inherited the land. The land was deemed rather worthless and was jokingly referred to as 'Ned's Land', hence the name Nedlands. The land remained mostly unused until World War I when the land was subdivided and the Nedlands Park Hotel (now Steve's Hotel) was built on Broadway (Williams, 1984).

Most of the western side of the estate was subdivided after the turn of the century, and became the suburban locality of Dalkeith. Many streets in the area were named by the surveyor, P. G. S. Hope, after yachts on the river in the racing season 1912-13. The subdivisions were offered under generous terms, however the land had 'difficult' scrub to remove before building. David Cruickshank Reserve (or College Park) was built in 1954 to 'tidy up' the foreshore.

One of the features of the area was 'The Dome' or 'Hot Pool' at the present day site of the 'Tawarri' function centre. This was an artesian bore which was heated and was a popular bathing spot for many years from the 1920s. The bore had been originally sunk to service the Old Men's Home (Sunset Hospital) and the popularity of the free pool along with the reputed activities it encouraged, earned the area the name of 'Naughty Nedlands'. There were several baths in the precinct. Nedlands Baths was built in 1907 and was a popular swimming point for both locals and people from other areas. The building still remains today as a restaurant and is the only remaining baths building along the Swan River (Clarke, 1993).

At Crawley Bay adjacent to Broadway there is a concrete ramp which was used by the Qantas Flying Boats in World War II. The planes flew weekly to Sri Lanka and were important in maintaining communications with Britain (Catomore, 1986).

Stirling's exploratory party of 1827 found the quantity of swans, pelicans and ducks on the river at Pelican Point (Point Currie) 'truly astonishing'. In 1827 voyage Charles Fraser, the colonial botanist of New South Wales, recorded the view from Pelican Point as

'exceedingly grand. The contrast between the dark blue of the distant mountains and the vivid green of the surrounding forests is such as must in a peculiar manner strike the attention of a person long accustomed to the monotonous brown of the vegetation of Port Jackson'.

The point is also known as Point Currie and was named after Captain (later Admiral) M.J. Currie (d 1874), first harbour master of Fremantle. Currie first took up land at Crawley and soon afterwards the Redcliffe estate on the river above Perth. The reserve has been the location for a number of recreational groups for many years, including the 1st WA Sea Scouts Troop since 1919 and the Royal Perth Yacht Club since 1910 (Uren, 1966). In the 1930-40s Pelican Point was dredged on the north side and the resulting soil was deposited on the south side of the point. The result was the loss of most of the shallow water and wetlands at Pelican Point.

Precinct 4 - Point Resolution to the Narrows Bridge (North Melville Water and Matilda Bay)

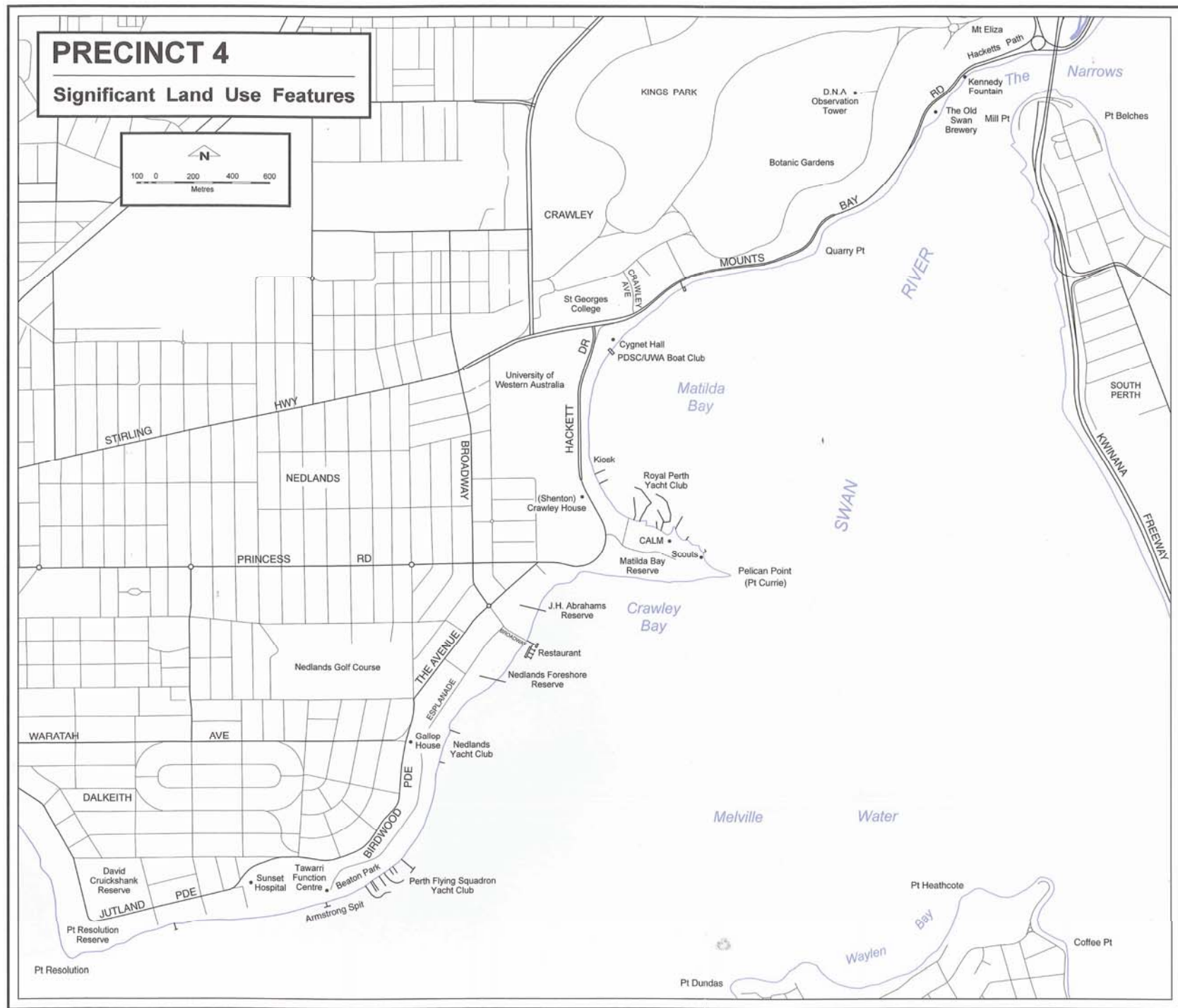
Matilda Bay was named by Stirling in 1829 after Mrs J. S. Roe (nee Matilda Bennet). The bay is also known as Sutherland's Bay, Eliza Bay, Currie Bay and Crawley Bay (the last name which has also confusingly been given to the Nedlands foreshore). The estate bordering the bay was first owned by Captain J. M. Currie who was Fremantle's first harbour master. It was sold in 1832 to Henry Sutherland, who came to the colony in 1829 as assistant surveyor and was later Colonial Treasurer; his mother's maiden name was Ann Crawley. The estate passed to Sir George Shenton, a Mayor of Perth, who lived on the estate until his death in 1909. The land was acquired by the State in 1910 for public recreation and the foreshore was used as a camping ground. This was served by a tram line to Nedlands Baths. The university acquired the bulk of the land in 1914. In World War II Crawley Bay was requisitioned by the Commonwealth for defence purposes and as a result an American Navy Base was established.

