



SUMMARY REPORT

Gap Park Masterplan



Prepared for Woollahra Municipal Council by:

Thompson Berrill Landscape Design Pty Ltd

MARCH 2008

TABLE OF CONTENTS

	Page No.
Acknowledgments	1
1.0 INTRODUCTION	2
1.1 The Brief	2
1.2 Project Methodology	3
1.3 Consultation	4
2.0 BACKGROUND CONTEXT	5
2.1 Site Context	5
2.1.1 Site Location and Description	5
2.1.2 Regional Significance	5
2.2 Landscape Analysis	5
2.2.1 Landform	5
2.2.2 History	6
2.2.3 Geology	7
2.2.4 Visual Analysis	7
2.2.5 Historical Infrastructure	8
2.2.6 Vegetation Areas	9
2.2.7 Fauna	10
2.2.8 Visitor Patterns	10
2.3 Landscape Infrastructure	11
2.3.1 Entries/Lookouts	11
2.3.2 Access	12
2.3.3 Lighting	12
2.3.4 Signage	12
2.3.5 Park Infrastructure	13
3.0 MASTERPLAN RECOMMENDATIONS	14
3.1 Cultural	14
3.1.1 Gap Park Former Tramway	14
3.1.2 Adjacent Churches	14
3.1.3 The Gunyah	14
3.1.4 Additional Cultural Works	14
3.2 History	14
3.2.1 The Dunbar Anchor	14
3.2.2 Jacob's Ladder	14
3.2.3 Grieve Memorial	14
3.2.4 Former Gun Emplacements	14
3.2.5 Former 'Camera Obscura'	15

3.3	Visual	15
	3.3.1 Surrounding Views	15
	3.3.2 Pathway Site Lines	15
	3.3.3 Norfolk Island Pines	15
	3.3.4 Lookout Platforms	15
	3.3.5 Views to Adjacent Historic Buildings	15
3.4	Environment	15
	3.4.1 High Diversity Remnant Heathland	15
	3.4.2 High Diversity Revegetation Areas	15
	3.4.3 Lower Diversity Revegetation Areas	15
	3.4.4 Littoral Rainforest	15
	3.4.5 Entry Plantings	16
	3.4.6 Trees within Gap Park	16
	3.4.7 Habitat Boardwalks	16
3.5	Safety	16
	3.5.1 General	16
	3.5.2 Balustrades	16
	3.5.3 Cultural Programs	16
	3.5.4 Memorial Plantings	16
	3.5.5 Bicycle Refuge	17
3.6	Recreation	17
	3.6.1 Walking and Jogging	17
	3.6.2 Picnicking	17
	3.6.3 All Ability Access	17
	3.6.4 Bicycles	17
	3.6.5 Bird Watching	17
	3.6.6 Whale Watching	17
	3.6.7 Photography	17
3.7	Landscape Infrastructure	18
	3.7.1 Entries	18
	3.7.2 Access	19
	3.7.3 Lighting	20
	3.7.4 Signage	20
	3.7.5 Park Infrastructure	20
3.8	Self Harm Minimisation Strategies	20
	3.8.1 Lighting	20
	3.8.2 Safety Telephone	21
	3.8.3 Proposed Fencing at Key Locations	22
	3.8.4 Signage	22
	3.8.5 Closed Circuit Television	22
4.0	PRELIMINARY OPINION OF PROBABLE COST	23
5.0	BIBLIOGRAPHY	27

APPENDICES

APPENDIX A REPORT

Gap Park Masterplan: Aboriginal Archaeological Investigation (by others)

APPENDIX B REPORT

Gap Park Masterplan: Fauna Report (by others)

APPENDIX C SUMMARY

Gap Park Masterplan: Background Document Summary

APPENDIX D MEETING MINUTES

Gap Park Masterplan: Council Officer Working Group Meeting #1

APPENDIX E MEETING MINUTES

Gap Park Masterplan: Council Officer Working Group Meeting #2

APPENDIX F MEETING MINUTES

Gap Park Masterplan: Council Officer Working Group Meeting #3

APPENDIX G MEETING MINUTES

Gap Park Masterplan: Suicide Prevention Forum

APPENDIX H MEETING MINUTES

Gap Park Masterplan: Community Safety Committee Meeting

APPENDIX I MEETING MINUTES

Gap Park Masterplan: Community Workshop

APPENDIX J SUMMARY

Gap Park Masterplan: Site Visitor Survey Summary

APPENDIX K INDEX OF IMAGERY BOARDS

Gap Park Imagery: Flora and Fauna

Gap Park Imagery: Landscape Types

Gap Park Imagery: Park Visitors

Gap Park Imagery: The Dunbar

Gap Park Imagery: Trams

APPENDIX L INDEX OF DRAWINGS

GPMP-01 Gap Park Masterplan: Overall Masterplan March 2008

GPMP-02 Gap Park Masterplan: North and South Entries Plan March 2008

GPMP-03 Gap Park Masterplan: Self Harm Minimisation Plan March 2008

ACKNOWLEDGMENTS

The Gap Park Masterplan was commissioned by the Woollahra Municipal Council in early 2007. The project has been guided by a Project Working Group comprising of representatives from Woollahra Municipal Council. Other organisations were involved throughout the project, relative to each stage of the project. This group met throughout the project, and contributed to the development of the plan. The Group included the following members of staff:

Woollahra Municipal Council

David Sheils, Open Space Manager, Woollahra Municipal Council
Rod Ward, Project Manager - Open Space, Woollahra Municipal Council
Warwick Hatton, Parks Technical Officer, Woollahra Municipal Council
Bruce Rann, Parks and Street Trees Officer, Woollahra Municipal Council
Phillip Julian, Parks Technical Officer, Woollahra Municipal Council
Greg Stewart, Manager - Public Infrastructure, Woollahra Municipal Council
Alan Opera, Team Leader - Traffic, Woollahra Municipal Council
Paul Fraser, Parks and Recreational Co-ordinator, Woollahra Municipal Council
Jeff Hill, Team Leader Bushland, Woollahra Municipal Council
Llewallyn Jones, Parks Coordinator, Woollahra Municipal Council
Rudi Adlmayer, Bushland Officer, Woollahra Municipal Council
Orla Burke, Community Services Officer, Woollahra Municipal Council
Isabelle Shapiro, Councillor, Woollahra Municipal Council

Prince of Wales Hospital

Marianne O'Donnell, Prince of Wales Hospital
Peter Clout, Prince of Wales Hospital

Lifeline

Graham James, Lifeline

Rose Bay Police Station

Allan Baines, Police Officer, Rose Bay Police Station
Greg Shrimpton, Police Constable, Rose Bay Police Station

National Parks and Wildlife Services of NSW

David Costello, National Parks and Wildlife Services of NSW

TBLD would like to thank the Project Working Group for their guidance and input to the development of this plan.

1.0 INTRODUCTION

1.1 THE BRIEF

Woollahra Municipal Council commissioned The Gap Park Masterplan in early 2007 to guide the future improvements to the park, and address a number of pre-existing social, environmental and recreational issues.

The impact of the high visitation numbers has seen the existing park infrastructure decline over the years since the last substantial landscape works were completed by council in 1982. Since that time works have focussed on bush regeneration, with small improvements made such as the viewing area near the Grieve Memorial at the southern end of the park, and the renewal of the coastal fence.

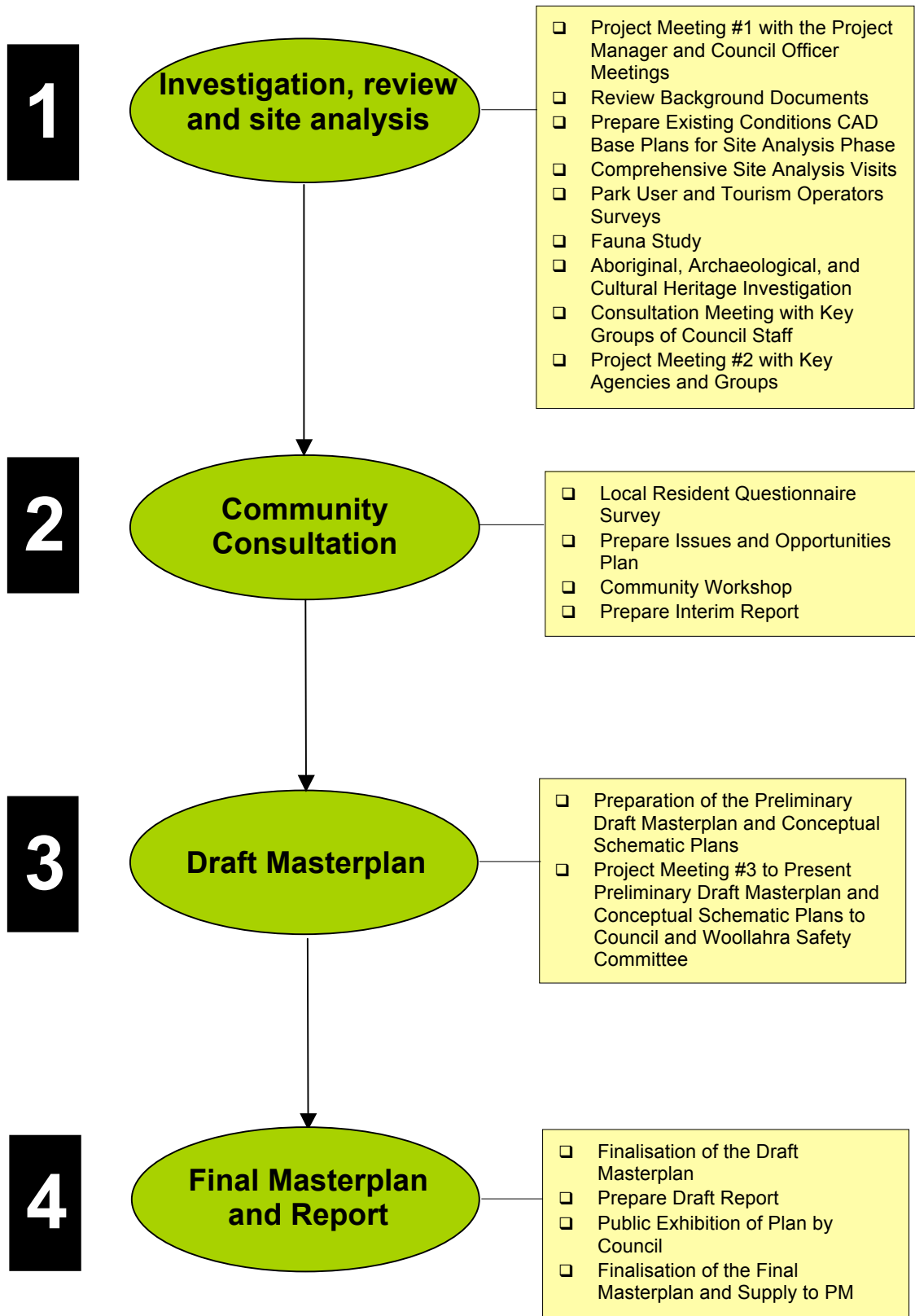
Development of the Masterplan involved thorough site analysis investigations, to understand the ecology, geology, user group patterns, and indigenous and European history within the park. The Masterplan was to be developed in consultation with community and stakeholder groups, with the outcomes of these consultations informing the resolution of the Masterplan.

The guidelines and principles of relevant documents and plans previously prepared for this municipality were reviewed in the preparation of the Masterplan. These documents include: Council's Woollahra Crime Prevention Plan 2007; the Woollahra Outdoor Recreation and Open Space Strategy 1992; Woollahra Recreational Needs Assessment and Strategy 2006; Council's Woollahra Bike Plan 2000, which notes utilisation of the former tramline route as a all-ability shared access path and the Watson's Bay Heritage Conservation Area DCP 2004, which discusses future tree plantings, views, and lighting of the park.

Council's project brief outlines development of a landscape Masterplan that will:

- Build on the existing character of the park
- Guide the ongoing development and maintenance of the park
- Improve passive recreational opportunities while protecting the natural and cultural values of the park
- Maintain the ecological integrity of the bushland environment that characterises the park
- Interpret the cultural and natural heritage of the park
- Provide improved access for mobility impaired visitors

1.2 PROJECT METHODOLOGY



1.3 CONSULTATION

The comprehensive consultation process undertaken in preparation of the draft Masterplan included:

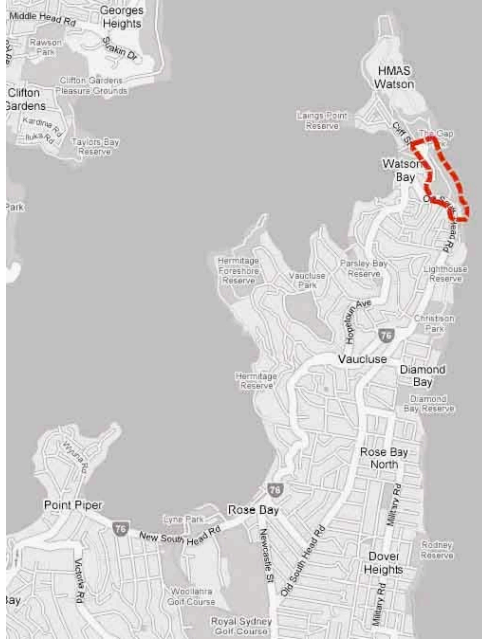
- Consultation workshops with Council's Community Safety Committee (refer Annexure F).
- Self-Harm Minimisation Workshop with representatives including: Rose Bay Police; the Woollahra Community Safety Committee; Lifeline, National Parks and Wildlife Service of NSW; Southern Sydney Mental Health Unit; a resident who had lost a family member through self-harm at Gap Park; Councillor Shapiro (as chair of Council's Safety Committee); and Director Warwick Hatton and Woollahra Council staff to discuss the issue of self-harm and measures that could be investigated to reduce the incidence at Gap Park (refer Annexure E).
- Questionnaires distributed to 600 surrounding residents seeking feedback including issues residents would like addressed in the Masterplan. The questionnaire was also made available through Woollahra Libraries and online through Council's website. Eighty-six were returned (refer Annexure H).
- Ninety-seven on site interviews conducted with a range of park visitors (refer Annexure H).
- Community Workshop held at the Vaucluse Yacht Club, Watson's Bay (refer Annexure G).
- Presentation of the preliminary self-harm minimisation strategies to the Woollahra Community Safety Committee.
- Presentation to Councillors 29 October 2007.

2.0 BACKGROUND CONTEXT

2.1 SITE CONTEXT

2.1.1 Site Location and Description

Gap Park is located on the Sydney Harbour's South Head, and covers a coastal escarpment area of approximately 4.7 hectares. It is bounded on the north by National Parks and Wildlife Services land, on the east by the Tasman Sea, and on the west by a group of historic church buildings and Old South Head Road, Watson's Bay (refer Diagram 01). The site is characterised by areas of high diversity remnant bush regeneration areas, revegetation areas, some open space to the south and dramatic sandstone cliffs along the coastal route. The park offers spectacular 360 degree views across Sydney Harbour, out over the Tasman Sea, and across to North Head. Interesting significant heritage items such as The Dunbar shipwreck relics, gun emplacements and tramline remnants are also contained in this superb natural environment. Visitors currently access the site by car, bus, and ferry services.



Gap Park Location Diagram 01

2.1.2 Regional Significance

Gap Park is within the very eastern portion of Sydney Harbour's open space network, located to the south of South Head. Remnant vegetation areas to the centre of the site are recognised by council to be of importance to the local region. Gap Park is one of the premier tourist attractions of Sydney for local, regional, national, and international visitors, who come to admire the incredible beauty and views offered by the park. Unfortunately, the site is also known as a location of self harm.

2.2 LANDSCAPE ANALYSIS

2.2.1 Landform

The landform of Gap Park has been shaped by the forces of time, nature and geology. More recently, humans have had a significant impact on the park. This impact has been most obvious since European settlement in Australia. Before European occupation of Australia, the landscape of Gap Park was very different to what it is today. Early descriptions tell of a predominately open heathland, characterised by large exposed sandstone boulders and wind-pruned endemic heath species.

The earliest works in Gap Park were carried out in 1920, when Vaucluse Council implemented a series of asphalt paths, with a safety light at the intersection of these paths and the tramline. In 1934 improvements to the park were undertaken including new fences, seats, toilets, and clearing some existing building and weed growth.

Evidence of the impact of early Europeans on the site can again be found at the south of the park. When the tramline was opened through the park in 1909, a path was carved

through the underlying sandstone so the tram could descend through the site on an even grade. Council records from 1964 note that after the tramline was decommissioned in 1960, council filled in the “old tramway cutting with the object of restoring the area”. In 1966 extensive work had been carried out here, to sculpt the landscape here into what it is today “including stone revetments, regrading, topdressing....”

In the 1980s council began a bush regeneration program at Gap Park. In 1981 Council's Landscape Architect, Noel Rutting, designed the planting of Queensland littoral rainforest species in the deepest part of the Jacob's Ladder Gully, that exist today.

The cliffs and escarpments along the eastern boundary form the highest part of the site, and are exposed to the coastal winds of the Tasman Sea. From here the park slopes towards Sydney harbour. A level change runs longitudinally through the park, steeper in some areas than others, and separates the western and eastern areas. The western boundary is the lowest part of the site, with greater protection from the elements.



Gap Park escarpment

Jacob's Ladder is a low point that dissects the site. It forms a valley that runs northwest, from the cliffs at southeast corner of the park, to the intersection of Gap Road and Dunbar Street. As a localised low point, water draining off the site also follows the path of this valley.

2.2.2 History

Aboriginal

An Aboriginal archaeological assessment was commissioned prior to the development of the Gap Park Masterplan (AHMS, 2007). This report noted that although coast dwelling Aboriginals undoubtedly inhabited this local area, no evidence or artefacts were found within the site. Acknowledgement of the Gadigal People as the traditional owners of the land will be included in interpretative signage.

European

Gap Park was formally designated as a public reserve on 28th June 1887. A tramline running from Sydney's CBD to Signal Hill Station was extended to Gap Park in 1909. In 1960 the trams ceased, and the tracks were removed. In 1964 council filled in the 'old tramway cutting with the object of restoring the area'.

At the turn of the 19th century Caesar Anthony Colonna engaged Lassetter & Co. to erect a “camera obscura”, housed in an octagonal red wood building, at Gap Park. In 1901 Vaucluse Council ordered the building removed. The building was locked up, until forcibly removed by the military authorities in 1914. Telescopes for hire were installed at the park in the 1930s.

The Grieve memorial was unveiled in December 1900. This was erected in memory of Gideon James Grieve who was killed at the battle of Paardeberg, South Africa, in February 1900.

The Dunbar was wrecked to the south of Jacob's Ladder in 1857, with a resulting 121 casualties, and only one survivor. Its Admiralty anchor was retrieved in 1910, and erected as a memorial in 1930.

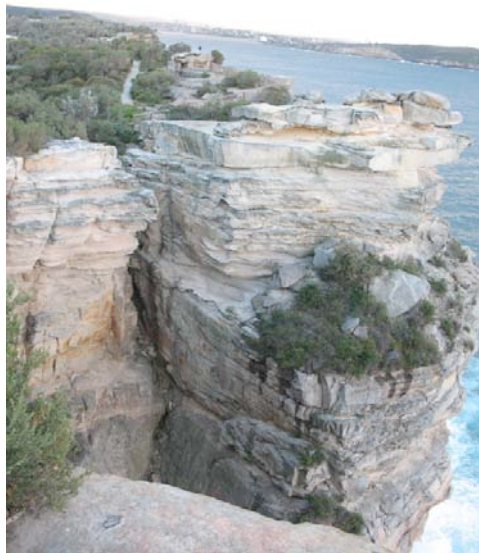
The World War II gun emplacement was for a small calibre gun, which was never installed.



Historic elements

2.2.3 Geology

Sedimentary Hawkesbury sandstone is the underlying bedrock across the park, and is particularly visible along the cliffs and escarpments along the eastern boundary. These cliffs have been shaped by the forces of wind and water acting on them over thousands of years.



Sandstone cliffs and "Jacob's Ladder"

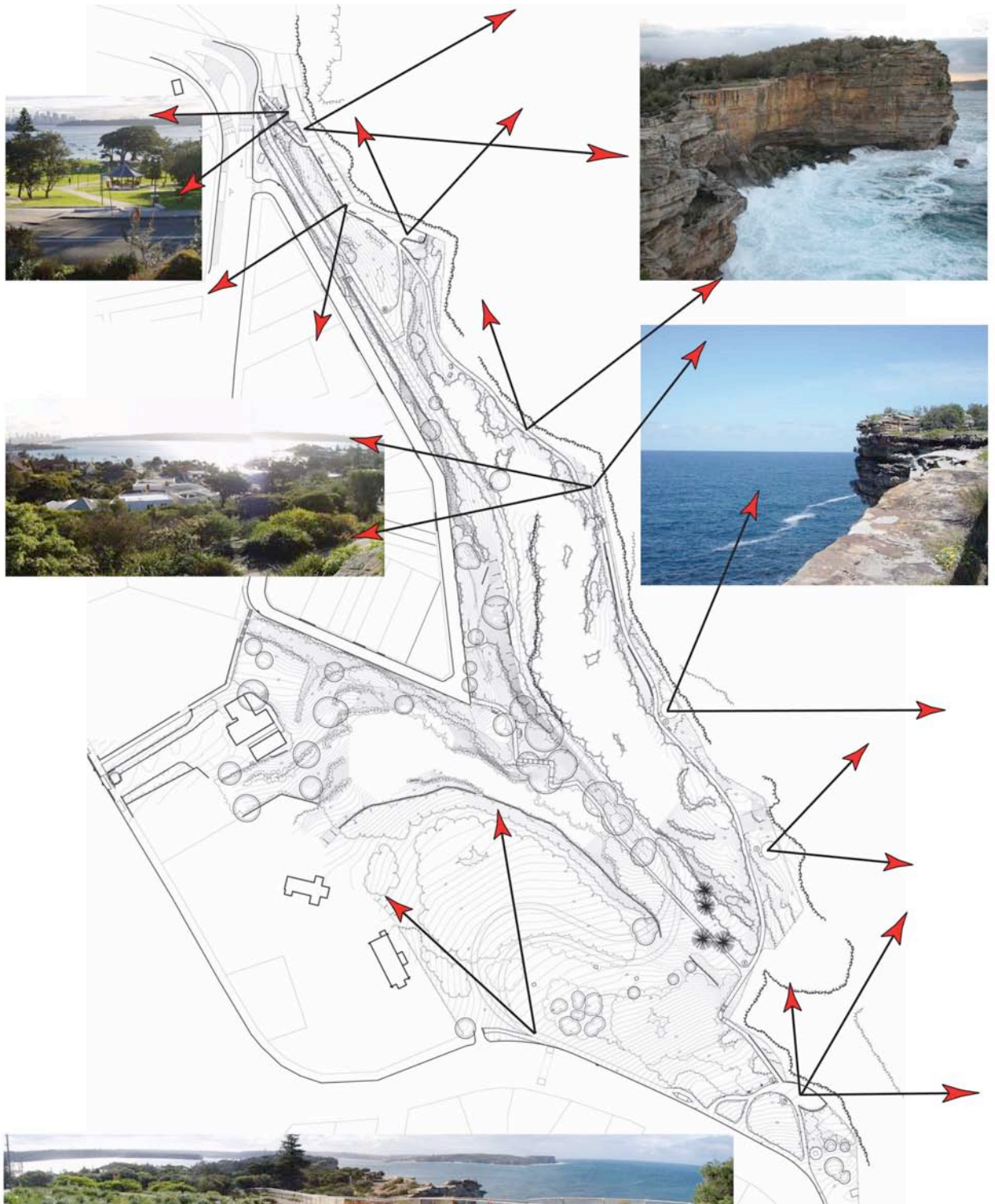
In some parts, the level change running longitudinally through the middle of the park is visible as an exposed sandstone drop-off. Deeper sandy loam soils occur in the low western boundary of the site.

The valley of Jacob's Ladder is formed by geological dyke. Igneous material was deposited along this valley by volcanic lava thousands of years ago. This lava cooled and hardened into basalt, and the sedimentary Hawkesbury sandstone formed above this. Over time, the sandstone was eroded to expose the basalt. The basalt was more easily eroded than the sandstone, and thus formed the low valley along the site that we see today.

2.2.4 Visual Analysis

The highest part of the site is along the cliffs and escarpments of the eastern boundary. Along the coastal path of this boundary there are spectacular panoramic views of waves crashing into the sandstone cliffs, across the ocean, and towards Sydney harbour and the CBD. It is these 360° views that Gap Park is most famous for, and it is the main reason for such high visitation of the site (refer Diagram 02).

The southern end of the site also offers expansive views across Gap Park, the ocean, and Sydney harbour. The views from here have been significantly reduced since the 1980s bush regeneration plantings of non-endemic native species, which followed the 1960s landfilling of the area and the existing tramline cutting.



Gap Park view corridors Diagram 02

2.2.5 Historical Infrastructure

Historically, Gap Park had far more infrastructure than it does today. There was a tramline through the park, electrical connections, information signage, a public telephone, and some lighting. There is little of this infrastructure remaining in Gap Park today. The tramline (along with its electrical connections and power poles) was decommissioned in 1960. The information signage, public telephone and lighting were removed by council in the 1980s after repeated incidents of vandalism.

The pathways of Gap Park tell a story of their own, and are a unique part of the fabric of the park. Concrete with exposed aggregate is used throughout the park, and was selected because of its durable nature. The concrete of The Gap viewing area is particularly distinctive, and visually articulate the harsh natural conditions of the site. The remnant original concrete paving from the former “Gap Loop” tram station to The Gap viewing area also tells its own tale of the former access to the site. In other areas, such as the littoral rainforest part of Jacob’s Ladder, the concrete was textured to provide grip. Parts of the existing paving, such as is evident along the coastal path, are lifting and require attention.



Concrete with exposed aggregate is used throughout the park, and was selected because of its durable nature. The concrete of The Gap viewing area is particularly distinctive, and visually articulate the harsh natural conditions of the site. The remnant original concrete paving from the former “Gap Loop” tram station to The Gap viewing area also tells its own tale of the former access to the site. In other areas, such as the littoral rainforest part of Jacob’s Ladder, the concrete was textured to provide grip. Parts of the existing paving, such as is evident along the coastal path, are lifting and require attention.

Before recent council fencing upgrades, the barrier fencing was a low timber fence with horizontal rails, and no infill. Evidence of this original fence exists in some locations.

Remnant concrete paving from the former tram station

2.2.6 Vegetation Areas

TBLD has developed descriptive titles for the existing vegetation areas that characterise the site, for the purpose of the Masterplan. These are based on character and dominant vegetation types, determining areas for corresponding recommendations (see GPMP-01). Typical characteristics of each area are as follows:

High Diversity Remnant Heathland Regeneration Areas

- Excellent diversity and quality of endemic species
- Provides fauna with habitat, and movement corridor
- Some hidden dangerous sandstone drop-offs within the area
- No signage informing users of diverse fauna of flora present
- Since 1988 area has been weeded but not ‘revegetated’ as in parts of Gap Park
- Provides a rare example of the pre-European remnant vegetation of this region

High Diversity Revegetation Areas

- Example of high quality bush regeneration
- In the 1980s a bush regeneration program was begun at Gap Park
- Inaccessible to the public

Lower Diversity Revegetation Areas

- In the 1980s a bush regeneration program was begun at Gap Park
- Lower quality bushland, with low species diversity
- Poor soil conditions from extensive previous land filling on site
- Plants originally planted here from Ku-ring-gai National Park seed stock
- Invasive weeds dominate the area
- Poor edge condition
- Areas continues to encroach on former pedestrian paths and open space areas and diminish these values
- Creates enclosed spaces and an informal path network
- Fauna habitat

Littoral Rainforest

- Unique vegetation community, dominated by Queensland species
- One of few rare areas of respite within Gap Park
- Dense shade
- Weed infestation of ground layer

Entry Plantings

At Jacob's Ladder there are lower height ground cover species, designed to maximize ocean views for users and nearby residents. These plantings provide a sense of arrival for visitors to Gap Park, but are sparse, and limited in their poor diversity.

Trees

From review of historical photos, it appears trees did not previously exist in the pre-European landscape of Gap Park. However, the cultural plantings are now an iconic part of the park, and native trees provide habitat.

2.2.7 Fauna

Gap Park forms an important fauna habitat link from South Head to the coastal regions to the south of the park. Ecological Australia was commissioned to provide a fauna report, to assist in the development of the Gap Park Masterplan. Nineteen species of bird and one mammal species were recorded during their site inspection of Gap Park. The majority of the bird species are native species, and one considered to be common in the Sydney area. Three bird species, the common starling, the house sparrow, and feral pigeon, are introduced species. The mammal species observed, the domestic dog, is also an introduced species (Ecology Australia 2007).

A variety of bird and aquatic animals have been recorded in and around the park. Refer Appendix B for further information, including a species list for Gap Park.

2.2.8 Visitor Patterns

Gap Park is highly used by local, regional, state-wide, national, and international user groups. Site surveys and questionnaires found it to be busiest on weekends and holiday periods, particularly by regional and state-wide users, but it is also frequently visited throughout the week by national and international tourists.

Most visitors come to Gap Park for the views and to enjoy the natural attributes of the park, but are largely unaware of the rich history of the site. Many visitors visit Gap Park in conjunction with other nearby activities, such as visiting Watson's Bay, or dining at Doyles restaurant.

Local users prefer to visit the site when there are less people there, such as mornings and afternoons during the week. These visitors often use the quieter tracks such as the former tram alignment.

International visitors were found to come from a broad range of countries, with the majority coming from within Asia. Many of the international visitors come to the site as part of a tour or school group, and these groups are found at the site throughout the week. Some tour groups visit the site at dawn, when the visitor's planes have just arrived, but their hotel rooms are not yet available. These visitors use the nearby Robertson Park toilet facilities, which has an impact on these local park facilities.

Very few people visit the site after dusk as there is no lighting on the site, and the overgrown vegetation also creates areas of isolation. The isolated nature of the coastal pathway is a public safety risk, due the distance from residential areas and lack of sight lines.

Refer to Appendix J for the Site Visitor Survey and Questionnaire findings.

2.3 LANDSCAPE INFRASTRUCTURE

2.3.1 Entries / Lookouts

The Gap Viewing Area

Currently, The Gap viewing area as it is known is in a deteriorated state from a combination of benign neglect and harsh site conditions. This area has been neglected since landscape works in the 1980s, and consequently there is no seating provided, almost no signage, no lighting, the arrival experience is weak, there is no all-ability access, and the railing is outdated and damaged in places.



The Gap viewing area

Gap Loop Entry

The historic tram stop was named Gap Loop. Some of the original fabric of this tram stop still exists on the site, such as the paving that formed the original arrival experience to The Gap viewing area. This current path is well graded, but damaged in places, and also overgrown. Moreover, visitors currently have no awareness of the historical significance of this arrival point.

Jacob's Ladder Lookout Area

Jacob's Ladder lookout area is currently in quite good condition, after recent council works here in 2003. Since their installation, the arrival planting density has been affected by pedestrian impacts, and natural dieback. The planting is now sparse, and only holds a low variety of species. Also, there is almost no signage here, and no lighting exists.

Side Steps

A flight of original sandstone steps enter Gap Park from the northern end of Gap Road. These steps are in good condition, and some original steel bracket fixings can also be found here. However, the original hand railing is in poor condition.

Church Entries

The boundary between Gap Park and the adjacent church buildings at the south of the park are currently open and informal. This maintains the surrounding views, and



Church grounds at south of Gap Park

extends the park-like feel at this section of the site.

The road entry to the Gunyah building is poorly defined. The original cultural plantings have been removed, so the plantings here make no reference to the building's era. Parts of the carpark are also used as storage facilities for bush regeneration works. The rear entry to the building has been overplanted with bush regeneration works, resulting in a lack of adequate firebreak to the building.

Rainforest Gully

The rainforest gully in the lower section of the Jacobs Ladder fault is the shadiest and sheltered part of Gap Park, as the deep soils and lower winds here allow large trees to grow. Weeds have infested the ground layer of vegetation. The concrete path through this area is in satisfactory condition, and has been textured for foot grip. The existing hand railing is in poor condition. There is one rest area along this route, but the seat and surrounding area is of low quality, and overgrown with vegetation.

2.3.2 Access

Coastal Pathway

The coastal pathway runs along the length of the eastern boundary of Gap Park, along the high natural coastal escarpment. Most users access the site along this route because of the stunning panoramic views. The path is exposed to high winds, has little shade, and is quite narrow and requiring localised repair at certain locations. As the path follows the natural contour of the ground along its route, there are steps and steep grades prohibiting all-ability access for the entire coastal pathway. A series of informal rest and viewing areas exist along this path, and these areas and their access points are steep and degraded in areas.



Gap Park user on coastal pathway

Pathway along Former Tram Alignment

An informal path accesses the western part of the site, along the former tram alignment. The access route was evenly graded, for the tram to evenly descend through the site. However, the path surface is uneven and unsealed, and the base material for the tram tracks is exposed in places. The path is currently not well used by visitors as it is unsigned and concealed by overgrown vegetation in places, and is in poor condition.

2.3.3 Lighting

Gap Park currently has no lighting. There is evidence of previous lighting of the main entries to the park that was removed after they were damaged in the 1980s. The lack of lighting to the park entries means that site users are limited to visiting during daylight hours.

2.3.4 Signage

Interpretative, information, and directional signage have historically been erected across the site through, but almost all of these are now gone. Woollahra Municipal Council

maintenance team reported that many of these signs were vandalised, and others have been found at the base of the cliffs. These were never replaced, and hence Gap Park currently has very few signs. The lack of signage makes Gap Park disorientating, particularly for first time visitors.

2.3.5 Park Infrastructure

Park infrastructure through Gap Park is currently minimal. There is very little viewing seating, and even less seating in shaded locations. The seating and surrounding pads that are currently found in the park are of low quality. There are also very few picnic tables in the park. These are found in the south of the site (where many more were historically located) and are also of low quality.

Council recently upgraded the coastal fencing with a high quality 1300mm high stainless steel mesh fencing, to help minimise incidents of self harm or accidental injury. Before this upgrade the fencing was a low timber fence with horizontal rails, and limited or no infill.

