PART 3: LANDSCAPE MANAGEMENT PLAN

Contents

List of Figures

List of Tables

List of Photographs

This page left blank intentionally.

P1. The Wharf Area (source: CM+)

P2. Orchard Park (source: CM+)

P3. Gibberagong Park (source: CM+)

1.0 Introduction

1.1 Background

Bobbin Head is one of the premier recreation destinations within the Ku-ring-gai Chase National Park, situated within the Sydney metropolitan area approximately 20 kilometres north of the Sydney city centre. The parklands were historically developed for recreation by infilling mudflats, mangroves and sandbars, over a number of decades from the early twentieth century. This staged process of reclamation led to the development of distinct sub-precincts within the park, each with a unique landscape character. These include Orchard Park, Orchard Park South, the Wharf Area, Gibberagong Park and Gibberagong South.

As visitor numbers have grown, management of the park has become increasingly complex. The Parks and Wildlife Division of Department of Environment and Conservation have recognised the need for a Masterplan to guide the conservation and future management of the parklands.

This Landscape Management Plan provides a comprehensive assessment of the existing park conditions, identifies key opportunities and outlines principles and actions directing the future development and management of the landscape. The Conservation Management Plan and the Landscape Management Plan together inform the Masterplan for Bobbin Head.

1.2 Report Objectives and Outcomes

Key objectives for this report as required by the Project Brief are:[1]

- To identify, direct and achieve long term conservation and landscape management outcomes for Bobbin Head.
- To assess and document all influencing factors on both parklands including: recreation and use, visitor facilities, traffic review and car parking, connectivity and linkages, interpretation, soils, vegetation management, services and infrastructure (including the seawalls).
- To develop well documented precinct plans that illustrate the future improvements to the parklands, including sub-precinct plans for Orchard Park, Orchard Park South, Gibberagong Park, Gibberagong South, the Wharf Area.
- To develop coordinated landscape planning policies and detailed design guidelines for the parklands.
- To give direction to the future uses for the parklands while protecting their significance.

The outcomes of this report will be:

- Principles and Actions informing the future development and management of Bobbin Head in a way which achieves a balance between conservation and recreational objectives.
- Design drawings informing the future detailed design of the park.
- Implementation of the Masterplan over a number of years.

Refer also to Volume 1, Chapter 3.0.

[1] Tender Brief for Preparation of a Master Plan including: Conservation Management Plans and Landscape Management Plans Bobbin Head & Apple Tree Bay Precincts Ku-ring-gai Chase National Park, (2005); NSW NPWS

1.3 Site Location

Refer to Figure 1.1.

The Ku-ring-gai Chase National Park is situated within the Sydney metropolitan area, approximately 20 kilometres north of Sydney city centre. The park generally comprises the land east of the Sydney Newcastle Expressway, south of the Hawkesbury River, west of Pittwater and north of Mona Vale Road. It also includes Barrenjoey Head on the eastern side of Pittwater. The park is bounded by the Local Government Areas of Hornsby to the southwest, Ku-ring-gai to the south east and Warringah to the west. Cowan Creek forms the boundary between the Parish of South Colah (west) and the Parish of Broken Bay (east).

Bobbin Head is located within Foleys Bay, which adjoins the Hawkesbury River at Broken Bay. The parklands known as Bobbin Head are located at the southern end of Cowan Creek, at the junction of Cowan Creek and Gibberagong Creek (also known as Cockle Creek). The study area comprises the reclaimed land located at the point of Bobbin Head and the reclaimed parklands located on the western side of Cockle Creek known as Orchard Park and Gibberagong Park.

Bobbin Head is accessed by road from the North Turramurra in the south via Bobbin Head Road and from Mt Colah to the west side via Ku-ring-gai Chase Road. Access to the water is possible via the wharf located at Bobbin Head. A ferry service from Pittwater arrives at Bobbin Head daily at the wharf.

Figure 1.1. Location of Bobbin Head, Ku-ring-gai Chase National Park (Source: Department of Environment and Conservation)

1.4 Methodology

This Landscape Management Plan forms part of the Masterplan for Bobbin Head. The Landscape Management Plan has been prepared concurrently with a Conservation Management Plan, which both inform and direct the Masterplan and associated illustrative designs.

The preparation of the Landscape Management Plan was undertaken through a staged process involving initial site analysis, consultation with National Parks and Wildlife Service staff, stakeholders and the general community, leading to an exploration of opportunities and then the development of principles and action which address the issues identified. The illustrative design drawings are the outcome of this process.

This report addresses a comprehensive range of physical, functional and experiential landscape issues and aspects including:

- Conservation
- Environment & Sustainability
- Landscape Character & Visual Quality
- Recreation and Visitor Facilities
- Security; and
- Access, Circulation & Car Parking

The Landscape Management Plan draws upon a number of studies undertaken as part of this project in respect to functional & physical landscape issues. These studies are included in Volume 3, The Appendix.

Additional studies and reports undertaken previously and which have provided useful information for this Landscape Management Plan include:

- GHD, 1991 - Bobbin Head and Apple Tree Bay Landscape Management Plan
- The Tree Wise Men, 2004 - Arborist's Report for Bobbin Head and Apple Tree Bay Picnic Areas (Refer to Volume 3, Appendix 5.1)

This page left blank intentionally.

1.5 Authorship

Context Landscape Design prepared the Landscape Management report. Oi Choong was Project and Company Director, Ben Dungey, Senior Landscape Architect, and Astrid Brokamp, Landscape Architect.

Specialist Consultation

The formulation of this Masterplan entailed specialised technical consultation in various fields. The following are a list of consultants engaged and their respective reports which have informed the outcome of this Masterplan project:

Location - Volume 3	Field	Consultant	Reports / Recommendations
Appendix 1.1	Flora and Fauna	Australian Museum Business Services	Flora Constraints Report Fauna Advice
Appendix 1.2	Aboriginal Heritage	Australian Museum Business Services	Aboriginal Heritage Report
Appendix 1.3	Transport Planning	Arup	Traffic Report
Appendix 1.4	Geotechnical	Douglas Partners	Geotechnical Advice
Appendix 1.5	Recreational Planning	Stratcorp	Recreational Planning Report
Appendix 1.6	Soils	Sydney Environment and Soils Laboratory Pty Ltd	Soil Report
Appendix 1.7	Marine Engineering and Structure	TLB Structural Engineering	Seawall Flood levels Structure of Sunny Corner Amenities Building Structure of Bobbin Inn
Appendix 1.8	Quantity Surveying	Bay Partnership	Quantity Surveying Report
Appendix 2	Bobbin Head Seawall	Conybeare Morrison International	Conservation Management Plan
Appendix 3	Apple Tree Bay Seawall	Context Landscape Design	Landscape Management Plan
Appendix 5.1	Flora	Tree Wise Men	Arborists Reports
Appendix 6.1	Recreation	Kayak & Canoe Inc	Kayak & Canoe Report
Appendix 6.2	Conservation	Hornsby Conservation Society	Conservation Reports
Appendix 7.1	Heritage	Conybeare Morrison International	Heritage Listings
Appendix 7.2	Landscape	Context Landscape Design	Concept Planting Plan

Table 1.1. Specialist Consultants

P4. Aesthetic Values (source: CM+)

P5. Social Values (source: CM+)

P6. Historical values (Source: NPWS Archives c 1935-1940)

2.0 Significance

Refer to Volume 1, Part 2 CMP, Chapter 4.0.

Bobbin Head, Ku-ring-gai Chase National Park is a place of cultural significance for historic, aesthetic, scientific / research and social values at local level. Bobbin Head is a 1930s pleasure ground located within Ku-ring-gai Chase National Park an area of high natural significance at State level for its natural conservation values. The selection of the name, Ku-ring-gai Chase National Park, is a dedication to the local Aboriginal language groups that occupied the land.

Bobbin Head has exceptional social significance at the local level for its leisure and recreational heritage including water-based recreation activities. Bobbin Head attracted a million visitors in 2005 from surrounding residential areas and the wider Sydney region. Bobbin Head provides an open space pleasure ground that supports a wide variety of recreational activities. The place also has strong associations with nature conservation and a diversity of recreational activities and cultures. Bobbin Head was developed as the primary recreational area and pleasure ground within Ku-ring-gai Chase National Park. The presence of Aboriginal archaeological relics and sites in close proximity to Bobbin Head has high social significance to the Aboriginal community and represent a range of past activities.

Bobbin Head has high historic significance at local level for its associations with Ku-ring-gai Chase National Park, gazetted in 1894 as the second national park in NSW and the first national park devoted to nature conservation. Ku-ring-gai Chase Trust administered the conservation area from 1894 to 1967 and National Parks and Wildlife have administered the place from 1967 to the present (2006). Bobbin Head provides evidence of the evolving history of conservation management.

Bobbin Head has high historic significance at local level for its associations with prominent persons including the various Presidents of the Ku-ring-gai Park Trust and Trust members who managed Bobbin Head from 1894 until 1967. Prominent persons include Eccleston Du Faur, founder of Ku-ring-gai Chase National Park, Richard Beaumont Orchard instigator of the 1930s development of Orchard Park as a pleasure ground and Howard Joseland (1860-1930) Honorary Architect for the Trust.

Bobbin Head has high aesthetic significance at a local level associated with its setting within the Ku-ring-gai Chase National Park, a place of natural heritage significance. Bobbin Head's scenic qualities are associated with the diverse cultural plantings and landscape elements of the semi formal park contrasting with the indigenous landscape and surrounding waterways.

Bobbin Head has high social significance at a local level for the use of the area for educational activities. Bobbin Head has moderate scientific / research significance for its archaeological potential associated with former buildings and structures.

Bobbin Head has high historic significance at a local level for its associations with the Unemployed Relief Funds and Labour utilised throughout the 1920s, 1930s and 1940s which contributed to the development of the park as a primary recreational parkland.

This page left blank intentionally.