Along Mounts Bay Road near Quarry Point was the site of the Crawley Baths. The baths covered 3.5 ha in area and had 300 dressing boxes. The limestone walls between Matilda Bay and Point Lewis were built in the 1920-1930s economic depression by men who would work for 7 shillings and 6 pence week.

The Old Swan Brewery is located at the foot of Kennedy Springs. In 1861 Governor Arthur Kennedy erected the fountain at the site of the freshwater springs which were an important water source to the early Swan River Settlement and is also an important location for Aboriginal people as outlined below. The flat area adjacent to the spring was used as a shipyard in the 1830s and then was the site of an Aboriginal welfare institution. In 1838, a steam driven mill was built and in turn later became a tannery and ice works. There was also a convict depot which in the 1850s was converted to an old men's home. The Swan Brewery was built in the 1880s and used the spring water for its beer making. The Brewery which had been purchased by the Government in 1985 was later resold to the property developer Yosi Goldberg. It was once again purchased by the Government who leased the site to John Roberts who is developing the site for offices and a restaurant complex. At present, the development has stalled partly due to court proceedings initiated by the Nyungar people.

Mount Eliza was named by Stirling after Mrs Ralph (later Lady) Darling (nee Eliza Dumaresq), wife of the Governor of New South Wales. In 1826, Stirling had prevailed on Darling to allow him to explore Swan River. Apprehensive of French intentions in the area, Darling had just despatched the party which established the settlement of Albany. When the Swan River Colony was founded in 1872 the Surveyor General John Septimus Roe intended that Mount Eliza be preserved as a public park. In 1872, the first 175 ha were gazetted and later in 1890 the area was extended to the present 400 ha. It was initially known as Perth Park, however to mark the accession of King Edward VII it was changed by his son the Duke of Cornwall and York (later King George V) during his visit in 1901. The park was an important source of building timber to the early settlers. In 1835 five tonnes of jarrah were cut from the area and exported from Western Australia (Catomore, 1986). The limestone scarp was quarried at Quarry Point for building material. Quarry Point is also known as Knot Spit as offshore there are two piles which are exactly one nautical mile apart.

Point Lewis originally was at the base of Mt Eliza; however, it was reclaimed with the construction of the Narrows. It was named, probably in 1831, after John Lewis the Commissioner-General and Colonial Treasurer. Stirling originally named the promontory Garden Point, as the 1827 expedition planted a small experimental garden at this location.



Present Land Use and Social Patterns

Approximately half the precinct's foreshore area is used for residential purposes. Along the southern Dalkeith escarpment is what is considered one of the most prestigious roads in Perth. Jutland Parade has large post war and modern 'mansions' which are typically the extreme architectural styles of their period. They front onto the escarpment and as a result there is limited public access along the foreshore. However, from Birdwood Parade the residences are separated from the foreshore by the escarpment, below which there is a flat promontory that allows foreshore access. The escarpment has remnant bushland present and this obscures the view of the river from the road. Along the Nedlands foreshore, the residences are well set back from the river and are on the northern side of The Esplanade. The southern side has been reclaimed for foreshore and playing fields. The houses of the Nedlands suburb are mixed in design and period, however away from the foreshore houses built in the 1930-40s are dominant. There are also some multistorey units which front the Nedlands foreshore reserve. Prestigious highrise units are present between Crawley Avenue and Kings Park as well as a few bungalows.

Sunset Hospital is a home for senior men. It was originally located at the Swan Brewery site, however it was moved to Nedlands in 1904 where it was built as a poorhouse for 'aged and infirm' men. Behind Hackett Drive is the University of Western Australia, which has attractive buildings and environs. Several of the earlier buildings are particularly attractive and are of local significance.

Mounts Bay Road is a major traffic route between the city and Stirling Highway and therefore cuts off the foreshore to recreation users. However, there are two car parks which cater for passive recreation and other activities, such as fishing. Hackett Drive and other roads in the area are heavily used by University students and people using Matilda Bay. The result is a busy road and parking problems.

Recreation nodes

Pelican Point Nature Reserve is part of the Swan Estuary Marine Park. It is not accessible to the public due to wire fencing. This is because of the sensitive nature of the reserve and the importance of it as a habitat for trans migratory birds.