3.0 MASTERPLAN RECOMMENDATIONS

The following Masterplan recommendations are in accordance with the publicly advertised Masterplan dated October 2007.

3.1 CULTURAL

3.1.1 Gap Park Former Tramway

Celebrate, interpret, and adaptively re-use the former tramway route as a 2.5m wide sealed, graded, all-ability shared access link between north and south of Gap Park. Protect and enhance the former tram station and "The Glen", with interpretive signage included.

3.1.2 Adjacent Churches

Interface with adjacent church buildings and grounds to be maintained as open and informal.

3.1.3 The Gunyah

Rationalise The Gunyah buildings front carpark, with some cultural plantings reinstated. Create a firebreak zone, particularly at rear, where dense plantings occur very close to building.

3.1.4 Additional Cultural Works

Investigate installation of interpretive memorial sculpture to James Johnson (sole survivor of The Dunbar wreck) near this location, from which he was rescued.

3.2 HISTORY

3.2.1 The Dunbar Anchor

The story of The Dunbar wreck, and some of the people involved (as well as origins of State Emergency Service formed here), to be told through the landscape and interpretation.

Protect and conserve historic anchor suffering from severe rust deterioration. Implement recommendations of archaeological condition report, including electrolysis treatment (off site), specialist treatment as part of an ongoing protection regime, and investigate reinstalling anchor to more sheltered location of the site.

3.2.2 Jacob's Ladder

Jacob's Ladder geology to be interpreted and signage shall explain its former use as a naval way-finding device.

3.2.3 Grieve Memorial

Grieve memorial to include information about the life of Lieutenant Gideon Grieve, and to be restored or protected as required.

3.2.4 Former Gun Emplacements

Gun emplacements to be restored or protected as required. Information shall be provided regarding the history, function and role of these former military installations.

3.2.5 Former Camera Obscura

Former location of camera obscura is to be sculpturally interpreted, with information regarding the history and workings of this unique historical feature.

3.3 VISUAL

3.3.1 Surrounding Views

The Masterplan recommends ongoing maintenance of visual access to the cliffs, ocean, city CBD, harbour and the heads. In some instances these views (that historically existed) can be improved through the selective removal or trimming of encroaching vegetation.

3.3.2 Pathway Site Lines

Improve visual access along pathways by selective removal or trimming of encroaching vegetation. Consequently, this will increase safety by improving public surveillance in this area.

3.3.3 Norfolk Island Pines

The existing Norfolk Island Pines (*Araucaria heterophylla*) significantly increase the visual signature of the park, when viewed from the harbour or land. These trees are of high cultural value to the site, and are to be retained and protected. Replace and strengthen with succession planting of same species.

3.3.4 Lookout Platforms

Views to sandstone cliffs and rock platforms shall be improved through the installation of a new lookout point, and improving existing points. New durable balustrade at the viewing area with historic timber 'angled' top rail, curved inwards design and increased height to deter access. Fixed binoculars may also be provided in certain locations, subject to future investigations.

3.3.5 Views to Adjacent Historic Buildings

Maintain open views from Gap Park to adjacent historic buildings in the south, and retain low open fence. Retain cultural plantings where appropriate, to preserve historic landscape character.

3.4 ENVIRONMENT

3.4.1 High Diversity Remnant Heathland Regeneration Areas

Found east of the former tram alignment, between Jacob's Ladder and The Gap lookout areas. These areas are to remain undeveloped and undisturbed. Bush regeneration works to concentrate work on maintaining the ecological quality of this zone.

3.4.2 High Diversity Revegetation Areas

Found west of Jacob's Ladder valley, near The Gonyah. These areas are of high quality, and provide good fauna habitat. The vegetation within is to be retained and improved.

3.4.3 Lower Diversity Revegetation Areas

Found west of Jacob's Ladder valley, in the south of the park. These areas were planted after the removal of the tramline, and over landfill. Where possible, this vegetation is to be consolidated, retained and improved through planting with diverse endemic species.

3.4.4 Littoral rainforest

Found in lower portion of Jacob's Ladder valley. This area has valuable cultural plantings dominated by Qld species, and weed infestation. Cultural plantings are to be retained,

and character of area is to be retained and improved with long term weed control strategies.

3.4.5 Entry Plantings

Introduce a greater variety of low growing indigenous species at main entry planting, to create an educational and botanical feature for tourists and residents, with interpretive signage.

3.4.6 Trees within Gap Park

New trees are to not be planted on the elevated exposed sections of the park, as tall trees did not previously occur within this windswept coastal environment, maintaining the original visual character of the site.

Removal of recently planted *Banksia integrifolia* that will obscure surrounding views when they grow to maturity. This is in accordance with the recommendations regarding maintenance of views from the site, in the "Watson's Bay Heritage Conservation Area DCP 2004".

3.4.7 Habitat Boardwalks

The ecological report commissioned in conjunction with the Gap Park Masterplan identified small ground dwelling fauna in the park, and described the possible effect on their movement patterns through the installation of a sealed path along the former tram alignment. The proposed habitat boardwalks will allow for areas where fauna can pass safely underneath path, across an organic and permeable surface.

These boardwalks will also have bicycle speed calming devices included, as per RTA recommendations. In addition, they have been strategically located adjacent to large existing trees with aerial roots, to help minimise damage to these trees.

3.5 SAFETY

3.5.1 General

Gap Park is subjected to extreme conditions. The park is almost continuously exposed to high levels of salt spray and wind loading, as well as ongoing and vandalism to the existing infrastructure. Consequently, all proposed elements within the landscape Masterplan are designed to be durable, and securely installed.

3.5.2 Balustrades

New balustrades to be installed at the key lookout areas to the north and south (see Self Harm Minimisation Strategies 3.7.3).

3.5.3 Cultural Programs

A positive suggestion from the Council Community Safety Committee meeting was the concept of fostering community spirit within the local area, to increase public respect and use of the site. Council shall promote cultural programs, utilising Gap Park as much as possible, to help de-stigmatise the site as a known venue for self harm, and generally increase use of the site by improving community ownership.

3.5.4 Memorial Plantings

Some grieving friends and family currently leave wreaths (or other items of remembrance) for victims of self harm, adjacent to the coastal pathway and / or fence. In some circumstances these items are retained for many months. These items reinforce the negative perception of Gap Park as a known location for self-harm, and can unconsciously promote 'copycat' self-harm attempts. As part of the Masterplan, council will consider developing a memorial tree planting area for families and friends of victims of self harm in a discreet area of Gap Pak away from the main public areas. This area

would assist with the grief process, and would be sensitive to the park's character, while still creating a meaningful place of remembrance. This proposal would require further investigation and consultation, with potential opportunity to locate the area near The Gunyah.

3.5.5 Bicycle Refuge

A new bicycle refuge is to be provided near south entry, for access over road to shared path. The location of this refuge is subject to future investigations by council.

3.6 RECREATION

3.6.1 Walking and Jogging

Walking and jogging are popular activities on the site. New directional signage is to be included across the site, with distances and destinations clearly displayed. As required, the surfaces of retained existing paths will be repaired and / or improved.

3.6.2 Picnicking

Picnicking areas and tables that were previously provided to the south of Gap Park, adjacent to the proposed all-ability path, shall be reinstated to improve community ownership of the park.

3.6.3 All-Ability Access

All-ability access to the site is currently limited to the northern and southern lookouts within the site. A sealed, graded, all-ability shared path shall be included through the western part of the site, along the former tram alignment. New signage, habitat boardwalks, and bicycle speed calming chicanes will be integrated parts of this shared path (see Habitat Boardwalks Strategies 3.4.7).

3.6.4 Bicycles

The shared path provides off road pedestrian / bicycle pathway along the former tram alignment, in accordance with the recommendations of the 'Woollahra Bicycle Plan (2000)'. At key locations and intersections, bicycle speed calming chicanes will be integrated in this shared path.

The perception that cyclists and pedestrians cannot successfully mix does not match reality according to research conducted on shared paths (Pedestrian-Cyclist Conflict Minimisation on Shared Paths and Footpaths, Austroads Inc. 2006). In Sydney there are many successful shared pathways working well around Sydney, for example: the Bay Run, Canada Bay; Louise Savage Pathway, Sydney Olympic Park; Cooks River Cycleway. Research suggests that cyclists accommodate to the presence of others, by decreasing their speed, whereas walkers adopt a less erratic course, which results in their travelling along the path more quickly. Overall, most people's experience of paths and their encounters with others are peaceful, unobtrusive, co-operative and agreeable. Pedestrians may also benefit from increased safety, as the unpredictable presence of cyclists may be a deterrent to crime occurring.

3.6.5 Bird Watching

Bird watching will be enhanced through improving native vegetation habitat areas, as defined in the Masterplan. In addition, the inclusion a formal of path at the west of the site will allow bird watchers to access previously little used parts of Gap Park.

3.6.6 Whale Watching

Opportunities for whale watching are to be improved through the installation of a new lookout point, and improving the condition of existing lookouts. Information signage will also be provided at the lookout points.

3.6.7 Photography

Photography opportunities will be improved through the installation of a new lookout point, and improving existing lookouts. Selective removal or trimming of encroaching vegetation will help provide enhanced visual amenity of surrounding views.

3.7 LANDSCAPE INFRASTRUCTURE

3.7.1 Entries / Lookouts The Gap Viewing Area

The visitor arrival experience is to be significantly improved with new wide, comfortable and classical sandstone steps directly and symmetrically accessing the natural low point in The Gap promenade. The pedestrian crossing to Robertson Park will be realigned. The existing steps will be removed, and revegetated with indigenous species.

Gently curved sandstone entry and exit walls to both sides of steps will emphasize the sense of entry and arrival, and provide an informal seating and meeting place. 1m high stainless steel handrails and integrated low level lighting will be included within these walls.

All-ability access will be provided by retaining the existing lower sealed ramp, and creating a new ramp extension to access The Gap viewing area with integrated low level LED light. The existing ramps will be removed, and revegetated with indigenous species.

450mm high seat and integrated low level lighting will be provided to the back of The Gap promenade. Existing concrete wall will be re-fitted with timber seating (refer GPMP-02 detail 6).

Installation of interpretative signage regarding recreation activities e.g. bird and whale watching. Installation of directional signage at key locations.



The Gap main entry

Gap Loop Entry

The Gap Loop former tram station will function as a new sealed all-ability visitor arrival pathway from the new entry steps to The Gap lookout, utilising the existing gentle gradients. Visual amenity shall be improved by selective removal / trimming of tall vegetation, to increase safety by improving public surveillance in this area.

Install interpretative signage regarding Gap Park's unique tram history, fauna and flora.

Jacob's Ladder Lookout Area

The existing fence will be realigned, and new concrete pavement surface installed, to match the new landscape configuration, designed to maximise outward views.

450mm high seat and backrest, with integrated low level lighting will be provided to the back of the "Jacob's Ladder" viewing area. New concrete wall will be fitted with timber seating. New low level lighting bollards will also be provided to edge of arrival pathways.

Interpretive signage regarding geology of Jacob's Ladder and Dunbar wreck, as well as directional signage, will be installed.

Side Steps

The historic stair and wall relics will be protected. Repair existing balustrade, or provide new balustrades to stairway.

Potential for interpretive signage regarding relics (original 1920s items), and tram history.

Church Entries

Maintain open views from Gap Park to adjacent historic buildings in the south, and retain low open fence.

Rainforest Gully

Improve existing paving material and grading where possible, and provide new balustrades to paths. Provide new or improved rest area(s) with seating, along the pathway through the gully.

New rainforest interpretive signage will be installed to interpret the Queensland species in valley.

Investigate opportunities to reduce night disturbances in this area through increased visual penetration through selected thinning of vegetation to improve sightlines.

3.7.2 Access

Coastal pathway

Improve existing paving material and grading where possible, for improved access. Provide new seating along route, as identified through detailed design.

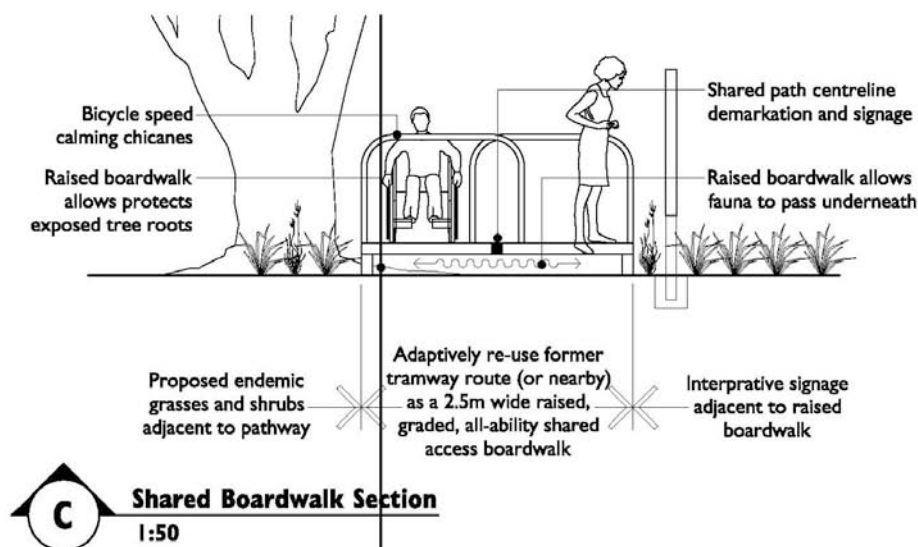
Retain and improve important views by selective removal or trimming of tall vegetation only where appropriate.

Install interpretive signage regarding local history, fauna and flora.

Pathway along Former Tram Alignment

Celebrate and adaptively re-use the former tramway route as a 2.5m wide graded, all-ability shared pathway between north and south of Gap Park. Provides shared pedestrian / bicycle access link in accordance with the 'Woollahra Bicycle Plan (2000)'. To be sealed with concrete surface and exposed aggregate finish. Line marking to centre of pathway, and shared use integrated signage.

Two 'habitat link' boardwalks along route allow fauna to pass safely underneath path, have integrated bicycle speed calming devices included as per RTA recommendations, and also protect large exposed tree roots from damage.



Interpretive signage to be installed, regarding the rich tram history (operated 1903 - 1960).

3.7.3 Lighting

Lighting is to be an integral part of the Masterplan, and the consultation process informed the decision to light the two main entries to the park. This will allow for improved public visitation and safety after dark. See 3.8.1 for details of lighting.

3.7.4 Signage

Interpretative and directional signage is also important elements of the Masterplan. Directional signage will clearly direct people through the site, with distances and routes to key destinations listed. Interpretative signage will inform people about the pertinent natural, cultural, and historic aspects of the site that they may be otherwise unclear about. This signage will require detailed design.

3.7.5 Park Infrastructure

New park seating will be included throughout Gap Park, particularly seating in shaded locations.

New picnic tables will also be provided, to encourage varied public interaction with the site, and consequently increase public ownership and usage of the Gap Park.

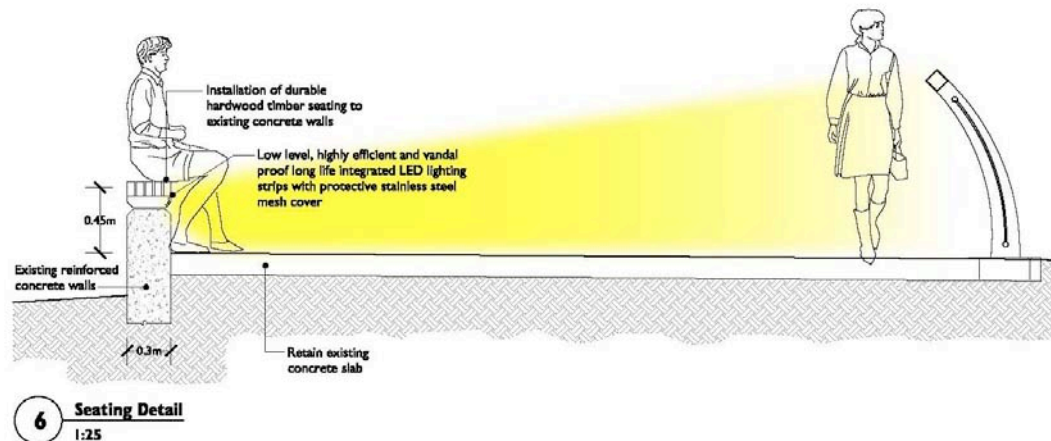
3.8 SELF HARM MINIMISATION STRATEGIES

During the process of developing the Masterplan, local police experienced with self-harm events at The Gap, were consulted. In addition, counsellors from "Lifeline" and medical psychologists from the Southern Sydney Mental Health Unit based at the Prince of Wales Hospital were consulted on the best contemporary methods to assist in the minimisation of self-harm. Through the various consultations, it was generally acknowledged that it will not be possible to prevent people determined on self-harm. However, opportunities exist to dissuade people who are considering carrying out self-harm. This can be done through a range of traditional and contemporary measures (see Self Harm Minimisation Plan GPMP-03 details in Annexure J).

3.8.1 Lighting

The Masterplan proposes lighting the two main viewing areas with discreet LED lights in a vandal proof frame, fully integrated with the new seating here. This frame will be mounted above the existing concrete wall at the back of The Gap viewing area, and above the new concrete wall at the back of the Jacob's Ladder lookout. The lighting

illuminates the main viewing areas without the need for pole top light fixtures (as recommended in the “Watson’s Bay Heritage Conservation Area DCP 2004”), and also minimizes face glare. LED lights have a working life of over 25 years, are all-weather protection rated, and are one of the most energy efficient light sources available. Council commissioned lighting tests at The Gap viewing area in preparation of the Masterplan, and during the tests the LED lights were successful. In specific locations, higher intensity lighting will also permit facial recognition for Closed Circuit Television (CCTV). This detail requires future investigations by council.



3.8.2 Safety Telephone

Recommendations have been made by the Rose Bay Police, mental health counsellors and the Safety Committee for a safety telephone to be installed at the key entries to Gap Park. These cashless phones would allow people considering self-harm to contact a counselling service provider such as “Lifeline”, and also allow people witnessing incidents of potential self harm to contact a support organisation. The phones would be signposted, and positioned in a discreet, but easily accessed location.

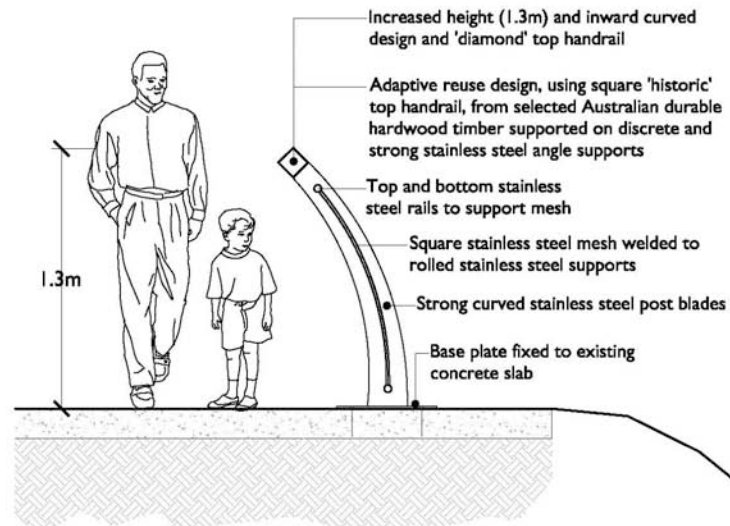
Some of the features of the safety telephones:



- Programmable send and receive numbers with no charge for call
- One to three push button(s) to programmed numbers (e.g. 000 or local police)
- Hands-free speaker, with built in microphone
- Internal battery with charging options (solar, mains)
- Digitally stored announcements
- Illuminated button option
- Vandal-resistant aluminum housing, with dual high security locks
- All weather protection rating

3.8.3 Proposed Fencing at Key Locations

Balustrades are to be installed at the key lookout areas to the north and south of the park, at the main viewing locations. The curved vertical blades reflect nautical symbolism, while allowing for maximum visual transparency. They are curved inwards to deter climbing, but if the fence is scaled, it is possible to climb back over from the sea-cliff side. The diagonal timber top handrail is in keeping with historical Australian coastal handrail theme. In addition, the fence will be in-filled with welded stainless steel square mesh, to further deter climbing.



5 New Gap Park Viewing Balustrade Section
1:25

3.8.4 Signage

Signage will be integral to the development of the Masterplan. There will be directional signage to assist in navigating through the park, with key locations and distances listed. There will also be directional signage to safety phones locations. Interpretive signage will occur throughout the park, and will describe the history, flora and fauna of Gap Park. All signage is subject to future design development.

3.8.5 Closed Circuit Television

Recommendations to install CCTV have been provided by the Rose Bay Police and the Community Safety Committee to:

- Assist emergency services to respond to potential self-harm incidents, and deter such events from occurring; and
- Aid search and identification of reported missing persons using archived image searches

The Masterplan proposes the installation of CCTV at the two main entry locations to the park. This allows a record to be made of all people entering and leaving the site. Police have indicated that this may in itself be a deterrent to people seeking to self-harm. Rose Bay Police have also indicated they will be able to install a monitor at Rose Bay Police Station, linked to the CCTV, to assist with surveillance. They would also be able to retrieve recorded footage to assist with missing person investigations. The monitoring and handling of CCTV footage requires extensive resources and training skills. Council does not have these resources; therefore, only with police participation will this aspect of the plan be able to proceed.

CCTV technology and optics has improved greatly in recent years and cameras may be discreet in size and location. The cameras will have vandal resistant housings, and all-weather protection rating. They can also be activated with motion and infrared sensors, therefore reducing non-active image data capture.

4.0 PRELIMINARY OPINION OF PROBABLE COST

Gap Park Masterplan November 2007

Prepared by TBLD on behalf of Wollahra Municipal Council

REFER TO DRAWING NOS. GPMP-01, GPMP-02 & GPMP-03

Please note:

1. This preliminary opinion of probable cost has been prepared for planning purposes.

No.	Description	Qty	Item	Rate	TOTAL
1.0	GENERAL				
	<i>North & south entries, and other works areas, as required.</i>				
1.1	Site establishment and preliminaries	3	Item	\$2,500	\$7,500
1.2	Installation of temporary chain link mesh fencing to perimeter of work areas for the period of contract works	3	Item	\$3,000	\$9,000
	Subtotal to General				\$16,500

No.	Description	Qty	Item	Rate	TOTAL
2.0	THE GAP MAIN ENTRY AND VIEWING AREA				
	<i>Including all materials and labour, as required.</i>				
2.1	Earthworks including vegetation spray and removal off site, cut and fill (inc. rock-breaking) to achieve surface levels, as required	1	Item	\$5,000	\$5,000
2.2	Demolish existing steps and ramps to viewing area	1	Item	\$5,000	\$5,000
2.3	Max. 500mm high curved sandstone walls to street frontage, sides of new steps, and front of new 1:6 entry ramp (inc. footings and light housings)	66	lin.m	\$800	\$52,800
2.4	Sandstone steps inc. concrete base and tacticles, as required	1	Item	\$40,000	\$40,000
2.5	Stainless steel railing to sides of new steps (inc. all fixings)	23	lin.m	\$500	\$11,500
2.6	Drainage to back of walls, as required	1	Item	\$2,000	\$2,000
2.7	Wall mounted lighting to street frontage, sides of new steps, and front of new 1:6 entry ramp (inc. higher intensity lighting areas)	20	No.	\$500	\$10,000
2.8	2.5m wide concrete with exposed agg. finish to proposed 1:6 ramp, & all ability path along former tram alignment (up to former tram stop)	358	m2	\$100	\$35,800
2.9	Restoration and preservation of historic concrete paving from former tram stop to The Gap viewing area (inc. former tram stop)	1	Item	\$5,000	\$5,000
2.10	Paving to street edge to be included in streetscape upgrade				
2.11	Bench seating to The Gap viewing area	6	Item	\$2,500	\$15,000
2.12	Feature arrival planting (inc. tubestock at 6 per m2, mulch and timber edging as required)	200	m2	\$60	\$12,000
	Subtotal to The Gap Main Entry and Viewing Area				\$194,100

No.	Description	Qty	Item	Rate	TOTAL
3.0	JACOB'S LADDER MAIN ENTRY AND LOOKOUT AREA				
	<i>Including all materials and labour, as required.</i>				
3.1	Earthworks including vegetation spray and removal off site, cut and fill to achieve surface levels, as required	1	Item	\$5,000	\$5,000
3.2	Max. 500mm high curved sandstone walls to back of lookout area (inc. footings and light housings)	20	lin.m	\$800	\$16,000
3.3	Drainage to back of walls, as required	1	Item	\$2,000	\$2,000
3.4	Coloured concrete paving to extension of lookout area	10	m2	\$100	\$1,000
3.5	Seating on new concrete wall incl. armrests, backrests, ss brackets, light housings and grill, cables, fixings and strip LED lighting (estimate only, subject to detailed design)	20	lin.m	\$1,500	\$30,000

No.	Description	Qty	Item	Rate	TOTAL
3.6	Realign former railing to edge of viewing area	10	lin.m	\$500	\$5,000
3.7	Feature arrival infill planting (inc. tubestock infill to existing plantings at 2 per m2, mulch and timber edging as required)	553	m2	\$30	\$16,590
3.8	Feature arrival planting (inc. tubestock at 6 per m2, mulch and timber edging as required)	300	m2	\$60	\$18,000
Subtotal to Jacob's Ladder Main Entry and Lookout Area					\$93,590

4.0 LITTORAL RAINFOREST GULLY LANDSCAPE WORKS					
<i>Including all materials, installation and labour, as required.</i>					
4.1	Upgrade existing access pathways within rainforest gully, inc. new rest areas, repaving, and balustrade, as required	1	Item	\$50,000	\$50,000
Subtotal to Littoral Rainforest Gully Landscape Works					\$50,000

5.0 GUNYAH LANDSCAPE WORKS					
<i>Including all materials, installation and labour, as required.</i>					
5.1	Upgrade of existing landscape adjacent to "Gunyah" building, inc. firebreak vegetation removal, turfing, and seating, as required	1	Item	\$10,000	\$10,000
5.2	Gunyah memorial tree planting area for community use	1	Item	\$500	\$500
Subtotal to Gunyah Landscape Works					\$10,500

6.0 DRAINAGE					
<i>Including all trenching, excavations, materials, fittings, fixings and labour as per the drawings.</i>					
6.1	Drainage pits, trenches, and ag-lines, as required	1	Item	\$5,000	\$5,000
Subtotal to Drainage					\$5,000

7.0 SHARED PATH					
<i>Including all materials, installation and labour, as required.</i>					
7.1	Earthworks including vegetation spray and removal off site, cut and fill to achieve surface levels, as required	1	Item	\$20,000	\$20,000
7.2	Drainage pits, trenches, and ag-lines, as required	1	Item	\$5,000	\$5,000
7.3	Shared pathway 2.5m wide concrete with exposed aggregate finish, \$100 per m2 rate	1,200	m2	\$100	\$120,000
7.4	Shared pathway 2.5m wide timber boardwalk	50	lin.m	\$1,500	\$75,000
7.5	Lane markings	480	lin.m	\$5	\$2,400
7.6	Speed calming chicanes	4	No.	\$1,500	\$6,000
7.7	Timber post & rail fencing for steep area adjacent to sandstone cutting	300	lin.m	\$200	\$60,000
Subtotal to Shared Path					\$288,400

8.0 COASTAL PATH					
<i>Including all materials, installation and labour, as required.</i>					
8.1	Improve coastal path condition (inc. levelling & repairs, as required)	1	Item	\$10,000	\$10,000
8.2	Seats : 2000 x 500 x 450mm high Class 1 hardwood seat bases and fixings	6	No.	\$2,000	\$12,000
Subtotal to Coastal Path					\$22,000

9.0 SIGNAGE					
<i>Including all materials, installation and labour, as required.</i>					
9.1	Directional signage to local destinations, and safety telephones (estimate only, subject to detailed design)	1	Item	\$5,000	\$5,000
9.2	Interpretive signage inc. research, graphic design and production (estimate only, subject to detailed design)	1	Item	\$50,000	\$50,000
Subtotal to Signage					\$55,000

No.	Description	Qty	Item	Rate	TOTAL
10.0	SCULPTURAL / MEMORIAL				
	<i>Including all materials, installation and labour, as required.</i>				
10.1	James Johnson memorial sculpture (subject to detailed design)	1	Item	\$100,000	\$100,000
10.2	Camera obscura interpretation (subject to detailed design)	1	Item	\$50,000	\$50,000
	Subtotal to Sculptural/Memorial				\$150,000
11.0	DUNBAR ANCHOR				
	<i>Including all materials, installation and labour, as required.</i>				
11.1	Removal off site, restoration, reinstallation, interpretation, and protection	1	Item	\$100,000	\$100,000
	Subtotal to Dunbar Anchor				\$100,000
12.0	HERITAGE PROTECTION				
	<i>Including all materials, installation and labour, as required.</i>				
12.1	Former gun emplacements protection and restoration	2	Item	\$40,000	\$80,000
12.2	Grieve memorial restoration (subject to detailed design)	1	Item	\$50,000	\$50,000
12.3	Protect heritage fabric and historic artefacts found on site (subject to detailed design)	1	Item		TBC
	Subtotal to Heritage Protection				\$130,000
13.0	FURNITURE				
	<i>Including all materials, installation and labour, as required.</i>				
13.1	Picnic tables : 1800 x 1500 x 750mm high Class 1 hardwood tabletop, 450mm high seat bases and fixings	6	No.	\$3,000	\$18,000
13.2	Seats : 2000 x 500 x 450mm high Class 1 hardwood seat bases and fixings	6	No.	\$2,000	\$12,000
13.3	Bins to be included in streetscape upgrade				
13.4	Bike parking racks to be included in streetscape upgrade				
	Subtotal to Furniture				\$30,000
14.0	VEGETATION				
	<i>Including all soil preparation, plant material and labour as per drawings.</i>				
14.1	Grassing incl. subgrade preparation, supply and spread site topsoil, hydro-seeding and minor weed control	2,500	m2	\$5.00	\$12,500
14.2	Indigenous planting (inc. tubestock at 6 per m2, mulch and timber edging as required. Works to be done by council)				
14.3	Selective vegetation trimming to paths, as required. Works to be done by council				
	Subtotal to Vegetation				\$12,500
15.0	SELF HARM MINIMISATION STRATEGIES				
	The Gap Main Entry and Viewing Area				
15.1	Lighting bollards and cabling to new 1:6 ramp and safety telephone	5	Item	\$1,500	\$7,500
15.2	Seating on existing concrete wall incl. armrests, backrests, ss brackets, light housings and grill, cables, fixings and strip LED lighting (estimate only, subject to detailed design)	82	lin.m	\$1,500	\$123,000
15.3	Railing to The Gap viewing area inc. ss blades, mountings, verticals, mesh, brackets, base plate, fixings, and timber handrail (estimate only, subject to detailed design)	86	lin.m	\$2,500	\$215,000
15.4	CCTV and safety telephone (inc. supply, installation, all connections, and testings, as required), as per 'Austcomms' quotation	1	Item	\$45,000	\$45,000
15.5	Underground ADSL and power supply, connections, pits, meter installation, and transformers, as required, to lighting CCTV and safety telephone	1	Item	\$20,000	\$20,000
15.6	CCTV monitoring by Rose Bay police station	1	Item		TBC

No.	Description	Qty	Item	Rate	TOTAL
	Jacob's Ladder Main Entry and Lookout Area				
15.7	Lighting bollards and cabling to new 1:6 ramp and safety telephone	8	Item	\$1,500	\$12,000
15.8	Railing to Jacob's Ladder lookout area inc. ss blades, mountings, verticals, mesh, brackets, base plate, fixings, and timber handrail (estimate only, subject to detailed design)	20	lin.m	\$2,500	\$50,000
15.9	CCTV and safety telephone (inc. supply, installation, meters, all connections, and testings, as required), as per 'Austcomms' quotation	1	Item	\$35,000	\$35,000
15.10	Underground ADSL and power supply, connections, pits, meter installation, and transformers, as required, to lighting CCTV and safety telephone	1	Item	\$30,000	\$30,000
15.11	CCTV monitoring by Rose Bay police station	1	Item		TBC
	Subtotal to Sef Harm Minimisation Strategies				\$537,500

	SUBTOTAL (EX GST)				\$1,695,090
	INVESTIGATION, DESIGN, AND DETAILED DOCUMENTATION 10%				\$169,509
	Contingencies 10% (construction works only)				\$169,509
	TOTAL PRELIM. OPINION OF PROBABLE COST INC. CONTINGENCIES (EX GST)				\$2,034,108

5.0 BIBLIOGRAPHY

Arup-Geoplan (April 2000) **Woollahra Bike Plan: Final Report** prepared for Woollahra Municipal Council

Australian Government Department of Health and Ageing (2006-2007) **National Suicide Prevention Strategy**

Cassidy, E., Goddard, D., Lawrence, F., May, J. & Poland, J. (1988) **Impressions of Woollahra, Past and Present** prepared for the Woollahra Bicentennial Community Committee by Allen & Unwin
Department of Local Government (May 2000) **Public Land Management**

Gojak, D. (2000) **Sydney Harbour Fortifications Archival Study: Part 1, The Battle for Sydney Harbour** prepared for National Parks and Wildlife Services of NSW

Heiss, A. (2001) **An Introduction to the Aboriginal History of Woollahra Local Government Area**

Heritage Council of NSW (September 2003) **Assessment of Heritage Significance**

Heritage Office of NSW **Heritage Item Listing, Dunbar Anchor, Tramway Cutting** retrieved July 13, 2007 from http://www.heritage.nsw.gov.au/07_subnav_01_2.cfm?itemid=2710222

JAARR (October 1992) **Plan of Management Gap Park** prepared for Woollahra Municipal Council

Ker, I., Huband, A., Veith, G. & Taylor, J. (2006) **Pedestrian-Cyclist Conflict Minimisation on Shared Paths and Footpaths** prepared for Austroads Inc.