3.0 Objectives

The following general objectives relate to the management of National Parks in New South Wales:[2]

- The protection and preservation of scenic and natural features;
- The conservation of wildlife, including the maintenance of biodiversity and populations of threatened species;
- The maintenance of natural processes as far as is possible;
- The preservation of Aboriginal sites;
- The conservation of historic features;
- The encouragement of scientific and educational enquiry into environmental features and process, Aboriginal and historic features; and
- The provision of appropriate recreation opportunities.

Additionally, the following objectives apply to the management of Ku-ring-gai Chase National Park:[3]

- Protection of the national park and nature reserves as part of a system of parks and reserves which together protect the natural and cultural heritage, water catchments and scenic values of the lower Hawkesbury River and its tributaries.
- Maintenance of ecological integrity within the park and reserves, and between the park and reserves and adjoining areas, consistent with their purpose of reservation.
- Promotion of Ku-ring-gai Chase National Park as a show place for the parks of the lower Hawkesbury River, with a variety of visitor facilities and experiences which are appropriate to the national park and lead towards ecologically sustainable use of the park.
- Promotion of increased public awareness and understanding of the importance and value of protecting the natural and cultural heritage of the national park and nature reserves in their own right, and as part of a system of conservation reserves within the Sydney metropolitan area.

Refer to Volume 1, Part 1 Masterplan Chapter 3.0.

P7. Protection and preservation of scenic qualities is a key management objective for National Parks in New South Wales (source: CM+)

[2+3] KCNP Plan of Management (May 2002); NSW NPWS

These general management objectives inform and guide the following specific objectives for the planning and management of Bobbin Head as required by Department of Environment and Conservation[4], which provide a framework for the implementation of management actions which will ultimately achieve the vision for the park.

Management

- Provide the foundation for integrated management that retains and enhances the significance of the parklands.
- Provide sound planning, design and management guidelines addressing appropriate conservation, use and landscape management.
- Improve park user experiences through safety and improving pedestrian / vehicle access / parking within Bobbin Head.

Refer to Volume 1, Part 1 Masterplan Chapter 10.0.

Education

- Raise perceptions of Bobbin Head as a special place for visitors and the general community.
- Provide for clear expression of values of the Bobbin Head in the greater context of Ku-ring-gai Chase National Park and wider park network in Sydney north region.

Refer to Volume 1, Part 1 Masterplan Chapter 3.3.

Recreation and Consultation

- Plan to better meet recreational / user expectations through improved facilities and access in a national park context.
- Reflect community views in the development of the plan.
- Review visitor facilities and develop concepts for improved design solutions including heritage picnic shelters, new picnic shelters, park furniture and children's playground.

Refer to Volume 1, Part 1 Masterplan Chapter 7.0.

Conservation

- Develop design plans that capture the natural and cultural heritage of the parklands and interpret these layers through sensitive design solutions.
- Prepare re-use possibilities / conservation principles that meet the National Parks and Wildlife Service's heritage guidelines.

Refer to Volume 1, Part 2 CMP.

P8. School groups regularly visit Bobbin Head (source: CM+)

[4] Tender Brief for Preparation of a Master Plan including: Conservation Management Plans and Landscape Management Plans Bobbin Head & Apple Tree Bay Precincts Ku-ring-gai Chase National Park, (2005); NSW NPWS

4.0 Analysis

A range of investigations involving a combination of desktop research, field assessment and user surveys were undertaken to provide a holistic understanding of the parklands. Specialist input was obtained from recreational, geotechnical, soils, traffic, wildlife and heritage consultants during this process.

This section summarises the key information which has been obtained from these investigations. The specialist studies used to inform this report provide a more detailed level of information and are included in the appendix as noted.

The analysis of Bobbin Head's characteristics are separated into the following subject headings:

- Topography and Geology
- Soils
- Hydrology and Drainage
- Microclimate
- Flora and Fauna
- Heritage
- Recreation and Visitor Facilities
- Access, Circulation and Car Parking
- Landscape Character and Visual Quality

P9. View of Orchard Park from The Wharf Area (source: CM+)

4.1 Topography and Geology

P10. Orchard Park with King-tide inundation (January 2006). (source: CM+)

Refer to Figure 4.1.

Ku-ring-gai Chase National Park is characterised by narrow sandstone ridges and deep V-shaped valleys, with the lower valleys flooded by seawater The geology consists almost entirely of horizontally bedded sedimentary rocks dominated by Hawkesbury sandstone.

Bobbin Head is situated at the base of one of these valleys and has a relatively flat profile, contrasting with the surrounding relief. It is reclaimed land made up of imported fill and contained by a continuous sandstone seawall at the water's edge. Parts of the parklands are regularly inundated by seawater, particularly those areas below an RL of 1.5m.

(Refer to Volume 3, Appendix 2 Seawall Advice Report and Appendix 1.7 Marine and Structural Engineering Report)

4.2 Soils

P11. Saline effects on soil conditions (January 2006). (source: CM+)

Refer to Volume 3, Appendix 1.6 Improving Soils Conditions for Trees and Turf at Bobbin Head.

Bobbin Head is formed on in-filled estuarine bays. The soils generally consist of a layer of silty sand fill over a deep horizon of white sand down to a freshwater table at about 1m depth. In some areas there are layers of clay soils. The surface layer is compacted and impermeable.

In a significant portion of Orchard Park close to the seawall regular inundation by saline tidal water occurs by movement of King Tides up the stormwater drains. Due to the impermeable surface layers, the seawater tends to pond until evaporation removes the water, leaving a salt scald surface. These areas can be delineated by the absence of grass with bare soil areas showing salt efflorescence in dry weather. A number of trees in this area show decline or are performing poorly, which is likely to be as a result of salinity.

There is evidence of significant soil acidity and nutrient deficiencies in the park, including potassium, phosphorus, nitrogen, sulphur and magnesium. Acidity in the soil effectively reduces the availability of nutrients to plant roots. Potassium deficiency is particularly common in older parks, resulting from constant removal of clippings and leaf litter.

4.3 Hydrology and Drainage

P12. Sea water around trees (June 2006). (source: CM+)

Refer to Part 3 Appendix 1.6 Improving Soil Conditions for Trees and Turf at Bobbin Head.

Cockle Creek forms an edge to Gibberagong Park. Polluted runoff and erosion from urban development upstream in the catchment area is affecting water quality in the creek and Foleys Bay, degrading the natural environment of Ku-ring-gai Chase National Park.

Overland flow within the park generally gravitates away from the natural edges of the parklands towards the foreshore areas. Overland flow also occurs from the natural slopes on the periphery of the park into the low lying areas of the park. Several small creeks terminate at the edge of the park and their discharge runs into the park's reticulated stormwater system, which also collects run-off from the asphalt roads and car parks and deposits the untreated water directly into Cowan Creek. Due to the impermeable surface layers of soil, the reticulated stormwater system effectively has a greater stormwater load to manage. Petrochemicals and other pollutants are not treated prior to entering into Foleys Bay.

Subsoil hydrology is likely to consist of ground water flowing from the base of the sandstone hills through the sandy subsurface layers and at some point within 10 to 15m of the seawall, meeting the saline tidal water. Due to the compacted, impermeable surface layers of soil in the park, the surface water and subsoil water systems are likely to be essentially separate. As a result surface soils are likely to alternate between dry, saline and waterlogged, creating hostile conditions for tree roots.

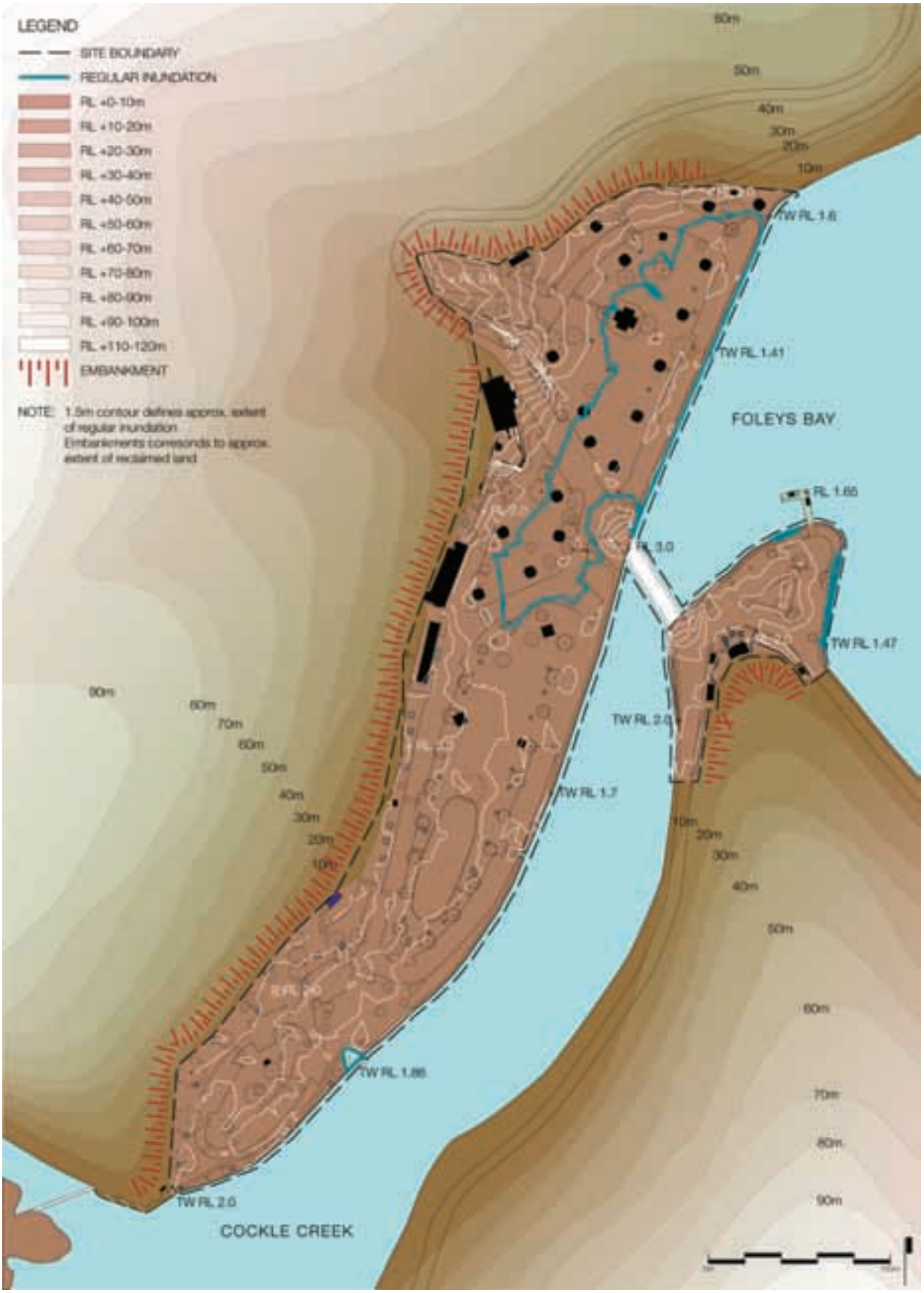


Figure 4.1. Existing Topography

4.4 Microclimate

Refer to Figure 4.2.