Abrahams Park is adjacent to Pelican Point. The park is used by windsurfers and picnickers. Nedlands foreshore reserve is used by cyclists, picnickers and private sporting clubs who use the well maintained ovals. The ovals have also become with kite fliers who take advantage of the prevailing winds. Beaton Park has a nicely landscaped parkland with barbecue and play gym facilities. A dual use path caters for cyclists and pedestrians all along the Nedlands foreshore.

Matilda Bay reserve attracts 400 000 visitors for active and passive recreation, including the visitors to the sporting clubs and restaurants. It provides opportunities for sightseeing, picnicking, windsurfing, swimming, prawning and boating. Features such as the parkland setting and the safe swimming areas and city views attract people to Matilda Bay. The Department of Conservation and Land Management has recently built a limestone wall adjacent to the kiosk to prevent further erosion of the grassed banks.

There are several yacht clubs including the Perth Flying Squadron which was incorporated in 1908. It was originally located on Perth Water, however it moved to its present location in the 1960s. The Nedlands Yacht Club has been at its present location since the mid 1950s and is primarily dedicated to dingy sailing. Mounts Bay Sailing Club is also primarily a dingy sailing club and launches from the beach. Royal Perth Yacht club has been at its present location since 1910 and has an annex at Fremantle's Challenger Harbour. The University Boat Club was opened in 1929. The Perth Dinghy Sailing Club was established in 1903 and moved to Matilda Bay in the 1960s. The club caters principally for younger sailors. Cygnet Hall was built in 1956 by the Governors of Hale School as the base for the school's rowing club.

Kings Park is a unique and valuable tract of bushland and cultivated gardens which are adjacent to the city. The park is the most visited tourist destination in Western Australia and provides an important recreation node for all the people of Perth. Apart from the spectacular view of the city, Perth and Melville Waters, there are several war and pioneer memorials, play grounds, picnic and barbecue facilities, guided walks and food outlets. The park is also an important botanic feature having at least two- thirds of the area as natural bushland. The other areas are parkland and botanic gardens showing the different plant communities found within the State and other Mediterranean parts of the world.

Public access

There is limited public access along the southern Dalkeith foreshore due to the steep escarpment and properties reaching to the edge of the cliff or the high water mark. Along Birdwood Parade the residences are set back from the escarpment and there is a wider foreshore which the public is able to access. The embankment has a woodland community that blocks the view from the road to the river, and also acts as a buffer between the residential and foreshore activities. Foreshore access is also limited along Mounts Bay Road due to the four lane arterial road which curves along at the base of Mount Eliza. The foreshore here is walled and has no beaches, however there are two parking bays which are frequently used for passive recreation and as a fishing vantage point. There is also a dual use path which can be accessed from Kings Park via a footbridge on the eastern side of the park. At Kennedy Spring there is a small parking bay which serves users of the picnic area adjacent to the fountain.

The Nedlands foreshore is well provided for public use. There are several public car parks, dual use paths, ovals, and jetties which cater for both passive and active foreshore users. There is a particularly good car park at the base of Gallop House which has been built so that only its entrance is visible from The Esplanade. The parking bays are hidden using native trees which are in keeping with the vegetation of the escarpment behind.

At Matilda Bay there is a dual use pathway and a picnic area. On most days parking is at a premium due to demands from University users and those clubs and associations at Pelican Point. Other users are often unable to easily find a parking bay.

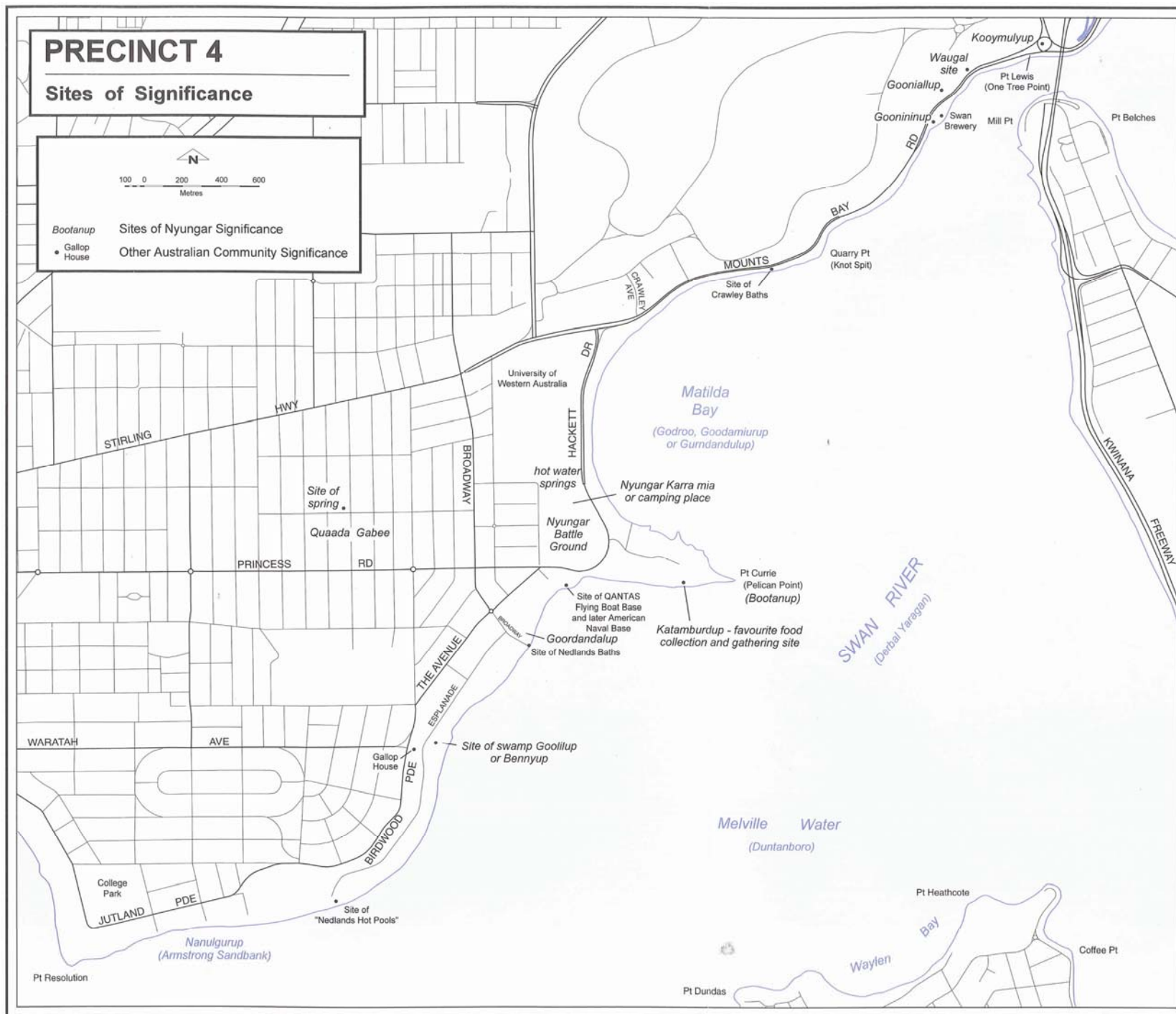
The boating clubs at Nedlands use the foreshore to rig and wash their equipment. This often gives the impression to non club members that the foreshore is private property, however access is not restricted and the public can walk adjacent to the clubs and also behind the property. At Matilda Bay the foreshore access is still more visually restricted than the Nedlands clubs due to fencing and the crowded nature of the marinas. As Pelican Point Reserve is also fenced to ensure the wellbeing of trans migratory birds, the point is not as accessible to the public as it could be. However, the public is well catered for on either side of the point with parking and recreational facilities available.