Koettig, M. & Wilson, G.C. (May 1988) **Archaeological Report: Coastal Cliff Walk, South Head** prepared for Woollahra Municipal Council

Manidis Roberts Consultants (1998) **Woollahra Outdoor Recreation and Open Space Strategy** prepared for Woollahra Municipal Council

Mayne Wilson and Associates (May 1997) **Watson's Bay Heritage Conservation Study** prepared for Woollahra Municipal Council

National Parks and Wildlife Services of NSW (November 2003) **Sydney Harbour National Park Amendments to the 1998 Plan of Management**

National Parks and Wildlife Services of NSW (October 1998) **Sydney Harbour National Park Plan of Management**

NSW Health (2003) **Suicide Prevention in NSW**

Sydney Harbour Federation Trust (December 1986) **Conservation Plan for Former Biological Stations (MQ 29), 31 Pacific Street, Watson's Bay** prepared for The Department of Housing and Construction

Wilson, G.C. (March 1985) **Sydney Harbour Fortifications Archival Study, Part One** prepared for the National Parks and Wildlife Services

Woollahra Local History Centre (September 2005) **Gap Park, Watson's Bay**

Woollahra Municipal Council (1988) **Woollahra Heritage Study**

Woollahra Municipal Council (2002-2003) **Gap Park Flora and Fauna List**

Woollahra Municipal Council (2004-2005) **State of the Environment, Annual Report 2004-2005**

Woollahra Municipal Council (February 2004) **Watson's Bay Heritage Conservation Area Development Control Plan**

Woollahra Municipal Council (January 2007) **Woollahra Crime Prevention Plan 2007-2010**

Woollahra Municipal Council (June 1996) **Plan of Management, Natural Area (Foreshore)**

Woollahra Municipal Council (November 2004) **Robertson Park Plan of Management**

Photos

Photo from State Library of NSW (September 2002) **South Head [The Gap], taken c.1855** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spyodus/RECOPT/PM/BSEARCH/720/431528,29?http://image.sl.nsw.gov.au/1/ml623/a128553r.jpg>

Photo from State Library of NSW (September 2002) **'The Gap', South Head, Sydney, taken ca.1870s** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/421199,46?http://image.sl.nsw.gov.au/spf/a089/a089967r.jpg>

Photo from State Library of NSW (September 2002) **Near The Gap [South Head, Sydney], taken ca.1870s** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/421198,47?http://image.sl.nsw.gov.au/spf/a089/a089968r.jpg>

Photo from State Library of NSW (September 2002) **[The Gap, Watson's Bay, Sydney], taken ca.1870s** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/421018,49?http://image.sl.nsw.gov.au/spf/a089/a089888r.jpg>

Photo from State Library of NSW by Scott, C.H. (September 2002) **Watson's Bay, The Gap, taken ca.1900** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/421017,50?http://image.sl.nsw.gov.au/spf/a089/a089887r.jpg>

Photo from State Library of NSW by Brodie, A. (September 2002) **Entrance to Sydney Harbour, taken ca.1870s** Retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/421013,51?http://image.sl.nsw.gov.au/spf/a089/a089886r.jpg>

Photo from State Library of NSW (September 2002) **North Head, and the Gap south of South Head, Port Jackson or Sydney Harbour, taken 1877** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/421012,52?http://image.sl.nsw.gov.au/spf/a089/a089900r.jpg>

Photo from State Library of NSW (September 2002) **The Gap & cliffs at South Head, Port Jackson, taken 1877** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/421011,53?http://image.sl.nsw.gov.au/spf/a089/a089889r.jpg>

Photo from State Library of NSW (September 2002) **Gap, South Head, Sydney, taken ca.1900-1910** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/413142,58?http://image.sl.nsw.gov.au/1/pxe711/a116022r.jpg>

Photo from State Library of NSW (September 2002) **The Gap, South Head, Sydney, taken ca.1900-1910** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/413141,59?http://image.sl.nsw.gov.au/1/pxe711/a116021r.jpg>

Photo from State Library of NSW (September 2002) **The Gap, South Head, taken ca.1900-1910** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/413125,60?http://image.sl.nsw.gov.au/1/pxe711/a116010r.jpg>

Photo from State Library of NSW (September 2002) **South Heads, Sydney Harbour, ca.1900-1910** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/720/413124,61?http://image.sl.nsw.gov.au/1/pxe711/a116009r.jpg>

Photo from State Library of NSW by Kent, M. (September 2002) **South Head, Watson's Bay, taken c.1920s** retrieved July 10, 2007 from http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/874/193614,85?http://image.sl.nsw.gov.au/gpo1/24/d1_24701.jpg

Photo from State Library of NSW (September 2002) **The Gap looking south, date unknown** retrieved July 10, 2007 from http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/874/185564,88?http://image.sl.nsw.gov.au/gpo1/16/d1_16613.jpg

Photo from State Library of NSW (September 2002) **On the road to The Gap: Watson's Bay from Hotel, date unknown** retrieved July 10, 2007 from http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/874/168463,94?http://image.sl.nsw.gov.au/gpo1/05/d1_05878.jpg

Photo from State Library of NSW (September 2002) **The Gap, Sydney, taken 1963** retrieved July 10, 2007 from http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/874/146927,101?http://image.sl.nsw.gov.au/apa/46/d7_46383.jpg

Photo from State Library of NSW (September 2002) **The Gap, Watson's Bay, taken 1870-1875** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/874/65486,118?http://image.sl.nsw.gov.au/on4/422/42215r.jpg>

Photo from State Library of NSW by Broadhurst Postcards (September 2002) **The Gap, Watson's Bay, taken 1900-1927** retrieved July 10, 2007 from http://image.sl.nsw.gov.au/cgi-bin/ebindshow.pl?doc=pxa635/a106_348-361;seq=1

Photo from State Library of NSW by Broadhurst Postcards (September 2002) **The Gap, Watson's Bay, taken 1900-1927** retrieved July 10, 2007 from http://image.sl.nsw.gov.au/cgi-bin/ebindshow.pl?doc=pxa635/a106_348-361;seq=2

Photo from State Library of NSW by Broadhurst Postcards (September 2002) **The Gap, Watson's Bay, taken 1900-1927** retrieved July 10, 2007 from http://image.sl.nsw.gov.au/cgi-bin/ebindshow.pl?doc=pxa635/a106_348-361;seq=3

Photo from State Library of NSW by Broadhurst Postcards (September 2002) **The Gap, Watson's Bay, taken 1900-1927** retrieved July 10, 2007 from http://image.sl.nsw.gov.au/cgi-bin/ebindshow.pl?doc=pxa635/a106_348-361;seq=6

Photo from State Library of NSW (September 2002) **The Gap, South Head, taken 1870-1875** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/874/63609,122?http://image.sl.nsw.gov.au/on4/402/40271r.jpg>

Photo from State Library of NSW (September 2002) **Russian Ballet at beaches, taken c.1937** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/874/19032,131?http://image.sl.nsw.gov.au/hood/137/13738r.jpg>

Photo from State Library of NSW (September 2002) **WWI Naval Reserve cadets, on rock climbing exercise at The Gap, taken c.1930s** retrieved July 10, 2007 from <http://libapp.sl.nsw.gov.au/cgi-bin/spydus/RECOPT/PM/BSEARCH/874/8879,133?http://image.sl.nsw.gov.au/hood/080/08000r.jpg>

APPENDICES

APPENDIX A

REPORT

Gap Park Masterplan: Aboriginal Archaeological Investigation

By AHMS

**ARCHAEOLOGICAL & HERITAGE MANAGEMENT
SOLUTIONS PTY LTD**

ARCHAEOLOGISTS & HERITAGE CONSULTANTS

ACN 088 058 388

ABN 45 088 058 388

AHMS

349 Annandale Street
Annandale NSW 2038
P: (02) 9555 4000
F: (02) 9555 7005

10th August 2007

**Thompson Berrill Landscape Design Pty Ltd
1/78 Addison Road,
MANLY, NSW 2095**

Attn: Mr. Glenn Berrill (Director)

Re: The Gap, Watsons Bay, NSW – Preliminary Aboriginal Archaeological Investigation

Dear Mr Berrill,

This letter report presents results of a preliminary Aboriginal archaeological investigation of The Gap Park in Watson's Bay, NSW (refer to Figure 1 overleaf).

The investigation was commissioned on behalf of Woollahra Municipal Council as part of the Gap Park Masterplan and to provide advice for future development and management of the subject land. The archaeological investigation was designed to identify potential Aboriginal archaeological issues associated with the study area, and any requirements for detailed assessment, investigation and/or impact mitigation works. It is envisaged that this advice will assist in preparing the Masterplan and informing future management of the Park.

As such, this report is not a formal *Aboriginal Heritage Impact Assessment (AHIA)* in accordance with NSW Dept of Environment & Climate Change Guidelines and did not include full Aboriginal community consultation, as is required for an AHIA assessment. However, consultation with the La Perouse Local Aboriginal Land Council was undertaken to discuss the cultural heritage significance of the Gap Park. The advice of the La Perouse Local Aboriginal Land Council has been incorporated into this report, however should an AHIA be required in future, broader Aboriginal Community consultation will be required in accordance with the DECC Interim Community Consultation Guidelines 2004.

Aims

Specific aims of the study were as follows:

- a) Identify any known Aboriginal sites and/or objects within the subject area and assess the potential for Aboriginal sites and/or objects buried below ground surfaces;
- b) Consult with La Perouse Local Aboriginal Land Council regarding the cultural heritage significance of The Gap;

- c) Research, review and assess secondary historical sources and archaeological reports available for the local area to identify the potential for Aboriginal sites and/or objects to be present within the study area;
- d) Identify Aboriginal heritage constraints and opportunities with regard to the future development and management of The Gap and the level of any further Aboriginal heritage investigations required; and
- e) Provide Council with a practical assessment identifying what legislative and policy requirements would apply and how best to manage any Aboriginal heritage known or likely to be present in the study area. Recommendations for management of Aboriginal heritage would be made in accordance with the statutory requirements of the *National Parks & Wildlife Act 1974 (NPW Act, 1974)*.

Investigation Methodology

Archaeological Literature Review

Previous reports, surveys and studies in the locality were reviewed to determine the potential for archaeological sites within the study area as well regional patterns of Aboriginal use and occupation. The Dept of Environment & Climate Change (DECC) Aboriginal Heritage Information Management System (AHIMS) was consulted regarding known archaeological sites in the surrounding area, and to identify whether any Aboriginal sites or objects have been recorded within the study area.

Site Inspection

The study area was inspected on foot. The investigation assessed the degree of land disturbance and erosion in the study area to determine the likelihood of undisturbed Aboriginal sites and/or objects buried below ground surfaces.

Community Consultation with La Perouse Local Aboriginal Land Council

La Perouse Local Aboriginal Land Council was invited to participate in a short site inspection. They were consulted to ascertain whether or not the study area has cultural heritage significance to the local Aboriginal community. Land Council has prepared a brief letter report setting out the cultural values of the site, which is attached to this report. **A COPY OF THIS REPORT WILL BE FORWARDED TO THE LAND COUNCIL UPON APPROVAL OF THIS DRAFT BY THOMPSON BERRILL. LPLALC WILL REVIEW THE DRAFT REPORT AND PROVIDE A LETTER TO BE INCORPORATED INTO THE FINAL VERSION OF THE REPORT.**

Letter Report

This letter describes the results of the AHIMS Aboriginal sites database search, literature review, Aboriginal community consultation and site inspection. The report also identifies Aboriginal heritage constraints on development and management of The Gap. It provides recommendations about the level of further archaeological investigation that should be undertaken in advance of any future development works within the Park.



Figure 1 - Location Plan (study area is shaded red). *Source: Woollahra Municipal Council*

Aboriginal Historical Context

The traditional owners of the Vaucluse area were the *Gadigal*¹ People, a *Darug* language speaking 'clan' group. The *Darug* language group originally extended from the eastern suburbs of Sydney as far south as La Perouse, west beyond the Blue Mountains and north as far as the mouth of the Hawkesbury River². The *Gadigal* were a sub-group (often referred to as 'clans'), based upon religious and/or totemic associations to country. Ethnohistoric sources indicate the *Gadigal* occupied the south side of Sydney harbour from South Head to Cockle Bay³.

The traditional life of the Gadigal was broken through the course of the early 19th century. The impact of smallpox and influenza decimated the Aboriginal population, with individual epidemics killing large numbers of people. Early white settlement of traditional hunting lands deprived Aboriginal groups of sources of food and access to camping and ceremonial sites. This forced individuals to either relocate into the potentially hostile lands of neighbouring Aboriginal groups, partially integrate into colonial society as fringe dwellers or to resist. Resistance by Aboriginal groups was often met with retaliatory action by white settlers and the colonial administration. A combination of these factors led to the demise of traditional lifestyles and a decrease in the Aboriginal population.

By studying accounts of early settlers, we can reconstruct aspects of the Gadigal lifestyle. The subsistence and economy of Aboriginal groups depended largely on the environment in which they lived. While coastal groups exploited marine and estuarine resources, hinterland groups relied on freshwater and terrestrial animals and plants. A distinction between the two lifestyles is clearly made in early European accounts. During a trip along the Hawkesbury-Nepean during 1791, Watkin Tench wrote that:

'[hinterland people] depend but little on fish, as the river yields only mullets, and that their principal support is derived from small animals which they kill, and some roots (a species of wild yam chiefly) which they dig out of the earth'.

In contrast, Collins wrote that for coastal people such as the Gadigal:

'Fish is their chief support...the woods, exclusive of the animals which they occasionally find in their neighbourhood, afford them but little sustenance; a few berries, the yam and fern root, the flowers of the different Banksia, and at times some honey, make up the whole vegetable catalogue'

Tench also noted the importance of marine foods in the economy of coastal groups. According to Tench, the task of fishing was divided between husband and wife, the woman using a hook and line and the man using a fish gig (spear)⁴. Bark canoes were often used by both men and women for fishing and fires were commonly placed in the middle of these canoes. When fish were scarce or the weather was foul, coastal groups turned their attention to gathering shellfish, hunting reptiles and small animals, digging fern roots, or gathering berries⁵.

¹Attenbrow 2002: 23-25

²Eades, D.K. 1976; and see also Tindale's Tribal Boundaries Map:
(www.samuseum.sa.gov.au/tindale/HDMS/tindaletribes/daruk.htm)

³ibid

⁴Tench, W 1996: pp.258-260

⁵ibid

Although early observations have provided much useful information about Aboriginal society at contact, archaeological investigations have shown clear deficiencies. Archaeological excavations on the NSW coast have clearly shown that coastal people exploited a wide range of hinterland terrestrial resources, which sits in contradiction to early records that coastal people were almost exclusively 'fishers' and inland people were 'hunters'. The contradiction is probably accounted for by the visibility of fishing and gathering activities on and near the water as opposed to the relative invisibility of hunting and foraging activities in the hinterland.

From the historical record it is clear that quite large populations were supported along the coast. One such account comes from Tench and is worth quoting in full:

"on the north west arm of Botany Bay stands a village which contains more than a dozen houses and perhaps five times that number of peopleGovernor Phillip, when on an excursion between the head of the harbour and that of Botany Bay, once fell in with a party which consisted of more than 300..."⁶.

Aboriginal groups living in the Hawkesbury sandstone region made extensive use of the natural rock overhangs and caverns that are characteristic of the area. George Barrington observed that *"Those who build bark huts are very few compared to the whole. Generally speaking, they prefer the ready made habitations they find in the rocks"*.

Tench described how native huts were constructed by laying pieces of bark together in the form of an oven. The end result consisted of a low shelter, which was opened at one end and sufficient to accommodate one person lying down⁷. Tench⁸ goes on to conclude that "there is reason, however, to believe that they depend less on them (huts) for shelter than on the caverns with which the rocks abound".

Plant management practices that bear remarkable similarity to those reported in northern Australia were also conducted in the Sydney area. For instance, there is good evidence that the Darug practiced fire-stick farming in and around Sydney. When the first fleet arrived in Sydney, Captain John Hunter found an environment where:

"the trees stand very wide of one another, and have no underwood; in short the woods ... resemble a deer park, as much as if they had been intended for such a purpose" .

This is the classic result of Aboriginal firing of the landscape. Ethnographic evidence from Northern Australia suggests that the systematic burning of the landscape was carried out for a variety of reasons. 'Fire-stick farming' opened up access to land and created pockets of early succession vegetation that increased the amount of important plant foods. Early regrowth vegetation, particularly grasses, attracted animals, which in turn made them easier to hunt. Aboriginal firing of the landscape was an important tool in manipulating the environment to increase food sources.

Plant management was not just restricted to the manipulation of the environment though. Plant processing also figured prominently and enabled the *Gadigal* and other groups to broaden their

⁶ Tench, W. 1996: 58

⁷ Tench, W. 1996: .53

⁸ *ibid*

range of food sources. Hunter provides an interesting account of trying to eat a poisonous yam (probably *Dioscorea bulbifera*) and getting violently sick. Hunter had seen Aborigines digging this same yam and concluded, "*They no doubt have some way of preparing these roots, before they can eat them*".

According to George Washington Walker's journal of 1836, the Illawarra Aborigines processed Zamias. Walker recorded that the Aborigines:

*"either roast them, and pound them into a paste, steeping them in water to get rid of their acrid and hurtful properties, or get rid of these by longer period of steeping in water, so as to render them fit to be eaten in a raw state"*⁹.

Such plant management and processing practices were an important part of the economies of Aboriginal groups.

Archaeological Background

For the purposes of determining settlement and site location patterns, archaeologists examine regional and local trends in the distribution of known sites in relation to environment and topography. This provides evidence about economic and social systems in the past and also assists archaeologists in predicting likely site types and locations in any given area.

In terms of regional archaeology, the study area falls within the Sydney Basin. Aboriginal occupation in this region dates back well into the Pleistocene period (i.e. before 10,000 years ago). This evidence comes from radio carbon dates (C14) dates retrieved from excavated sites such as Cranebrook Terrace (41,700 years before present), Shaw's Creek K2 (14,700 years before present) and George & Charles St Parramatta (c.25,000-30,000 BP). The dating of Cranebrook Terrace is currently under review¹⁰, so at this time the Charles & George St site is considered as the oldest reliable date for Aboriginal occupation in the Sydney region. The oldest coastal site in the Sydney region is Prince of Wales Hospital (8,400 BP), closely followed by Curracurrang Rockshelter in Royal National Park (7,450 BP)¹¹.

The vast majority of dated sites in the Sydney region are less than 5,000 years old (35 out of a total of 48 dated sites). It has been argued that this is a result of increased populations and 'intensification', during this period. The prevalence of sites dating to the last 5000 years may also be a result of the last significant rise in sea level, approximately 6000 years ago. The sea level rise would have submerged many of the older sites along the coastal fringe.

The archaeology of the Sydney region has been well documented through a large number of academic, amateur and impact assessment investigations over the past 30 years. Approximately 4,300 sites have been recorded and registered with the NPWS Sites Register for Sydney, reflecting both the wealth of archaeology in the region and the number of archaeological investigations undertaken.

⁹ Quoted in Organ, M. 1990: 208

¹⁰ Attenbrow 2002:20-21

¹¹ As cited in Attenbrow 2002:18-19; Cranebrook Terrace [41 700 +3000/-2000 ANU-4016]; Shaw's Creek [14 700±250 Beta-12423]; Prince of Wales Hospital [8 400±800 lacks a lab no. from source] and Curracurrang 1 [7 450±180 Gak-482]

The dominant site types in the Sydney region (in the 15 - 20 % frequency range) are rock shelters with midden deposit, rock shelters with art, rock art engravings and open artefact scatters¹². Site types in the 5 - 15 % range, include rock shelters with artefacts, grinding grooves and open middens¹³. The distribution, density and size of site types is largely dependent on environmental context. For instance, middens are found in close proximity to marine, estuarine and less often, freshwater bodies. Rock shelters are only found in areas of exposed sandstone escarpment and grinding grooves are found in areas of exposed flat beds of sandstone, particularly along creek lines.

A study of the regional archaeology of the Cumberland Plain by Dr Jim Kohen made a number of findings about site location patterns in the Sydney area. The study demonstrated that proximity to water was an important factor in site patterning. Kohen showed that 65 % of open artefact scatter sites were located within 100 metres of permanent fresh water¹⁴. Only 8 % of sites were found more than 500 metres away from permanent fresh water. In short, open artefact scatters are larger, more complex and more densely clustered along permanent creek and river lines. Kohen's study also found that Silcrete (51 %) and Chert (34 %) are the most common raw materials used to manufacture stone artefacts¹⁵. Other raw materials include quartz, basalt, tuff and quartzite.

A consideration of sub-surface artefact scatters is also relevant because of the potential for areas with no surface evidence to contain buried sub-surface deposits. A 1997 study of the Cumberland Plain by McDonald¹⁶ found that:

- 17 out of 61 excavated sites had no surface artefacts prior to excavation;
- The ratio of recorded surface to excavated material was 1:25; and
- None of the excavated sites could be properly characterised on the basis of surface evidence. In short, surface evidence (or the absence of surface evidence) does not necessarily indicate the potential, nature or density of sub-surface material.

The results of McDonald's study clearly highlight the limitations of surface survey in identifying archaeological deposits. The study also shows the importance of test excavation in establishing the nature and density of archaeological material on the Cumberland Plain, within the Sydney region.

The east coast has been the subject of studies that examine settlement patterns, particularly in regard to the role of seasonality. Based on the results of coastal excavations (particularly in the Royal National Park) and site distribution patterns, Gretchen Poiner argued that seasonality was a major influence on settlement patterns and subsistence modes on that coast. Poiner claimed that large semi-sedentary summer camps gave way to dispersal of smaller groups into the hinterland during winter when marine resources diminished. Anne Ross challenged

¹² Attenbrow 2002: 49

¹³ *ibid*

¹⁴ Kohen 1986: 229-275

¹⁵ Kohen 1986: 280-281

¹⁶ McDonald 1997

Poiner's model, using ethnographic evidence to argue that inland winter migration was unlikely due to tribal boundaries¹⁷. Instead, Ross argued that smaller groups were spread more thinly along the coast during winter.

Aboriginal stone artefacts are an important source of archaeological information because stone is preserved for long periods of time whereas organic materials such as bone, shell, wood and plant fibres decay. Stone artefacts provide valuable information about technology, economy, cultural change through time and settlement patterning. Stone has also been used for 'relative' dating of sites where direct methods such as Carbon dating cannot be applied. A technological sequence for stone artefacts for the region was first described in the late 1940s by Fred McCarthy and has since been refined. Known as the 'Eastern Regional Sequence' it was based on direct dating of excavated sequences. Some debate about the precise nature and significance of the technological changes described still continues¹⁸, therefore the ERS should be regarded only as a general guide to technological change. The ERS phases are as follows:

- **Capertian** - is distinguished by large uniface pebble tools, core tools, horsehoof cores, scrapers and hammerstones. Backed artefacts occasionally present. Generally dates to before 5,000 years before present (BP).
- **Early Bondaian** - Aspects of the Capertian assemblage continue, but backed artefacts and ground-edged artefacts increase. Artefacts during this period were predominantly made from fine-grained silicious stone such as silcrete and tuff. Generally dated from 5,000 BP to 2,800 BP.
- **Middle Bondaian** - Characterised by backed artefacts, particularly Bondi Points and ground-edged artefacts. Artefacts made from silicious materials, however quartz becomes more frequent. Generally dated from 2,800 BP to 1,600 BP.
- **Late Bondaian** - characterised by bipolar technology, eloueras, ground-edged artefacts, and bone and shell artefacts. Bondi points are virtually absent and artefacts are predominantly made from Quartz. Generally dated from 1,600 BP to contact.

AHIMS Database Search

A search of the DEC AHIMS database found 61 site recordings within a 1.25 kilometre radius around the study area. These sites include rock engravings, middens, rockshelters with and without archaeological deposit and/or art, axe grinding grooves, an open archaeological deposit and a burial.

The majority of sites are rock engravings and rock shelters either with art or middens. Only one open archaeological deposit was identified (45-6-2797). No sites have been previously recorded within the study area (refer to Figure 2 for site locations).

The predominance of rock engravings and rock shelter site types reflects the local geology and access to resources. For examples, rock engravings, axe grinding grooves and rock shelters are found in areas of outcropping bedrock. Outcropping bedrock is common in The Gap study area.

¹⁷ Ross 1976

¹⁸ Hiscock & Attenbrow 2002; Hiscock & Attenbrow 1988; Hiscock & Attenbrow 2005

Sites in the AHIMS database search were recorded from a variety of sources from the late 19th century onwards¹⁹. Studies undertaken for academic, commercial and management purposes were prepared by Tia Negerevich, Jim Wheeler, Elizabeth Rich, Tessa Corkill and Val Attenbrow. The AHIMS sites tend to be focused in places investigated for these reports, therefore the site distribution is not a comprehensive record of sites across the landscape.

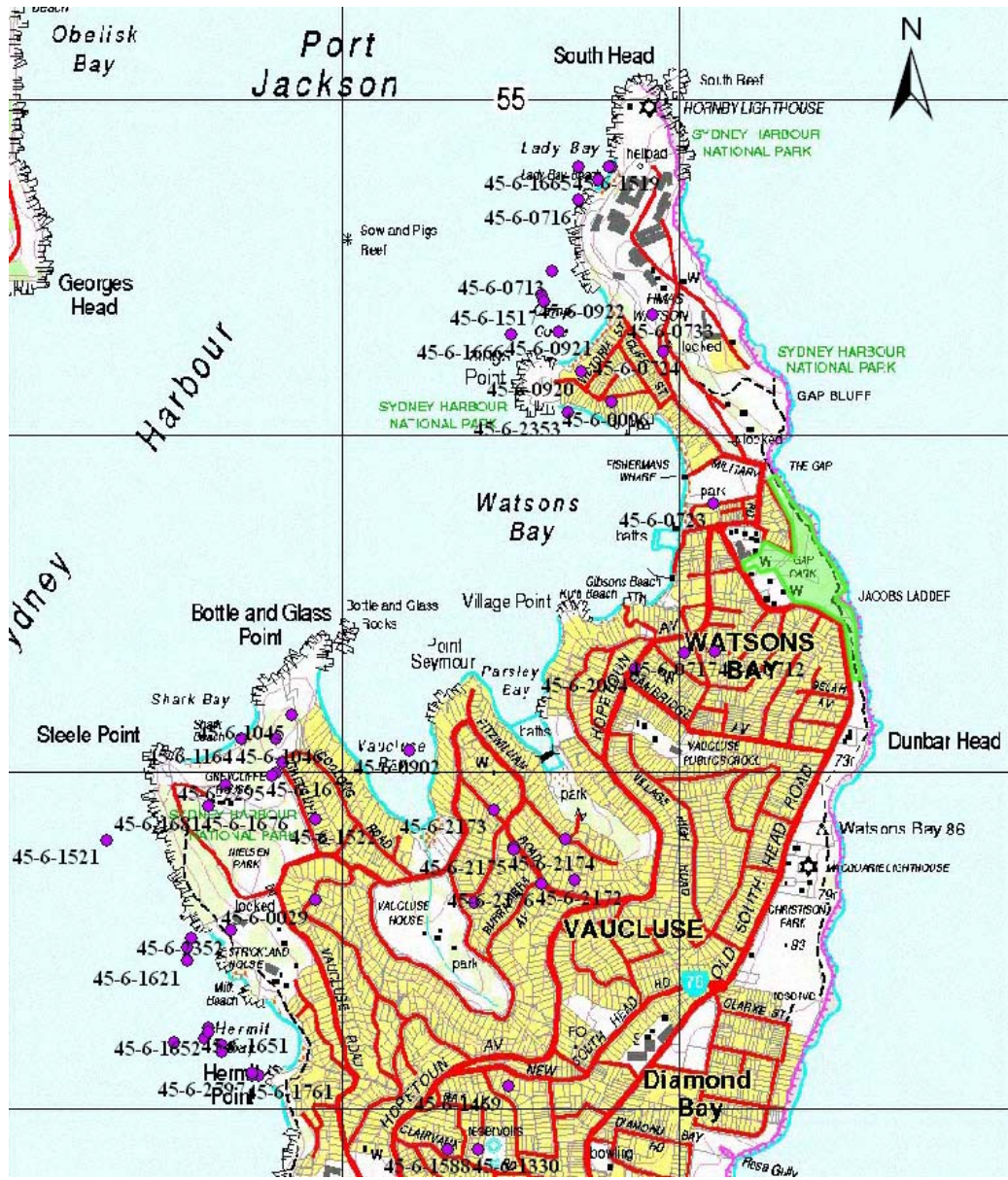


Figure 2 – Topographic map showing Aboriginal sites recorded on the AHIMS database near the study area (marked green). Source: Topoview - CMA 1:25,000 map sheets.

¹⁹ Recorded by Campbell in 1899, and Angas 1847 as cited by Negerevich 1978: 3,11

Predictive Modelling

The topography and distribution of natural resources near the study area generally indicates a potential for:

- Rock engravings and axe grinding grooves in areas of outcropping sandstone that contain flat sandstone platforms;
- Isolated finds anywhere across the landscape;
- Open artefact scatter sites and midden deposits across all landforms with intact topsoils;
- Rock shelters may also be found in areas of rock overhangs.

Previous land clearance for vegetation removal (refer to Figure 3) is likely to have disturbed original topsoil within the study area to varying degrees. Associated erosion from vegetation removal is likely to have further impacted the soils. However the retention of some original vegetation (seen in Figure 3) suggests there is potential for archaeological deposit within the study area. The integrity of stone artefact and/or midden deposits will depend on the degree of disturbance of topsoils. Open artefact scatters may be found buried below current ground surfaces in areas where intact A horizon soils remain. In areas where A horizon soils have been removed or substantially disturbed by erosion it is unlikely that sub-surface deposits remain. Isolated finds may be found anywhere across the landscape, and represent the random loss, deliberate discard or abandonment of artefacts, or the remains of dispersed artefact scatters.

There is no potential for scarred and/or carved trees because the study area does not contain remnant old growth trees of sufficient age to retain cultural scarring or marking.

There is a high potential for axe grinding grooves and rock engravings across the study area but particularly along the central and eastern sections which contain flat sandstone outcrops (platforms).

There is a potential for rockshelters and rock overhangs within the central part of the study area as this area contains some overhanging benches.

Results of the Site Inspection

A brief inspection of the study area was carried out on the 31st of July 2007 by archaeologist Felicity Barry Pty Ltd and Shane Ingrey of La Perouse Local Aboriginal Land Council. Coverage of the study area was designed to identify areas of potential archaeological sensitivity; it was not designed to be a comprehensive survey.

No Aboriginal sites were identified during the site inspection. The topography of the study area is dominated by the steep coastal cliff that occupies the eastern margin of The Gap Park. The cliff top comprises a series of outcropping sandstone platforms that drop steeply (up to 14 metres in places) to the western portion of the Park. No drainage lines are present in the study area, however water erosion channels observed along pathways beneath the cliffline appear to pool near the intersection of Dunbar Street and Gap Road (see Figure 4). This source is only likely to have been available in times of heavy rainfall. Other sources may have been small holes and voids in the sandstone platform that pooled water after rain. The closest permanent creekline appears to be located 2km southwest of the study area in the vicinity of Milk Beach.

The vegetation within the site included both native and non-native plantings, some of which were the result of recent re-vegetation (refer Figure 4). A 1943 aerial photograph of the site (Figure 3) indicates that some original vegetation is likely to have been retained. This may be supported by a Council Engineering report stating that Park improvement works in 1965 retained both 'the natural rock surfaces and the few remaining specimens of [coastal] tea tree (*Leptospermum laevigatum*)'²⁰. The area shown in the 1943 aerial photograph as retaining vegetation was steeply graded and contained several large fig trees (*Ficus rubiginosa*).

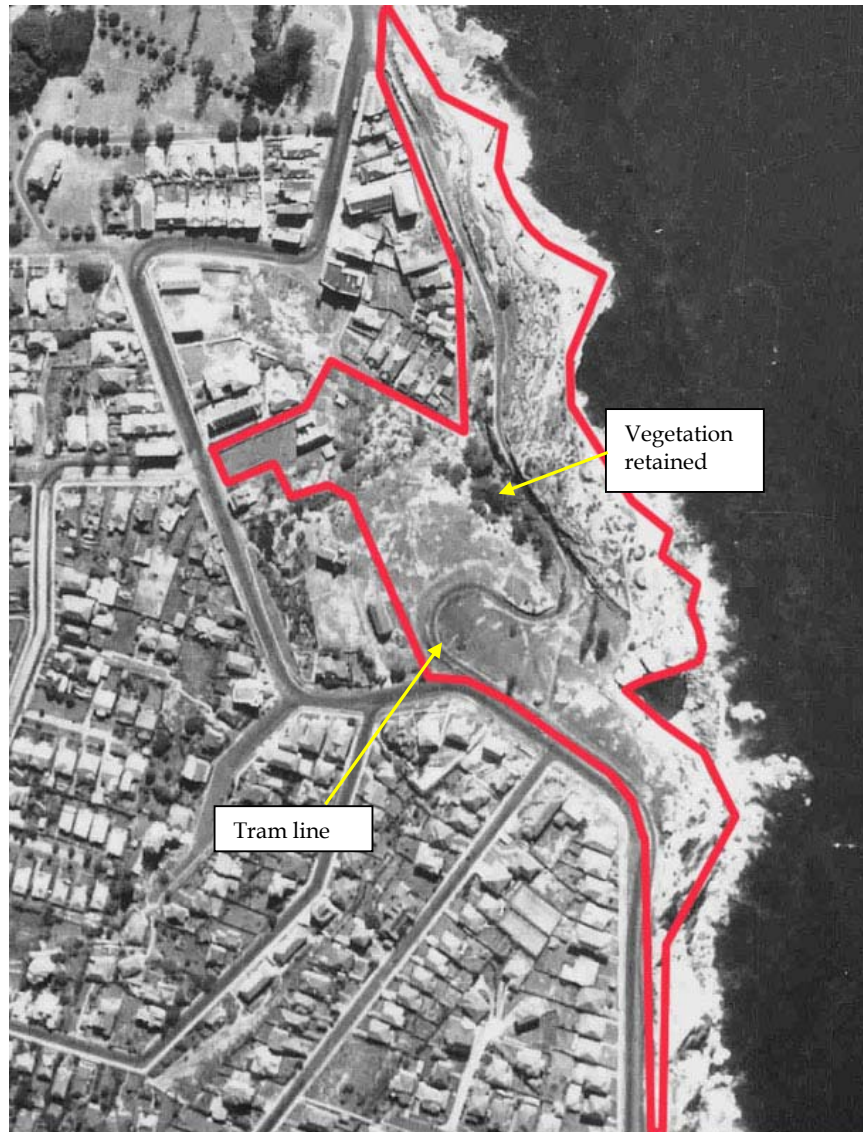


Figure 3 - 1943 Aerial Photograph of the Gap Park (outlined in red) showing vegetation removal in the Gap Park during World War II. Note also the position of the tram line. Source: Roads and Traffic Authority NSW.