The microclimate of the parklands vary significantly, in turn affecting visitor use patterns. The water's edge is an exposed zone with minimal shade and large areas of heat-reflecting hard surfacing. This zone is well utilised by visitors on cooler days but tends to be avoided on warm sunny days.

The middle of park, behind the water's edge, has a greater degree of protection and shade with less hard surfacing. At the rear of the park the adjacent steep slopes and vegetation provide a relatively protected environment with dense shade. On warmer days, this area is the preferred location for picnicking and most other recreational activities.

The location of the parklands, within the valley, causes them to be relatively protected from strong winds.

P13. On warmer days the favourable microclimate at the rear of the site encourages the use of this area in preference to foreshore areas. Gibberagong Park, (source: CM+)

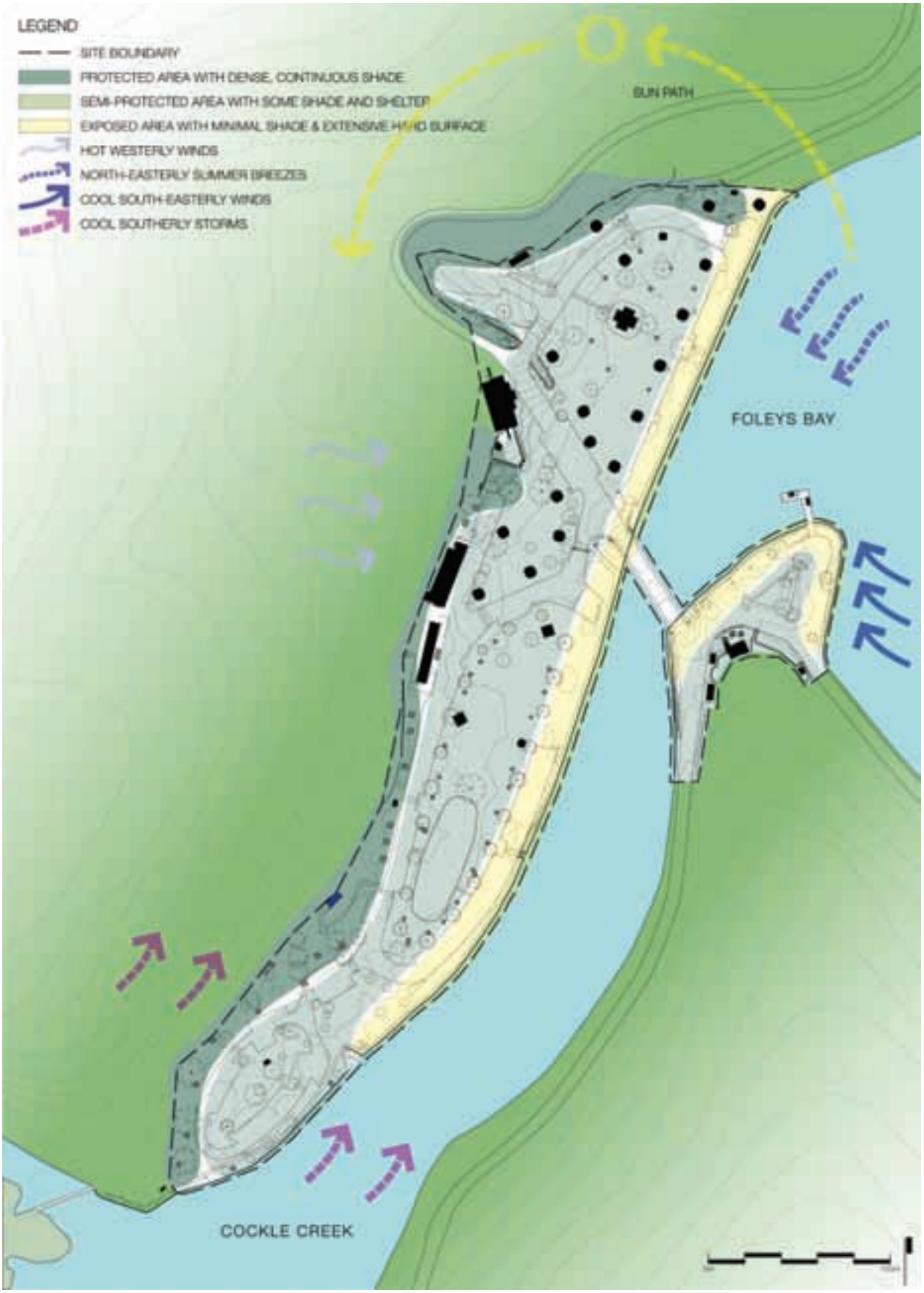


Figure 4.2. Existing Microclimate

4.5 Flora and Fauna

4.5.1 Parkland Flora

Refer to Volume 3, Appendix 5.1 Arborist's Report.

Refer to Figure 4.3.

A combination of exotic, non-endemic and endemic native tree species are seen in Bobbin Head. A distinct pattern of vegetation occurs in the parklands relating to periods of development of the park and the corresponding with planting trends of the day.

The vegetation in Orchard Park and Orchard Park South is characterised by exotic trees planted in the 1930s (Refer to Volume 1, Part 2 CMP, Chapter 2.6.2 and Figure 2.7). The middle section of Gibberagong Park is dominated by a loop of *Araucarias* planted in the 1950s following the configuration of the road system and creating a semi-formal character, while Gibberagong South contains native species planted informally. The Wharf Area is characterised by *Araucarias* and some eucalypts.

The Arborist's Report prepared by The Tree Wise Men in 2004, assessed the condition of the trees based on SULE Values. The majority of trees in the parklands have SULE values ('Safe useful Life Expectancy) rated 'long', signifying a retainable lifespan of 40 years plus. 10 trees of the 186 surveyed in the report had 'short' SULE values, indicating a retainable lifespan of 5-15 years. Significant trees in this category include a Monterey Cypress (*Cupressus macrocarpa*) and a large Small-fruited Fig (*Ficus microcarpa var Hillii*) both in the saline waterfront zone of Orchard Park, a large Rough-barked *Angophora (Angophora floribunda*) on the periphery of Orchard Park and one of the Norfolk Island Pines (*Araucaria heterophylla*) in Gibberagong Park.

Soil compaction, nutrient deficiencies and soil salinity are affecting the condition and vigour of trees and turf (Refer to Appendix 1.5: Improving Soil Conditions for Trees and Turf. A lack of attention to trees in their early stages of establishment is also evident. This has resulted in a backlog of pruning tasks such as weak branching, multiple leaders, overly dense canopies and trunk and branch fungal decay. In terms of tree hazards, the bushland trees at the periphery of the parklands adjacent to the picnic areas contain most of the trees of concern.

4.5.2 Natural Flora and Fauna

Refer to Appendix 1.1: Flora Report and Fauna Report.

P14. Orchard Park. Soil compaction, nutrient deficiencies and saline soils are affecting the condition and vigour of site vegetation. (source: CM+)

Ku-ring-gai Chase National Park is listed for its scientific importance as a remnant of the natural environment of Sydney. A number of threatened plant and animal communities are protected within the National Park and many uncommon plant species and a number of endangered ecological communities occur there.

At Bobbin Head, naturally occurring endemic vegetation occur on the steep slopes at the periphery of the park and conforms to *Angophora costata - Eucalyptus piperata,* open forest and woodland communities. A high proportion of *mesic* species occur on the steep southern slope, mainly in the understorey. A mangrove community occurs adjacent to Gibberagong South. Vegetation in these communities are generally weed-free and in good condition, however some trampling is evident, particularly in areas which are easily accessed.

No plant species occurring at Bobbin Head are listed as threatened or endangered. It is not likely that any threatened fauna species would occur in the parklands.