Sites of Nyungar & Wider Australian Community Significance

Nyungar significance

This area was used as hunting grounds by Mooro Nyungars who at the time of the Swan River Colony were headed by Yellagonga until his death in 1835 (Williams, 1984). Originally, there were several springs including ones which occurred near the area of the present day Archdeacon and Edward Streets (Vinnicombe, 1989). At the site of the present day University of Western Australia campus, a hot water spring once ran and the same site was used as a battle ground by Nyungar people. The area was plentiful with fish, shell fish, frogs and turtles. Matilda Bay (several references give different names which possibly referred to different features in the area, and include *Godroo*, *Goodamiorup* or *Gurndandulup*) and Pelican Point (*Bootanup* or *Booriarup* meaning place of the *Xanthorrhoea*, balga or blackboy tree leaves) (Vinnicombe, 1989; Collard *et al*, 1996), were favoured for crabbing and prawning by the Mooro people. The southern side of Pelican Point is known as *Goordandalup* meaning the meeting place of the married or betrothed persons (Collard *et al*, 1996). Pelican Point is also known as *Katamburdup* meaning 'high rise near where paperbark and zamia palms grow' (Vinnicombe, 1989). It is also recorded that there was a swamp area near Gallop House called *Gooliliup* and *Beenyup* and that Armstrong spit along the southern side of Dalkeith is known as *Nanulgurup* (Green 1979, Williams, 1984).

Oral history records that Nyungar wells tapped a freshwater supply in the vicinity of the present Nedlands/Dalkeith foreshore. The exact location of this site is now undetermined (O'Connor *et al*, 1989). *Goonininup* camping ground was adjacent to the Old Swan Brewery. This means the 'place where he defecated' and is derived from the word *kwun* or anus (Vinnicombe, 1989). The exact location is difficult to define due to extensive land reclamation and dredging in the vicinity. However, Kennedy Spring is believed to be the eastern point of the camping ground. The Waugal (derived from *waug* which means soul, spirit or breath) is believed to have surfaced near to the fresh water spring in the area. The Waugal's resting place is known as *Gargatup* (Collard *et al*, 1996). Many Nyungar believe that the Waugal is associated and equivalent to 'living water' or a vital force of water and is represented in the form of a 'water snake' (Vinnicombe, 1989). The abrupt rise of Mount Eliza is said to have been caused by the struggles of the Waugal as it came to the surface and wriggled its way back to the sea (Vinnicombe, 1989). The area is a place that demands great respect by Nyungars and there are strict codes of ethics which still exist today. The Waugal would 'suck you in' at the place where it returns back into the ground on its way out to the sea.



The term *Waygalan* means 'ill, sick or under the influence of Waugal'. A person would be *Waygalan* if they have disregarded for the site. The Waugal is believed by many Nyungar to have laid an egg represented by a large round stone near Matilda Bay which was removed by white settlers of the Swan River Colony. The track of the Waugal from the old Swan Brewery Stables up the hill face is referred to as *Gooniallup* (Collard *et al*, 1996). *Goonininup* and an adjacent camp called *Goodinup*, is a recognised meeting place for Nyungars. It is a place where inland Nyungar met with the coastal Nyungar (Ansara, 1989). It was a place associated with male initiation, economic exchange and a recognised trade route for red ochre. It was one of a number of sites of importance to the Nyungars. Near the camp was an area referred to as *Kooyamulyup*, meaning the place of the frog camp which refers to the many frogs in the area which were part of the diet of the people. It is also believed to have been a place for initiation for young men (Collard *et al*, 1996).

Other significance

The precinct was first described by Stirling and members of his 1829 exploratory trip. The river in this area was favourably described and trial crops were planted at Point Lewis. The area, however, was slow to develop and the residential areas which are present today did not develop until early this century.

Gallop House was built by James Gallop in 1847 and later extended. It was built using the limestone from the Nedlands pinnacles. It is the oldest remaining house in Nedlands and has been recently been restored by new tenants. The house is open on certain days of the year.