²⁰ Woollahra Local History Centre, 2005: 2

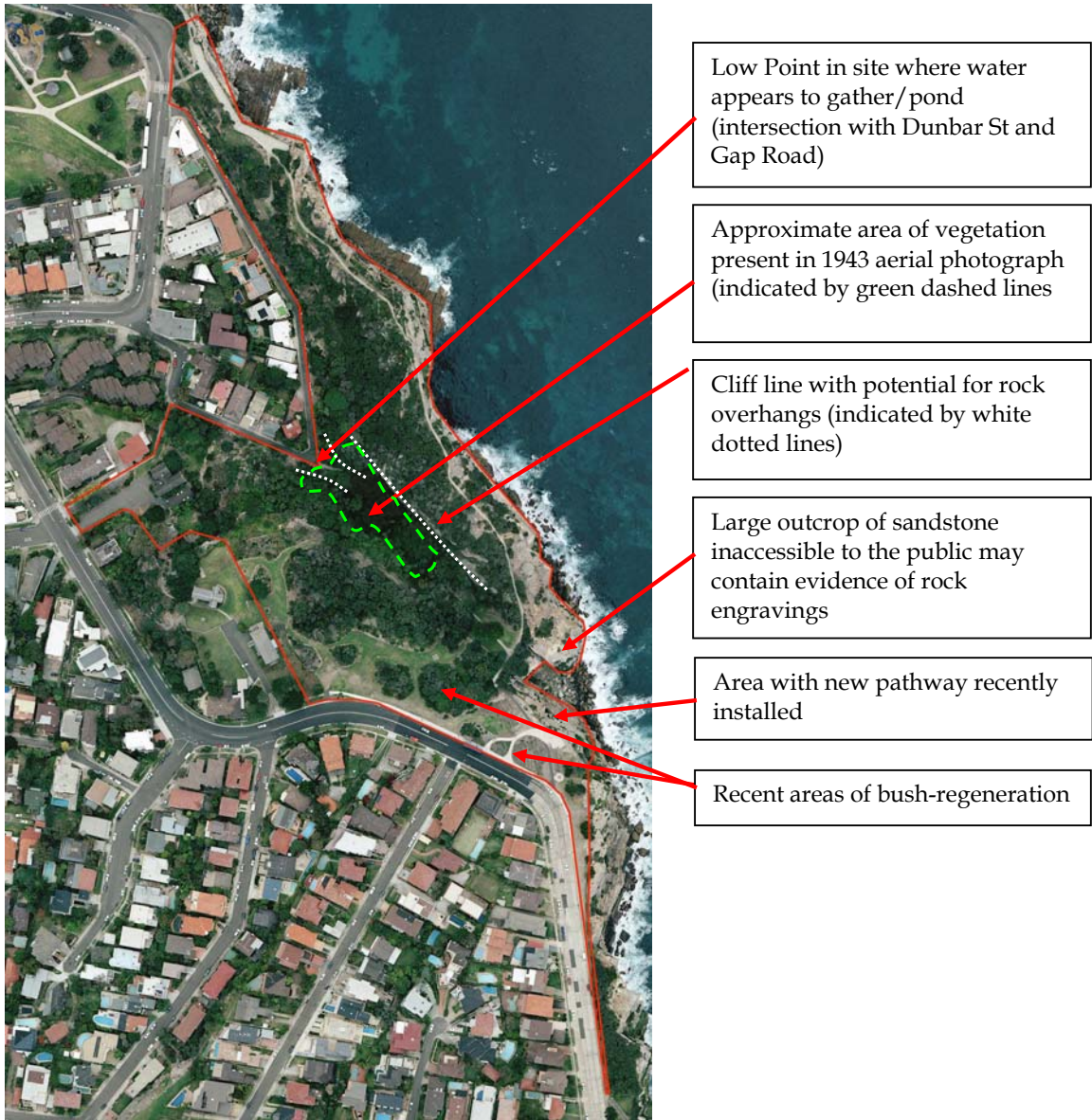


Figure 4 - Aerial photograph of the study area with natural and landscape features observed during survey. *Map Source: Woollahra Municipal Council*

Historical evidence indicates that changes to the park through construction of various structures, formation, regrading and topdressing of pathways from the 1920s, construction of revetments and revegetation have occurred at various times. Major changes included the introduction of the tramline and its later removal – evidence of this can be seen in a cutting running south-north through the central portion of the park. The tramway alignment is still visible as a gravel path running adjacent to the partially cut cliffline in the centre of the park (refer Figure 3).

Other impacts on the park have included construction of two concrete footings in the south-eastern part of the park for use during World War II. Three memorials are also present, two for the wreck of the Dunbar and one for the Lieutenant G. J. Grieve.

The ground visibility was mixed across the park but tended to be good along the cliff top and generally poor in other parts of the site. Although visibility was generally good on the cliff top rock platforms, lichen and low/shrubby ground cover obscured some of the rock surfaces on the western side of the pathway on the cliff-face. Poor ground surface visibility meant that effective detection of archaeological sites was low across most of the subject land.

The soils in the central and western parts of the site are sufficient to retain large to medium sized trees, indicating reasonable depth of soil in these areas. Soils on the cliff top sandstone platforms were very thin to non-existent. Therefore there is very low potential for archaeological deposits on the sandstone platforms and some potential for archaeological deposits in deeper intact soils across central and western portions of the park.

The presence of both exposed and obscured flat sandstone platforms in the study area may contain evidence of engraving. This is suggested by engravings located on similar platforms north of Gap Park²¹.

Some rock overhangs were present beneath the partly cut cliffline in the central part of the study area near the Dunbar Street/Gap Road gully. These have the potential to contain evidence of small rockshelters and associated midden / archaeological deposits.

During the site inspection, no old growth trees of sufficient age to retain cultural scars or markings were observed. Therefore scarred or carved trees are unlikely to be present.

Consultation with La Perouse Local Aboriginal Land Council

The La Perouse Local Aboriginal Land Council (LPLALC) was consulted to identify whether or not the study area has cultural heritage significance to the Local Aboriginal community.

LPLALC HAVE INDICATED THEY WILL PROVIDE INFORMATION REGARDING THE CULTURAL SIGNIFICANCE OF THE SOUTH HEAD AREA AND GAP PARK FOLLOWING RECEIPT OF THE CURRENT REPORT IN DRAFT FORMAT. ADVICE FROM THE LAND COUNCIL WILL THEN BE INCORPORATED INTO THE MAIN TEXT OF THE FINAL VERSION OF THE REPORT AND A COPY OF THEIR CORRESPONDENCE WILL BE INCLUDED AS AN ATTACHMENT.

²¹ Negerevich 1978

Aboriginal Archaeological Constraints

No Aboriginal sites were identified during the site inspection.

Our assessment of archaeological constraints presented below is based on conclusions about archaeological potential drawn from our understanding of local archaeological patterns and our assessment of landscape and prior land use disturbance. We have identified two areas within the Park that contain potential archaeological constraints that will need to be considered during preparation of a Masterplan. The two areas of constraint are shown on Figure 5 and described below.

1. Rock Engraving Zone (Shaded yellow on Figure 5)

The presence of flat sandstone platforms across the eastern side of the study area along the cliff top is consistent with similar landforms to the north which contain rock engravings. The eastern cliff top has potential to contain rock engravings and grinding grooves on flat sandstone outcrops. Some of these areas are currently exposed adjacent to pathways and the cliff edge, however similar areas may also be obscured by grass and low shrub coverage.

Due to the limited nature of this preliminary assessment, which did not include comprehensive survey, additional detailed survey work will be required if pathways or any form of ground disturbance works are proposed within the area marked yellow on Figure 5. The purpose of the detailed survey would be to determine whether or not any engravings/grinding grooves are present within the footprint of the proposed development works. This survey may require supplementary inspections in a variety of lighting conditions, including possibly night survey using oblique light.

Where the survey work identifies Aboriginal rock engravings/grinding grooves, they should be avoided through re-design. If this is not possible, a full *Aboriginal heritage impact assessment (AHIA)* and Aboriginal community consultation in accordance with *DEC Interim Community Consultation Requirements for Applicants (2005)* will be required to determine the cultural significance of the site(s). Please note under the provisions of the *National Parks and Wildlife Act, 1974* Section 90 consent from the Dept of Environment & Climate Change (DECC) would be required prior to any disturbance of an axe grinding groove/engraving site.

2. Rock Shelter and Potential Archaeological Deposit Zone (shaded Orange on Figure 5)

The orange shaded area has been identified as having potential to contain archaeological deposit and rock shelters/overhangs along cliff lines within the study area. This area is less likely to have been directly affected by erosion (because it contains remnant vegetation) and therefore is most likely to have undisturbed soils. This area may also contain rock shelter sites within rock overhangs that have not been affected by quarrying for the tram-alignment cutting.

Further investigation will be required if pathways and any form of ground disturbance works are proposed within the area marked orange on Figure 5. The detailed survey would be to determine whether or not any rock shelters (with archaeological deposit, midden or art) and/or areas of potential archaeological deposit are present within the footprint of the proposed development works.

Where the survey work identifies rock shelters/potential archaeological deposit, they should be avoided through redesign. If this is not possible, a full *Aboriginal heritage impact assessment (AHIA)* and Aboriginal community consultation in accordance with *DEC Interim Community Consultation Requirements for Applicants (2005)* will be required to determine the cultural significance of the site(s). Please note under the provisions of the *National Parks and Wildlife Act, 1974* Section 90 consent would be required from DECC prior to any disturbance of a rock shelter/archaeological deposit and potential archaeological deposit.



Figure 5 - Aerial photograph of the study area showing zones of archaeological potential (yellow and orange) and the old tram alignment (purple).

Map source: Woollahra Municipal Council

Proposed Masterplan

As part of this preliminary assessment we were asked to identify potential Aboriginal heritage constraints on development of The Gap to inform the site's Masterplan.

We understand the Masterplan is in an early stage of development and specific design details have not been determined. We also understand that our study and other environmental studies will assist in the design stage. To that end, if any new works (i.e. outside of existing formalised paths and garden beds etc) are proposed within archaeological potential zones 1 and 2, a detailed Aboriginal heritage impact assessment (AHIA) should be undertaken in advance of the works.

Recommendations

The following recommendations are based upon:

- the legal requirements of the *National Parks and Wildlife Act of 1974*; in conjunction with
- the results of the preliminary archaeological investigation documented in this letter; and
- preliminary consultation with the La Perouse Local Aboriginal Land Council.

It is recommended that:

1. If new works²² are proposed in zone 1 (shaded yellow in Figure 5), a detailed *Aboriginal Heritage Impact Assessment (AHIA)* focusing on identification of rock engravings/grinding grooves should be undertaken. The *AHIA* should include Aboriginal community consultation, undertaken in accordance with Dept of Environment and Climate Change (DECC) *Interim Community Consultation Requirements for Applicants (2005)*;
2. If new works are proposed in zone 2 (shaded orange in Figure 5), a detailed *Aboriginal Heritage Impact Assessment (AHIA)* focusing on identification of rock shelter sites and potential archaeological deposits, should be undertaken. The *AHIA* should include Aboriginal community consultation, undertaken in accordance with Dept of Environment and Climate Change (DECC) *Interim Community Consultation Requirements for Applicants (2005)*;
3. No further action is recommended within the remainder of the subject land, i.e. areas outside of zones 1 and 2 (unshaded areas on Figure 5);

²² New works are defined as any new paths (ie. on new alignments not currently used for paths), new landscaping works, new furniture, new recreational equipment or new planting/garden beds/bush re-generation.

4. **Please Note** : It is an offence under *Section 90* of the *National Parks & Wildlife Act 1974* to disturb, destroy or deface Aboriginal objects without the Consent of the *NSW Dept of Environment & Conservation* (DEC). If any Aboriginal sites or objects are found during the course of development or maintenance works within the Gap Park, excavation work in that area must cease immediately. If the Aboriginal object(s) cannot be avoided by development works (ie. through re-design), a *Section 90 Consent* from DEC will be required before work can recommence.

Please don't hesitate to contact me if you wish to discuss these matters further.

Yours sincerely,

A handwritten signature in cursive script that reads "Felicity Barry".

Felicity Barry
(Archaeologist).

References

- Angas, G. F. 1847. *Savage Life and Scenes in Australia and New Zealand: being an artist's impression of countries and people at the antipodes*. Vol II. Wellington, N. Z: A. H. & A. W. Reed. (Republished in facsimile ed. 1968).
- Attenbrow, V. 2002. *Sydney's Aboriginal Past: Investigating the Archaeological and Historical Records*. UNSW Press, Sydney.
- Attenbrow, V. 1990. *Port Jackson Archaeological Project – Stage II Preliminary Report on Excavations undertaken in August/September 1990 Under NPWS Permit dated 30/7/1990*. Unpublished report.
- Attenbrow, V. 1992. *Port Jackson Archaeological Project – Stage II Report*. Unpublished report to the Australian Institute of Aboriginal and Torres Strait Islander Studies
- Campbell, W. D. 1899. *Aboriginal Carvings of Port Jackson and Broken Bay. Memoirs of the Geological Survey of NSW*. Ethnological Series No. 1. NSW Geological Survey, Sydney.
- Corkill, T. 1990. *Survey for Aboriginal Archaeological Sites at Stickland House, Vacluse, N.S.W.* Unpublished report for Sphere Property Corporation
- Eades, D.K. (1976) *The Dharawal and Dhurga Languages of the NSW South Coast*, Australian Institute of Aboriginal Studies, ANU, Canberra.
- Hiscock, P. 1986. *Technological Change in the Hunter Valley and its Implications for the Interpretation of Late Holocene Change in Australia*. Archaeology in Oceania 21 (1):40-50.
- Hiscock, P. & Attenbrow V. 1998. *Early Holocene Backed Artefacts from Australia*. *Archaeology in Oceania* 33(2)
- Hiscock, P. & Attenbrow, V. 2002. *Morphological and Reduction Continuums in Eastern Australia: Measurement and Implications at Capertee 3*. *Tempus* 7, Anthropology Museum, University of Queensland
- Hiscock, P and V. Attenbrow. 2005. *Australia's Eastern Regional Sequence Revisited: Technology and Change at Capertee 3*. BAR International Series 1397. Archaeopress: Oxford
- Kohen, J. L. 1986. *Prehistoric Settlement in the Western Cumberland Plain: Resources, Environment, Technology*. PhD Thesis, School of Earth Sciences, Macquarie University, Sydney.
- Organ, M. (1990) *Illawarra and South Coast Aborigines, 1770 -1850; A Documentary History*. Aboriginal Education Unit, The University of Wollongong, Wollongong.

Poiner, G. 1976. The Process of the Year Among Aborigines of the Central and South coast of NSW. In Archaeology & Physical Anthropology in Oceania. Vol 11

McDonald, J. 1997. *Interim Heritage Management Report: ADI Site St Marys, Vol. 1: Text*. Report to Lendlease – ADI Joint Venture in Response to the Section 11 Committee Interim Report.

Negerevich, T. 1978. *Aboriginal Rock Engravings – South Head, Sydney Harbour*. Unpublished report to the Australian Department of Housing and Construction

NSW National Parks and Wildlife Service. 1997. *Aboriginal Cultural Heritage: Standards and Guidelines Kit*. Sydney.

Rich, R. 1983. *Hermitage Foreshore Reserve, Vaucluse: Archaeological Survey for aboriginal sites along Proposed Walkway*. Unpublished report for NSW National Parks and Wildlife Service

Rich, E. 1984. *Hermitage Foreshore Reserve – Investigation of Midden IV*. Unpublished report to NSW National Parks and Wildlife Service

Roads and Traffic Authority NSW .2005. *From the Skies Aerial Photographs of Sydney in 1943*

Ross, A. 1976. *Intertribal Contacts: What the First Fleet Saw*. BA Honours Thesis, Department of Anthropology, University of Sydney

Tench, W. (1996) 1788; The Settlement at Port Jackson. Text Publishing Company, Melbourne.

Woollahra Local History Centre. 2005. Gap Park, Watsons Bay. Unpublished document

Attachment 1: Correspondence from La Perouse Local Aboriginal Land Council

APPENDIX B

REPORT

Gap Park Masterplan: Fauna Report

By Ecological Australia

Ecological Assessment

Fauna Report for the Gap Masterplan
(Project No. 069-053)

Report prepared for:
Thompson Berrill Landscape Design Pty Ltd

August 2007

Document Tracking

Item	Detail	Signature
Project Name	Ecological Assessment – Fauna Report for the Gap Masterplan	
Project Number	069-053	
Prepared by	EL	
Prepared by		
Approved by	BM	
Status	Draft	
Version Number	V1	
File location	G:\Current_Projects\Private Clients\Eco Assessment\The Gap Landscape Masterplan\Report\Fauna report_draftv1.doc	
Last saved on	8 August 2007	

Acknowledgements

This document has been prepared by Eco Logical Australia Pty Ltd with support from Thompson Berrill Landscape Design (TBLD).

Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and TBLD. The scope of services was defined in consultation with the client, by time and budgetary constraints imposed by the client, and the availability of reports and other data on Gap Park. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information.

Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Contents

1. INTRODUCTION.....	1
1.1 STUDY AREA.....	1
2. METHODS.....	3
2.1 LITERATURE REVIEW	3
2.2 DATA AUDIT	3
2.3 AERIAL PHOTO INTERPRETATION.....	3
2.4 SITE INSPECTION.....	3
3. RESULTS.....	4
3.1 DATA AUDIT.....	4
3.2 VEGETATION AND FAUNA HABITAT.....	4
3.3 FAUNA OBSERVED.....	7
3.4 POTENTIAL IMPACTS OF INCREASED HUMAN USE OF GAP PARK ON FAUNA	7
3.4.1 <i>Vegetation loss</i>	7
3.4.2 <i>Increased lighting</i>	8
3.4.3 <i>Pathways</i>	8
3.4.4 <i>Human presence</i>	9
4. RECOMMENDATIONS.....	10
5. CONCLUSION	10
6. REFERENCES	11
APPENDIX 1 – LIST OF FAUNA PREVIOUSLY RECORDED IN GAP PARK.....	12

1. Introduction

A report detailing the local fauna species and their habitats in Gap Park, Watsons Bay, as well as the potential effects of increased usage of Gap Park on local fauna, is required by Thompson Berrill Landscape Design (TBLD) for their submission of a Masterplan for Gap Park to Woollahra Council.

This document reports the findings from a site inspection of Gap Park, provides information on fauna species previously recorded in the park, comments on the relative diversity, capacity, condition and connectivity of habitat for fauna in the park, and details some impacts of increased human use of the park on fauna and their habitats.

1.1 Study Area

Gap Park is located at approximately 151°17'E, 33°51'S in the Woollahra Local Government Area. The Park is just under 5 ha and is bounded by mostly residential development to its west and south, coastline to its east, and a small area of National Park (South Head) to its north which forms part of Sydney Harbour National Park (Figure 1).

Much of the vegetation in Gap Park is remnant vegetation and can be described as heath and low scrub (WMC 2004). Vegetation is approximately 2 – 5 m in height and typical species include Sydney coast wattle (*Acacia longifolia*), ccrub she-oak (*Allocasuarina distyla*), tick bush (*Kunzea ambigua*), heath banksia (*Banksia ericifolia*), coast rosemary (*Westringia fruticosa*), and Port Jackson mallee (*Eucalyptus obtusiflora*). Bush regeneration works have occurred in Gap Park since the 1980s (WLHC 2005) and approximately 74% of bushland in Gap Park was maintained at the end of 2004 (WMC 2004).

Soils in Gap Park are highly erodible, shallow and infertile quartz sands derived from Hawkesbury sandstones (WMC 2004). The topography is generally undulating and comprises low hills and rocky outcrops. No creeks traverse Gap Park, although a spring used to occur near Gap Bluff to the north of Gap Park that fed Glen Creek running west to Watsons Bay (WMC 2004).

The climate of the Park is typical of the Sydney region, which can generally be described as temperate. Climatic data for the study area in the 3 months leading up to the survey are shown in Table 1. Data were obtained from the Bureau of Meteorology website for the nearest weather recording station at Observatory Hill.

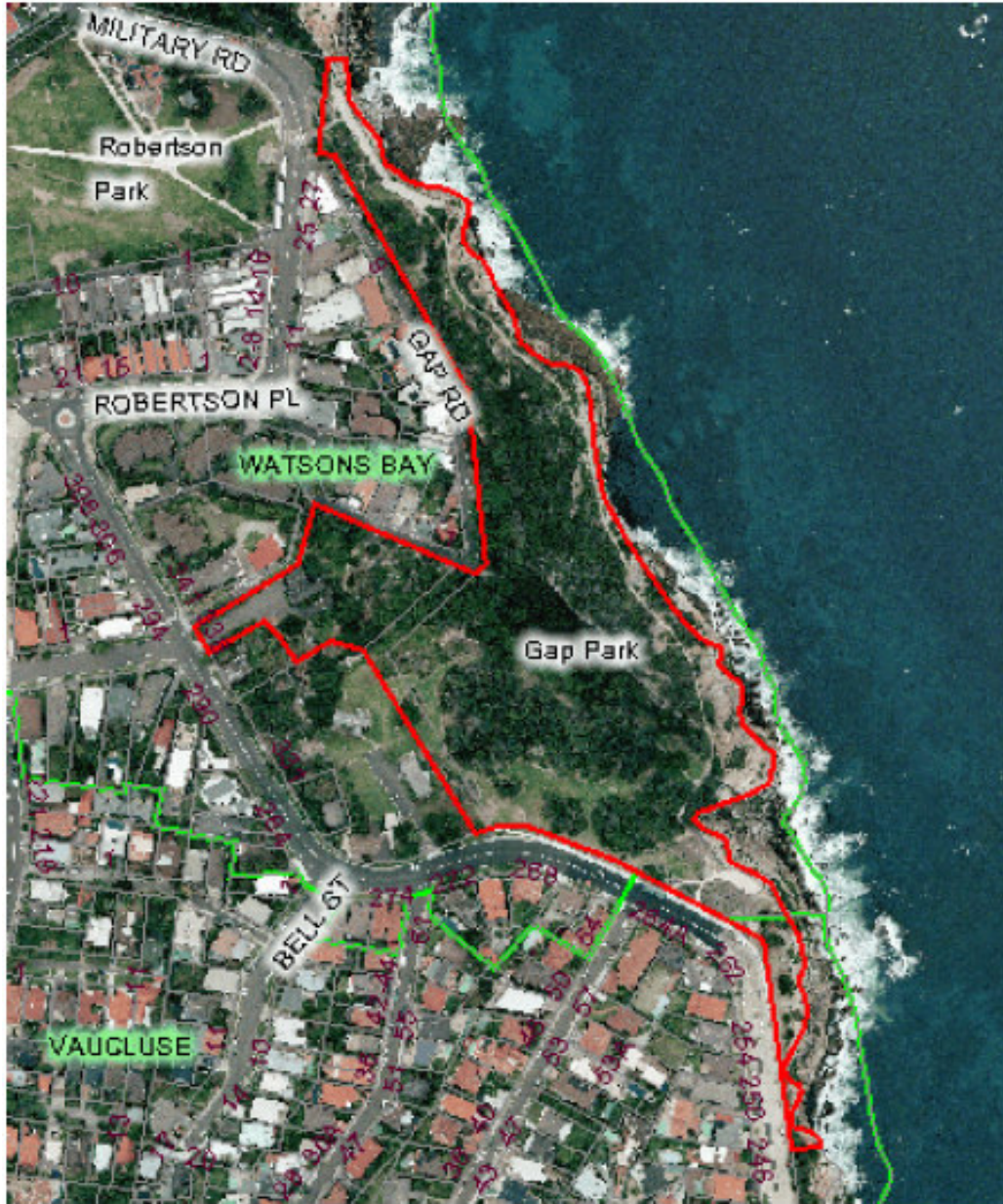


Figure 1: Location of Gap Park, Watsons Bay.

Table 1: Climate data leading up to the survey. Historical averages are shown in brackets

	Month / 2006	Average daily maximum temp (°C)	Average daily minimum temp (°C)	Monthly rainfall (mm)
Observatory Hill	May	22.4 (19.4)	13.7 (11.5)	9.8 (121.5)
	June	16.8 (16.9)	9.4 (9.3)	510.6 (130.6)
	July	17.1 (16.2)	8.5 (8.0)	67.2 (97.8)

Sources: http://www.bom.gov.au/climate/averages/tables/cw_066062.shtml (Observatory Hill historical averages); <http://www.bom.gov.au/climate/dwo/200704/html/IDCJDW2124.200704.shtml> (2007 averages).

2. Methods

2.1 Literature Review

Literature on effects of habitat loss, fragmentation and artificial lighting on fauna was reviewed to determine potential effects of increased use of Gap Park by humans.

2.2 Data Audit

A search of the Atlas of NSW Wildlife was performed for fauna within Sydney Harbour National Park on 9/07/07. While this search resulted in a list of fauna for the whole of Sydney Harbour National Park, which is comprised of many scattered areas around Sydney Harbour, the list was considerably smaller than that produced from a search of fauna within a 10 km radius of Gap Park (minimum area searched in the Atlas).

The fauna list for Sydney Harbour National Park was examined to determine species (including threatened species) likely to occur in Gap Park. In addition, flora and fauna lists for Gap Park (WMC 2003) and flora lists for the Woollahra Municipality (WMC 2004) were examined, with lists inspected to determine fauna species likely to occur and habitats likely to be present in the area.

2.3 Aerial Photo Interpretation

Aerial photographs of the site and surrounding area were provided by the client and were used to investigate the extent of vegetation cover, landscape features and land use in the area.

2.4 Site Inspection

Survey of Gap Park was conducted by Dr Enhua Lee of Eco Logical Australia on 2/08/07. Random traverses of the areas were undertaken to collect site-specific data pertaining to the vegetation communities and habitat values for fauna potentially occurring on site. Although targeted surveys were not undertaken, particular attention was paid to microhabitats and points of interest (eg. rock crevices, fallen logs) within the park.

Vegetation communities encountered were described and notes on habitat taken. All fauna observations were recorded. The site inspection took approximately 3 person hours to complete.

Weather conditions for the months preceding the inspection were recorded in Table 1, while daily information leading up to the inspection are recorded below (Table 2).

Table 2: Weather conditions leading up to (2 days) and during field work (1 day), recordings at Observatory Hill, Sydney NSW.

Date	Max Temp	Min Temp	Rain
31/07/07	18.6	6.3	0
1/08/07	24.2	8.2	0
2/08/07	21.9	16.4	0

Source: <http://www.bom.gov.au/climate/dwo/200707/html/IDCJDW2124.200707.shtml>

3. Results

3.1 Data audit

A total of 186 fauna species (mostly vertebrate species; 14 introduced), including 15 threatened fauna species have been recorded as occurring in or near (within nearby waters) Sydney Harbour National Park. Due to a lack of habitat diversity within Gap Park, most of the fauna species have a low likelihood of occurrence for Gap Park. Three species of threatened fauna recorded in Sydney Harbour National Park (listed as vulnerable under the *Threatened Species Conservation Act 1995* (TSC Act)) potentially occur on or in waters near Gap Park (sooty tern *Sterna fuscata*, humpback whale *Megaptera novaeangliae*, and grey-headed flying-fox *Pteropus poliocephalus*), and 2 of these (humpback whale and grey-headed flying-fox) have been confirmed to occur on or close to Gap Park (Appendix 1).

Eighty-four species of vertebrate fauna (12 introduced) have previously been recorded as occurring on or near Gap Park (Appendix 1). In addition to the humpback whale and grey-headed flying-fox, the barking owl (*Ninox connivens*) has also been recorded and is listed as vulnerable under the TSC Act.

3.2 Vegetation and fauna habitat

The vegetation communities in Gap Park were mostly coastal heath and low scrub communities (Figure 2), although there was also a small area of low forest in the east of the Park along Gap Road (Figure 3), which contained rainforest elements. Norfolk pine (*Araucaria heterophylla*) was present in Gap Park, which is likely to have provided habitat for fauna, but did not form a distinct vegetation community with the other native plant species. None of the vegetation communities occurring on Gap Park are considered to be endangered ecological communities.



Figure 2: Coastal heath community with exposed Hawkesbury sandstone, Gap Park.



Figure 3: Low forest community with rainforest elements, Gap Park.

Typical species in the heath and low scrub communities were Sydney coast wattle (*Acacia longifolia*), coast tea tree (*Leptospermum laevigatum*), swamp oak (*Casuarina glauca*), tick bush (*Kunzea ambigua*), coast banksia (*Banksia integrifolia*), old man banksia (*B. serrata*), coast rosemary (*Westringia fruticosa*), Port Jackson fig (*Ficus rubiginosa*), and sweet pittosporum (*Pittosporum undulatum*). Typical species in the low forest community included Moreton Bay fig (*Ficus macrophylla*), cabbage tree palm (*Livistona australis*), sweet pittosporum (*Pittosporum undulatum*), lilly pilly (*Acmena smithii*), smooth-barked apple (*Angophora costata*), black she-oak (*Allocasuarina littoralis*), and swamp oak. Ground cover in the low forest community contained many fern species, such as bracken (*Pteridium esculentum*).

Much of the vegetation in Gap Park was remnant and, as bush regeneration activities within the park are designed to encourage natural germination, there was a fair amount of regrowth in the vegetation communities. The vegetation communities were in relatively good condition, with high canopy cover and a high ratio of native to introduced plant species. Vegetation communities were also relatively continuous such that besides stretching across the park, communities were continuous with those to the north and south of the park, connecting communities on South Head in Sydney Harbour National Park with communities further down from South Head in Signal Hill Reserve. It is likely, therefore, that Gap Park represents an important corridor for wildlife movement on South Head.

There were a number of habitat elements present on Gap Park that may be used by fauna. In particular, fallen logs and branches were present in the vegetation communities. Fallen logs provide complexity to the vegetation communities and provide shelter for ground-dwelling mammals and reptiles, and foraging habitat for some birds. Litter was also present in the vegetation communities and this was particularly deep in the low forest community in Gap Park. Litter is used by many

ground-dwelling mammals, reptiles and birds for shelter and foraging. As well, there were many areas of exposed Hawkesbury sandstone in all vegetation communities. The sandstone varied from flat horizontal slabs (Figure 2) to boulders and steep cliff faces with caves (Figures 4 and 5). These provided areas for lizards to bask on, for ground-dwelling fauna to shelter and forage in, and for mammals such as bats to roost in. No hollow-bearing trees were observed on Gap Park.



Figure 4: Exposed Hawkesbury sandstone, Gap Park.



Figure 5: Exposed Hawkesbury sandstone with caves, Gap Park.

3.3 Fauna observed

Nineteen species of bird and one mammal species were recorded during the site inspection of Gap Park (Table 3). The majority of the bird species are native species and considered to be common in the Sydney area, while three bird species, the common starling (*Sternus vulgaris*), house sparrow (*Passer domesticus*) and feral pigeon (*Columba livia*), are introduced species. The mammal species observed, the domestic dog (*Canis familiaris*), is also an introduced species.

Table 3: Fauna recorded in Gap Park. * Denotes introduced species.

Scientific Name	Common Name
<i>Anthochaera carunculata</i>	Red Wattlebird
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo
<i>Canis familiaris</i>	Domestic Dog
<i>Columba livia</i> *	Feral Pigeon
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike
<i>Corvus coronoides</i>	Australian Raven
<i>Dacelo novaeguineae</i>	Laughing Kookaburra
<i>Falco cenchroides</i>	Nankeen Kestrel
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Larus novaehollandiae</i>	Silver Gull
<i>Malurus cyaneus</i>	Superb Fairy-wren
<i>Manorina melanocephala</i>	Noisy Minor
<i>Ocyphaps lophotes</i>	Crested Pigeon
<i>Passer domesticus</i> *	House Sparrow
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater
<i>Sericornis frontalis</i>	White-browed Scrubwren
<i>Sturnus vulgaris</i> *	Common Starling
<i>Strepera graculina</i>	Pied Currawong
<i>Streptopelia chinensis</i>	Spotted Turtle-dove
<i>Trichoglossus haematodus</i>	Rainbow Lorikeet

3.4 Potential impacts of increased human use of Gap Park on fauna

3.4.1 Vegetation loss

The vegetation communities of Gap Park are remnant patches representing the original vegetation communities present prior to European settlement (WMC 2004). Any loss of vegetation from these communities will have a negative impact on local fauna. This is because fauna reliant on the habitats provided by existing vegetation of Gap Park will have less area in which to shelter, forage, and potentially reproduce and disperse. Removal of dead vegetation (fallen logs, litter) will also have a

negative impact on fauna due to some fauna using these elements as sheltering or foraging habitat.

The location where vegetation is removed may affect the extent of the impact of vegetation loss on fauna. For example, removal of vegetation from the edges of communities may have less impact on dependent fauna than removal of vegetation from core areas within communities. This is because edge and core areas of vegetation communities support different types of fauna (those adapted and less adapted to 'edge' environments exposed to disturbance) and removal of vegetation and fauna habitat from edge areas creates less disturbance to vegetation communities than removal from core areas (due to different levels of disturbance already experienced in the two areas). Nevertheless, vegetation loss will still result in a net loss of potential habitat for fauna and will thus impact local fauna.

3.4.2 Increased lighting

Studies on the effects of artificial lighting, which increases the amount of light that would be experienced naturally, have shown that artificial lighting influences fauna in both positive and negative ways (Outen 2002). Increased lighting can increase food density, with light attracting insects. This can benefit nocturnal insectivorous fauna, such as microchiropteran bats. In addition, increased lighting can prolong foraging periods for diurnal fauna, affording them more time to feed.

Negative effects of increased lighting on fauna include loss of protection provided by darkness (both nocturnal and diurnal fauna) that may expose fauna to greater predation risk, decreases in aestivation periods for diurnal fauna, and decreases in foraging habitat for light-sensitive nocturnal fauna.

Lighting may also increase the potential for fauna to be disturbed by humans and may decrease the area of available roosting habitat on site (associated with increased disturbance and light penetration).