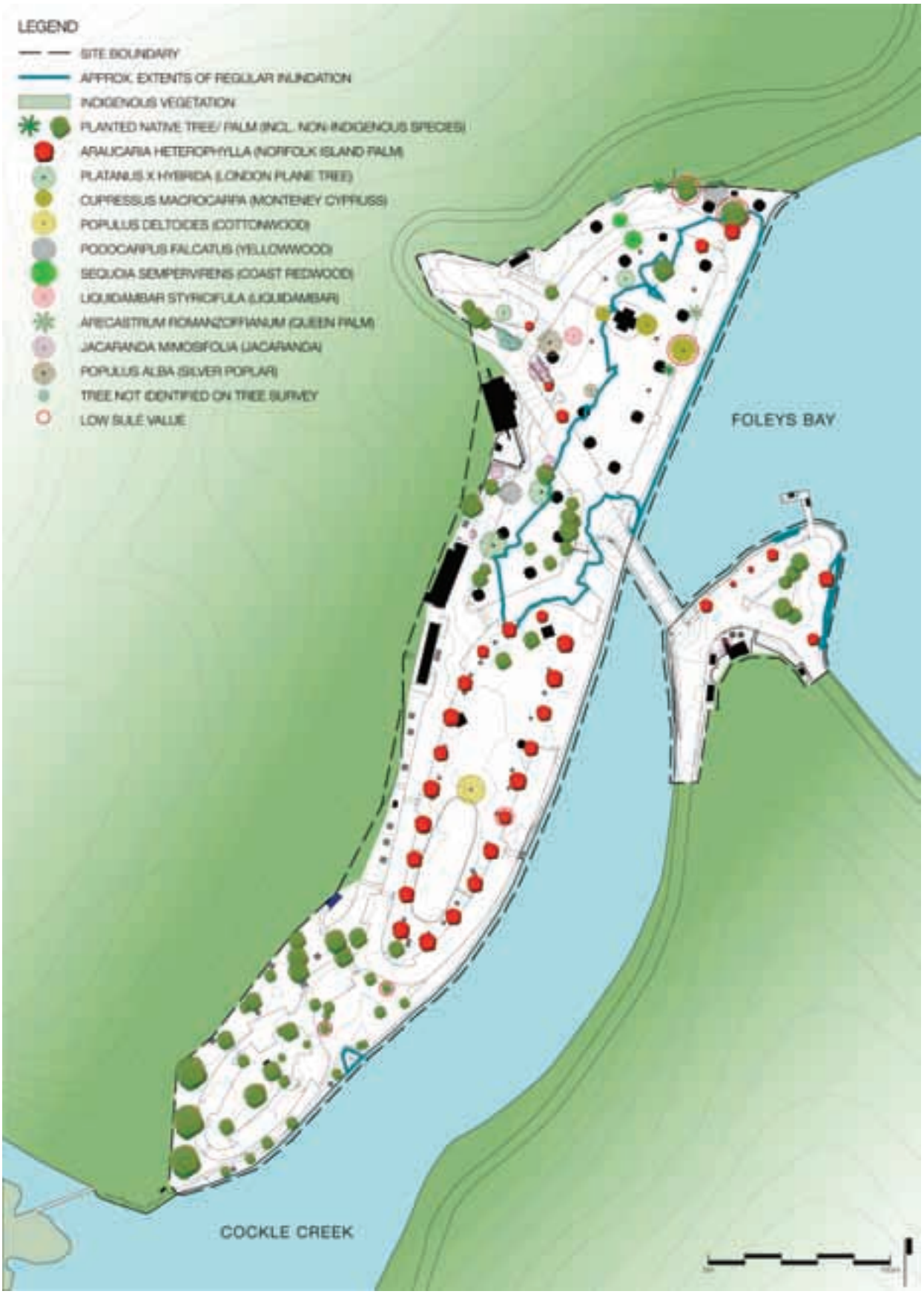


Figure 4.3. Existing Vegetation

4.6 Heritage

4.6.1 Aboriginal Heritage

Refer to Volume 3, Appendix 1.2, Aboriginal Research and Analysis Report.

Ku-ring-gai Chase National Park is listed on the Register of the National Estate for its abundance of Aboriginal sites. AMBS undertook a search of registered archaeological sites on the Aboriginal Heritage Information and Management Systems (AHIMS) maintained by the Department of Environment and Conservation. The search area comprised an area between the AMG co-ordinates 328E - 330E and 6273N - 6276N. This search showed zero (0) sites located within the immediate vicinity of Bobbin Head.

On 17th March 2006, Melissa Clarke and Alison Nightingale of AMBS, together with Rowena Welsh-Jarrett and Nathan Lyons of the Metropolitan Local Aboriginal Land Council (MLALC) and Brad Welsh (National Parks and Wildlife Service Aboriginal Sites Officer) conducted a site visit to Bobbin Head. As a result of this visit it was discovered that there were three (possible) unrecorded sites as follows:

- BH1 – located near Gibberagong Park, a small rock shelter with stratified shell midden deposits.
- BH2 – located west of Orchard Park, shell midden deposit which appears to have been excavated from the base of the scarp and dispersed during the construction of a drainage channel.
- BH3 – located near the Gibberagong Track footbridge, two hand stencils on adjacent rock faces. Possibly painted on rock face in past 20 years.

Ku-ring-gai Chase National Park is important archaeologically because it exhibits a large number and a diverse range of Aboriginal sites that represent a range of past activities. These activities include resource gathering and tool production, indicated by shell middens and grinding grooves, as well ceremonial processes demonstrated by rock art and engravings.

The marine resources provided by the creeks and tributaries located around Bobbin Head (Cockle Creek) would have attracted Aboriginal occupation of these areas. The mud flat and mangrove habitats that existed in these areas prior to European occupation and eventual reclamation for development would have also provided a plentiful resource zone. The prevalence of rock shelters in the area would have also offered suitable sites for regular visitation and use.

The Bobbin Head recreation parklands have a high level of cultural significance (regardless of the site-specific archaeology). The improvement of facilities in these parklands is likely to result in increased visitation to area, providing a good opportunity to educate / increase awareness of Aboriginal values and significance of the area among the public. In this context there is also concern that increased visitation may have implications for the conservation of Aboriginal archaeological sites in the area.

4.6.2 European Heritage

Refer to Volume 1, Part 2 CMP.

Bobbin Head has been a popular recreational destination for more than one hundred years. The Conservation Management Plan provides detailed information on the European heritage of Bobbin Head and recommends the 1930s landscape character of Orchard Park, Orchard Park South and the Wharf Area be conserved and interpreted due to its cultural and aesthetic significance. Following is an analysis of the 1930s landscape design of these parklands.

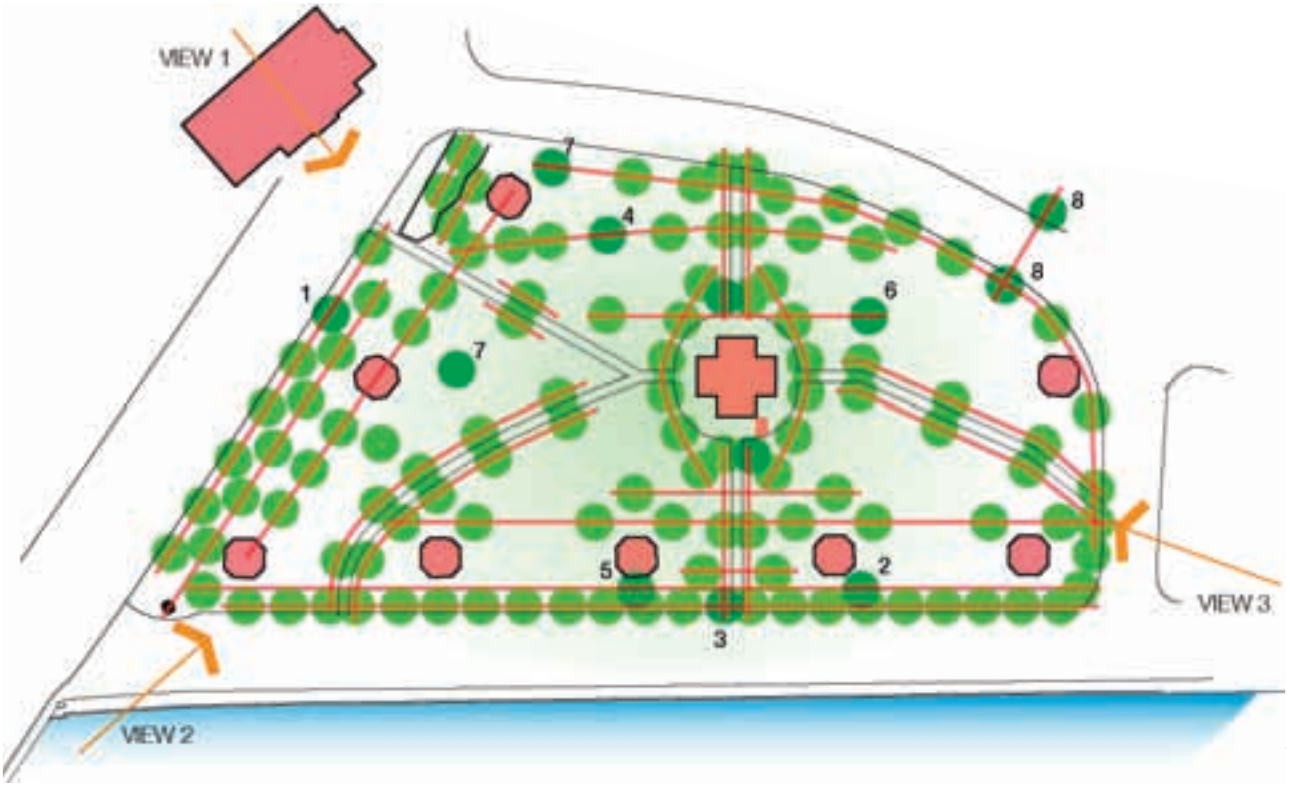
Orchard Park was initially developed in the 1930s following reclamation. The character of the 1930s design could be described as semi-formal, with diverse plantings and a range of structures set out in an ordered arrangement. Early photographs show a range of tree and shrub species planted into rows and along axes, reflecting the layout of pathways, roads and structures in the park and around its periphery (Refer to Figure 4.4 and corresponding plates P.15, P16 and P.17). The layout was semi-formal, however the structure and symmetry of the design was weakened by the mixed arrangement of exotic tree species along many of the rows.

[5] Florence Taylor, *The Development of Ku-ring-gai Chase, NSW* Building, Issue 12, February 1937.

Colour was an also important aspect of the early design, with the stated intention that "*In a few years we shall have here a symphony in colour of unsurpassed loveliness, and visitors to Bobbin Head, particularly lovers of nature, will be able to feast their eyes on this wonderful scene.*"[5]

Trees noted in early photographs and still evident in existing plantings are illustrated in Figure 4.4 and include Cypress, Plane Tree, Liquidambar, Redwood, Poplar, Norfolk Island Pine, Cabbage Tree Palm, Small-Fruited Fig and Yellowwood.

The 1930s cultural landscape in Orchard Park and adjacent Bobbin Inn has been compromised over many years by loss and degradation of vegetation, planting with inappropriate species, incongruous signage and infrastructure and the relocation of heritage structures. There is currently no interpretation of European heritage.