Sir George Shenton's Crawley House is now within the university grounds. It is a Georgian styled two storey building. Crawley House was built by H. C. Sutherland in the 1840s on the original grant of 12.5 ha allotted to Captain Currie.

Conservation Areas

Wetlands

Pelican Point has a wetland which is of worldwide importance for migratory birds and is discussed below.

System 6

M49 Kings Park

The recommended area is 400.8 ha and about two thirds of this is undeveloped low open forest and woodland. There is a limestone scarp which supports a closed-scrub community.

The area is an open space of regional significance because of its high conservation, recreational and education value as well as being close to the city. It includes botanic gardens, arboreta, roads, water supply reservoirs and mains, sewerage works and underground cables. The Kings Park Board is responsible for the park's planning and management.

M52 Pelican Point, Crawley

The area is a point which includes tidal flats, lake and marsh. A large section of the point is covered in sedgeland and rush with a few emergent bushes. The area is one of only three significant wading bird habitats remaining in the Swan River. Thousands of birds including 22 species migrate from their breeding grounds in the northern. The migratory waders feed entirely on the invertebrates which occur in the intertidal flats and marshes. The area is at present being included in the Swan Estuary Marine Park and Adjacent CALM Reserves Draft Management Plan (1995). It was identified as having educational, conservational, recreational, historical and research value.

Landscape Description

Precinct Description

Waterform

One of the most prominent features to the water and land user in the precinct is the wide basin of Melville Water. This is the widest point in the river and from the banks it appears to be enclosed entirely by the foreshores that bound it. The river opens between Point Walter and Point Resolution and broadens quickly as it curves along south Nedlands foreshore to Pelican Point. The curved promontories of Pelican Point and Pt Heathcote (Melville Water) are mirror forms to the viewer. Matilda Bay is a sheltered embayment which has a curved form. The river narrows to a 'v' between Kings Park and the South Perth foreshore, and consequently the descriptive name of 'The Narrows' is apt.

Natural Riparian zone

The riparian zone in this precinct has been greatly altered due to reclamation and the construction of walls. However, at Pelican Point despite land reclamation earlier this century the foreshore appears 'naturalistic' on the southern bank. There is a white sandy gently sloping beach which stretches into a shallow sandy bank in a southerly direction. Behind the beach, a small channel enters a permanent wetland in the form of a lake and marsh. Along the southern Dalkeith foreshore the limestone escarpment borders the water's edge with a number of small sandy beaches in between the limestone rocks which scatter the foreshore.

Landform

The limestone escarpment at Dalkeith gently undulates from Pt Roe to the Sunset Hospital. The escarpment in places is vertical at Dalkeith but becomes more gently sloping after Sunset Hospital. The escarpment has limestone pinnacles which emerge from the surrounding vegetation and soil, these are particularly prominent adjacent to Gallop House. From approximately Winthrop Avenue, the topography once again rises to Mount Eliza. The escarpment is steeply curved, however, at Quarry Point, the limestone has been cut back to a vertical face. Kings Park would have originally had a headland form, however with the freeway construction and adjacent high rise city buildings, the headland's height and curved form have become a less dominant feature and its prominence has been diminished.

At the base of Sunset Hospital, the original foreshore was extended into a flat field; however, Beaton Park has now been landscaped into gently undulating parkland.

In contrast, the Nedlands foreshore reclamation has remained a flat platform to accommodate the playing field facilities. Most of this area is uninteresting with no curved foreshore or layered vegetation to attract the viewer. Matilda Bay is also walled, however due to the sheltered nature of the bay a white sandy beach has built up in front of the retaining wall. This allows a more 'naturalistic' foreshore than Nedlands, although it can hardly compare with the wetland which would have existed previously. The foreshore has almost formal form with the wall acting as a line between the white beach and the green maintained lawn. The exotic trees and regular spacing of the peppermints are quite formal and are in keeping with the university grounds behind the beach area.

Vegetation

Much of the native vegetation has been replaced by exotic species or is very degraded. There is some remnant woodland adjacent to Sunset Hospital. There is a young stand of marri which is hardly in its original condition; however it is an important barrier between the residential area on the hill and the foreshore beneath the escarpment.

The vegetation at Matilda Bay has some native species; however, there are several thriving exotic species. To the viewer the vegetation appears 'naturalistic'. There are several stands of rushes which are adjacent to the foreshore and have a softening effect along the beach and around the lakes. Irregular clumps of sheoak and ti tree emerge from the surrounding reeds and low form bushes. The effect is unordered and natural. In comparison, J. H. Abrahams Park has bushes which are planted in between maintained lawn. Native species (although not endemic) have been planted in curved nested forms indicative of a well landscaped garden and its ordered form is quite attractive and pleasing to many viewers. At Matilda Bay, exotic species and peppermint trees have been planted in linear regular forms. The trees have been trimmed into more ordered shapes and are in keeping with the well ordered lawn. There are no understorey species, and as a result the effect is of a parkland. This is in keeping with the area, as the University of Western Australia has well ordered transformist gardens.

Riparian land use

The precinct has several foreshore land uses which are water orientated. The Tawarri Function Centre is nested in the base of the escarpment adjacent to the Sunset Hospital. The 1950s flat international style incorporates the original 'The Dome' of the 'Hot Pool'.

The style is generally considered unattractive although it is typical of the 1950s style which is becoming increasingly appreciated by the public as an important architectural character. It is isolated being at the end of a no through road and at the base of the escarpment and is not a dominant feature of the riparian zone, however it is significant for its historic value.