Given that artificial lighting affects fauna, increased lighting in Gap Park will affect local fauna in the park. Whether the impacts will be positive or negative, however, will be dependent on the responses of fauna species to increased light. The majority of fauna recorded in the park are diurnal species (Appendix 1), so it is likely that increased lighting in the park will have negative rather than positive effects on local fauna overall. Moreover, nocturnal species recorded in Gap Park include tawny frogmouth (*Podargus strigoides*) and the threatened barking owl (*Ninox connivens*), species which are unlikely to be attracted to illuminated areas.

3.4.3 Pathways

The construction of more paths through Gap Park will likely further fragment an already highly fragmented habitat. This fragmentation of habitat will affect local fauna species as fauna preferring core-habitat areas will be forced into edge habitats, which will expose them to predators and less favourable microhabitats. Given the small size of Gap Park (just under 5 ha), there is already little remaining core habitat in the park.

In addition, the fragmentation of habitat may act as a barrier to movement for small ground dwelling fauna. Many pathways already traverse Gap Park, and while two paths border the park (along the coast and on the eastern side of the park), some cut through continuous vegetation at the core of the park, fragmenting existing habitat. At present, existing paths are unlikely to act as barriers to small fauna movement across them as paths are generally grassy or have natural surfaces. It is likely, though, that if paths are sealed with concrete as they are along the coast, or widened, paths will act as semi-permeable barriers to small fauna movement.

3.4.4 *Human presence*

During the site inspection, it was noted that many fauna species were habituated to human presence. It is, therefore, likely that increased human presence in the park will not negatively impact local diurnal fauna. However, nocturnal fauna may be affected by the presence of humans if humans are present during their foraging hours and humans decrease their foraging success. Increased human access along illuminated paths may also affect the suitability of areas for roosting.

4. Recommendations

The potential impact of lighting has been discussed in the previous section. However, lighting can take various forms, and some of these may impact fauna in different ways. For example, lighting mounted high up on poles will cast light further than low level lights (1m) illuminating a pathway. Low level lighting is less likely to affect roosting habitat beyond a pathway than lighting mounted well above a path.

It is therefore recommended that the following be considered:

- Low level lights (1 m high) be used for illumination in Gap Park
- Globes with a low wattage be used for illumination in Gap Park
- The Masterplan should seek to divert access away from key habitat areas. This can be achieved by the use of formed paths and careful location of other park facilities.
- Interpretive signage can also be used to educate the public of the different habitat types and of their importance. Signs can also identify common species occurring within the park.

5. Conclusion

Gap Park contains remnant heath and low scrub, and low forest communities, the latter of which contains rainforest elements. These vegetation communities are in good condition and connect vegetation communities on South Head to those further down the peninsula. Vegetation communities in Gap Park, therefore, act as a wildlife corridor for fauna movements along the southern peninsula of Sydney Harbour.

Many habitat elements are present in Gap Park for fauna. These habitats include:

- Forest
- Heath
- Grassland (turf)
- Litter
- Woody debris
- Coastlines
- Rock outcrops and surface rocks

These represent habitats for a diverse range of birds, mammals, reptiles and amphibians.

The development of Gap Park for increased use by humans, which may include the removal of vegetation, installation of artificial lighting, and construction or upgrading of paths will impact local fauna.

6. References

Outen, A. R. (2002). *The ecological effects of road lighting*. In **Wildlife and Roads: the ecological impact**. Edited by B. Sherwood, D. Cutler and J. Burton. Imperial College Press, London.

Woollahra Local History Centre (2005). *Gap Park, Watsons Bay*.

Woollahra Municipal Council (2003). *Gap Park Flora and Fauna 2002/2003*. Woollahra Municipal Council, Double Bay.

Woollahra Municipal Council (2004). *State of the Environment Report 2003/2004*. Woollahra Municipal Council, Double Bay.

Appendix 1 – List of fauna previously recorded in Gap Park

The following list of fauna is sourced from the 2002 – 2003 Flora and Fauna List for Gap Park (WMC 2003). * Denotes introduced species.

CLASS-AVES (BIRDS)

ORDER PROCELLARIIFORMES

Family Pelecanoididae

Pelecanoides urinatrix

Common Diving-Petrel

Family Diomedidae

Diomedea exulans

Wandering Albatross

D. epomophora

Royal Albatross

Family Procellariidae

Puffinus tenuirostris

Short-tailed Shearwater

ORDER SPHENISCIFORMES

Family Spheniscidae

Eudyptula minor

Little Penguin

ORDER PELECANIFORMIS

Family Phalacrocoracidae

Phalacrocorax varius

Pied Cormorant

P. carbo

Great Cormorant

P. sulcirostris

Little Black Cormorant

P. melanoleucos

Little Pied Cormorant

Family Sulidae

Morus serrator

Australasian Gannet

ORDER CICONIIFORMES

Family Ardeidae

Ardea novaehollandiae

White-faced Heron

Egretta sacra (Syn *Ardea*)

Eastern Reef Egret

ORDER FALCONIFORMES

Family Falconidae

Falco cenchroides

Australian Kestrel

F. longipennis

Australian Hobby

ORDER CHARADRIIFORMES

Family Charadriidae

Vanellus miles

Masked Lapwings

Family Laridae

Larus novaehollandiae

Silver Gull

Sterna caspia
S. hirundo
S. bergii

Caspian Tern
 Common Tern
 Crested Tern

ORDER COLUMBIFORMES

Family Columbidae
Columba leucomela
 **Columba livia*
Streptopelia chinensis
Ocyphaps lophotes
Geopelia humeralis

White-headed Pigeon
 Feral Pigeon
 Spotted Turtle-Dove
 Crested Pigeon
 Bar-shouldered Dove

ORDER PSITTACIFORMES

Family Psittacidae
Cacatua galerita
C. roseicapillus
Trichoglossus haematodus
Melopsittacus undulatus
Barnardius zonarius
Platycercus elegans
P. eximius
Psephotus haematonotus

Sulphur-crested Cockatoo
 Galah
 Rainbow Lorikeet
 Budgerigar (escapees)
 Ringneck (escapees)
 Crimson Rosella
 White-cheeked Rosella
 Red-rumped Parrot (escapees)

ORDER CUCULIFORMES

Family Cuculidae
Eudynamys scolopacea

Common Koel

ORDER STRIGIFORMES

Family Strigidae
Ninox connivens

Barking Owl

Family Podargidae
Podargus strigoides

Tawny Frogmouth

ORDER CORACIIFORMES

Family Alcedinidae
Dacelo novaeguineae
Alcedo azurea

Laughing Kookaburra
 Azure Kingfisher (Gap Rd 95)

ORDER PASSERIFORMES

Family Hirundinidae
Hirundo neoxena

Welcome Swallow

Family Motacillidae
Anthus novaeseelandiae

Richard's Pipit

Family Campephagidae
Coracina novaehollandiae

Black-faced Cuckoo-shrike

Family Pycnonotidae <i>*Pycnonotus jocosus</i>	Red Whiskered Bulbul
Family Pachycephalidae <i>Eopsaltria australis</i> <i>Rhipidura rufifrons</i> <i>R. fuliginosa</i> <i>R. leucophrys</i>	Eastern Yellow Robin Rufous Fantail Grey Fantail Willie Wagtail
Family Maluridae <i>Malurus cyaneus</i>	Superb Fairy-wren
Family Acanthizidae <i>Sericornis frontalis</i>	White-browed Scrubwren
Family Meliphagidae <i>Anthochaera carunculata</i> <i>A. lunulata</i> <i>Manorina melanocephala</i> <i>Lichenostomus melanops</i> <i>L. penicillatus</i> <i>Phylidonyris novaehollandiae</i> <i>Acanthorhynchus tenuirostris</i>	Red Wattlebird Little Wattlebird Noisy Miner White-eared Honeyeater White-plumed Honeyeater New Holland Honeyeater Eastern Spinebill
Family Pardalotiae <i>Pardalotus punctatus</i>	Spotted Pardalote
Family Zosteropidae <i>Zosterops lateralis</i>	Silvereye
Family Ploceidae <i>*Passer domesticus</i>	House Sparrow
Family Sturnidae <i>*Sturnus vulgaris</i> <i>*Acridotheres tristis</i>	Common Starling Indian Mynah
Family Grallinidae <i>Grallina cyanoleuca</i>	Australian Magpie-lark
Family Cracticidae <i>Cracticus torquatus</i> <i>Gymnorhina tibicen</i> <i>Strepera graculina</i>	Grey Butcherbird Australian Magpie Pied Currawong
Family Corvidae <i>Corvus coronoides</i>	Australian Raven

CLASS-MAMMALIA**SUBCLASS-Eutheria**

ORDER- Chiroptera

SUBORDER- Megachiroptera

Family Pteropodidae

Pteropus poliocephalus

Grey-headed Flying Fox

ORDER- Rodentia

SUBORDER- Myomorpha

Family-Muridae

Subfamily- Murinae

*Rattus fuscipes***R. rattus***R. norvegicus***Mus musculus*Bush Rat
Black Rat
Brown Rat
House Mouse

ORDER- Pinnipedia

Family-Phocidae

Hydrurga leptonyx

Leopard Seal

ORDER-Lagomorpha

Family- Leporidae

**Oryctolagus cuniculus*

Rabbit

ORDER- Carnivora

Family- Canidae

**Canis sp.* (unleashed/vagrants)

Dog

Family-Felidae

**Felis catus*

Cat

ORDER-Artiodactyla

SUBORDER-Ruminantia

Family- Bovidae

**Capra hircus* (extinct)

Goat

ORDER- Cetaceans

SUBORDER- Mysticeti

Family- Balaenidae

Megaptera novaeangliae

Humpback Whale

SUBORDER- Odontoceti

Family- Delphinidae

*Delphinus delphis**Tursiops truncatus*Common Dolphin
Bottlenose Dolphin

SUBCLASS-Marsupialia

ORDER- Diprotodonta
 SUPERFAMILY- Phalangeroidea
 Family- PHALANGERIDAE
Trichosurus vulpecula

Common Brushtail Possum

CLASS-AMPHIBIA

ORDER- Salientia
 Family- Myobatrachidae
Limnodynastes peronii

Brown-striped Frog

ORDER- Squamata

SUBORDER- Sauria

Family- Gekkonidae

Oedura lesueurii

Lesueur's Velvet Gecko

Family- Scincidae

Tiliqua scincoides

Blue Tongue Lizard

Lampropholis guichenoti

Garden Skink

Ctenotus taenioilatus

Copper-tail Skink

SUBORDER- Serpentes

Family- Elapidae

Pseudechis porphyriacus

Red Belly Black Snake

CLASS-INSECTA

ORDER- Odonata

SUBORDER-Zygoptera

Damselflies

SUBORDER- Anisoptera

Dragonflies

ORDER- Blattodea

Family- Blattidae

**Periplaneta americana*

American Cockroach

Family- Blattellidae

**Blattella germanica*

German Cockroach

ORDER- Isoptera

Family- Rhinotermitidae

**Coptotermes acinaciformis*

Coptotermes

Family- Termitidae

Nasutitermes walker

Niggerhead

ORDER- Mantodea

Family- Mantidae

Tenodera sp

Praying Mantis

ORDER- Orthoptera	
SUBORDER- Ensifera (Crickets)	
SUPERFAMILY- Grylloidea	
Family- Gryllidae	
<i>Teleogryllus sp</i>	Black-field Cricket
Family- Gryllotalpidae	
<i>Gryllotalpa sp</i>	Mole Cricket
SUPERFAMILY- Gryllacridoidea	
Family- Gryllacrididae	
<i>Nunckeria sp</i>	
SUBORDER- Troctomorpha	
Family- Liposcelidae	
<i>Liposcelis sp</i>	Booklouse
ORDER-Hemiptera	
SUBORDER- Sternorrhyncha	
Family- Aphididae	
Unknown species	
SUPERFAMILY- Coccoidea	
Family- Eriococcidae	
<i>Apiomorpha sp</i>	Galls
<i>Margarodidae</i>	
<i>Icerya purchasi</i>	Cottony Cushion Scale
<i>Monophlebulus pilosior</i>	Mealybug
SUBORDER- Auchenorrhyncha	
Family- Cicadidae	
Unidentified small black species	
Family- Flatidae	
<i>Siphanta sp</i>	Planthopper
SUBORDER- Heteroptera	
Family- Scutelleridae	
<i>Tectocoris diophthalmus</i>	Harlequin Bugs
ORDER- Coleoptera	
SUBORDER- Polyphaga	
Family- Scarabaeidae	
Unknown species seen var. locales Gap Park.	
Subfamily- Rutlinea	
<i>Anoplognathus sp</i>	Christmas Beetles
<i>Calloodes sp</i>	
Family- Curculionidae (Weevils)	
Unknown species seen var. locales Gap Park)	
ORDER- Diptera	
SUBORDER- Nematocera	
Family- Culicidae	
<i>Aedes sp</i>	Domestic Mosquito
SUBORDER-Bracycera	
Family- Dolichopodidae	
<i>Sciapus sp?</i>	Longlegged Fly

Family- Muscidae	
<i>Musca domestica</i>	House Fly
<i>M. vetustissima</i>	Bush Fly
ORDER- Lepidoptera – many unidentified as yet	
Superfamily-Papilionidae	
Family- Pieridae	
<i>Appias paulina ega</i>	Common Albatros
ORDER- Hymenoptera	
SUBORDER- Symphyta	
Family- Pergidae	
<i>Perga sp.</i>	Spitfire Grubs
(a) SUBORDER- Apocrita (Terebrant (Parasitica) Group	
Family- Ichneumonidae	
<i>Cissopimpla sp.</i>	Ichneumon Wasp
(b) SUBORDER- Apocrita Aculeate Group	
Superfamily- Vespoidea	
Family- Vespidae (Paperwasps, Potter Wasps)	
Unidentified species in some trees and shed windows.	
Family- Formicidae (Ants)	
Unidentified species	
Superfamily- Apoidea	
Family- Apidae	
* <i>Apis mellifera</i>	Honey Bee
<i>Trigona sp.</i>	Native Honey Bee

CLASS-ARACHNIDA

ORDER- Araneae	
SUBORDER- Araneomorphae (Modern Spiders)	
Family- Heteropodidae	
<i>Holconia immanis</i>	Sydney Huntsman
Family- Pholcidae	
<i>Pholcus phalangoides</i>	Daddy Long-legs
Family- Theridiidae	
<i>Lactrodectus hasselti</i>	Red-back
Family- Araneidae	
<i>Nephila ornata</i>	Golden Orb-weaving

APPENDIX C

MEETING MINUTES

Gap Park Masterplan: Background Document Summary



Gap Park Masterplan

Background Document Summary

1. WATSONS BAY HERITAGE CONSERVATION AREA DEVELOPMENT CONTROL PLAN, FEBRUARY 2004

1.1 Abstract

- The DCP outlines in detail the development details and recommendations for Watson's Bay.

1.2 Part 3: Precincts

Upper Gap Park precinct

- Existing topography and vegetation should be maintained.
- New plantings should not obscure existing views and vistas.
- Additional cultural plantings not appropriate, but retain existing pines and figs.
- Public views to and from Watson's Bay, Sydney Harbour, and the waterfront, The Gap and within the park are to be retained.
- No new structures to be constructed.
- New structures limited to commemorative structures, public artworks, etc. to not 'clutter' the landscape.
- No additional fencing should be constructed. New fencing should be as low as possible.
- No additional parking.
- Existing public access (including disabled access) to be retained throughout park.
- New path colours and fences to be recessive

1.3 Part 5: Public domain principles

5.3.1 Parks

- Formal layout of parks to be retained, including built elements, paths and cultural plantings. To reflect their key development period.
- Significant views and vistas to be retained, through the careful location of plantings and structures
- New plantings and structures to enhance public views and vistas between The Gap and the beach.
- Structures located to protect and enhance views and vistas. Should be designed to enhance the character of the area, in terms of character, scale, massing, form, colour and materials.

5.3.3 Waterfront

- Public promenades to be retained along waterfront and from Marine Parade to The Gap, through Robertson Park.

5.3.4 Landscape elements

- Significant landscape elements such as cultural plantings (street trees and park vegetation), sandstone retaining walls, and steps should be conserved.
- Street trees only to be planted along street with verges.
- Street trees to be consistent with the period planting of the area.
- New retaining walls should be of similar design to traditional walls in the area in terms of their character, height and materials.
- The scale and proportion of new steps should be consistent with the existing built form, and should comply with Australian Standards.
- New steps and ramps should be designed and located to enhance amenity and opportunities for vistas.

5.3.5 Signs and advertising

- The style and colours of signs should complement the historic character of the area.
- Signs should be discreet.
- Signs should be provided for the interpretation of heritage items and sites, walks and parks. They should incorporate brief historical information.
- The cumulative visual impacts of signs should be assessed and the number of signs limited appropriately to avoid visual cluttering of the streetscape.

5.3.9 Public access

- Opportunities should be retained and created for pedestrian circulation through the Watson's Bay area.

5.3.10 Services

- Lighting standard should not extend above the adjacent tree line, or the line of the cliffs, when viewed from the harbour.

2. CONSERVATION PLAN FOR FORMER BIOLOGICAL STATION 31 PACIFIC STREET, WATSON'S BAY, DECEMBER 1986

2.1 Abstract

- This paper was written to present evidence of former biological station building as an item of heritage significance.

2.2 Section 1: Cultural Significance

1.2.5 European Settlement 1840-1877

- Permanent settlement brought denudation of indigenous flora, mainly by domestic goats. Landforms of native grasses and dominate sandstone outcrops.
- 1850s and 1860s military fort established at south head, as well as public ferry wharf, hotel, post office and pilot station at Watson's Bay.
- 1869 horse drawn 'bus' established from Circular Quay to Watson's Bay.

1.2.6 European Settlement 1878-1887

- Zoo station gazetted in 1879. Sited at Watsons Bay address for good view (on small hill in peninsular) and isolation. Completed in 1881.
- 1885-1886 site named 'biological station', and taken over by military.

1.2.7 European Settlement 1887-1927

- Watson's Bay area became residential in late 19th century.

1.3 Nicolai de Miklouho Maclau

- Worked as biologist in former biological station building 1881 – 1886.

1.7 Landscape Setting

1. Natural site pre-European with two major plant communities:
 - Diverse, adapted to nutrient starved sandstone ledges.
 - Adapted to deep, sandy, rich soils and high levels of water.
2. Cleared landscape with predominately exposed sandstone, grass, sand, and fresh water.
3. Cultural landscape with isolation, and biological station as only large building of area.
4. Cultural landscape as a garden setting to support military residences.

3. WOOLLAHRA OUTDOOR RECREATION AND OPEN SPACE STRATEGY, OCTOBER 1992

3.1 Abstract

- The outdoor recreation and open space strategy provides direction to local government authorities in the future provision of open space.

3.2 Section 3: Open Space Goals

3.1 Woollahra Council's Vision

- Facilitate the enhancement of quality of life of its community
- Conserve the natural and built environment of the municipality.
- Foster the individuality of local areas and the diverse range of lifestyles they offer, yet maintain an overall harmony within this diversity.

3.3 Section 5: The Community and Open Space Needs

5.2.2 Recent Studies in Woollahra

- Passive recreation activities were the most popular form of recreation activity among residents, reflected in their appeal to all age groups.
- Walking was the most popular passive recreation activity, with no marked shifts in seasonality.

5.2.3 Park Exit Surveys

- 9% of people surveyed desired more bins to be provided within Gap Park.
- 8% of people surveyed desired more seating to be provided within Gap Park.

5.2.4 Consultation with the Community

- Consultations revealed several key issues:
 - The views of Sydney Harbour from Woollahra are an important component if the heritage of Woollahra and are one of the main reasons for people visiting the municipality.
 - Bushland open space in Woollahra is insufficient. Bushland regeneration is recognised as worthwhile.
- The main unmet recreational needs, applying to Gap Park are:
 - More public viewing points of the natural beauty of Woollahra and the harbour.
 - Improve the accessibility of existing recreation facilities to enable less-abled people to readily use them.
 - Further barbeque and picnic facilities in the large open space areas.

5.3 Summary of Open Space Demand

- Walking is consistently recognised as the most popular activity, both within the Municipality and neighbouring Waverly. Access to foreshore areas and links between existing foreshore open areas and links between existing foreshore open spaces was considered important.

3.4 Section 6: Policies, Actions, and Resources

6.3 Community Needs

- Council to redistribute resources to allow additional resources to be allocated to the management, upgrading and maintenance of open space in the bushland setting. Priority areas include Gap Park.

- Specific maintenance problems include the presence of dog excrement and associated reduction in use of open space (particularly in Gap and Park) and use of public open spaces for private activities (such as dumping rubbish or storing material).

4. ROBERTSON PARK PLAN OF MANAGEMENT, NOVEMBER 2004

4.1 Abstract

- The Plan of Management seeks to balance open space and recreational values with conservation and the inherent physical and cultural heritage qualities of Robertson Park. It will also provide a basis for Woollahra Council's ongoing management, enhancement, and maintenance.

4.2 Section 4: Community and Crown Land Management Requirements Crown Land's Act 1989

- The Department of Lands land management philosophy directly relates to the principles of Crown land management that are listed in Section 11 of the Crown Lands Act 1989:
 - Environmental protection principles be observed in relation to the management and administration of crown land.
 - The natural resources of Crown Land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible.
 - Public use and enjoyment of appropriate Crown land to be encouraged.
 - Where appropriate, multiple use of Crown land be encouraged.
 - Where appropriate, Crown land should be used and managed in such a way that both the land and its resources are sustained in perpetuity.
 -

4.3 Section 6.2: Heritage

6.2.1 Aboriginal Heritage

- The Watsons Bay open space lies with the lands of the Birrabirragal people.
- Their routine was dominated by fishing from canoes, made of tree bark. The women also gathered shellfish, and evidence can be found in shell middens within rock shelters across Watson's Bay and South Head.
- There are a number of rock art sites in the area also, but these are too fragile to sustain public exposure.

6.5.4 Cycle Access

- Plan recognises that no dedicated cycle paths currently exists in Watson's Bay, and that an on road provision is to be formalised by the Watson's Bay Cycle Plan.

6.5.5 Public Transport

Bus Services

- A bus stop is located on Military Road adjacent to "The Gap" The Watson's Bay bus service (324 and 325) runs seven days a week.

Ferry Services

- A public ferry wharf is located at the end of Military Road to the south east of Robertson Park. Four services per day on weekdays, and six per day on Saturday's, Sunday's and public holidays.

Water Taxi

- Water Taxi services disembark passengers at the public wharf and are popular with visitors to the local restaurants or local residents travelling to the CBD.

4.4 Section 8: Appendix Historical Overview of Robertson Park

- Extensive timeline and detailed description of Watson's Bay (more specifically Robertson Park area) historic events presented.

- Discussion about post-1980s tree plantings in Robertson Park, and their lack of regard for blocking the important view corridor between “The Gap” and Watson’s Bay.

Physical Attributes

- The topography of Robertson Park is determined by its underlying Hawkesbury Sandstone rock formation, which tilts down gently westward from the high cliffs of “The Gap” toward the harbour. It was once bisected by a small freshwater stream that flowed here.

5. PLAN OF MANAGEMENT, NATURAL AREA (FORESHORE), JUNE 1996

5.1 Abstract

- The Plan of Management identifies issues and strategies relating to the management of public foreshore areas under Council’s control.
- Outlines a program of preservation to ensure the proper maintenance and survival items historically or environmentally significant.
- Emphasis is placed on the preservation of coastal environments from the impacts of urban development, recreational and commercial activity. Proposes strategies for the protection and promotion of harbour views, cliff sites, beaches, vegetation and native wildlife.

5.2 Section 1: Introduction

1.3 Council’s Land Management Goals

- To ensure the preservation of open space as a community resource for public access and recreation.
- To develop a regional coordinated approach to the management of open space.
- To encourage community participation in the management of open space.
- To satisfy district and regional needs for sporting and recreation facilities.

5.3 Section 2: History

2.1 Arrival of Governor Phillip

- Strong connection of the site to the earliest European arrival in Australia.
- South Head as the site of first signals in Australia, communicating the existence of a newly formed colony to incoming ships.

2.2 Military History

- The Woollahra region has featured prominently in Australian military history.
- South Head fortifications were constructed in the area during 1871 – 1876, and most guns were removed in the 1960s.

2.3 Views of the Harbour – Famous Lookouts

- Thousands of tourists each year are captivated by the impressive views of Sydney Harbour from numerous public lookouts within the Woollahra Municipality.
- Gap Park offers two perspectives of Sydney Harbour – one of calm harbour waters, the other a contrasting vision of untamed sea beyond the heads.
- “The Gap”, as a unique natural area, has inspired a range of human emotions, from admiration to despair. The high- profile tourist venue also has a reputation of being a notorious suicide spot.
- Gap Park established in 1887. After the completion of Old South Head Road in 1811 and New South Head Road in 1840s, it became a popular attraction for admiring steep cliffs and crashing seas.

5.4 Section 5: Management Issues

5.1 Public Access

- Protect and promote existing public foreshore areas.
- Ensure that existing foreshore open space is readily accessible and adequately used by the community.

5.7.1 Views and Vistas

- Council allowances for tree lopping or removal contribute to the protection of existing views. These policies aim to maintain the aesthetic value of foreshore areas while providing direct lookouts onto the harbour.

5.7.4 Bushland Management

- Gap Park is one of two of the last remaining areas containing remnant vegetation in the Woollahra Municipality. Council aims to preserve these rare areas of natural resource by implementing appropriate bushland management strategies.
- Earlier attempts at bushland management in Gap Park proved largely unsuccessful. They were administered in an ad hoc manner with little consideration of long term results.

5.8 Heritage Significance

- Provides a list of heritage items/sites within Gap Park:
 - Remnant coastal heathland vegetation and significant cliff sites.
 - Remnant tram track.
 - Military artefacts including gun emplacements and Grieve memorial.
 - Location of "The Dunbar" memorial and anchor.

6. WOOLLAHRA BIKE PLAN, APRIL 2000

6.1 Abstract

- The aims of the plan are:
 - Assess community needs for safe and convenient bicycle use.
 - Ensure Woollahra's Bike Plan complements those of neighbouring councils.
 - Develop a clear and achievable implementation strategy.
 - Estimate the cost of implementing the options recommended in the Bike Plan.

6.2 Section 3: Principles of Planning for Bicycle Routes

3.1.1 Principles

- The bicycle network for Woollahra based in the following criteria:
 - Safety
 - Coherence
 - Directness
 - Attractiveness
 - Comfort

6.3 Appendix A: Recommended Engineering Works and Associated Costs

Sub-regional Routes

- Recommendation for bike path to commence opposite Derby St and to follow the old tram route down to Military Rd. At an estimated cost of \$40 000, for the approximate 0.5km route.

Appendix H: Principles and Operational Guidelines for Inner-Sydney Areas

H8 Road and Path Surfaces

- Smooth contact and maintenance of edges between differing surfaces.
- Desired vertical variation of 5mm, with 10mm as maximum recommended.
- Textured surfaces at the end of paths.
- Off-road paths should be designed so that water can drain quickly, without depositing debris.
- Regular maintenance to ensure surfaces clear and free of debris after seasonal variations, and weeds, glass, gravel, tree roots and plant overgrowth do not make the surface unusable.
- Ramps and dropped kerbs should be installed where required.

H9 Shared Pedestrian / Bicycle Paths

- Absolute minimum width of 2m, but should be wider (2.5m) where space permits.

7. WOOLLAHRA CRIMEPREVENTION PLAN, JANUARY 2007

7.1 Abstract

- The plan developed to reduce the public's fear of crime and actual crime from occurring in Woollahra. Provides a framework to implement strategies to prevent crime.

7.2 Section 1: Executive Summary

1.1 Aims of the Crime Prevention Plan

- Ensures that public places are safe, attractive, and well cared for so that fear of crime is reduced and spaces are well used by the community.

7.3 Section 2: Introduction

2.2 The Role of Council in Crime Prevention

"Design out" Crime

- By ensuring that public spaces are designed to maximise safety through removing objects or situations that may create the chance for crime to occur.

7.4 Section 3: Background to Crime Prevention Planning

3.2 Situational Crime Prevention

- Target hardening, target removal, or target reduction.
- Natural or casual surveillance.
- Formal surveillance.
- Access controls.

3.3 Social Crime Prevention

- A public place can become less safe when, out of fear, less people use it, as with reduced usage the levels of natural surveillance is reduced.

7.5 Section 4: Crime Profile

4.1 Crime Profiles in Woollahra

- Bureau of Crime Statistics table presents evidence that malicious damage is the highest form of crime in the Woollahra Municipality.

8. WATSON'S BAY HERITAGE CONSERVATION STUDY, MAY 1997

8.1 Abstract

- Provides a detailed landscape character description of the environmental value within the Woollahra Municipality. Gap Park narrative is listed separately.

9. WOOLLAHRA HERITAGE STUDY, APRIL 1997

9.1 Abstract

- Lists Gap Park as an area of state historic significance, and also provides a detailed account of the Grieve memorial as an item of significance.

10. ASSESSMENT OF HERITAGE SIGNIFICANCE, SEPTEMBER 2003

10.1 Abstract

- Detailed assessment of “The Dunbar” anchor and rock inscriptions as items worthy of state heritage listing.
- The August 20, 1957 wrecking of “The Dunbar” ranks as the worst peacetime tragedy to befall NSW.
- Lists these items as significant to the community’s sense of place, and components of the city’s cultural fabric.

11. ARCHAEOLOGICAL REPORT, MAY 1998

11.1 Abstract

- Provides a detailed description regarding the historic value of the gun emplacements within Signal Hill and Gap Park, originally installed in 1893.

12. SYDNEY HARBOUR FORTIFICATIONS ARCHIVAL STUDY, PART ONE, MARCH 1985

12.1 Abstract

- Provides a detailed description regarding the historic value of the 1893 gun emplacements within Signal Hill and Gap Park.

13. HERITAGE ITEM LISTING, DUNBAR ANCHOR, TRAMWAY CUTTING, JULY 2007

13.1 Abstract

- Detailed description into the history and condition of the heritage listed “Dunbar” anchor.

14. SYDNEY HARBOUR NATIONAL PARK, PLAN OF MANAGEMENT, OCTOBER 1998

14.1 Abstract

- Survey recognised 26% of visitors from country NSW, and 21% from overseas.
- The track and associated interpretation of “Gap Bluff” to be upgraded. Old areas of asphalt will be covered and planted with native species, and informational/directional signs installed.
- The track will be promoted as a loop walk from “The Gap” over “Gap Bluff” and back past the “Officer’s Mess”.
- A walking track linking “Gap Bluff” to inner South Head, via Cliff Street, will also be developed.
- The use of part of the “Officer’s Mess” and its surrounds for functions, lectures, community meetings and information and a shop for the NPWS will also be investigated.
- Walking track from the end of Cliff Street at Camp Cove, behind Lady Bay, and then looping around the Hornby lighthouse is to be defined, directional, have interpretive signage erected, and be revegetated with native species.

15. GAP PARK, WATSON’S BAY, SEPTEMBER 2005

15.1 Abstract

- Designated as a public reserve on 28th June, 1887.
- Tramline extended to Signal Station at Watson's Bay 1903, and then to Gap Park in 1909.
- 1909 the old Gap Tavern was demolished and replaced by a new Town Hall. Rivoli Picture Theatre operated from the upper floor of this building from 1910.
- Refreshment rooms such as the Gap Café, the Park Tearooms, and the Dunbar Tearooms all opened near the tram terminus in Military Rd, below "The Gap".

15.2 Tourist Ventures in Gap Park

- At the turn of the 19th century Caesar Anthony Colonna engaged "Lassetter & Co." to erect a "camera obscura", housed in an octagonal red wood building, at Gap Park. In 1901 Vacluse Council ordered the building removed. The building was locked up, until 'forcibly removed' by the military authorities in 1914.
- Telescopes for hire were lodged at the park in the 1930s.

15.3 Monuments and Memorials

- Grieve memorial unveiled in December 1900.
- Dunbar wrecked in 1857, anchor was retrieved in 1910, and memorial was unveiled in 1930.
- The World War II gun emplacement was for a small calibre gun, which was never installed.

15.4 Development of Gap Park

- In 1920 Vacluse Council implemented a series of asphalt paths, with a safety light at the intersection of these paths with the tramline.
- In 1934 a landscape architect drew up plans for proposed improvements to the park, including new fences, seats, toilets, and clearing some existing building and weed growth.
- In 1960 the trams ceased, and the tracks were removed.
- In 1964 council filled in the 'old tramway cutting with the object of restoring the area'.
- In 1965 it was reported that Gap Park had been restored to 'something like the original contours, with great care being taken at the time to preserve the natural rock surfaces and the few remaining specimens of tea tree'.
- In 1966 extensive work had been carried out 'including stone revetments, regarding, topdressing....'
- In the 1980s a bush regeneration program was begun at Gap Park.

16. STATE OF THE ENVIRONMENT REPORT, 2004-2005

16.1 Abstract

- State of the Environment reporting enables council to report on the progress of the environmental activities undertaken in their areas, and provides a mechanism for monitoring the progress of ecologically sustainable development.

16.2 Section 3: Water

3.2 Environmental Works Program

Gap Park Stabilisation and Track Works

- Gap Park improvement works included the stabilisation of a section of drainage channel in Gap Park to control park runoff and the construction of a footpath and viewing areas at the southern, elevated end of the park.

16.3 Section 4: Biodiversity

4.1 Bush Regeneration and Revegetation Status of Council Reserves

- Table 4 displays how a high percentage (76%) of Gap Park is regenerated and under maintenance.