NOTES

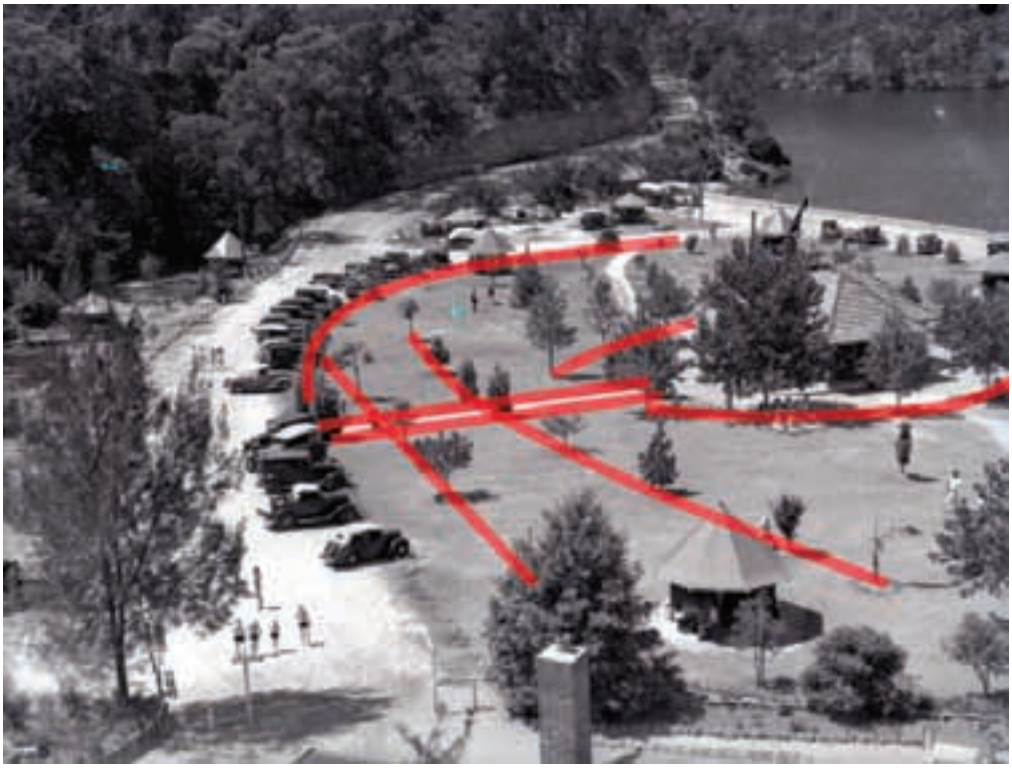
1. Layout is approximate only and has been determined from historic photographs, including those below.
2. Existing trees which post-date the 1930s plantings are not indicated on this diagram.

LEGEND

- VEGETATION AXIS/ROW
- ORIGINAL TREE/SHRUB LOCATION (SPECIMEN DECEASED)
- ORIGINAL TREE LOCATION (SURVIVING SPECIMEN)

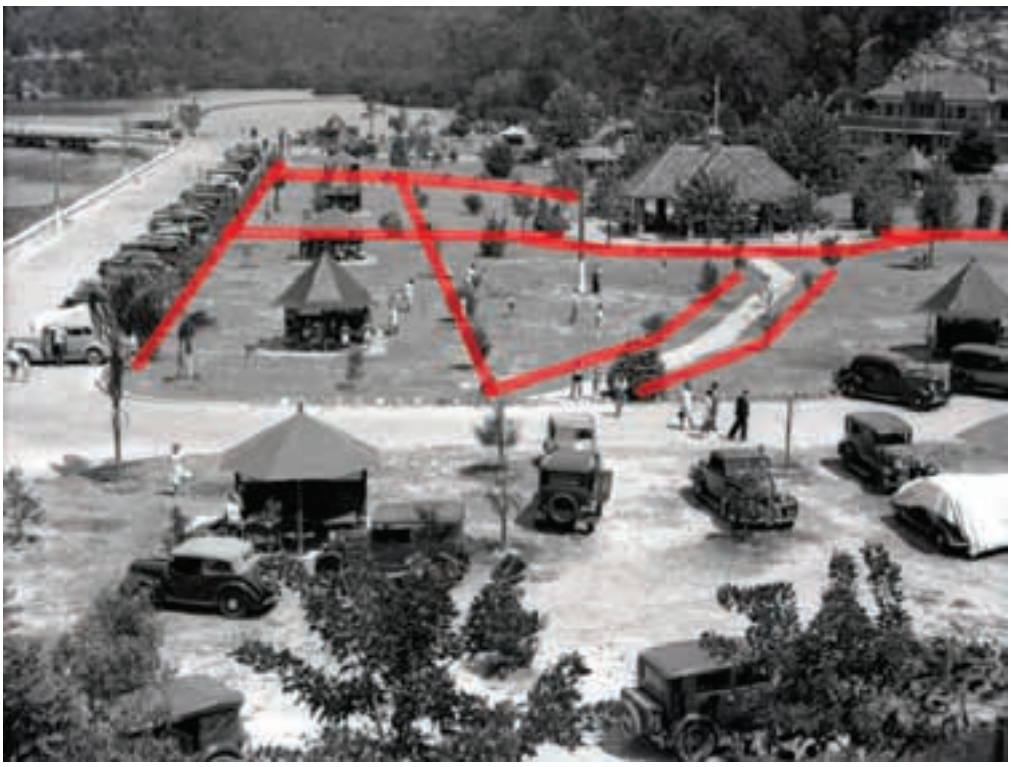
1. *Araucaria*
2. *Arecastrum*
3. *Cupressus*
4. *Liquidamber*
5. *Livistona*
6. *Platanus*
7. *Populus*
8. *Sequoia*

Figure 4.4. Assumed Historic Landscape strategy of Orchard Park in the late1930s



P15. View 1: looking Northeast toward Orchard Park North from above Bobbin Inn, undated - c.1930s (NPWS Archives)

P16. View 2: looking Northwest toward Orchard Park North, undated - c1930s (NPWS Archives)



P17. View 3: looking South toward Orchard Park, undated - c.1930s (NPWS Archives)

4.7 Recreation and Visitor Facilities

4.7.1 Visitor Facilities

Refer to Figure 4.5.

Visitation numbers have increased dramatically in recent years, placing additional demand on facilities. Volume 1, Part 2 Conservation Management Plan, Chapter 3.5, 3.6 & 3.7 provides a physical assessment of parkland facilities and infrastructure including an appraisal of fabric condition. The following description of facilities is summarised from this assessment:

P18. Bobbin Inn (source: CM+)

'Bobbin Inn'

'Bobbin Inn' is a two-storey building constructed in 'colourtex' red face brickwork with sandstone detailing, designed in the 1930s Art-Deco "Ocean Liner" style. The ground floor contains indoor and outdoor dining areas and kitchen. The upper level contains dining / ballroom, staff quarters and outside terraces.

Condition: Good

P19. Gibberagong Environmental Education Centre (source: CM+)

Gibberagong Environmental Education Centre

Constructed in 1961 of besser blocks and pebble-crete panels, the two-storey building has ten (10) garages and laboratory located at ground level. Residential accommodation and staff rooms are located on the first floor, together with kitchen, dining and living rooms.

Condition: Good

P20. The Pavilion (source: CM+)

The Pavilion - Picnic Shelter

The Pavilion is a large communal picnic shelter, cruciform in plan, and the central feature of Orchard Park. The hipped roof is a dominant sculptural element comprising red terracotta tiles laid over a timber frame with timber columns supporting the roof structure. The Pavilion contains picnic furniture and a barbecue internally.

Condition: Fair

P21. Picnic Shelter (source: CM+)

Picnic Shelters

Seventeen historic Picnic Shelters are located in Orchard Park and Orchard Park South and date from 1933-1936. There are two types of shelter: one type has a high octagonal coned roof in flat sheet iron and the second type has a low octagonal coned roof. Shelters are symmetrically divided into four compartments with timber benches and tables. There are also three shelters in addition dating from 1954 with tiled roofs in Gibberagong Park.

Condition: Fair

P22. The Station (source: CM+)

The Station - Picnic and Barbeque Shelter

This building was formerly a block of 11 garages which were converted to a single barbeque and picnic building in 1994. Toilets are loacted is at the northern end of the building and the central section contains fixed tables and benches and two gas stations for the gas barbecues.