Jo Jo's Restaurant is a prominent land use at Nedlands, as it is the original wooden baths which jut out into the water. The adjacent oval, linear nature of the banks and the bright blue roof make the building isolated and a dominant feature. In contrast, the club house, CALM buildings, and Matilda Bay restaurant are less intrusive on the landscape. The curved bay and adjacent trees minimise the buildings' form and they nest into the relatively flat landform. The northern club houses in Matilda Bay are functional in style and though quite prominent on the landscape are not uncharacteristic with the riparian nature of their location. The new wall at Matilda Bay acts as a physical barrier separating the beach from the grassed banks. It would have been preferable to have these elements merging rather than a linear barrier.

The limestone wall adjacent to Kennedy Spring has steps which enter the water. Unfortunately, due to the cutting away of the foreshore sediment and the adjacent busy road, the water access they were designed to allow, is rarely used. Their attractive formal form would have once been linked to the Arcadian landscape of Kennedy Springs; however they have become isolated to the viewer and user. The Swan Brewery site, has the potential to reduce the isolation of the river from the adjacent landscape. At present, the nature of the redevelopment is rather controversial, many favouring the site to become parkland. The redevelopment which has taken place is in keeping with the original Federation warehouse style.

Land use

The Dalkeith houses which are lined along the steep escarpment are varied in style and prominence. In general, they are extravagant in style and are built in the extreme fashions popular at the time of construction. Unlike the Claremont houses, due to the topography, only one row of houses can be viewed from the river, giving a linear effect on top of the edge of the cliff face. There is little cliff vegetation and retaining walls have been built on the cliff, resulting in visually unlinked landscape elements.

The Sunset Hospital is made up of several buildings in the typical institutional and functional style of the turn of the century. The property has several mature trees and as a result the hospital is not a prominent feature on the landscape.

However, all water users in the area will be familiar with the white letters of 'Sunset' which are set in a cleared garden on the escarpment.

The Nedlands residential area is well set back from the foreshore. It is on flat land and the buildings are mixed bungalows, townhouses and low multistorey units. Adjacent to the Nedlands' ovals the properties have long frontages which act as a residential/ recreational transition zone. However, east of Broadway, all the properties which front onto the parkland are walled and create a linear barrier between the park and the residences. Parking along Hackett Drive obscures the view of the river and the road spoils the continuity between the university grounds and the Matilda Bay foreshore.

Kings Park provides a pleasant backdrop to the city as well as a spectacular view of the city and river environs. From the river, the viewer is presented with 'naturalistic' vegetation of the Kings Park escarpment and this is an important respite from the heavily urbanised river. From Forrest Drive the viewer is presented with a foreground of woodland and the wide expanse of Melville Water. The road beneath is not visible and the scene is very attractive. From Fraser Avenue, there is a view of the city, South Perth and both Melville and Perth Waters. The view is framed by the tall linear sugar gum trees and the attractive scene is one of the most viewed landscapes in the State. The water body is the dominant element and that which makes the view attractive. The Narrows Bridge and associated ring roads detract from the scene but are dominant elements of the landscape. The plane trees are attractive specimens which give a promenade effect along Mounts Bay Road. They are also in keeping with the almost Arcadian landscape of Kennedy Springs and the Federation style Swan Brewery.

Landscape Interpretation

Dominant Landscape Character

The original natural landscape character type of undulating paleo dune forms with limestone outcrops is still evident in parts of this landscape. Originally the vegetation would have ranged from open eucalyptus woodland to shrubland throughout much of the precinct. Today, despite the presence of Mounts Bay Road, significant vegetation disturbance and quarrying, from a distance the southern side of the park appears as a relatively natural vegetation community. The bushland section of the park including the escarpment long the road has therefore been characterised as a natural landscape.

The southern side of Pelican Point has been classified as a natural landscape character as the original Vasse vegetation and landform appear relatively unaltered and natural.

The present landscape character type along most of the foreshore area is a parkland/ recreation character. This ranges from remnant woodland communities at Point Resolution and at Birdwood Avenue, to open playing fields with remnant and planted trees. Kings Park is an important landscape element for being a large and prominent section of the precinct. The foreshore and Point Lewis end of the park has grassed areas and recreational facilities. This section has been classified as a parkland/recreational landscape character type.

The Dalkeith, Nedlands and Crawley section of the foreshore has been classified as a suburban landscape. The Dalkeith suburban landscape has prominent and grand styled houses which edge the limestone escarpment. The Nedlands houses are less prominent from the river landscape while there are several tall units at Crawley.

Significant Viewscapes

From the Nedlands and Dalkeith foreshores there are attractive views of the broad Melville Water. Similarly from the river the viewer can see the limestone escarpment of Dalkeith grading to the flat Nedlands foreshore and the curved Pelican Point. Pelican Point provides a dramatic panoramic view of Melville Water and Matilda Bay. The horizon from Pelican Point is limited by the limestone escarpment of Kings Park and the dune forms of the opposite Melville foreshore. From Matilda Bay, there is a significant viewscape which is framed by the curve of the Bay and faces South Perth foreshore. From the water of Matilda Bay the viewer has a panoramic view of the curve of Matilda Bay and Melville Water. From the southern section of Kings Park, there are several locations which provide a panoramic view of the river and the opposite foreshores.