APPENDIX D

MEETING MINUTES

Gap Park Masterplan: Council Officer Working Group Meeting #1

Friday June 8 2007 2:00 - 4:00pm Woollahra Council Offices



MEETING NOTES

Gap Park Masterplan 2007

Council Officer Workshop # 1

Meeting held on June 29 2007 from 1pm to 3.30pm, at the Woollahra Council office.
Minutes prepared by Thompson Berrill Landscape Design P/L

Attendance:

David Sheils (DS)	Manager - Public Open Space, Woollahra Municipal Council
Rod Ward (RW)	Project Manager - Public Open Space, Woollahra Municipal Council
Llewallyn Jones (LJ)	Parks Co-ordinator, Woollahra Municipal Council
Jeff Hill (JH)	Team Leader Bushland, Woollahra Municipal Council
Rudi Adlmayer (RA)	Bushland Officer, Woollahra Municipal Council
Phillip Julian (PJ)	Parks Technical Officer, Woollahra Municipal Council
Paul Fraser (PF)	Parks and Recreational Co-ordinator, Woollahra Municipal Council
Orla Burke (OB)	Community Services Officer, Woollahra Municipal Council
Glenn Berrill (GB)	Director, Thompson Berrill Landscape Design P/L
Andrew Zouroudis (AZ)	Landscape Architect, Thompson Berrill Landscape Design P/L

Apologies

Greg Stewart (GS)	Traffic Engineer, Woollahra Municipal Council
-------------------	---

WORKSHOP WITH COUNCIL MEMBERS

RW opened the meeting, introduced the consultants, and gave a brief project overview. GB explained the role of TBLD in the development of the Gap Park masterplan. He outlined the planned techniques for the site analysis, the key deadlines, and then invited all present staff to introduce themselves and briefly explain their roles within Woollahra Municipal Council. The tables below include the general discussions and corresponding actions, as well as workshop notes about the strengths and issues of the presently existing Gap Park as seen by the council members.

<i>Item</i>	<i>Issues / Information</i>	<i>Actions</i>
1.0	General Preliminary Comments	
1.1	<ul style="list-style-type: none"> • Council manages 30ha of bushland with the Woollahra Municipality. • (RA) Flora list prepared for Gap Park • (JH) Woollahra Bushland Trust established 2006. • (JH) Gap Park site is 4.8ha. 	

Item	Issues / Information	Actions
	<ul style="list-style-type: none"> • (JH) Regeneration of almost denuded Gap Park began in the early 1980s. • OB discussed need to consider 'safety by design', which may involve reducing access to cliffs and increased lighting to allow for safe police patrol of site. • DS requested internet advertising of resident questionnaire, so that mailing list does not limit accessibility to interested public parties. • DS explained that 'Tourism NSW' unlikely to contribute funds to the development of Gap Park masterplan, as the project will not significantly impact tourist visitation to the site. State government also unlikely to contribute, but federal government may. • DS discussed how the local community is affected by very high visitation rates and associated traffic congestion, but reap no benefits or increased services. Also, local shops have little tourism trading as visits are mostly brief and favour known venues. • (GB) Land zoned as a future "right of way" in the south of Gap Park to have allocation reviewed within the masterplan. • (GB) Consider surface treatment for possible shared (cycle/pedestrian) pathway along former tramline. Sealed or unsealed? • (JH) Promotion of bushcare programme as part of masterplan an opportunity for educational groups • (DS) 19th August, 2007 is 150th anniversary of "The Dunbar" wreck, to be held at Signal Hill Reserve. Great opportunity to display preliminary MP information and design opportunities for public interest 	<ul style="list-style-type: none"> • (RW) Requires consideration in MP, but should not drive MP decisions, as this issue is common to all Sydney cliff sites and not just Gap Park • RW to investigate this closer to required dates • Requires discussion in streetscape masterplan process re type of businesses, and perhaps changing their mix • Requires research and consideration in MP • Requires consideration in MP • TBLD to prepare material for RW to display on site
2.0	Historic Artefacts	
2.1	<ul style="list-style-type: none"> • (GB) Historic wall near Gap Park entry steps needs rail to top, but needs to preserve archaeological features (brackets, etc.) • "Dunbar" anchor is located at Gap Park entry, but wreck was near "Jacob's Ladder" probably because people visit here, tram previously stopped here, etc. 	<ul style="list-style-type: none"> • Requires consideration in MP • (DS) Review retention or removal of "The Dunbar" anchor from site due to marine archaeologist's concern of ongoing deterioration of anchor in exposed site

WORKSHOP NOTES from Mtg #2

3.0	Strengths of Gap Park
3.1	<ul style="list-style-type: none"> • Popularity (equal to Bondi) • Coach visitation (regardless of infrastructure) • Dramatic scenery / sea cliffs • Rich underlying heritage (trams, gun emplacements, “The Dunbar”) • Affordable • Access to facilities (toilets, shops) • Accessibility (car, bus and ferry) • Natural heritage • Historical views from the ‘tramway’ • Habitat corridor (birds, reptiles, migratory birds, whales) • Whale watching • Opportunities for ‘passive recreation’ (walks, jogging, dog walking) • Proximity to other attractions (all day visits, “Doyles”) • Important link to reserves (Signal Hill Rs, Lighthouse Rs, Christison Pk) • Multiple access points (north and south) • Regional perspective and integration (“Greenweb” corridor) • Explorative play for children (small paths, bushland) • Historic interest (fabric and cultural relics i.e. “The Dunbar” anchor, military gun emplacements, walls, tramline) • History of area generally (Camp Cove settlers, indigenous occupation, trams, military) • 360° panoramic views • National profile • Geology (“Jacobs Ladder” volcanic dyke, cliffs, sandstone platforms) • Wet gully rainforest environment and creekline • Positive aspect of its darkness at night (low anti-social activity at night) • Contrasting micro-climates (wet gully to dry heath) • Surrounding bldgs (“Gunya”, churches) and their connectivity to park • Uplifting environment • Sense of mortality • Informal small secluded trails (variable routes to get away from “The Gap” crowds) • Interactivity of climbing up and down rocks • Cliffs (height, experience, drama, texture) • Ocean (swell, contrast with sheltered harbour) • Sense of darkness (enclosure and exposure) within vegetation • Views (sunrise and sunset, to city, corridor to harbour) • Gateway to harbour • “Sydney to Hobart” yacht race, fireworks, ship watching • Social gatherings (picnics, family parties, wedding ceremonies) • Photography • Painting • “The Dunbar” wreck (tangible nature due to anchor) • Cultural heritage (memorials, indigenous history) • Military history (“The Dunbar” ballast, gun emplacements, relics) • Scuba diving • Informal nature and genuine nature of experience due to largely unmodified cultural fabric • Cultural plantings (way finding nature of these) • Topography dictating landscape fabric • Film destination • Cliffs (from sea and air, waterfalls during rain) • Way finding devices from sea (trees, lighthouses) • Connectivity of gun emplacements (regionally, nationally)
4.0	Issues of Gap Park

4.1

- Suicide:
 - Realistic limits of landscape masterplan to address what is a far wider community concern and issue
 - Suicide at Gap Park affects far fewer people than the positive aspects of visitation do
 - Important to consider *all* options in the MP process
 - Suicide is indicative of weaknesses and stresses in our society as a whole and all of government have a role to play in facilitating responses to the problem
 - Lighting, phone contacts, to disrupt “downward spiral” during event
 - Identify locations (day or night), what is specific to sites?
 - Retrieval of bodies and impact on site users and residents
 - Managing ‘voyeurism’ aspect
 - Tour guides may promote incorrect suicide stories (usually smaller groups), address through education to tour groups
 - Unfortunate notorious reputation of “The Gap”
- Tourists
 - Large number of users
 - Buses take up parking. Minimal current parking controls seem to work OK.
 - Tours leave bus engines running, but are changing behaviour
 - Dominate narrow residential paths
 - Encourage tour groups to walk coastal loop so not parking twice.
 - Impact on Robertson Park (toilets, bins, etc.)
- Neglected paths, steps, walls, etc.
- Threatened species
- Fire Management (“mosaic burning” technique considered)
- Infrastructure
 - Remaining fence replacement requirement at “The Gap”
 - Very little seating currently (traditional far more).
 - Constricted and continual loss of views from existing seating and pathways due to increased vegetation bulk and height.
 - Vegetation height (taller spp) is not appropriate in some infrastructure viewing areas; to be addressed in the MP
 - Poor condition of pathways and surfaces
 - Poor fencing at “The Gap” entry and at key sites
 - Review steps and ramp at “The Gap” entry in the MP
 - MP to consider and resolve an integrated design response at “The Gap” viewing area, including fencing, surfaces, seating and access
 - erosion problems along tramline creek above “The Gunya”
- “The Gunya” building
 - Popular for community use
 - Outdoor informal space that previously existed is required for community use
 - Current carpark mulch storage inappropriate
 - Outdoor great for informal children’s play
 - Cultural planting at front entrance appears to be in poor condition, review planting design and spp in MP
 - Carpark requires consideration and review of layout and efficiency in MP
- Cultural planting : maintain and replacement strategy
- Management of revegetation
 - Defining uses and areas
 - Balance habitat vs users requirements
 - Edge management : reduce edge effects
 - Safety
 - Encroachment on open space by default
 - Loss of views due to proximity, species, and height of revegetation.
 - Habitat importance (bird, reptiles)

	<ul style="list-style-type: none"> • Public awareness of cultural features • Illegal dumping at “The Gunya” and corner Gap Rd and Dunbar St
--	---

ACTIONS from Mtg #2

- *RW to confirm supply of feature level survey to allow TBLD to commence site analysis.*
- *RW to supply current road proposals drawing (CAD format) to allow TBLD to commence collating masterplan base plans.*
- *TBLD to prepare bibliography of documents*
- *TBLD to prepare background review of documents*
- *TBLD to set suitable date for suicide prevention forum with RW*
- *TBLD to coordinate with RW procedure for posting resident questionnaire on internet*
- *RW to invite representatives of the following to attend suicide prevention forum:*
 - *Eastern Suburbs Mental Health (Peter Clout)*
 - *Suicide Prevention Australia*
 - *Lifeline*
 - *National Parks and Wildlife Services (David Costello)*
 - *Vaucluse Progress Association (Michael Rolph)*
 - *Community Safety Committee*
 - *Police Rescue Squad*
 - *Rose Bay Police*
 - *WMC engineer (Frank Rotta)*
- *RW to confirm mail out distribution area (500m radius), and organise mail merge and return envelopes to WMC offices*
- *RW to invite representatives from National Parks and Wildlife Services NSW to attend site visit with TBLD to discuss commonalities to site management and masterplanning at “The Gap”, and infrastructure (e.g. fencing and signage)*
- *TBLD to meet GS with RW and DS to discuss Watson’s Bay streetscape project in context of MP*
- *TBLD to meet the bushland crew on site during site analysis phase. RW to coordinate*
- *TBLD to prepare draft questionnaires for 1) Visitor Questionnaire and 2) resident questionnaire*

APPENDIX E

MEETING MINUTES

Gap Park Masterplan: Council Officer Working Group Meeting #2

Friday June 29 2007 1:00pm - 3:30pm Woollahra Council Offices



MEETING NOTES

Gap Park Masterplan 2007

Project Working Group Meeting # 2

Meeting held on June 29 2007 from 1pm to 3.30pm, at the Woollahra Council office.
Minutes prepared by Thompson Berrill Landscape Design P/L

Attendance:

David Sheils (DS)	Manager - Public Open Space, Woollahra Municipal Council
Rod Ward (RW)	Project Manager - Public Open Space, Woollahra Municipal Council
Luallen Jones (LJ)	Parks Co-ordinator, Woollahra Municipal Council
Jeff Hill (JH)	Team Leader Bushland, Woollahra Municipal Council
Rudi Adlmayer (RA)	Bushland Officer, Woollahra Municipal Council
Phil Julian (PJ)	Parks Technical Officer, Woollahra Municipal Council
Paul Fraser (PF)	Parks and Recreational Co-ordinator, Woollahra Municipal Council
Orla Burke (OB)	Community Services Officer, Woollahra Municipal Council
Glenn Berrill (GB)	Director, Thompson Berrill Landscape Design P/L
Andrew Zouroudis (AZ)	Landscape Architect, Thompson Berrill Landscape Design P/L

Apologies

Greg Stewart (GS)	Traffic Engineer, Woollahra Municipal Council
-------------------	---

WORKSHOP WITH COUNCIL MEMBERS

RW opened the meeting, introduced the consultants, and gave a brief project overview. GB explained the role of TBLD in the development of the Gap Park masterplan. He outlined the planned techniques for the site analysis, the key deadlines, and then invited all present staff to introduce themselves and briefly explain their roles within Woollahra Municipal Council. The tables below include the general discussions and corresponding actions, as well as workshop notes about the strengths and issues of the presently existing Gap Park as seen by the council members.

<i>Item</i>	<i>Issues / Information</i>	<i>Actions</i>
1.0	General Preliminary Comments	
1.1	<ul style="list-style-type: none"> • Council manages 30ha of bushland with the Woollahra Municipality. • RA collated Woollahra council flora list. • (JH) Woollahra Bushland Trust established 2006. • (JH) Gap Park site is 4.8ha. 	

Item	Issues / Information	Actions
	<ul style="list-style-type: none"> • (JH) Regeneration of almost denuded Gap Park began in the early 1980s. • OB discussed need to consider 'safety by design', which may involve reducing access to cliffs and increased lighting to allow for safe police patrol of site. • DS requested internet advertising of resident questionnaire, so that mailing list does not limit accessibility to interested public parties. • DS explained that 'Tourism NSW' unlikely to contribute funds to the development of Gap Park masterplan, as the project will not significantly impact tourist visitation to the site. State government also unlikely to contribute, but federal government may. • DS discussed how the local community is affected by very high visitation rates and associated traffic congestion, but reap no benefits or increased services. Also, local shops have little tourism trading as visits are mostly brief and favour known venues. • (GB) Land zoned as a future "right of way" in the south of Gap Park to have allocation reviewed within the masterplan. • (GB) Consider surface treatment for possible shared (cycle/pedestrian) pathway along former tramline. Sealed or unsealed? • (JH) Promotion of bushcare programme as part of masterplan an opportunity for educational groups • (DS) 19th August, 2007 is 150th anniversary of "The Dunbar" wreck, to be held at Signal Hill Reserve. 	<ul style="list-style-type: none"> • (RW) Requires consideration in MP, but should not drive MP decisions, as this issue is common to all Sydney cliff sites and not just Gap Park • RW to investigate this closer to required dates • Requires discussion in streetscape masterplan process re type of businesses, and perhaps changing their mix • Requires research and consideration in MP • Requires consideration in MP
2.0	Historic Artefacts	
2.1	<ul style="list-style-type: none"> • (GB) Historic wall near Gap Park entry steps needs rail to top, but needs to preserve archaeological features (brackets, etc.) here. • "Dunbar" anchor is located at Gap Park entry, but wreck was near "Jacob's Ladder" probably because people visit here, tram previously stopped here, etc. 	<ul style="list-style-type: none"> • Requires consideration in MP • (DS) Review retention or removal of "The Dunbar" anchor from site due to marine archaeologist's concern of ongoing deterioration of anchor in exposed site

WORKSHOP NOTES from Mtg #2

3.0	Strengths of Gap Park
3.1	<ul style="list-style-type: none"> • Popularity (equal to Bondi) • Coach visitation (regardless of infrastructure) • Dramatic scenery / sea cliffs • Rich underlying heritage (trams, gun emplacements, “The Dunbar”) • Affordable • Access to facilities (toilets, shops) • Accessibility (car, bus and ferry) • Natural heritage • Historical views from the ‘tramway’ • Habitat corridor (birds, reptiles, migratory birds, whales) • Whale watching • Opportunities for ‘passive recreation’ (walks, jogging, dog walking) • Proximity to other attractions (all day visits, “Doyles”) • Important link to reserves (Signal Hill Rs, Lighthouse Rs, Christisons Pk) • Multiple access points (north and south) • Regional perspective and integration (“Greenweb” corridor) • Explorative play for children (small paths, bushland) • Historic interest (fabric and cultural relics i.e. “The Dunbar” anchor, military gun emplacements, walls, tramline) • History of area generally (Camp Cove settlers, indigenous occupation, trams, military) • 360° panoramic views • National profile • Geology (“Jacobs Ladder” volcanic dyke, cliffs, sandstone platforms) • Wet gully rainforest environment and creekline • Positive aspect of its darkness at night (low anti-social activity at night) • Contrasting micro-climates (wet gully to dry heath) • Surrounding bldgs (“Gunya”, churches) and their connectivity to park • Uplifting environment. Sense of mortality • Informal small secluded trails (variable routes to get away from “The Gap” crowds) • Interactivity of climbing up and down rocks • Cliffs (height, experience, drama, texture) • Ocean (swell, contrast with sheltered harbour) • Sense of darkness (enclosure and exposure) within vegetation • Views (sunrise and sunset, to city, corridor to harbour) • Gateway to harbour • “Sydney to Hobart” yacht race, fireworks, ship watching • Social gatherings (picnics, family parties, wedding ceremonies) • Photography • Painting • “The Dunbar” wreck (tangible nature due to anchor) • Cultural heritage (memorials, indigenous history) • Military history (“The Dunbar” ballast, gun emplacements, relics) • Scuba diving • Informal nature and genuine nature of experience due to largely unmodified cultural fabric • Cultural plantings (way finding nature of these) • Topography dictating landscape fabric • Film destination • Cliffs (from sea and air, waterfalls during rain) • Way finding devices from sea (trees, lighthouses) • Connectivity of gun emplacements (regionally, nationally)
4.0	Issues of Gap Park
4.1	<ul style="list-style-type: none"> • Suicide: <ul style="list-style-type: none"> ○ Realistic limits of landscape masterplan to solve a wider community concern and issue ○ Effects far fewer people than positive aspects do

	<ul style="list-style-type: none"> ○ Displacing behaviour ○ Important to consider <i>all</i> options in process ○ Caused due to underlying weaknesses of whole system (community and government) ○ Lighting, phone contacts, to disrupt “downward spiral” during event ○ Target locations (day or night?), what is specific to sites? ○ Retrieval of bodies and impact on site users and residents ○ Managing ‘voyeurism’ aspect ○ Tour guides now promote incorrect suicide stories (usually smaller groups) ○ Notorious reputation of “The Gap” • Tourists <ul style="list-style-type: none"> ○ Large number of users ○ Buses take up parking. Minimal current parking controls seem to work OK. ○ Tours leave bus engines running, but are changing behaviour ○ Dominate narrow residential paths ○ Encourage tour groups to walk coastal loop so not parking twice. ○ Impact on Robertson Park (toilets, bins, etc.) • Neglected paths, steps, walls, etc. • Threatened species • Fire Management (“mosaic burning” technique considered) • Infrastructure <ul style="list-style-type: none"> ○ Remaining fence replacement requirement at “The Gap” ○ Very little seating currently (traditional far more). ○ Constricted views from existing seating due to increased vegetation. Height not appropriate. ○ Poor condition of path ○ Poor fencing at “The Gap” entry ○ Review steps and ramp at “The Gap” entry ○ Drainage: MP to consider and resolve integrated design at “The Gap” viewing area, including fencing, surfaces, seating and access erosion problems along tramline creek at “The Gunya” • “The Gunya” building <ul style="list-style-type: none"> ○ Popular for community use ○ Outdoor informal space that previously existed is required for community use ○ Current carpark mulch storage inappropriate ○ Outdoor great for informal children’s play ○ Cultural planting at front entrance in poor condition ○ Carpark requires consideration and review of layout and efficiency • Cultural planting : maintain and replacement strategy • Management of revegetation <ul style="list-style-type: none"> ○ Defining uses and areas ○ Balance habitat vs users requirements ○ Edge management : reduce edge effects ○ Safety ○ Encroachment on open space by default ○ Loss of views due to proximity, species, and height of revegetation. ○ Habitat importance (bird, reptiles) • Public awareness of cultural features • Illegal dumping at “The Gunya” and corner Gap rd and Dunbar St
--	---

ACTIONS from Mtg #2

- *RW to confirm supply of feature level survey to allow TBLD to commence site analysis.*

- *RW to supply current road proposals drawing (CAD format) to allow TBLD to commence collating masterplan base plans.*
- *TBLD to prepare bibliography of documents*
- *TBLD to prepare background review of documents*
- *TBLD to set suitable date for suicide prevention forum with RW*
- *TBLD to coordinate with RW procedure for posting resident questionnaire on internet*
- *RW to invite representatives of the following to attend suicide prevention forum:*
 - *Eastern Suburbs Mental Health (Peter Clout)*
 - *Suicide Prevention Australia*
 - *Lifeline*
 - *National Parks and Wildlife Services (David Costello)*
 - *Vaucluse Progress Association (Michael Rolph)*
 - *Community Safety Committee*
 - *Police Rescue Squad*
 - *Woollahra Local Police*
 - *Woollahra council traffic engineer (Frank Rotta)*
- *RW to confirm mail out distribution area (500m radius)*
- *RW to invite representatives from National Parks and Wildlife Services NSW to attend site visit to discuss commonalities to site management and masterplanning at "The Gap", and infrastructure (e.g. fencing and signage)*
- *TBLD to meet GS with RW and DS to discuss Watson's Bay streetscape project in context of MP*
- *TBLD to prepare draft questionnaire for site and residential distribution*

APPENDIX F

MEETING MINUTES

Gap Park Masterplan: Council Officer Working Group Meeting #3

Friday July 13 2007 11:00am - 3:30pm Gap Park



MEETING NOTES

Gap Park Masterplan 2007

Project Working Group Meeting # 3

Meeting held on July 13 2007 from 11am to 3.30pm, at Gap Park.
Minutes prepared by Thompson Berrill Landscape Design P/L

Attendance:

Rod Ward (RW)	Project Manager - Public Open Space, Woollahra Municipal Council
Rudi Adlmayer (RA)	Bushland Officer, Woollahra Municipal Council
Glenn Berrill (GB)	Director, Thompson Berrill Landscape Design P/L
Andrew Zouroudis (AZ)	Landscape Architect, Thompson Berrill Landscape Design P/L

WORKSHOP WITH COUNCIL MEMBERS

GB and AZ met on site with Woollahra Municipal Council representatives RW and RA to gather information and discuss historic and current bushland regeneration practices and goals within Gap Park. The table below includes the general discussions and corresponding actions.

<i>Item</i>	<i>Issues / Information</i>	<i>Actions</i>
1.0	General Comments	
1.1	<ul style="list-style-type: none"> RA explained that division of spaces shown on the WMC bushland management plan for Gap Park is to divide working hours. (RA) Bushland works began in 1988. (RA) Bushland east of 'Jacob's Ladder' valley has naturally regenerated – no planting. (RA) Bushland west of 'Jacob's Ladder' valley was landfilled, and has been revegetated with Ku-ring-gai seed stock. RA knows of a "super 8" video from a tram passenger going through Gap Park, by Scott McGregor. (RA) Small Quercus ilex (Holly Oak) exists near bend in former tram alignment. (RA) Coral trees were previously prevalent 	<ul style="list-style-type: none"> TBLD to explore whether this is obtainable

Item	Issues / Information	Actions
	<p>on site as cultural plantings, but removed by council as hazardous (branch dropping).</p> <ul style="list-style-type: none"> • (RA) Oleander sp. previously flanked the entry to "Gunya" building, but now removed. • (RA) Fence separating church land from Gap Park now removed, and Glochidion sp. planted here recently. • (RA) Vegetation on embankments along Old South Head Rd is good example of remnant vegetation. Now managed separately to council. • (RA) Luallen Jones was working within council bushland team when sandstone walls were established within Gap Park. • (RA) Verge on east of Gap Rd was previously turfed, and is now planted. • (RA) Council has performed experiments on growth of bushland, with varying percentages of solar access. • (RA) Revegetated bushland west of "Jacob's Ladder" valley is not of high value. Low plant diversity, such as Leptospermum, Crowea, Angpohora, Myrtacea. Turkey rhubarb dominates. • (RA) Revegetated bushland east of "Jacob's Ladder" valley is of high value, with high plant diversity. Species such as Darwinia, Micromyrtus ciliata, Allocasuarina distylla. • (RA) Main tourists observed are German, Italian, American and Asian (from six main countries). Asian groups often sing in existing gun turrets. • (RA) Few tourists use back paths, as unsure of safety, unwelcoming entries, and dense overstorey. Locals use these paths as quiet, away from tourists. • (RA) Big problem with vandalism on site. Unsecured lights, bins, signs, etc. are removed or damaged. Aluminium signs were previously installed informing visitors of tram history, etc. but these were vandalised. • (RA) Toilet previously hung off edge of "The Gap" lookout area (photo in "Watson's Bay Leaf"). • (RA) Historic tunnel through the cliff, under "The Gap" lookout. Now blocked up. • (RA) Gun emplacements used in World War I, and perhaps in World War II. • (RA) Natural caves occur just north of gun emplacements. • (RW) Recess in new fence was planned on being a viewing deck, but now unused. • (RA) Tuckeroo sp. planted very close to historic near gun emplacement. • (RA) Queensland rainforest species planted along "Jacob's Ladder" part of Noel 	<ul style="list-style-type: none"> • TBLD to meet with LJ on site to find out where material came from, etc. • Requires detailed consideration in MP • Requires consideration in MP • Requires consideration of removal in MP

Item	Issues / Information	Actions
	Rutting bushland plan. Now taken over by Cissus sp. and Morning Glory. <ul style="list-style-type: none"> • (RA) Legless lizard habitat adjacent to church buildings. • (RA) Allocasuarina portuensis planted near "Gunya" building. • (RA) Melaleuca sp. existing adjacent to "Gunya" building, as cultural plantings. 	<ul style="list-style-type: none"> • Requires consideration of protection in MP • Requires consideration of protection in MP

ACTIONS from Mtg #3

- *RW to supply current road proposals drawing (CAD format) to allow TBLD to commence collating masterplan base plans.*
- *TBLD to prepare background review of documents*
- *TBLD to set suitable date for suicide prevention forum with RW*
- *TBLD to coordinate with RW procedure for posting resident questionnaire on internet*
- *RW to invite representatives of the following to attend suicide prevention forum:*
 - *Eastern Suburbs Mental Health (Peter Clout)*
 - *Suicide Prevention Australia*
 - *Lifeline*
 - *National Parks and Wildlife Services (David Costello)*
 - *Vaucluse Progress Association (Michael Rolph)*
 - *Community Safety Committee*
 - *Police Rescue Squad*
 - *Woollahra Local Police*
 - *Woollahra council traffic engineer (Frank Rotta)*
- *RW to confirm mail out distribution area (500m radius)*
- *RW to invite representatives from National Parks and Wildlife Services NSW to attend site visit to discuss commonalities to site management and masterplanning at "The Gap", and infrastructure (e.g. fencing and signage)*
- *TBLD to meet GS with RW and DS to discuss Watson's Bay streetscape project in context of MP*
- *TBLD to meet LJ with RW to discuss history of site land-filling, and historic walls*
- *TBLD to prepare draft questionnaire for site and residential distribution*

APPENDIX G

MEETING MINUTES

Gap Park Masterplan: Suicide Prevention Forum

Friday August 24 2007 2:00m - 3:30pm Woollahra Council Offices



MEETING NOTES

Gap Park Masterplan 2007

Suicide Prevention Forum

Meeting held on August 24 2007 from 2pm to 3.30pm, at the Woollahra Council Office.
Minutes prepared by Thompson Berrill Landscape Design P/L

Attendance:

David Sheils (DS)	Manager - Public Open Space, Woollahra Municipal Council
Rod Ward (RW)	Project Manager - Public Open Space, Woollahra Municipal Council
Llewallyn Jones (LJ)	Parks Co-ordinator, Woollahra Municipal Council
Orla Burke (OB)	Community Services Officer, Woollahra Municipal Council
Warwick Hatton (WH)	Parks Technical Officer, Woollahra Municipal Council
Bruce Rann (BR)	Parks and Street Trees Officer, Woollahra Municipal Council
Peter Clout (PC)	Prince of Wales Hospital
Mary-Anne Bowyer (MB)	Prince of Wales Hospital
Graham James (GJ)	Lifeline
David Costello (DC)	National Parks and Wildlife Services
Allan Baines (AB)	Police Officer, Rose Bay Police Station
Greg Shrimpton (GS)	Police Constable, Rose Bay Police Station
Isabelle Shapiro (IS)	Representative, Community Safety Committee
Glenn Berrill (GB)	Director, Thompson Berrill Landscape Design P/L
Andrew Zouroudis (AZ)	Landscape Architect, Thompson Berrill Landscape Design P/L

WORKSHOP WITH COUNCIL & MENTAL HEALTH PROFESSIONALS

RW and DS opened the meeting, introduced the consultants, and gave a brief project overview. GB explained the role of TBLD in the development of the Gap Park masterplan. He outlined the site analysis process, the key milestones, and then invited the attendees to introduce themselves and briefly explain their roles. The Rose Bay Police then presented findings on incidents and patterns of self harm within the site. Then the group identified current key mental health issues and strategies (open discussion), the role of local government with regard to these issues, and possible responses for implementation and inclusion within the Gap Park Masterplan. The table below outlines comments from the meeting.

Comments

- AB and GS from Rose Bay Police Dept talked through presentation on incidents within site (self harm or possible self harm), between August 06 and July 07.
- GS Incidents extend across Gap Park, but are definitely concentrated around “The Gap”, “Gap Bluff”, and Jacob’s Ladder, but do occur across the whole site.
- GS Average 40 deaths per year.
- GS Men : Women incidents are 50 : 50.
- GS Males 18-25 are a high percentage of self harm victims.
- GS Most suicides by night, but more attempts occur during the day.
- GS Many incidents occur on Sundays (possibly due to non work day), and also Thursdays (no reasons offered).
- GS Victims get to the site mainly by taxis, buses, and cars.
- PC Self harm is not an illegal offence.
- AB/GS Police policy is to speak to potential victims of self harm, and have talked many out of possible situations. Police negotiators are called in if person does not respond, or is there for a long time and cannot be talked out of situation.
- PC All incidents, as obliged under the health act, are reported to the mental health system.
- PC Psychological assessments are conducted by the health system, for those brought to them by the police. Magistrate within health system decides if admitted, or released.
- PC Police discretion to decide if person exhibits ‘bona fide’ self harm characteristics or not.
- AB recognises “8ft (high) fence is not the solution to the problem, and will ruin the positive aspects of the site”. Police want discreet CCTV to assist in investigations (to understand patterns, times, and methods of entry, etc.), and identification of victims (often no witnesses, and bodies never retrieved).
- AB/GS Perhaps CCTV at entries only, and main suicide locations.
- GJ from ‘Lifeline’ described how there is no easy fix to this issue. He noted that feelings of isolation are the main reason for self harm.
- AB/GS Sundays, Christmas’s, etc. are more frequent periods for incidents, as victims can become aware of their situation of loneliness.
- AB/GS 4-5pm to 2am are most frequent times of calls.
- AB/GS Sometimes incidents are “one-offs” (ie. relationship breakdown, job loss, etc.), but others have repeat incidences.
- MB Men tend to choose more violent means of suicide.
- GJ noted that part of the victim wants to die, but if they have some form of support (e.g. call to friends/family member/lifeline), then part of them wants to live also.
- MB Difficult to determine if callers are asking for help, in process of suicide, or fulfilling part of a plan.
- General group suggestion of signage throughout site, noting location of distance to nearest phone, suggestion of telephone with direct connection to support service e.g. emergency department of hospitals or to ‘lifeline’.
- PC comments that the negative reputation of “The Gap” needs cultural and generational change. Discussed possibility of renaming of site (e.g. Gap Park).
- MB discussed drama of location. These sites exist world wide – they are easy to get to, have convenient parking, are low public use areas, and notorious for “copy-cat” behaviour.
- MB noted people who go to “The Gap” want to succeed as it has been done here before successfully by others.
- MB Memorials are not recommended or condoned on site, as can have a negative effect on potential victims of self harm. Important to have a discreet place for grieving relatives and friends – somewhere to go, not in public view. Perhaps tree planting area for those affected.
- MB The earlier victims are intercepted the better, so methods to assist near entries to site are important.
- DC suggested tour guide licensing as an option, as NPWS are doing. Operators to attend information sessions regarding suicides to obtain license. Fines or penalties for breaches of codes. Difficulties of policing discussed.

- General group suggestion of voluntary change through tourism industry bodies, to change policies/principles also discussed.
- General group comment that media does not report incidents, in line with an agreed code of conduct.

ACTIONS from Mtg

- *Distribution of meeting minutes*
- *RW to coordinate updating group for future involvement in the Gap Park Masterplan process, regarding implementation of suggestions discussed.*

APPENDIX H

MEETING MINUTES

Gap Park Masterplan: Community Safety Committee Meeting

Thursday August 30 2007 2:00pm - 3:30pm Woollahra Council Offices



MEETING NOTES

Gap Park Masterplan 2007

Community Safety Committee

Meeting held on August 30 2007 from 2pm to 3.30pm, at the Woollahra Council Office.
Minutes prepared by Thompson Berrill Landscape Design P/L

Attendance:

David Sheils (DS)	Manager - Public Open Space, Woollahra Municipal Council
Rod Ward (RW)	Project Manager - Public Open Space, Woollahra Municipal Council
Orla Burke (OB)	Community Services Officer, Woollahra Municipal Council
Sue Turner (ST)	Woollahra Municipal Council
Warwick Hatton (WH)	Parks Technical Officer, Woollahra Municipal Council
Greg Shrimpton (GS)	Police Constable, Rose Bay Police Station
Isabelle Shapiro (IS)	Representative, Community Safety Committee
Ross Clifton (RS)	Representative, Community Safety Committee
Dianne Gaddin (GD)	Representative, Community Safety Committee
Juliet Kirkpatrick (JK)	Representative, Community Safety Committee
Gina Grubb (GG)	Representative, Community Safety Committee
Charles Woden (CW)	Representative, Volunteer in Policing
Elizabeth Carpenter (EC)	Double Bay Neighbourhood Watch
Paula Storey (PS)	Double Bay Neighbourhood Watch
Michael Rolfe (MR)	President, Vaucluse Progress Association
Helena Rolfe (HR)	Representative, Vaucluse Progress Association
Kevin Berry (KB)	Representative, Vaucluse Progress Association
Glenn Berrill (GB)	Director, Thompson Berrill Landscape Design P/L
Andrew Zouroudis (AZ)	Landscape Architect, Thompson Berrill Landscape Design P/L

WORKSHOP WITH COMMUNITY SAFETY COMMITTEE

RW and DS opened the meeting, introduced the consultants, and gave a brief project overview. GB explained the role of TBLD in the development of the Gap Park masterplan. He outlined the site analysis process, the key milestones, and then invited the attendees to introduce themselves and briefly explain their roles. The table below outlines comments from the meeting.