Condition: Good

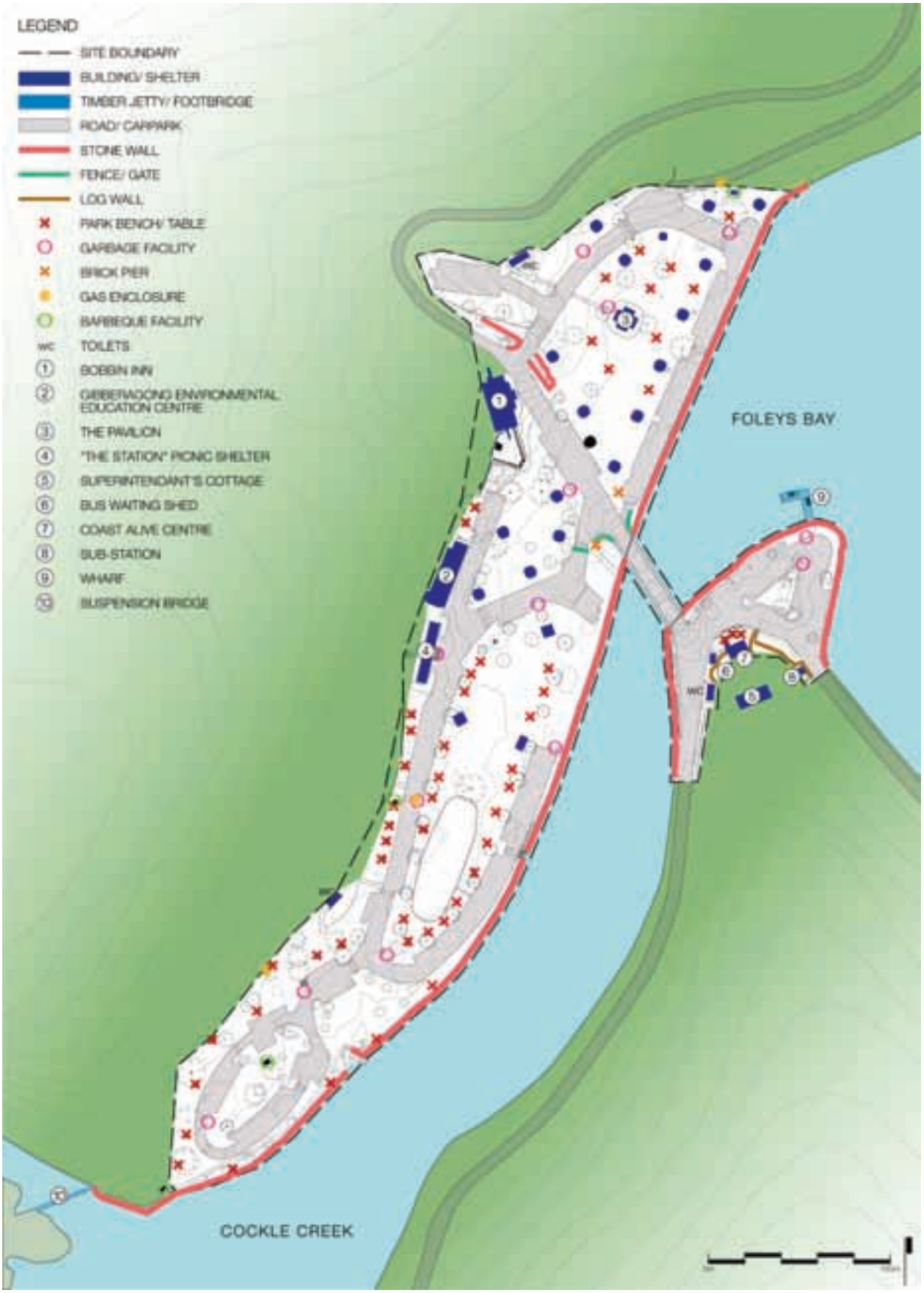


Figure 4.5. Existing Infrastructure

P23. The Wharf (source: CM+)

Wharf

Historically, numerous wharves have been located in this area and have been associated with boat building and storage. The existing wharf is constructed in timber. A ferry service from Pittwater uses the wharf once a day.
Condition: Poor

P24. Suspension Bridge (source: CM+)

Suspension Bridge

Located at the southern end of the study area, the suspension bridge over the southern section of Cockle Creek was built in 2001 to form part of the Gibberagong Track. The bridge is constructed in steel and timber.
Condition: Good

P25. Mangrove Boardwalk (source: CM+)

Mangrove Boardwalk

Connecting to the southern end of the Suspension Bridge, the boardwalk is made of timber decking and handrails on timber cross joists, supported on piles. There is evidence of the board walk subsiding in sections. Some sections of the boardwalk are submerged during King Tides.
Condition: Prone to tidal inundation

P26. Sandstone Seawall (source: CM+)

Sandstone Seawalls

The seawalls were constructed in a series of stages dating from 1911 as part of reclamation works. The walls consist of sandstone blocks of various sizes sourced both locally and from other areas. Different construction techniques are evident along different sections of wall, and repairs and additions have occurred to many sections.
Condition: Varies

P27. Picnic Tables (source: CM+)

Picnic Tables, Benches and Picnic Platforms

Timber and concrete picnic facilities including picnic platforms, tables and benches are located throughout the parklands.
Condition: Varies

P28. Barbecue Shelter (source: CM+)

Barbecue Shelters

The barbecue shelters are located mainly in Gibberagong Park, with one located in northern Orchard Park. A shelter comprises four timber posts supporting a rectangular gabled roof, with a latticework gable. The facilities include two gas-operated barbecues.
Condition: Maintenance issues reported

P29. Children's Playground (source: CM+)

Children's Playground

The children's playground in Gibberagong Park comprises 1970s proprietary children's play equipment in a sandpit with a cyclone metal fence is erected around the perimeter 'crazy paving' entry paths are evident as earlier path connections between the sandpit and the roadway.
Condition: Good

P30. Amenities Building (source: CM+)

Amenities Buildings

Three Amenities Buildings occur at Bobbin Head. The Amenities Buildings in Orchard Park (Sunny Corner) dates from 1935-1936 and is constructed of rough-hewn sandstone blocks with a terracotta tiled (red and green) hipped roof. The Amenities Building in the Wharf Area is built of local sandstone and dates to 1932. The Amenities Building located west of Gibberagong Park on the above the park was built in the 1954, and is constructed of brickwork.
Condition: Poor

P31. Site Marker (source: CM+)

Markers

Two structures mark the entry to Orchard Park in close proximity to the bridge. These monuments are of in red brick and sandstone in the art deco style, with stylistic qualities that echo Bobbin Inn. Drinking fountain elements are mounted on the two principal brick faces. The southern marker is concealed by *Casuarina* plantings and its low placement.
Condition: Poor

P32. Signage - Walking Track (source: CM+)

P33. Signage - Traffic / Wayfinding (source: CM+)

Signage

A variety of signage types are present at Bobbin Head including signage relating to traffic and car parking, wayfinding and interpretation.

P34. Lamp post types. (source: CM+)

Lighting

Two lamppost types are located throughout Bobbin Head. As the park is closed after dark there are few lamp posts. Steel tapered poles with hemispheric globe (lower half hemisphere is clear glass and upper half-hemisphere is metal) are located in Orchard Park.

P35. Garbage Bins at Orchard Park. (source: CM+)

Bins

Garbage bin stations are located throughout the park mounted on concrete slabs. They comprise five PVC consul type “wheelie” bins attached by a steel frame. Stations comprise three recycling and two garbage bins.

P36 Garbage Bins at Gibberagong Park. (source: CM+)

P37 Underground water services. (source: CM+)

Services

All services at Bobbin Head are located underground and include electricity, gas, sewage, stormwater drainage, tele-communications and water.

4.7.2 Recreational Planning Issues

Refer to Volume 3 Appendix 1.5: Recreational Planning Report.

Following is a summary of the issues highlighted in the Recreational Planning Report in respect to recreation and visitor facilities at Bobbin Head:

- Several initiatives have been recommended for the improvement of recreational experience at Bobbin Head.
- These include upgrades to the landscape, foreshore and visual amenity. Facility upgrades include barbeque and picnic facilities, general park furniture, canoe launching ramp, toilets as well as a general upgrade to refreshment services at Bobbin Inn.
- Consideration is also given to future extension to the existing mangrove boardwalk at the southern end of Gibberagong South to form a loop track.
- The introduction of an integrated interactive interpretation and signage strategy throughout Bobbin Head would also provide an enhanced recreational experience.
- The historic picnic shelters have an important cultural and historical value, however, their functional value as picnic facilities is restricted.
- There are insufficient BBQs in both Orchard Park and Gibberagong Park.
- There are insufficient facilities for larger groups, such as school groups.
- The existing children's playground has no shade relief for users or adjacent seating for parents / guardians supervising children.
- The poor definition of pedestrian access reduces pedestrian safety and connectivity between the parklands.
- Insufficient loop trails and walking facilities exist that cater to all age groups.
- The canoe launching area lacks a wash down structure, signage and provision for short stay loading.
- There is support from the community for the provision of a commercial non-powered boat hire service.
- The location of the existing Amenities Buildings are appropriate as they are well spaced, however poor accessibility to them and the general poor condition of them make their upgrade a priority. New amenities are required.

4.7.3 Signage and Wayfinding

Information and wayfinding systems are required to assist visitors with all aspects of the parklands: environment, recreation, Aboriginal and non-indigenous heritage, sustainability, archeology, regulations, restrictions, waste management, safety security and hospitality. A consistent, visible, legible and integrated system utilising high quality informatics, brand and graphic design is required for all areas. Park furniture should be of high quality and appropriate to the parkland characteristics:

Actions

- Establish an integrated way-finding strategy to assist with the orientation of users both inside the Park and in the surrounding pedestrian and vehicular road network.
- Implement a coordinated suite of interactive interpretive system that focus on both the natural and cultural (European & Aboriginal) values of Bobbin Head and its environs.
- Use high quality, durable, vandal-resistant infrastructure (eg sturdy materials, tamper-proof fastenings, anti-graffitti coatings).

Design Principles

- Ensure new signage structures are sympathetic to the cultural significance of the place and visually integrate. Installation of signage should not damage significant fabric of a heritage item.
- Locate signage to avoid obstruction of views.
- There should be an efficient use of mounting structures through consolidation so as to reduce visual clutter. Signage may be mounted on existing infrastructure such as lamp posts.
- Signage should be ergonomically designed, changeable where required and legible from intended distances.
- Park signage is to meet NSW National Parks and Wildlife Service Signage Design Standards.

Refer to Volume 2, Part 2 CMP, Policy 6.13 and 6.14.

4.7.4 Utilities and Services

Services and utilities are required for the proper and effective functioning of the park. Generally services and utilities are required to be located underground. In certain circumstances making features of utilities could be considered.

Actions

- Remove or properly terminate existing redundant systems.
- Existing services such as stormwater drainage, electrical systems, telecommunications, sewerage, water supply, irrigation, fire fighting systems and security systems are to be concealed, safe and vandal resistant.
- Consideration must be given, in planning and upgrading, to upgrade underground service services to the parklands that are subsiding, especially in areas where there is a potential to increase levels to counter future inundation.
- Environmental Construction Management Plans must include services locating and identification.
- Design cost effective and robust, reticulate and future provision allowances for services is required.
- Where service infrastructure is located within high traffic areas and esposed, such infrastructure are to be powder coat to blend-in and / or screen by appropriate landscape.

Design Principles

- Ensure new services are located to minimise damage to infrastructure and vegetation should service access be required.
- Re-use existing systems where possible.
- Location of large, above-ground infrastructure (eg. substations, large cabinets and overhead powerlines) is not permitted within identified main thoroughfares and vistas.

4.7.5 Materials and Finishes

Materials and finishes are the most sensory of all aspects of the parkland upgrade. Colour, texture, durability and finish assist in developing a palette that appeals to the visitor. Material selection is a critical component of the development of new works, especially in a heritage and conservation environment.