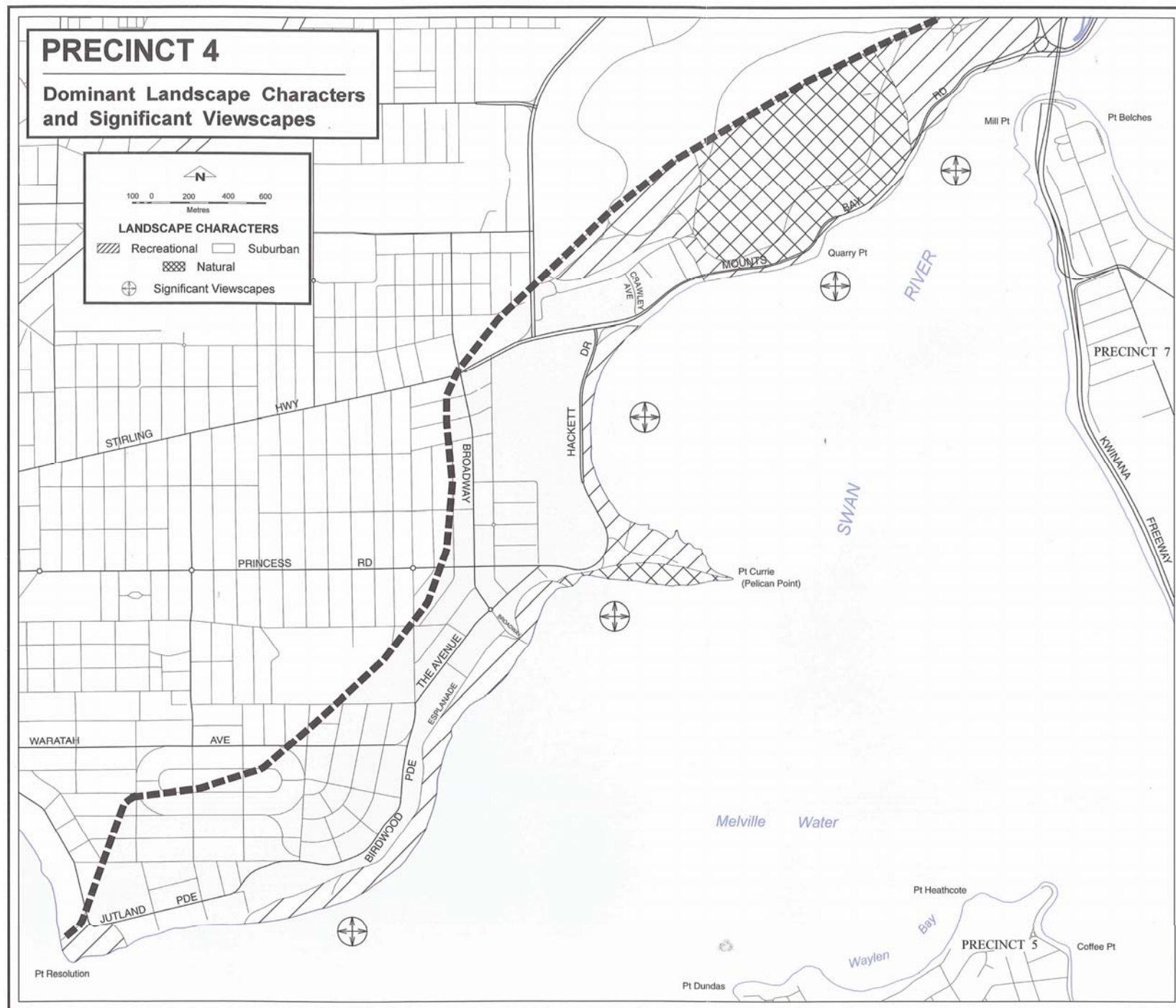
Conforming and Non Conforming Elements in the Landscape

Kings Park is a very important feature of the Perth region. It is unfortunate that the once majestic headland which jutted into the river at Lewis Point is no longer present; the Narrows Bridge and Mounts Bay Road landfill now detract from the landform and are dominant elements of this region.

Kennedy Spring is a popular picnic spot as its parkland landscape is attractive to viewers with European landscape values. Unfortunately, this enclave is separated from the river by Mounts Bay Road. The adjacent new car park at the Swan Brewery is so far incomplete and to the road user is unattractive and presents opportunities to increase the landscape amenity. The concrete safety barriers are visually unattractive and there is opportunity to minimise visual impact.

The parking along Hackett Drive obscures the river views and the continuity between the park and the university grounds. The Matilda Bay kiosk has a style which is not in keeping with the adjacent university and the recreated Matilda Bay jetties. The new limestone riparian wall at Matilda Bay creates an artificial line between the beach and grassy banks. The Matilda Bay view of the river is pleasing due to Kings Park in the background and the riparian elements such as the boat moorings in the foreground.

The walled foreshore at Nedlands is not particularly attractive and there are opportunities to improve the foreshore amenity.



Recommendations for Maintenance and Enhancement of the Present Landscape Character

- Mounts Bay Road is a narrow suburban landscape which could be enhanced to compliment the adjoining natural landscape of Kings Park. Mounts Bay Road's prominence could be decreased and enhancement of the foreshore landscape could be improved. Landscaping could be used to link the Brewery with the native species present on the adjacent escarpment.
- A concept plan has been produced by CALM (1992) for Matilda Bay reserve highlighting the need for improved parking. In particular the parking along Hackett Drive obscures the river views and the continuity between the park and the university grounds. The kiosk style is not in keeping with the reserve and it would be beneficial have it modified to a style which is in keeping with the adjacent university and with the recreated Matilda Bay jetties. It is unfortunate that the limestone riparian wall was built along the foreshore as it creates an artificial line between the beach and grassy banks. The Matilda Bay view of the river is pleasing due to Kings Park in the background and the riparian elements such as the boat moorings in the foreground.
- Along Nedlands foreshore it would be visually beneficial to recreate some of the sandy beaches which once were present before the land reclamation and retaining walls were constructed. By creating an undulating foreshore and areas of small sandy beach, the visual quality of the area would be improved. There may be problems with developing the sandy beaches due to the prevailing weather conditions, however this may be overcome by planting riparian species which would not only stabilise the beach but would also create a 'naturalistic effect'. It would be beneficial to have vegetation adjacent to the present Nedlands foreshore oval. This would help alleviate the sparseness of the foreshore, and clever landscaping could make the land attractive. The landscaping does not have to be naturalistic; however it may be useful to model the landscaping on Beaton Park where native species have been successfully planted on an undulating landform. This will ensure that the vegetation is in keeping with the remaining bushland, but has a park land spacing indicative of its use.