Comments

- RC suggested water fountain to be installed within site, with recycled water. This was generally not supported by others in the meeting due to council's policy of water saving
- RC suggests native flowers to encourage birdlife.
- KB requested action, not just planning.
- DG read a personal statement of the importance of this issue to the community, and suggested CCTV, improved fencing in areas, police patrols, signs informing of police patrols, public phones, lighting, memorial tree planting.
- OB read information by Michael Gerondis (apology), noting difficulties of determining victim numbers due to jurisdictional differences between police and water police in retrievals.
- OB suggested importance of intercepting possible self harm victims, at entries to site.
- PS suggests more signage of mental health organisations. Also suggests informing bus company drivers, taxi drivers, local shops, etc. to inform police about potential self harm victims in the vicinity.
- PS also suggests lighting of rainforest lower area, as she (being a local resident) knows this is currently an area of noise and negative activity at night time.
- HR suggests a nearby public phone, as there are none adjacent to foreshore trail system. 'Telstra' refused requests to install a phone. Suggests signs leading to phones.
- GG suggests no fountain, tram cultural interpretation signage, clearing of rainforest gully weeds for walking.
- GS reported 9 suicides, and 119 self harm incidents in the past 18 months. Police suggest lighting the entire path (or at least entry areas), "covert" CCTV cameras, and public phones.
- EC suggests getting more people to frequent the site, during day and night time, to encourage community spirit and cultural perception change of site, and help deter incidents of self harm. I.e. through cultural activities, performances, and encouraging opportunities for picnicking in grassy open space areas. Suggests researching the artist John Beard.

ACTIONS from Mtg

- *Distribution of meeting minutes*
- *RW to coordinate updating group for future involvement in the Gap Park Masterplan process, regarding implementation of suggestions discussed.*

APPENDIX I

MEETING MINUTES

Gap Park Masterplan: Community Workshop

Thursday August 30 2007 6:00pm - 8:30pm Vaucluse Yacht Club



MEETING NOTES

Gap Park Masterplan

Community Meeting #1

Thursday August 30 2007, from 6.00pm to 8.30pm, Vaucluse Yacht Club

1.0 WELCOME

DS and RW opened the meeting, introduced the consultants and gave a brief project overview. GB explained the role of TBLD in the development of the Gap Park Masterplan, and outlined the site analysis completed to date and the intent of the workshop. GB then invited participants (25 persons) to introduce themselves and participate in identifying the strengths, issues and opportunities to be considered in the Masterplan development.

2.0 WORKSHOP

The next part of the meeting was run as an informal workshop facilitated by GB with comments and suggestions recorded on butchers paper.

2.1 Strengths

- Well serviced destination – ferry and bus
- Remnant vegetation
- Panoramic views in two directions
- Rock formations and features
- Fresh air
- Bird life
- Historic fabric
- Intact natural/open space/landscape
- Importance of how it was used – earliest site of European occupation in Australia
- Important part of our defence – tunnels, gun emplacements
- Great opportunity for community involvement
- Coastal walk to gully walk
- Sense of potentiality
- Incredibly beautiful
- Big occasion place – eclipse, QE II, boxing day, NYE
- Maritime theme of strength / maritime trade
- Historic tall ships – passage of the tall ships
- Aboriginal significance

- Location central to other parks (Christisson park, South Head, Robertson park), and Watson's Bay village
- South Head CMP – potential to realise the vision for a unified site
- Size
- Ocean / nature
- Sea and harbour views
- Climbing up rocks
- Transition of spaces
- Variety of experience
- Elevation
- Popularity (locally and internationally)
- Green space
- Journey across site
- Morning beauty and walks
- Will not be commercially developed
- Unmodified landscape
- Atmosphere of calm
- Appeals to large age groups
- Council owned coastal heath environment
- Birdlife
- Gully landscape
- Bush regeneration areas
- Church buildings at boundaries
- Sound of ocean
- Accessibility (close to public transport options and open to all)
- City views
- Robertson park playground
- Beauty of sandstone

2.2 Issues

- Lack of information – historical visitor information
- Lack of parking
- Poor infrastructure – pathways, seating, lighting, fencing
- Loss of the history of the tramway alignment
- Rubbish
- Dog excrement and dogs in site
- Old fence in gully, out of place
- Could the village live with CCTV
- Seen as the centre of self harm in Sydney
- Suicide is a reality
- Quality (low) of retail development at Watson's Bay for the amount of visitors
- Fragmented zone of land management, and seamless expectations of experience
- Lack of orientation signage – how to get around
- Need a new way of thinking about land tenure
- Encroachment of vegetation into view corridors – loss of views - needs to be addressed
- Submarine net across the harbour
- Cost and priority of historic 'fabric' protection
- Lack of disabled access to coast

- Trail management
- Over development – how to prevent and manage
- Websites romanticise incidents of self harm within the site
- Tour guides capitalise on incidents of self harm within the site
- Cohesiveness between masterplan and items as identified and resolved in former council DCP
- Competing user groups
- Too much concrete through site
- Tourists conflicting with residents
- Bus parking needs to be rationalised
- Lack of “sympathetic” signage
- Condition of gully footpath and balustrade
- Appearance and condition of ‘The Gap’ main entry and fencing
- Lack of interpretive signage throughout site regarding former uses of site, etc.
- No seating at ‘The Gap’
- Accessibility through site – narrow paths
- Lack of all-ability accessibility through site
- Path in poor condition in gully from fig roots
- No bike access through site, as outlined in Woollahra Municipal Council bike plan
- New fences too high – obstructing views
- Watson’s Bay beach litter
- No water drinking fountains through entire site, and surrounding area.
- Shrubs becoming too high on harbour side of coastal path near ‘The Gap’ – obstructing views
- Coastal path in poor condition
- Power lines are unaesthetic to south of site.
- Creative playgrounds needed
- No seats under shade on entire coastal path
- Trip hazard to edge of Robertson Park entry path
- Safety of gully area

2.3 Opportunities

- Synergy of information systems for orientation, heritage, cultural values, and media (pod casts)
- Tour guide accreditation – possibly limit number of tourists (tours), requires public sector and private sector ownership
- Integrated history of the region. Enormous amount of history – chance to integrate this currently fragmented history.
- Provide information about famous Russian marine biologist (Nicholas Maclay).
- Opportunity for themed walks
- How is it promoted (lure of the site for exercise)
- Importance of how the overall site fits together
- HMAS Watson is insignificant in the site
- Restricting access? Charging for access?
- Opportunity for whale watching – telescopes (great for tourists)
- Destination integration. How do you put into an integrated feel?
- Heritage precinct – maritime theme
- Pride in positioning the area – lead to other improvements
- Receptacles for litter
- Subliminal issues

- Ferry integration
- Resident use of ferries
- New infrastructure must be in keeping with heritage fabric
- Reopen the former tram alignment for commercial use of a historic tram, running from Gap Park up to the top of the hill (near lighthouse), so the buses terminate at Christissons Pak. Tram shunts up and down
- Purchase a tram and fit out for installation on site (interpretive)
- Tours to the lighthouses (five in whole area)
- Potential for viewing platform
- Disabled access to destinations
- Interpretative signage
- Relocation of The Dunbar anchor to a more protected location, and more connected to the original location (i.e. Jacob's Ladder)
- Interpretation of the former tramway route, and signage
- Cycle paths along the tramway route
- Potential for The Gap Inn site to be redeveloped as a museum site
- Tell human stories of 'The Gap' - James Johnson story, Lt Grieve story
- Rebuild the camera obscura
- Cycle parking at the entries to the park to encourage people to cycle rather than use car
- Use former trail alignment trail for walking and cycling – great exercise for locals and all-ability access
- Widened or separate cycling route parallel to the walking path
- Possibly use the old tramway route for the cycling route
- Few locations where a tram ran through natural parkland
- Information centre (and museum combined)
- Annual 'no car day'. A chance for the focus on health– like 'city to surf'
- Too much lighting can ruin the natural landscape - keep it low key and located at entries
- Ensure media and websites do not report incidents of self harm
- Educate shop owners to become aware of potential victims of self harm
- Changing design of fence to make more difficult to climb
- 'The Gap' site needs to be really well designed
- Install CCTV cameras and lifeline phone(s)
- Easy to dial phone number for locals reporting incidents of potential self harm
- Local residents can be better educated in what to do
- Training workshops for local residents to assist people
- Install water drinking fountains (similar to Bondi Junction fountains – robust design)
- Showers at new tap location at Camp Cove
- "Medi-alert" for medical assistance along pathways
- Correctly graded all-ability access path through entire site for elderly, wheelchairs, etc.
- Fence upgrade at 'The Gap' main entry
- All-ability access to 'The Gap'
- Low level down-lights along path at 'The Gap' lookout
- Robinson Park toilets upgrade and upsize
- Integrated clear signage and path networks
- Careful consideration of safety and self harming issues throughout all potential implementations
- Minimal fencing so people can see over them
- Bus parking should be moved within NPWS land

- Lighting to gully to increase visual safety, and to remedy current hooliganism in this area
- Repairing paths through gully to remove trip hazards and tree root damage
- New balustrade and pathways through gully
- Close gully area after sunset
- Strong design of integrated low level lighting and furniture
- Extend natural vegetation zone to the western edge of vegetation area (i.e. across tramway cutting)
- Upgrading of steps to Gap Road
- Rationalising human movement patterns throughout site. Intensifying at north and south ends, and controlling accessibility through site
- Maintain tram cuttings
- General tidying up of site
- Consideration of bus pickup and drop-off points. Possibly allow only one point
- Bus shelter to Watson's Bay Village
- Protect The Dunbar anchor
- More information about The Dunbar wreck
- Interpretive vandal-proof signage integrated within footpath (as done at west end of Camp Cove)
- More lighting at night will encourage more people into site (consider implications)
- Consider reasons behind designed alignment of existing paths and their connecting views, etc.
- Locking garbage bins
- Distress phones for potential self harm victims, and signs to these around the site
- Demolish hall adjacent to St Peter's church, and use space to extend parkland
- Retaining and building on cultural artefacts
- Replace The Dunbar anchor with sculpture, selected from public tender. Possibly only during restoration works to anchor
- Apply for federal / state funding for all-ability access path(s)
- Directional signage with information and accurate distances to destinations throughout site – round table format, with arrows (like used at west head)
- Information booklets about the site, that could be sold to the public at a small price
- Connectivity from The Gunyah building to the park
- Area of reflection, for family/friends of self harm victims. Quiet area with seating, small plaques and tree planting

3.0 NEXT STEPS IN THE PROJECT

- RW to coordinate with community for future involvement in the Gap Park Masterplan process, regarding implementation of devices discussed. TBLD to complete preparation of the existing conditions plan

APPENDIX J

SUMMARY

Gap Park Masterplan: Site Visitor Survey Summary

Gap Park Masterplan

Summary of On Site Visitor Surveys

Prepared by Thompson Berrill Landscape Design P/L for Woollahra Municipal Council, September 2007

1.0 INTRODUCTION

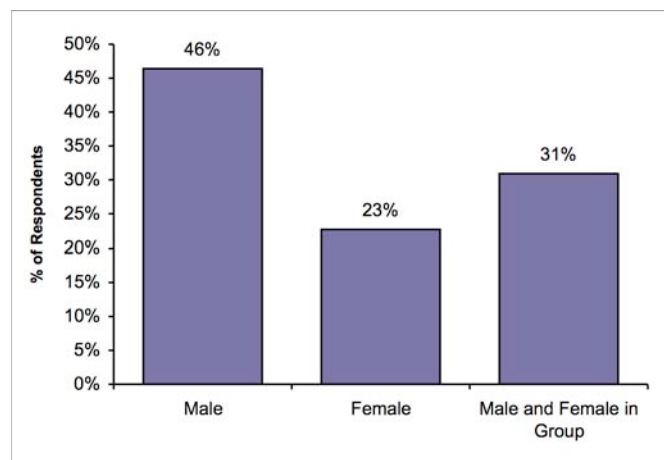
A visitor survey was prepared to seek feedback from the general public regarding Gap Park and their overall visitor experience. A total of 97 on site visitor surveys were completed with the assistance of two Thompson Berrill Landscape Design staff members who conducted the surveys either during the week or on the weekend. Each respondent was asked if they would like to participate in answering a series of questions in regards to such things as the frequency of their visits, lengths of stay and any suggested improvements with only 3 refusals due to other time constraints.

While some of the respondents were visiting Gap Park as part of a group, each survey form has been counted as one response for the purpose of calculating percentages. Each visitor survey was entered into an Access database and this paper includes a summary of these outcomes.

Please refer to Attachment A for a sample copy of the visitor survey form.

2.0 SUMMARY OF RESPONSES

2.1 Gender



The gender imbalance towards males may represent a male preference for visiting coastal sites or areas for contemplation or 'time out'.

2.2 Where they live

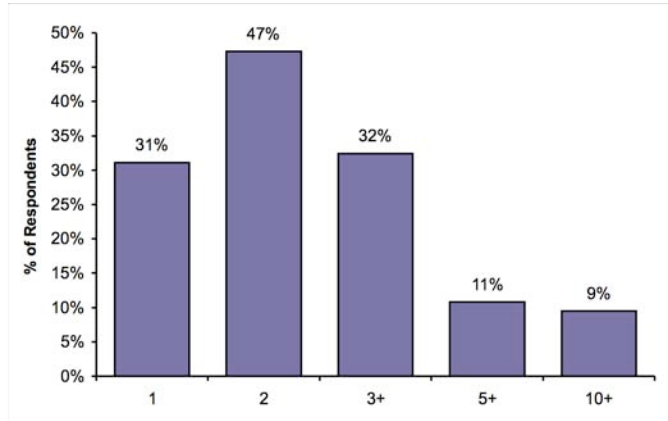
The predominant user group is from Sydney. Approximately 53% of visitors were from the Sydney area and included the suburbs of Bondi, Five Dock, Cronulla, Carlingford, Winston Hills, Watson Bay, Vacluse, Summer Hills, San Souci, Rosebay, Rhodes, Randwick, Point Piper, Parramatta, North Strathfield, Normonhurst, Neutral Bay, McMahn's Point, Liverpool, Kingsgrove, Kingsford, Harbord, Gosford, Georges Hall, Ermington, Eastlakes, Coogee, Chatswood, Castle Hill, Camperdown, Bronte, Blacktown, Bilgola, Beverly Hills, Bankstown, Auburn and Annandale.

Overseas visitors were the second most significant user group. Approximately 28% of visitors were from overseas and included the countries of the United States of America (6%), Korea (5%), United Kingdom (4%), New Zealand (3%), Netherlands (2%), China

(2%), South Africa (1%), Poland (1%), Italy (1%), Denmark (1%), Canada (1%) and Brazil (1%).

Approximately 17% of visitors were from interstate and included Queensland (6%), Victoria (5%), Western Australia (2%), South Australia (2%) and New South Wales (2%).

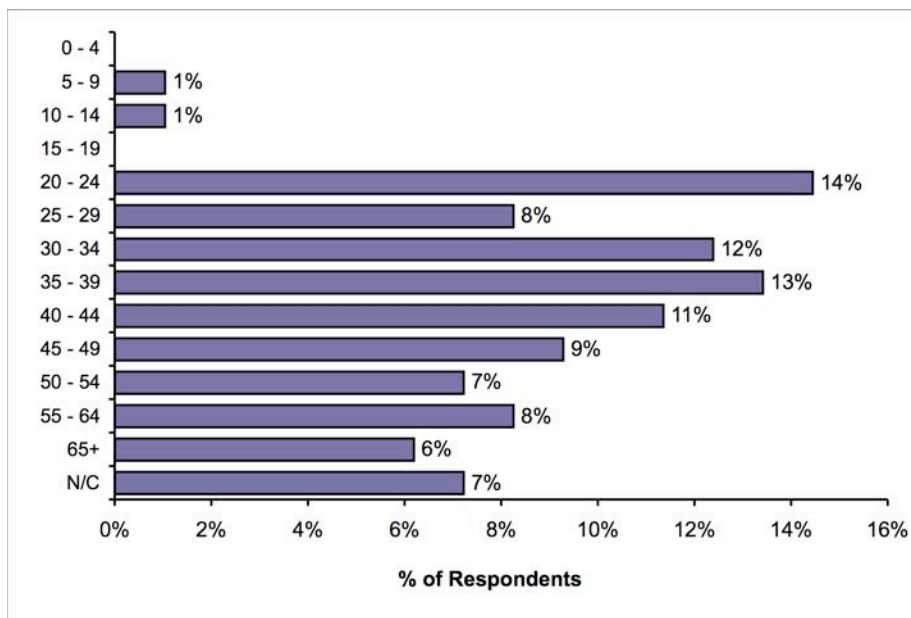
2.3 How many people were they visiting with



A large number of respondents indicated that they had visited Gap Park in groups of two or more people with 47% of respondents indicating they were visiting in a group of two people and another 32% of respondents were visiting in groups of three or more. This indicates the importance of social nature of visitation to Gap Park.

A total of 31% of respondents were visiting alone while around 20% indicated they were visiting with a group of 5 or more and some respondents indicated that they were part of a school or university excursion.

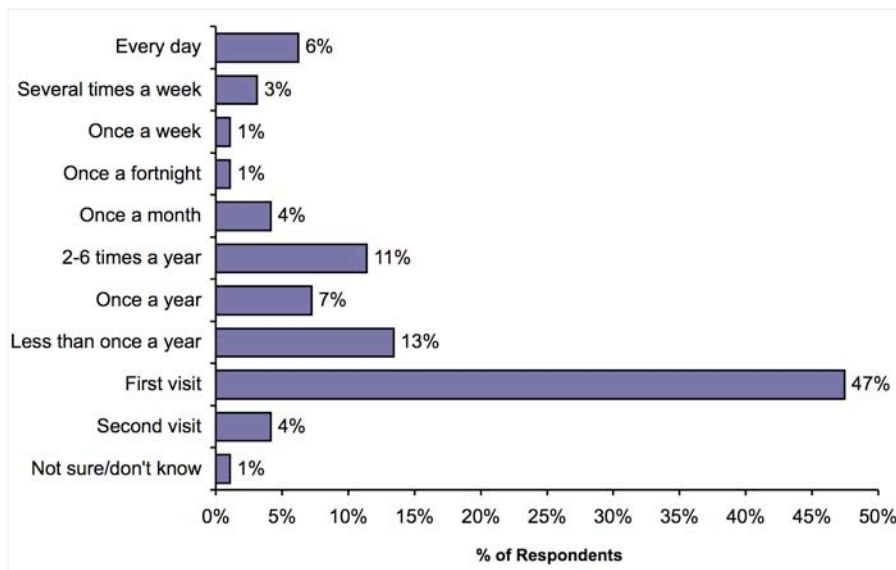
2.4 Age range



Results indicate that the 20-24 age group are regular visitors of Gap Park followed by the 35-39 age group with 13%, the 30-34 age group with 12% and the 40-44 age group with 11%.

This indicates a surprisingly high level of younger visitors, combined with an even spread of visitors throughout all age areas.

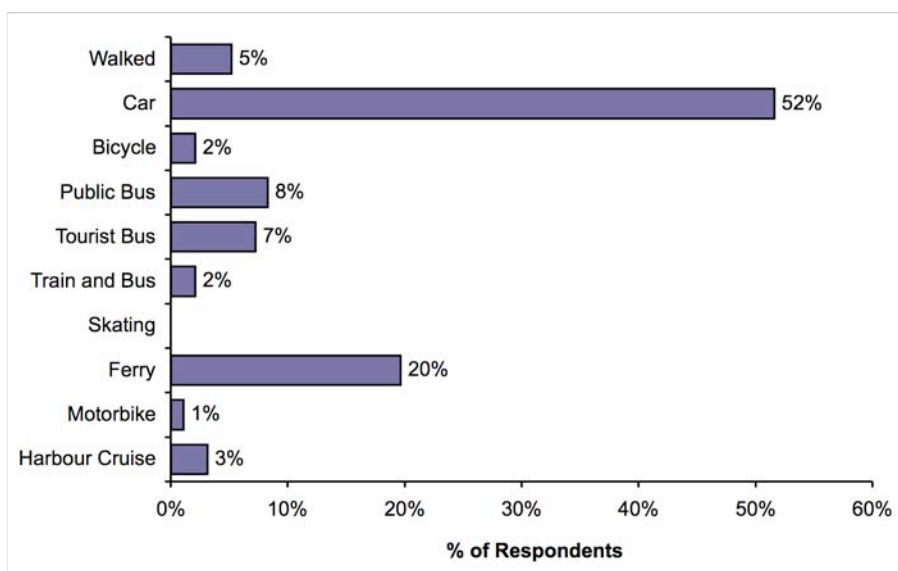
2.5 How often do they visit



An overwhelming number of visitors were visiting Gap Park for the first time with around 47% of the respondents surveyed indicating that they were first time visitors. Along with first time visitors, 13% of respondents visit less than once a year, 11% visit 2-6 times a year, 7% visit once a year and 6% visit every day.

This indicates that residents from the local Sydney area are visiting Gap Park for the first time followed by those who visit the site 1-6 times a year.

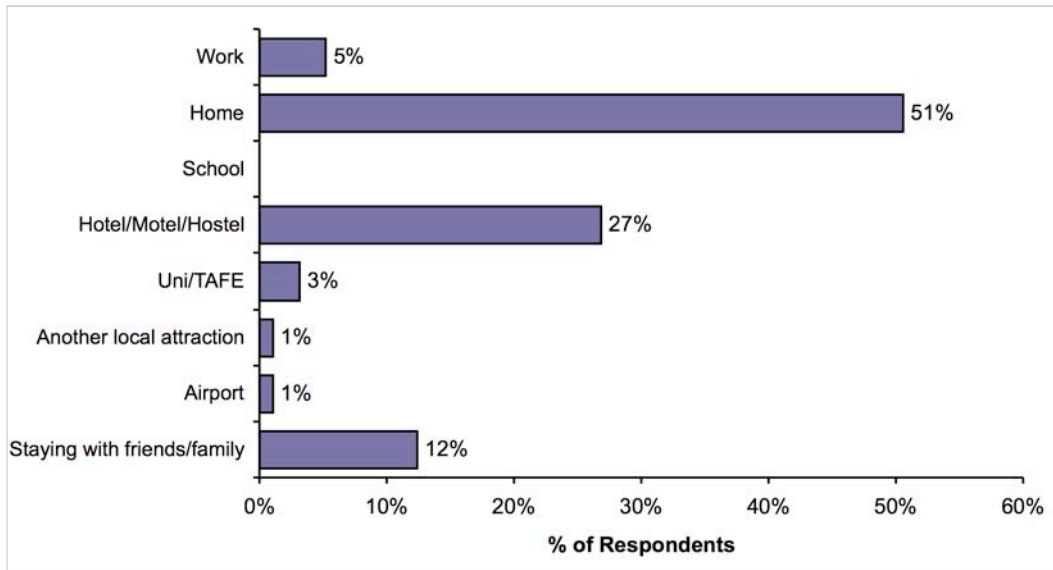
2.6 What was the main form of transport used to get to Gap Park



Over half of respondents had used a car as their main form of transport to the site (52%) followed by the ferry (20%), public bus (8%), tourist bus (7%) and walking (5%).

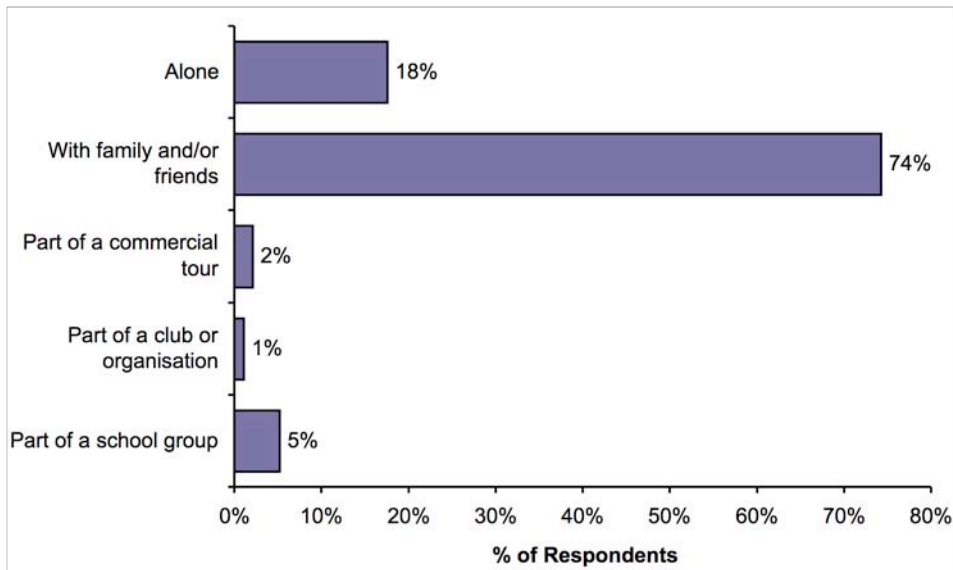
Results show that car use to visit Gap Park is the dominant form of transport indicating an opportunity to reduce vehicle impact by emerging transport forms. Ferry is surprisingly light and could be higher if promoted more. Bicycle use is very low indicating the low connectivity of paths up to the site.

2.7 Where did they travel from



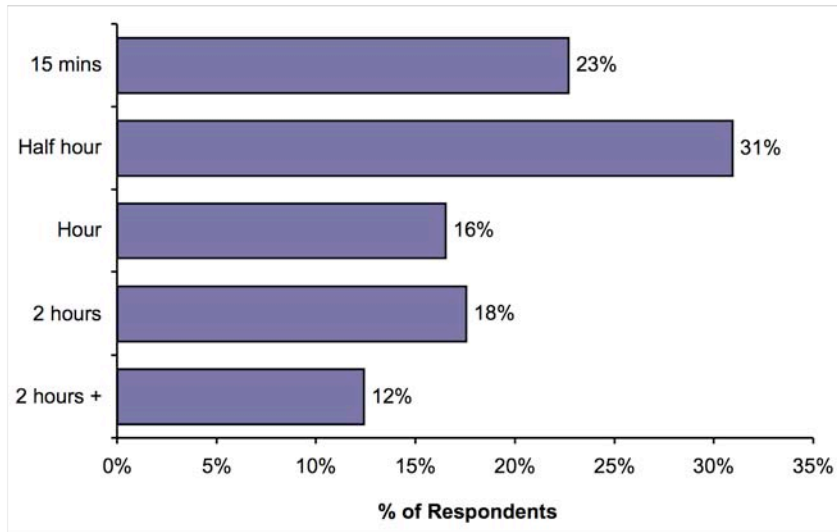
Approximately 51% of the visitors to Gap Park had traveled from home while 27% of respondents had traveled from their hotel/motel accommodation and 12% had traveled from a friends or relatives home.

2.8 What type of group were they with



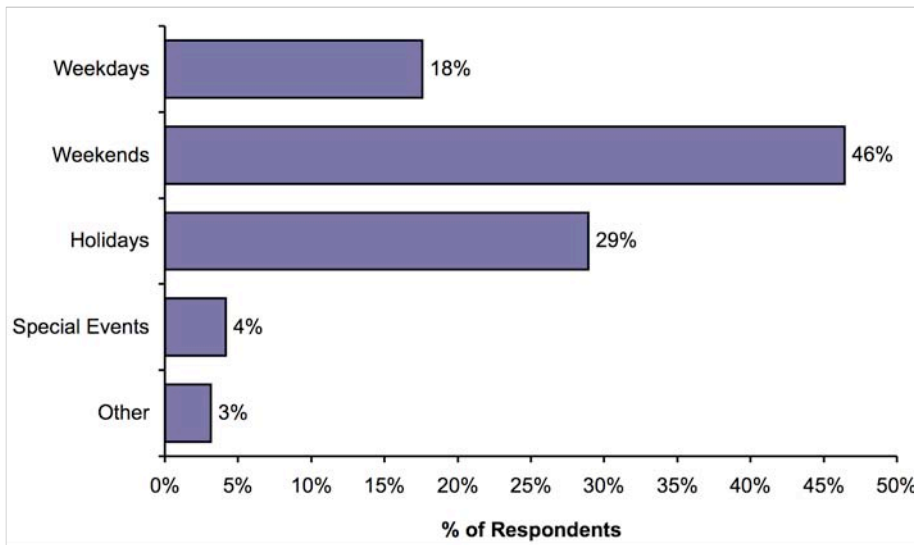
Results indicate that 74% of respondents were visiting Gap Park with other family members or friends.

2.9 Length of stay



Around 70% of respondents stayed at the park for no longer than an hour while around 30% of respondents stayed for 2 hours or more.

2.6 When do they visit Gap Park



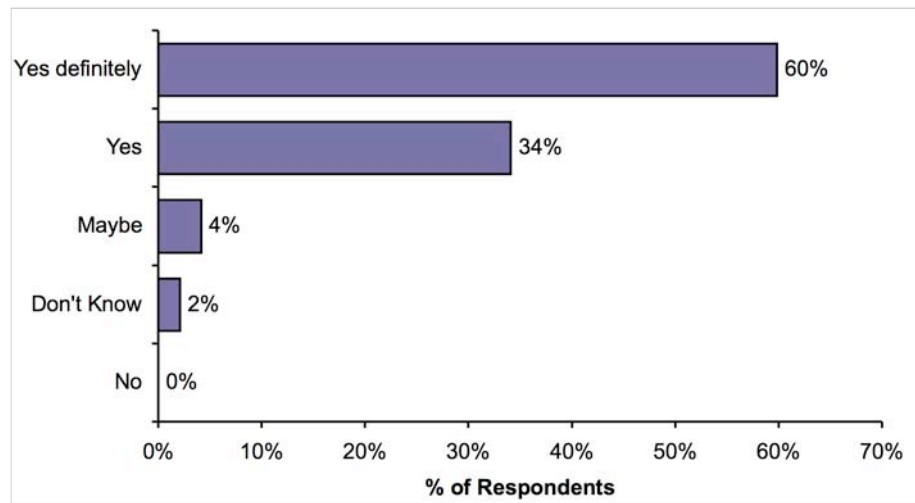
Approximately 46% of respondents indicated that they visit Gap Park on the weekends, 29% of respondents indicated that they were on holidays and 18% of respondents indicated they visit on weekdays. Several respondents explained that they visited the site specifically during the week due to high visitor numbers on the weekend.

2.7 What languages other than English are spoken at home

67%	English is the main language spoken at home
6%	Korean
3%	Chinese
2%	Portugese
2%	Mandarin
2%	German
2%	Dutch
2%	Danish

- 1% Vietnamese
- 1% Turkish
- 1% Thai
- 1% Russian
- 1% Polish
- 1% Nepalese
- 1% Italian
- 1% Indonesian
- 1% Hungarian
- 1% Fiji Hindi
- 1% Cantonese
- 1% Bunjabi
- 1% Africaans

2.8 Would they come back to Gap Park



Approximately 94% of respondents indicated that they would definitely come back and visit Gap Park.

3.0 REASONS FOR VISITING GAP PARK

The most popular value of Gap Park was its views with 52% of respondents selecting this as their reason for visiting.

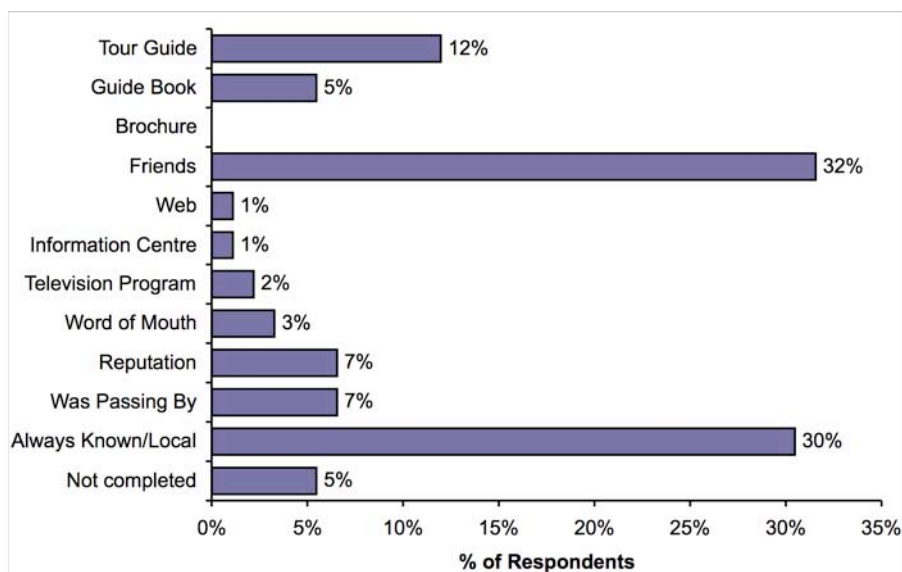
- %
- 52% Views
- 20% Walking
- 18% Site seeing
- 10% Fresh Air
- 8% To show friends or family
- 8% Lunch at Doyles
- 5% Tourist attraction
- 5% Cliffs
- 5% Restful tranquility
- 4% On the way
- 4% Photography
- 3% Stumbled across it
- 3% Historical
- 3% For the food e.g. fish and chips
- 3% Walking the dog
- 2% See what it is all about
- 2% Scenery
- 2% Proximity to Watsons Bay

2%	It is a stop on the harbour cruise
2%	Have breakfast or lunch or dinner
2%	Day trip
1%	Visit the park
1%	To whale watch
1%	Sydney icon
1%	Something to do
1%	Part of school excursion
1%	Old architectural buildings
1%	Looks dangerous
1%	Information centre suggested to visit
1%	Fun
1%	Friends or family suggested to visit
1%	Experience the eastern suburbs
1%	Dunbar story
1%	Bus tour stops at the Gap
1%	Brings back memories
1%	Bushland

4.0 WHAT THEY VALUE ABOUT GAP PARK

70%	Views
18%	Fresh Air
16%	Cliffs
14%	The ocean
11%	Walking
10%	Restful tranquility
8%	Natural Place
8%	Bushland
5%	It's history
4%	Sound of the ocean against the rocks
3%	Views of the ships
3%	Rock shapes and colours
3%	Photography
2%	The park
2%	It's natural landscape character
2%	Birdlife
1%	Unique geographical location
1%	The stories
1%	The sky
1%	Stroller friendly
1%	Sense of democracy
1%	Seeing and visiting new places
1%	Restaurants and pubs are nearby
1%	Playground at the park
1%	Plaques
1%	Ocean meets the harbour
1%	Fish and chips at Doyles
1%	Exercising
1%	Close to everything
1%	Clean and tidy
1%	City views
1%	Walking the dog
1%	Not Completed

5.0 HOW DID THEY HEAR ABOUT GAP PARK



It appears that respondents had heard about Gap Park from a variety of different sources with 32% had heard about the site from friends or family, 30% had always known it was there as they resided in the local area and 12% had been told to visit by a tour guide.