Actions

- Undertake an assessment of colour, material and finishes for the shelters, buildings and signage.

Design Principles

- Sandstone, brick, timber and steel should be primary materials used for any new built elements.
- Select materials which are durable with minimal maintenance requirements and integrate well throughout the parklands.
- Ensure materials are harvested in an ecologically sustainable manner.
- Ensure materials are able to be installed and managed with a minimal impact upon the environment.
- Use vegetation as the first preference for screening, shading and spatial definition.
- Meet principles as outlined in National Parks and Wildlife Services Park Facilities Manual, Facilities Planning Volume A, and Volume B Facilities Catalogue.

4.8 Access, Circulation and Car Parking

4.8.1 Parkland Access

Refer to Figures 4.6 and 4.7.

The majority of visitors to Bobbin Head arrive by car. There is also a daily ferry service from Pittwater which is under-utilised. Limited public transport to the parklands preclude potential visitors.

Walking to Bobbin Head from areas outside the park is possible however the distance and steep grade discourage most walkers.

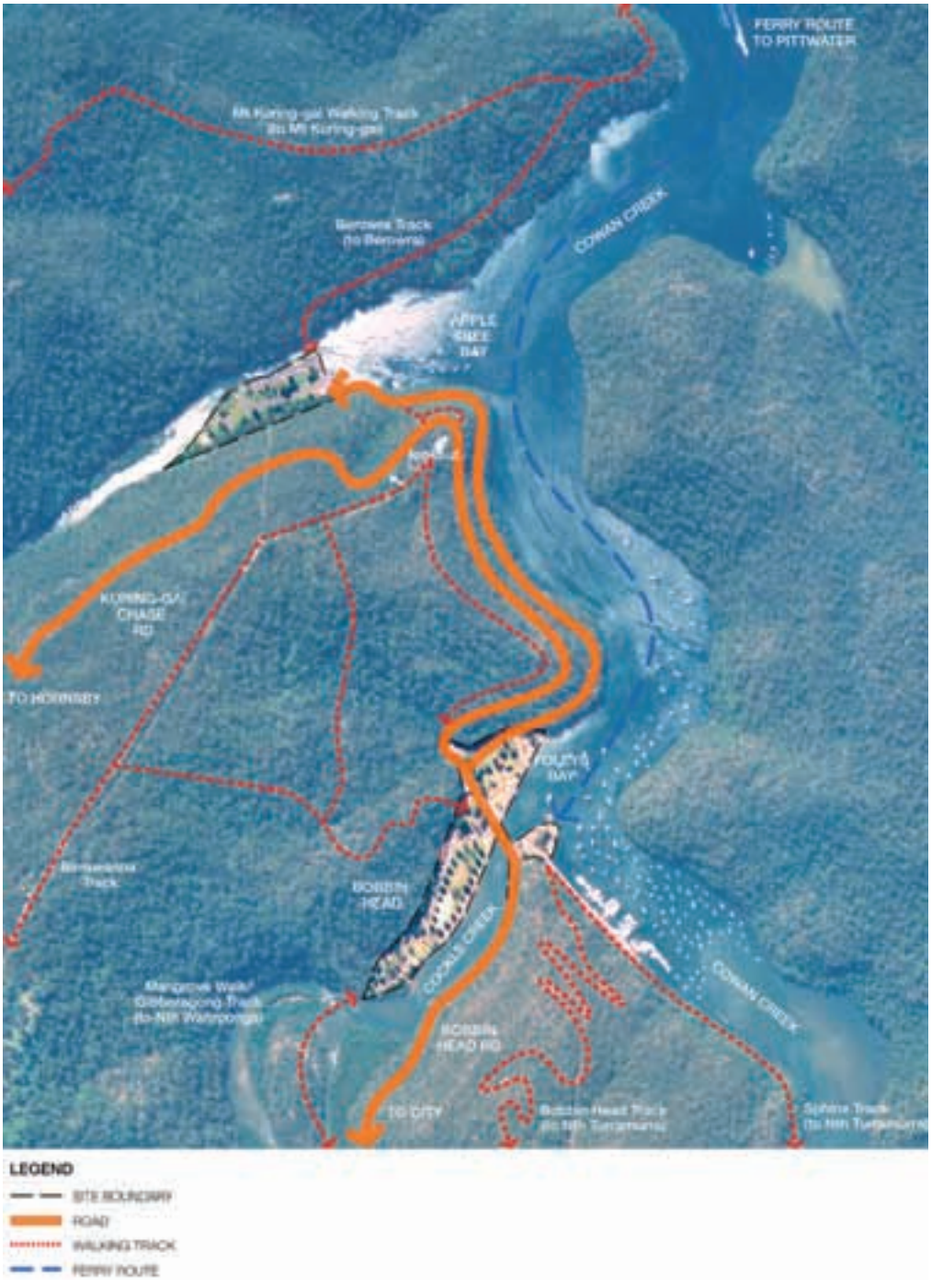


Figure 4.6. Existing Site Access

Figure 4.7. Existing Vehicular Circulation

4.8.2 Vehicular Circulation and Car Parking

Refer to Figure 4.7.

Refer to Volume 3, Appendix 1.5 Recreational Planning Report.

Roads and car parking are spread over the entire parklands. There is an increasing demand for parking as more visitors are attracted to the park each year.

Conflicts between pedestrians and vehicles / cyclists are occurring on parkland roads where they traverse the park, in particular immediately in front of Bobbin Inn. Other pedestrians and vehicle conflicts in the parklands are relatively minor due to low traffic speeds.

Deficiencies in parking provisions include a lack of drop-off points and 5 - minute standing areas and no designated parking facilities for canoe users near the ramp / launch area.

Existing car parking numbers are as follows:

- Gibberagong Park formal car parking: 252
- Ku-ring-gai Chase Road formal car parking: 28
- Gibberagong Park & Ku-ring-gai Chase Road disabled parking: 6
- Gibberagong Park & Ku-ring-gai Chase Road bus parking: 3
- Orchard Park formal car parking: 82
- Orchard Park informal car parking: 14
- The Wharf Area formal car parking: 74
- The Wharf Area informal car parking: 6
- TOTAL existing car parking capacity: 465

4.8.3 Pedestrian Circulation

Refer to Figure 4.8.

The spread of car parking around the parklands and the flat open nature of the environment causes irregular pedestrian movement. The majority of pedestrian movements within the parklands are undefined. There is a lack of accessibility to many facilities for the mobility impaired and pram users.

Pedestrian focal points within the park which attract a higher degree of pedestrian movement to and from the car parking areas include Bobbin Inn, the Amenities Buildings, The Pavilion, the children's playground, the picnic shelters and the waterfront zone. There is a general lack of information, maps and signage to amenities.

A number of trail heads exist at Bobbin Head, providing entrances to the bushlands, including the Gibberagong and Birrawanna Tracks. Pedestrian circulation between Bobbin Head and Apple Tree Bay is currently only possible by road or a Grade 3 or 4 ridge track which is physically challenging.

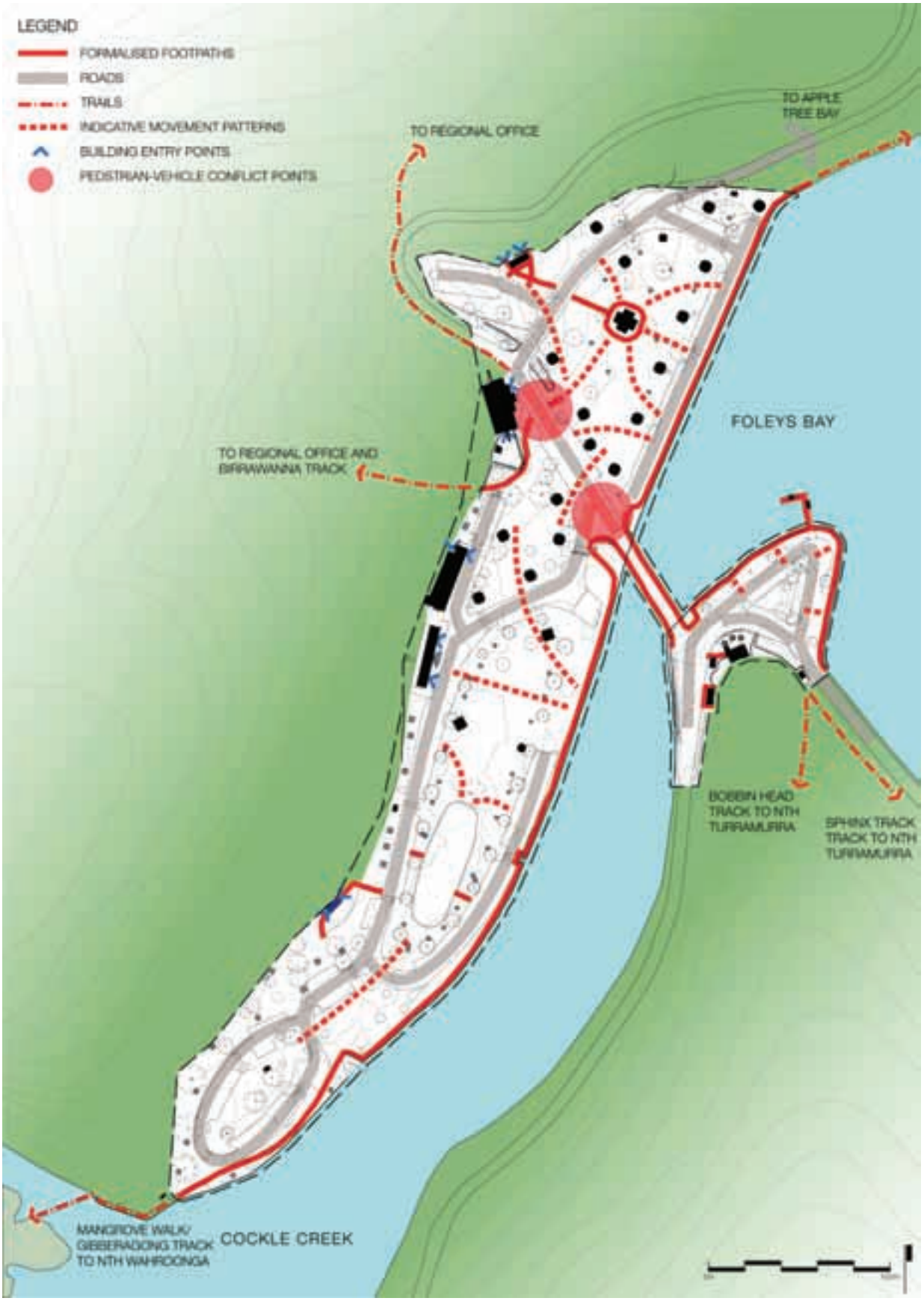


Figure 4.8. Pedestrian circulation

4.9 Parkland Character and Visual Quality

4.9.1 Visual Catchment

Refer Figures 4.9 and 4.10.