Landscape Interpretation

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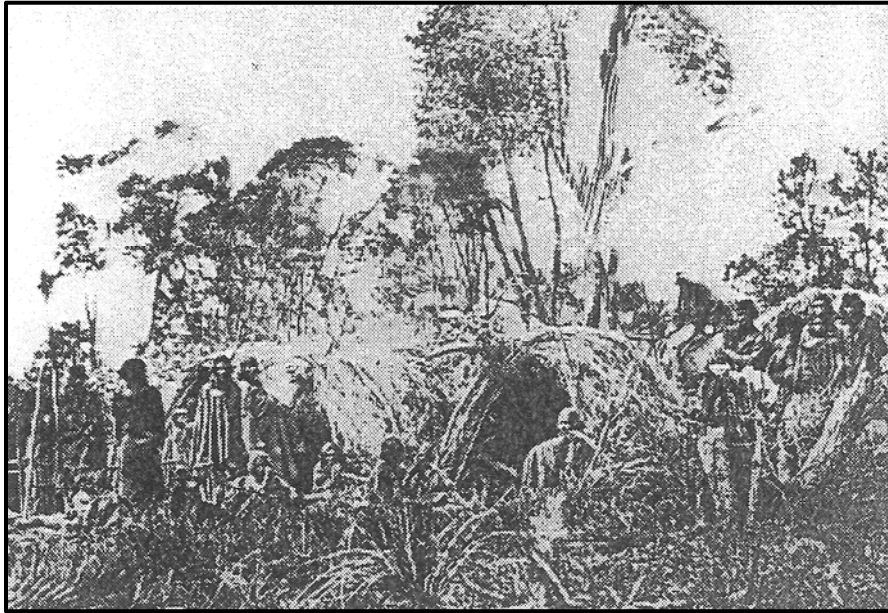
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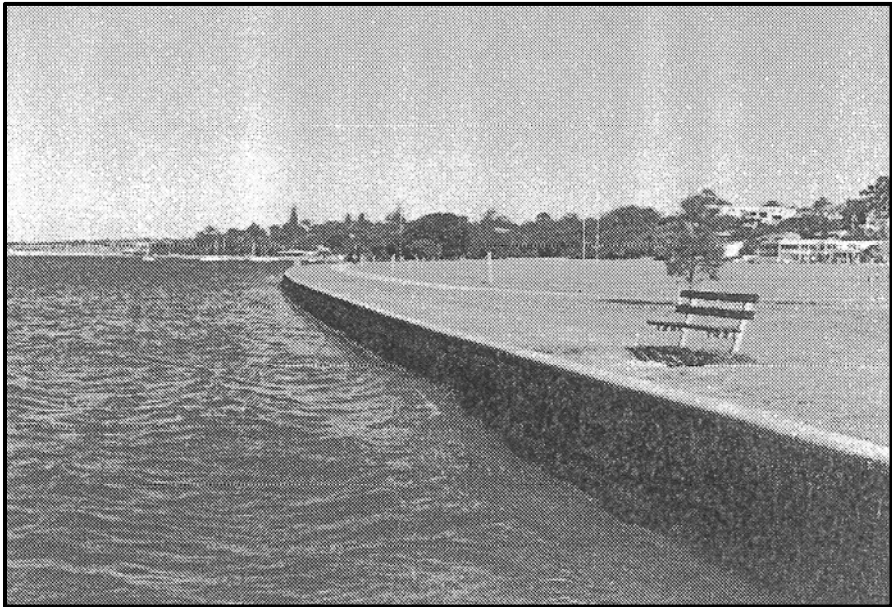
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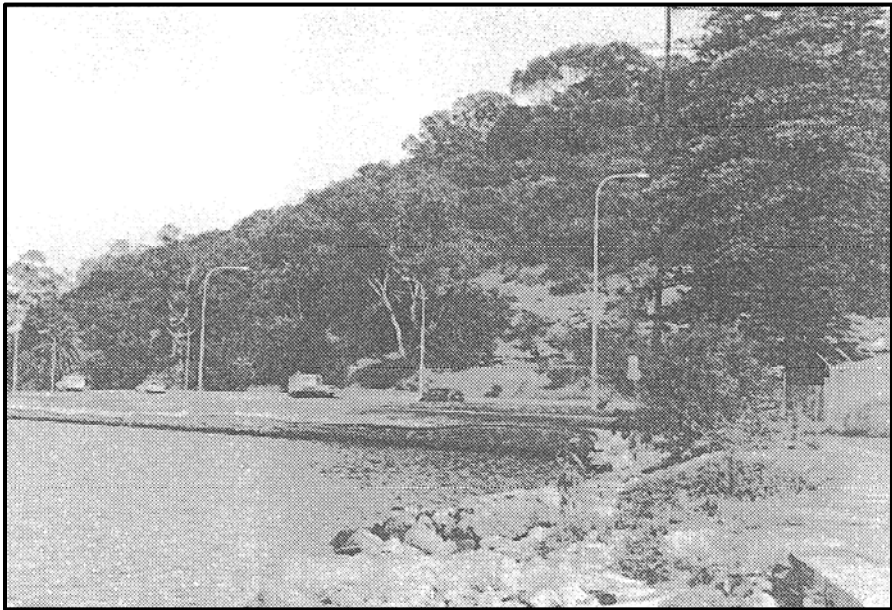
Nyungar camp at Pelican Point (Crawley Point), c1865.
Battye Library 5033P.



View from Swan Brewery, c1900.



Nedlands foreshore, view from Jo-Jo's jetty, 1997.
Swan River Trust.



Cliff face of Kings Park from Old Swan Brewery, 1997.
Swan River Trust.