6.0 ISSUES TO BE ADDRESSED

53%	None provided
10%	Poor fence
10%	Poor Parking
9%	No Bins
6%	Lack of seating
3%	Rubbish
2%	Poor Paths
2%	Too many people
2%	Height factor
2%	Negative history and stories
2%	No drinking fountains
2%	Toilets in the park
1%	No Lighting
1%	Aboriginal history
1%	Dog poo
1%	During first visit to the park, witnessed a suicide
1%	Having to walk all the way around to the other side
1%	Inappropriate behaviour e.g. drugs
1%	Lack of directional signage
1%	Lack of information on location
1%	Narrow paths
1%	Needs a telescope
1%	No good vantage points
1%	No suitable access for prams, had to carry pram up the stairs
1%	No tour guide on site
1%	The rails
1%	Too commercial
1%	Unable to look right over the cliffs

7.0 SUGGESTED IMPROVEMENTS

15%	Retain natural character, do not overdevelop
15%	None suggested
14%	More benches or seats required
10%	No improvements required
9%	Upgrade fencing
7%	Rubbish bins required
7%	More signage required including maps
7%	Additional parking required
4%	Provide tourist information
4%	Needs a telescope
3%	Upgrade paths
3%	Toilets in the park require regular maintenance
3%	Provide bins for cigarette butts
3%	Provide better vantage points
3%	More maintenance required e.g. paint the fences
3%	More information about historical events and development including photos
2%	Plaque with information for gun emplacements
2%	On site tour guide required
2%	More native vegetation required
2%	Bush regeneration required
1%	Provide ramp for prams for better access
1%	Weed control required
1%	Watson's Bay to Manly ferry
1%	Tidy up the steps
1%	Stop driving past crossing at the Gap
1%	Skate park required
1%	Signs for Asian visitors e.g. directional signage
1%	Shelters required
1%	Seats to be located in the shade
1%	Seafood shop required
1%	Retain bushland setting
1%	Reopen tram line
1%	Reopen gun emplacements
1%	Provide a place for children to play
1%	Preserve the coastline
1%	Preserve ecosystem
1%	Plant trees in front of NP buildings harbour side
1%	Picnic tables required
1%	Ongoing maintenance required
1%	No cafés required
1%	New fence required at the Gap site
1%	Move sandstone boulders at cliff base
1%	More signage informing people that path ends at the top
1%	More restaurants required
1%	More public transport required
1%	More play equipment required
1%	More information about the tram line
1%	More information about native vegetation
1%	More information about local wildlife including birdlife
1%	More advertising required
1%	Glass fencing required
1%	Get rid of the rails
1%	Get rid of the fences
1%	Ferries to be more regular
1%	Fences are too low for children
1%	Directional signage to Watsons Bay required
1%	Cafes required
1%	Bicycle tours around the peninsula
1%	Area is too windy
1%	Allow dogs

ATTACHMENT A

Copy of Site Survey

Gap Park Masterplan Questionnaire



Woollahra Municipal Council

1. Male Female Postcode
Age Range 15-19 20-24 25-29 30-34 35-39
 40-44 45-49 50-54 55-64 65+

2. How often do you visit The Gap (Gap Park)?

Every day Several times a week About once a week Once a fortnight Once a month
 About 2-6 times a year About once a year Less than once a year First Visit Irregular

3. What is the main form of transport you use to get to The Gap (Gap Park)?

Walked Car Bicycle Public Bus Tourist Bus
 Train and bus Skating (inline/board) Motor bike Ferry Other_____

4. How long do you usually stay at The Gap (Gap Park)?

15 mins half hour 1 hour 2 hours 2 hours +

5. When do you mainly visit The Gap (Gap Park)?

Weekdays Weekends Holidays Special Events Other

6. What do you like or value most about The Gap (Gap Park)?

Ocean Views Harbour Views Walking for exercise Walking the dog Coastal Walking Trail
 Fresh Air Restful Tranquility Native Birdlife Bushland Natural Place
 Historical Features Spectacular Cliffs Place for Photography Place to meet Friends Jogging
 Other _____
 Other _____

8. What issues would you like addressed in the plan?

1. _____
2. _____
3. _____
4. _____
5. _____

APPENDIX K

INDEX OF IMAGERY BOARDS

Gap Park Imagery: Flora and Fauna

Gap Park Imagery: Landscape Types

Gap Park Imagery: Park Visitors

Gap Park Imagery: The Dunbar

Gap Park Imagery: Trams

APPENDIX L

INDEX OF DRAWINGS

GPMP-01 Gap Park Masterplan: Overall Masterplan March 2008

GPMP-02 Gap Park Masterplan: North and South Entries Plan March 2008

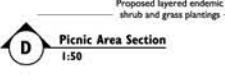
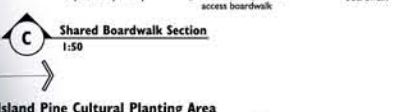
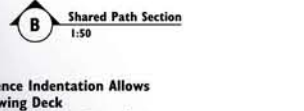
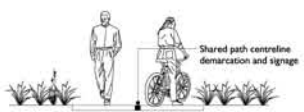
GPMP-03 Gap Park Masterplan: Self Harm Minimisation Plan March 2008



- ### Self Harm Minimisation Strategies
- Lighting**
 - Low level LED lighting, fully integrated with new seating, to two main entries locations, as shown
 - Increased intensity lighting at specific entry zones, for CCTV surveillance
 - Vandal-resistant design
 - All weather protection rating
 - Safety Telephone**
 - Programmable send and receive numbers with no charge for call
 - One to three push buttons to programmed numbers (e.g. 000 or local police)
 - Audible and visual feedback on button press
 - Hands-free speaker, with built in microphone
 - Internal battery with charging options (solar, mains)
 - Digitally stored announcements
 - Illuminated button option
 - Vandal detection, with automatic dial-up reporting
 - Unique ID for location information
 - Vandal-resistant aluminium housing, with dual high security locks
 - All weather protection rating
 - Signage**
 - Directional signage to safety phones
 - Directional signage to key locations, with distances listed
 - Proposed Fencing at Key Locations**
 - Grive vertical blades with nautical symbolism, allowing for maximum visual transparency and curved inwards to deter climbing
 - Diagonal timber top handrail, in keeping with historical coastal handrail theme
 - Welded stainless steel square mesh infill to deter climbing
 - Closed Circuit Television (CCTV)**
 - Provision of CCTV surveillance for visitors accessing site through main entries
 - Remote monitoring available, e.g. at local police station
 - Vandal resistant camera housing
 - All weather protection rating

- ### Key Principles and Recommendations
- Cultural**
 - Gap Park has diverse cultural values which are not well interpreted for the general public. Cultural values are to be protected and interpreted.
 - Celebrate, interpret, and adaptively re-use the former tramway route as a 2.5m wide sealed, graded, all-ability shared access link between north and south of Gap Park
 - Former tram station and 'the Glen' to be protected and enhanced, with interpretive signage included
 - Interface with adjacent church buildings and grounds to be maintained as open and informal
 - Rationalise The Gurnyah buildings' front carpark, with some cultural plantings reinstated, and a firebreak zone created close to the building.
 - History**
 - Gap Park has a rich heritage fabric to be protected and interpreted. Information regarding the history of the site shall be provided through a series of interpretive signage panels through the park.
 - The story of The Dunbar wreck, and some of the people involved (as well as origins of SES formed here), to be told through the landscape and interpretation.
 - Protect and conserve historic anchor suffering from severe rust deterioration. Implement recommendations of condition report, including electrolysis treatment (off site), specialist treatment as part of an ongoing protection regime, and investigate reinstating anchor to more sheltered location of the site.
 - Jacob's Ladder geology to be interpreted, and explain its former use as a naval way-finding device
 - Grive memorial to include information about the life and tributes of Lieutenant Gideon Grives, and to be restored or protected as required
 - Gun emplacements to be restored or protected as required. Information shall be provided regarding the history, function and role of these former military installations
 - Former location of camera obscura to be sculpturally interpreted, with information regarding the history and workings of this unique historical feature
 - Visual**
 - The visual amenity of Gap Park is of vital importance to its identity and meaning to the community. The site's views define its character, and make it a unique and highly visited location.
 - Maintenance of the visual access to the cliffs, ocean, city CBD, harbour and the heads. In some instances these views (that historically existed) can be improved through the selective removal or trimming of encroaching vegetation
 - Improve visual access along pathways by selective removal or trimming of encroaching vegetation increasing safety by improving public surveillance in this area
 - The Norfolk Island Pines are of high cultural value to the site, and are to be retained and protected
 - Views to sandstone cliffs and rock platforms shall be improved through the installation of a new lookout point, and improving existing points. Fixed binoculars may also be provided in certain locations, subject to future investigations
 - Maintain open views to adjacent historic buildings
 - Environment**
 - Gap Park has significant environmental, ecological, and habitat values.
 - The ecology of the site is rich and diverse in some areas, and of lower quality and diversity in other areas. Areas of high diversity and ecological importance are not to be developed, disturbed or accessed by the public.
 - High diversity remnant heathland areas (east of the former tram alignment, between Jacob's Ladder and The Gap lookout areas) are to remain undeveloped and undisturbed. Bush regeneration works to concentrate work on maintaining the ecological quality of this zone
 - High diversity revegetation areas (west of the former tram alignment, near The Gurnyah) are of high quality, and provide good fauna habitat. This vegetation is to be retained and improved
 - Lower diversity revegetation areas (west of Jacob's Ladder valley) were planted after the removal of the tramline, and over land-fill. Where possible, this vegetation is to be consolidated, retained and improved through planting with diverse endemic species
 - Littoral rainforest (in lower portion of Jacob's Ladder valley), has valuable cultural plantings dominated by Qld species, and weed infestation. Character of area is to be retained and improved with long term weed control strategies
 - Introduce a greater variety of low growing indigenous species at main entry planting, to create an educational and botanical feature for tourists and residents, with interpretive signage
 - New trees are to be planted on the site, as tall trees did not previously occur within this windswept coastal environment, maintaining the original visual character of the site.
 - Habitat boardwalks allow for fauna movement across shared path environment
 - Safety**
 - The Gap Park masterplan aims to increase general safety for the users of the site, and also assist to deter people considering self harm. Generally, site safety shall be increased through a range of measures.
 - New balustrades to be installed at the key lookout areas to the north and south
 - All proposed elements within the landscape are to be of durable design, and securely installed, to reduce vandalism
 - People considering self harm shall be deterred through increased lighting of the two key entries, CCTV, safety telephones, and improved directional signage to telephones (see self harm minimisation notes)
 - Cultural programs to be promoted to help de-stigmatise the site as a known venue for self harm, and generally increase use of the site, improving community ownership
 - Discrete area for families and friends of victims of self harm, with ceremonial tree planting, to be provided near 'The Gurnyah'
 - New bicycle refuge to be provided near south entry, for access over road to shared path (location subject to future investigations)
 - Recreation**
 - Recreation to be improved within Gap Park wherever possible to increase public use of the site for public health, assist in fostering community spirit, and improve public surveillance
 - Walking and jogging are popular activities on the site. New directional signage is to be included across the site, with distances and destinations clearly displayed
 - Picnicking areas and tables that were previously provided to the south of Gap Park shall be reinstated to improve community ownership of the park
 - All-ability access to the site is currently limited to the northern and southern lookouts within the site. A sealed, graded, all-ability shared path shall be included through the western part of the site, along the former tram alignment
 - Shared path provides off road pedestrian / bicycle pathway in accordance with the 'Woolahra Bicycle Plan (2000)'
 - Bird watching to be improved through improving native vegetation areas, as defined in the masterplan, and providing signage with bird species information
 - Opportunities for whale watching to be improved through the installation of new lookout point, and improving existing lookouts
 - Photography opportunities improved through the installation of new lookout point, improving existing lookouts, and through selective removal or trimming of encroaching vegetation

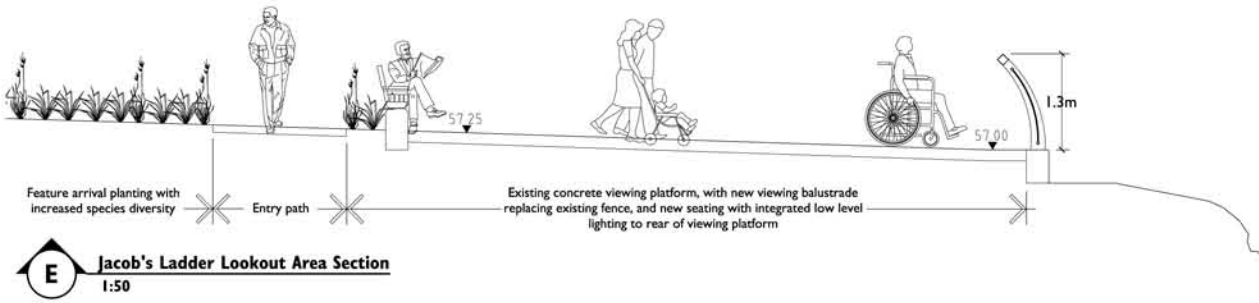
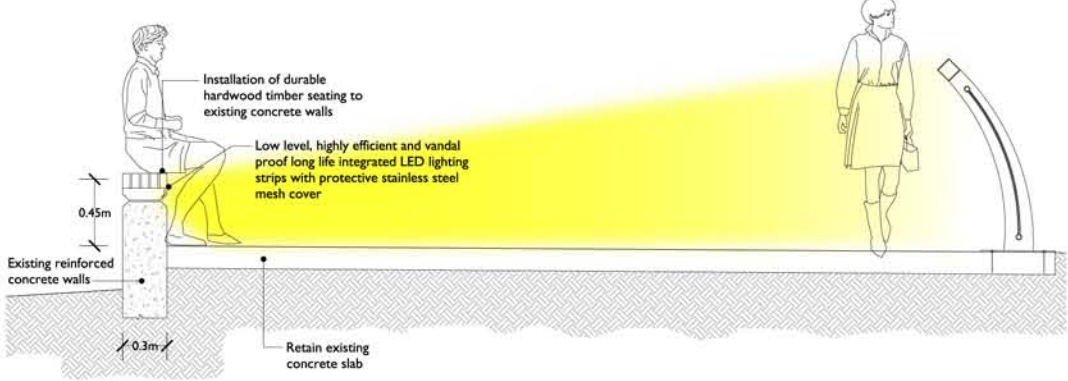
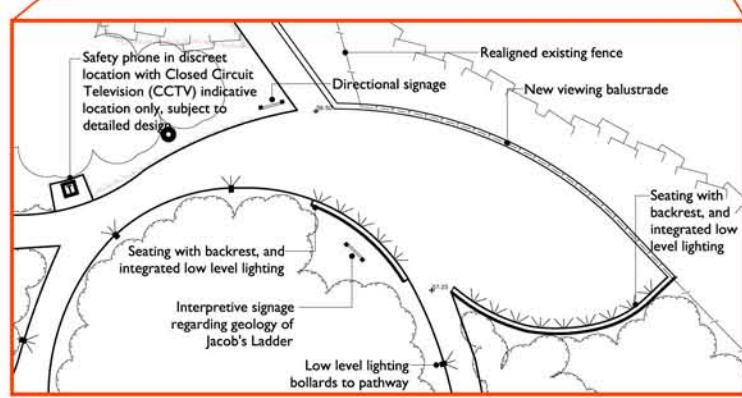
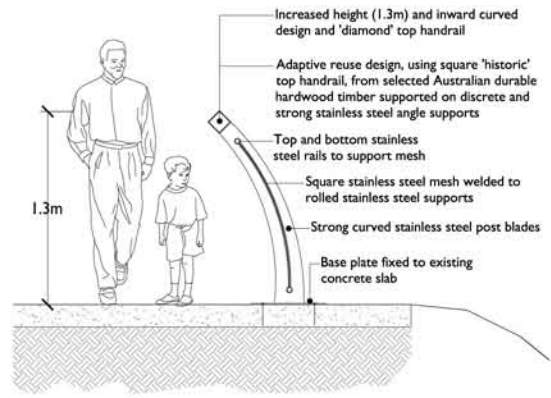
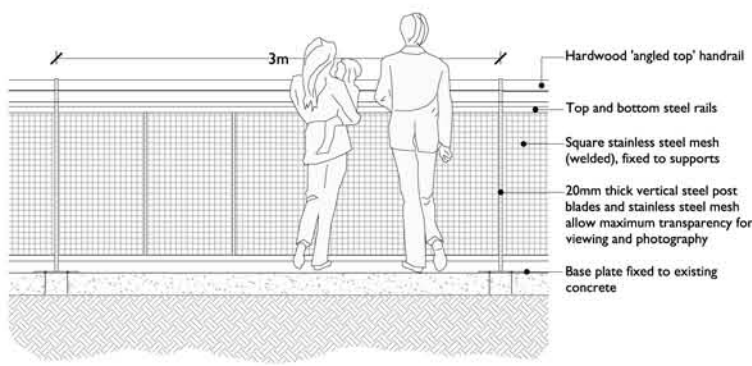
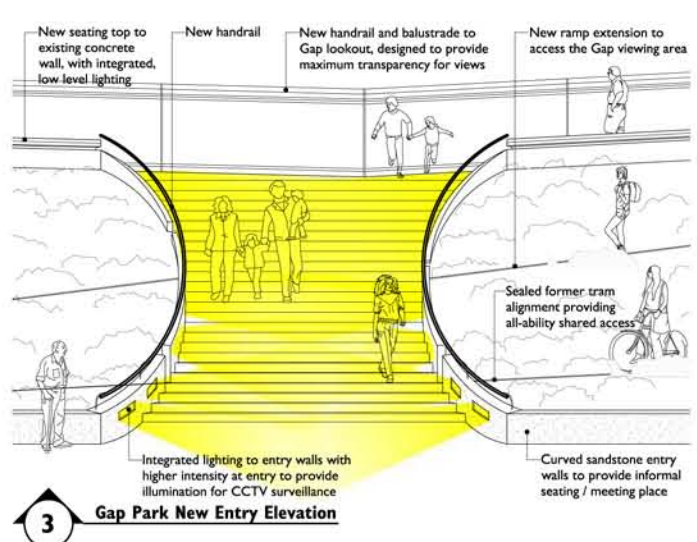
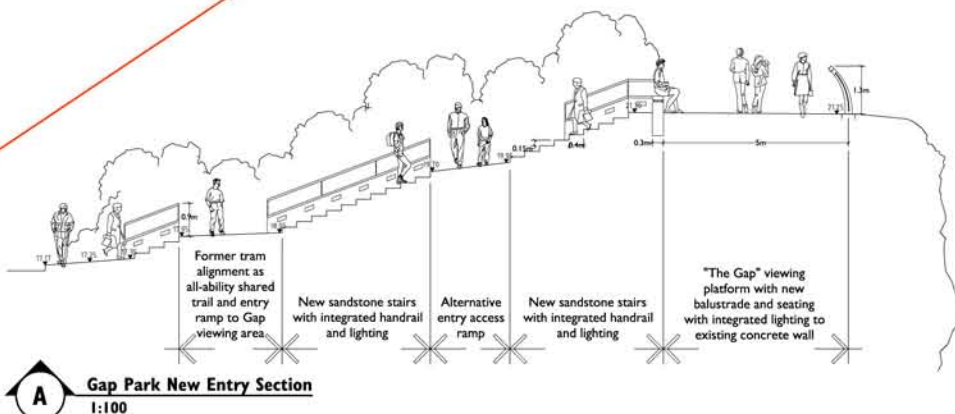
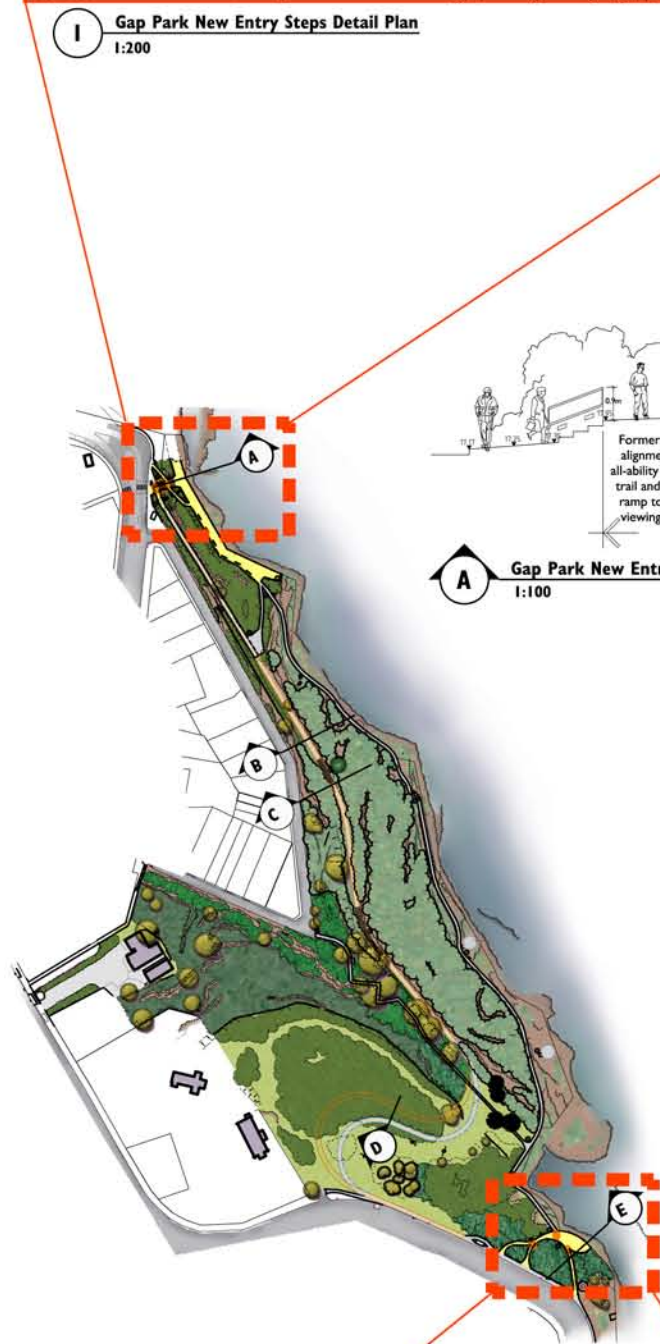
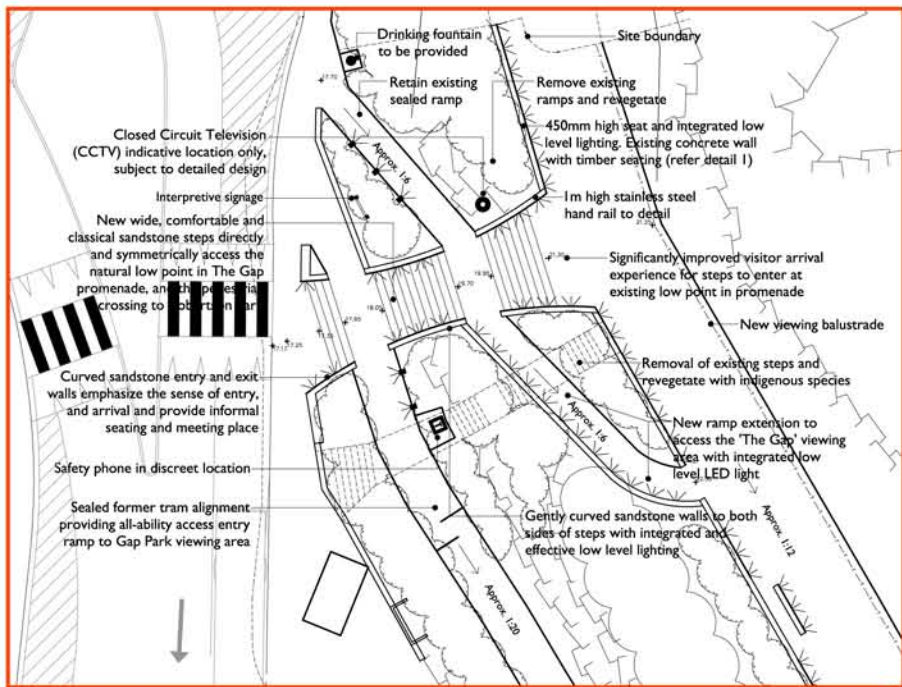
- ### DRAWING KEY
- Existing trees to be retained
 - Existing Norfolk Island pine to be retained
 - Proposed shrub plantings
 - Proposed native grass plantings
 - Littoral rainforest area
 - Low diversity revegetation area
 - High diversity remnant regeneration area
 - Existing entry plantings
 - High quality revegetation area
 - Existing vegetation to be removed
 - Proposed turf areas
 - Former tramline to be converted into all-ability graded shared path, 1.5m wide, hard wearing and permeable surface
 - Habitat boardwalk and bicycle chicanes
 - Coastal walk and sealed access path along former tramline alignment
 - Minor pedestrian path connections
 - Existing walls to be retained
 - Significant view lines
 - Directional signage
 - Interpretive signage
 - Self harm minimisation infrastructure (CCTV and safety telephone)

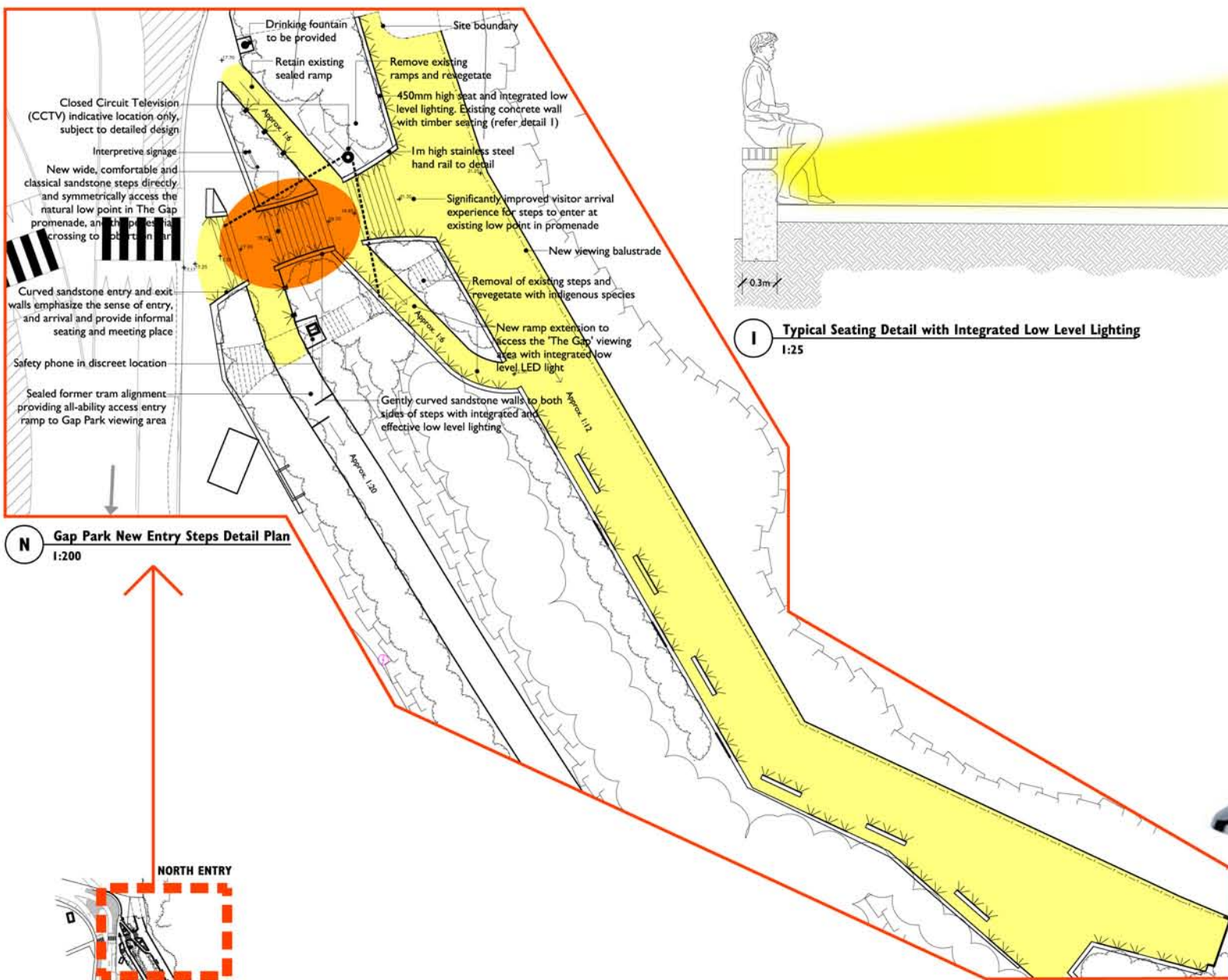




NORTH AND SOUTH ENTRIES PLAN GAP PARK MASTERPLAN

MARCH 2008
 GPMP-02
 SHEET 2 OF 2
 SCALE 1:2000 @ A1





1 Typical Seating Detail with Integrated Low Level Lighting
1:25

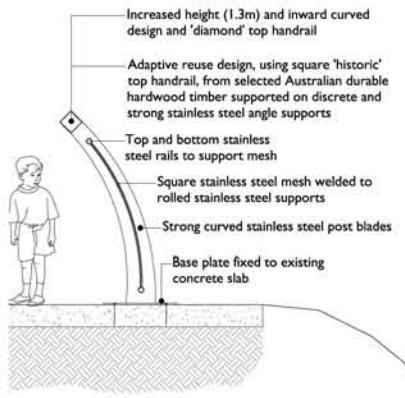
- 1.0 Lighting**
- Low level LED lighting, fully integrated with new seating, to two main entries locations, as shown
 - Increased intensity lighting at specific entry zones, for CCTV surveillance
 - Vandal-resistant design
 - All weather protection rating

N Gap Park New Entry Steps Detail Plan
1:200

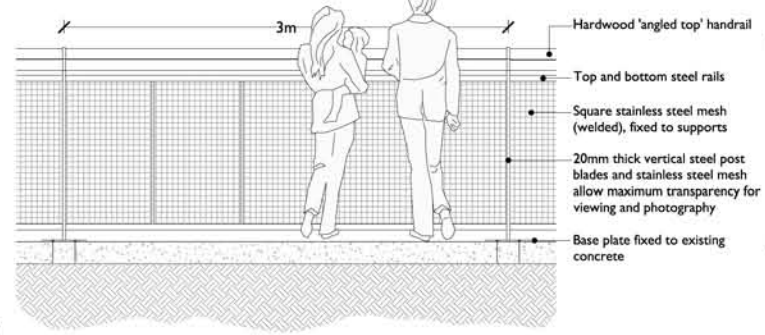
- 2.0 Safety Telephone**
- Programmable send and receive numbers
 - One to three push button(s)
 - Audible and visual feedback on button press
 - Handsfree speaker, with built in microphone
 - Accessible locally or remotely
 - Internal battery with charging options (solar, mains)
 - Digitally stored announcements
 - Illuminated button option
 - Vandal detection, with automatic dial-up reporting
 - Unique ID for location information
 - Vandal-resistant aluminium housing, with dual high security locks
 - All weather protection rating



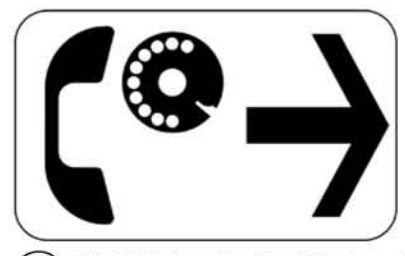
2 Safety Telephone Example



3 New Gap Park Viewing Balustrade Elevation
1:25



- 3.0 Proposed Fencing at Key Locations**
- Curved vertical blades with nautical symbolism, also allowing for maximum frontal transparency
 - Diagonal top handrail, in keeping with coastal theme
 - Welded, stainless steel square mesh
 - Curved inwards to deter climbing

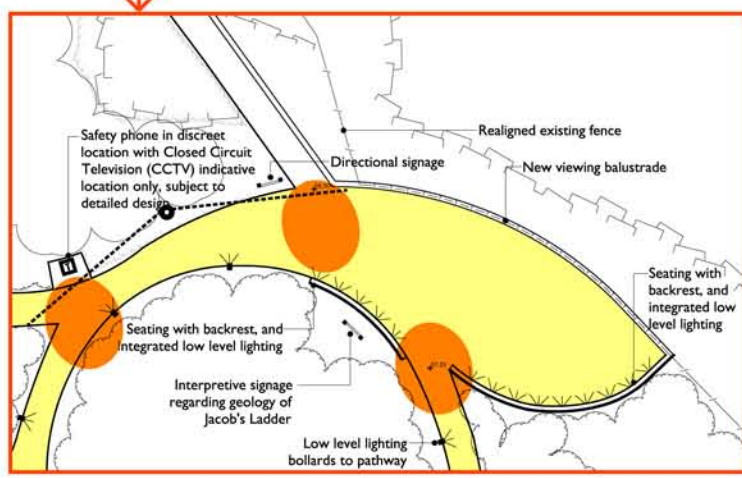


4 Safety Telephone Directional Sign Example

- 4.0 Signage**
- Directional signage to safety phones
 - Directional signage to key locations, with distances listed

THOMPSON BERRILL LANDSCAPE DESIGN P/L
PO BOX 665 MANLY NSW 2095 T: 612 9977 6444 E: info@tblid.com.au

- DRAWING KEY**
- Increased intensity lighting at specific entry zones, for CCTV surveillance
 - Low level LED lighting to main entries, for improved public amenity and safety
 - Directional signage to safety telephones
 - CCTV indicative location
 - Safety telephone indicative location
 - Approximate monitoring area of CCTV
 - New balustrade to edge of main entries



S Jacobs Ladder Lookout Area Detail Plan
1:200



5 CCTV Example

- 5.0 Closed Circuit Television (CCTV)**
- Provides CCTV surveillance for visitors accessing site through main entries
 - Accessible locally or remotely
 - Vandal resistant camera housing
 - All weather protection rating

SELF HARM MINIMISATION PLAN
GAP PARK MASTERPLAN

MARCH 2008
GPMP-03
SCALE 1:2000 @ A1