Bobbin Head has a relatively restricted visual catchment defined by the surrounding ridgelines within the National Park. Urban development outside the park is not visible.

4.9.2 Views and Vistas

Figure 4.9. Visual catchment

Refer Figure 4.10.

Views from and towards the water are an important aspect of Bobbin Heads attraction and appeal. Key views and vistas are illustrated in Figure 4.10 and include the following:

- Expansive views of Foleys Bay from Orchard Park.
- Near views to Cockle Creek within Gibberagong.
- Filtered views to the water throughout the park.
- Filtered views across the length of the park between tree trunks and park infrastructure.
- Visual axes along the parkland roads.

Figure 4.10. Views and Vistas

4.9.3 Landscape Character

Refer to Figure 4.11.

Character zones within Bobbin Head are illustrated in Figure 4.11. There is a transition from semi-formal parkland character in Orchard Park to the informal parkland character dominated by native trees in the southernmost part of the park. The majority of the water's edge in Bobbin Head is dominated by car parking and suffers from a lack of shade. The 1930s character in Orchard Park is compromised by more recent native plantings and layouts which do not reflect the 1930s design intention. Gibberagong Park suffers from a lack of spatial definition due to the road and landscape layout.

P38. Orchard Park retains qualities of its 1930s design (source: CM+)

P39. The Araucarias in Gibberagong Park are strong character elements (source: CM+)

P40. The Wharf Area is currently dominated by expanses of bitumen (source: CM+)

4.9.4 Visual Detractors

The spectacular natural visual qualities of Bobbin Head and its surrounds are compromised by visually detracting elements within the park. Significant visual detractors include the following:

- Waterfront areas are dominated by expanses of car parking.
- Grass wear occurs through much of the parklands giving it an unkempt appearance.
- The existing children's playground is visually incongruent within the tranquil and elegant nature of the parklands
- The setting of Bobbin Inn is compromised by the clutter of infrastructure and traffic control devices and narrow entry area in front of it.

Figure 4.11. Landscape Character

This page left blank intentionally.

5.0 Issues and Opportunities

The following chapter summarises key issues in relation to management of Bobbin Head, based upon the outcomes of the research and analysis phase which included site investigations, user surveys and community and stakeholder consultations. It also outlines key opportunities in regard to planning of the parklands.

The following topic headings were established as a framework for the review of issues:

- Recreation and Visitor Facilities
- Access, Circulation and Parking
- Environment and Sustainability
- Conservation
- Landscape Character and Visual Quality
- Security

5.1 Key Issues

5.1.1 Conservation

Bobbin Head has a long history as a pleasure ground and has cultural significance in this regard. There are a number of remaining heritage elements, particularly concentrated in Orchard Park, but the presentation of these elements is compromised by more recent interventions and additions which are often unsympathetic to the original design. Awareness of cultural heritage of the parklands and of its Aboriginal heritage is limited by a lack of interpretive information.

Issues

- The 1930s cultural landscape in Orchard Park and adjacent Bobbin Inn has been compromised over many years by loss and degradation of vegetation, planting with inappropriate species, incongruous signage and infrastructure and the relocation of heritage structures.
- There is currently little interpretation of European heritage.
- There is a lack of interpretation of Aboriginal heritage.
- There is a lack of information about Natural Heritage.

5.1.2 Environment and Sustainability

Early infilling of the site to create the existing parklands was carried out with little knowledge of or regard to the provision of good growing conditions for trees and vegetation. As a result unsuitable soils were used, which are prone to compaction and deficient in nutrients. These conditions have been compounded by subsidence of the parklands, leading to regular inundation by seawater and resulting soil salinity. This combination of conditions is causing a death to trees and grass and the general poor performance of parkland vegetation.

Issues

- Hypersaline topsoils caused by regular seawater inundation are causing an ongoing decline and loss of park vegetation, particularly in Orchard Park.
- Soil compaction due to foot traffic and unsuitable topsoils is affecting tree condition and vigour and contributing to grass wear problems.
- Soil nutrient deficiencies are likely to be preventing vigorous plant growth taking place.
- A lack of tree maintenance has caused structural issues including weak branching, multiple leaders, overly dense canopies and trunk and branch fungal decay.
- Several trees in Orchard Park are recognised environmental weed species.
- There is currently no interpretation of the natural environment.

5.1.3 Landscape Character and Visual Quality

The visual qualities of Bobbin Head's setting is a primary reason for the park's high visitation levels. The surrounding waterways and natural slopes create a variety of views and vistas, providing visual interest and encouraging visitors to explore the park further. These qualities are partly compromised by elements within the parklands that detract from the setting. The distinctive 1930s character of Orchard Park is also compromised by unsympathetic elements.

Issues

- Waterfront areas are dominated by expanses of bitumen and lack shade.
- The 1930s character in Orchard Park is compromised by more recent native plantings and layouts which do not reflect the 1930s design intention.
- The collection of signage and fences in the vicinity of Bobbin Inn detracts from its presentation.
- Gibberagong Park suffers from a lack of spatial definition due to the road and landscape layout, and subsequent modifications.
- The children's playground is visually incongruous with the parklands.
- Large areas of worn grass detract visually from the setting.
- There is a lack of shade.

5.1.4 Recreation and Visitor Facilities

Refer Volume 3, Appendix 1.5, Recreational Planning Report.

Bobbin Head receives over one million visitors annually (2005), a number which is growing each year. This is placing increasing pressures on facilities and infrastructure in the park, evidenced by general wear and the increased competition for facilities, particularly on busy weekends.

Issues

- The water's edge is under-utilised due to a lack of shade and the dominance of car parking throughout the precinct.
- There are insufficient facilities or spaces for larger groups, such as school groups.
- There are insufficient undercover picnic facilities and BBQs to service visitor demand.
- The children's playground is under-utilised on warm days due to a lack of shade.
- Amenities buildings are not Disability Discrimination Act compliant and, while well maintained, are insufficient and require upgrading.
- There are no wash down facilities, information signage or short-stay loading zone adjacent to the Bobbin Head canoe ramp and the ramp is a hazard to users.
- There is no safe swimming area due to dangerous swimming conditions.
- Insufficient loop trails and walking facilities, exist that cater to all age groups.
- The park's opening hours are not a reflection of the current shift in working culture.

P41. Canoeing is a popular activity at Bobbin Head, although launching facilities are in need of upgrading (source: CM+)

5.1.5 Security

The precinct is subjected to vandalism. Most of these activities occur after hours.

Issues

- Vandalism of park infrastructure occurs, particularly after hours due to unobstructed access to parts of Bobbin Head.

5.1.6 Access Circulation and Parking

Refer to Volume 3, Appendix 1.3 Traffic and Transport Planning Report.

The majority of visitors to Bobbin Head arrive by car. Car parking and the vehicular system is spread over the entire parklands and dominates the environment visually and physically, causing safety issues for pedestrians and taking up large areas of the waterfront which could otherwise be used for recreation. Maintenance of adequate car parking numbers is important given the popularity of the parklands, however this needs to be balanced against the carrying capacity of the parklands for continued visitor satisfaction and to meet environmental objectives.

Issues

- Limited public transport to the parklands precludes potential visitors. This includes limited ferry and bus connections and times.
- As visitor numbers increase there is a corresponding increase in demand for parking.
- Ku-ring-gai Chase Road is a barrier to pedestrian movement between Orchard Park and Gibberagong Park.
- There are dangerous conflicts between cyclists and vehicles on parkland roads.
- There is a lack of drop-off points and 5 minute standing areas.
- There is a lack of accessibility to many facilities for the mobility impaired & pram users.
- There is a lack of information, maps and signage to amenities.
- There are no cyclist facilities.
- There are no designated parking facilities for canoe users near the ramp / launch area.
- Parking bays are not designated.
- There is too much asphalt throughout the park due to poor road layout.
- Pedestrian access to Apple Tree Bay is currently only possible by road or via a Grade 3 or 4 ridge track which requires strenuous exertion.

5.2 Key Opportunities

The analysis of the existing parklands leads to an understanding of the opportunities and constraints which may guide the future planning of the park. The key aspects of these are illustrated in Figure 5.1.

Key opportunities are:

- Interpret the 1930s landscape design for Orchard Park, including reinstating earlier structure circulation alignments, and vegetation patterns and character.
- Improve the waterfront areas by reducing the hard surfacing and providing greater shelter and shade. This applies to all areas including Orchard Park, Orchard Park South, Gibberagong Park, Gibberagong South and the Wharf Area.
- Provide a continuous and shaded waterfront promenade through Orchard Park, Gibberagong Park and Gibberagong South.
- Concentrate the car parking to the rear of the parklands thereby providing improved pedestrian access to waterfront areas.
- Reduce the dominance of car parking and improve recreational amenity in Gibberagong South.
- Improve pedestrian safety on all roads.
- Improve the visual setting of Bobbin Inn.
- Provide a new walking track to Apple Tree Bay.
- Establish a loop trail from Gibberagong South through the mangrove boardwalk, to the rainforest area upstream and back to the wharf area.
- Provide greater interpretation and educational awareness of the cultural and natural values of the park and environs.
- Provide archaeological information regarding the former layout and earlier features and facilities of the parklands.
- Improve the condition and vigour of park vegetation by improving soils and managing vegetation.
- Improve parkland sustainability.

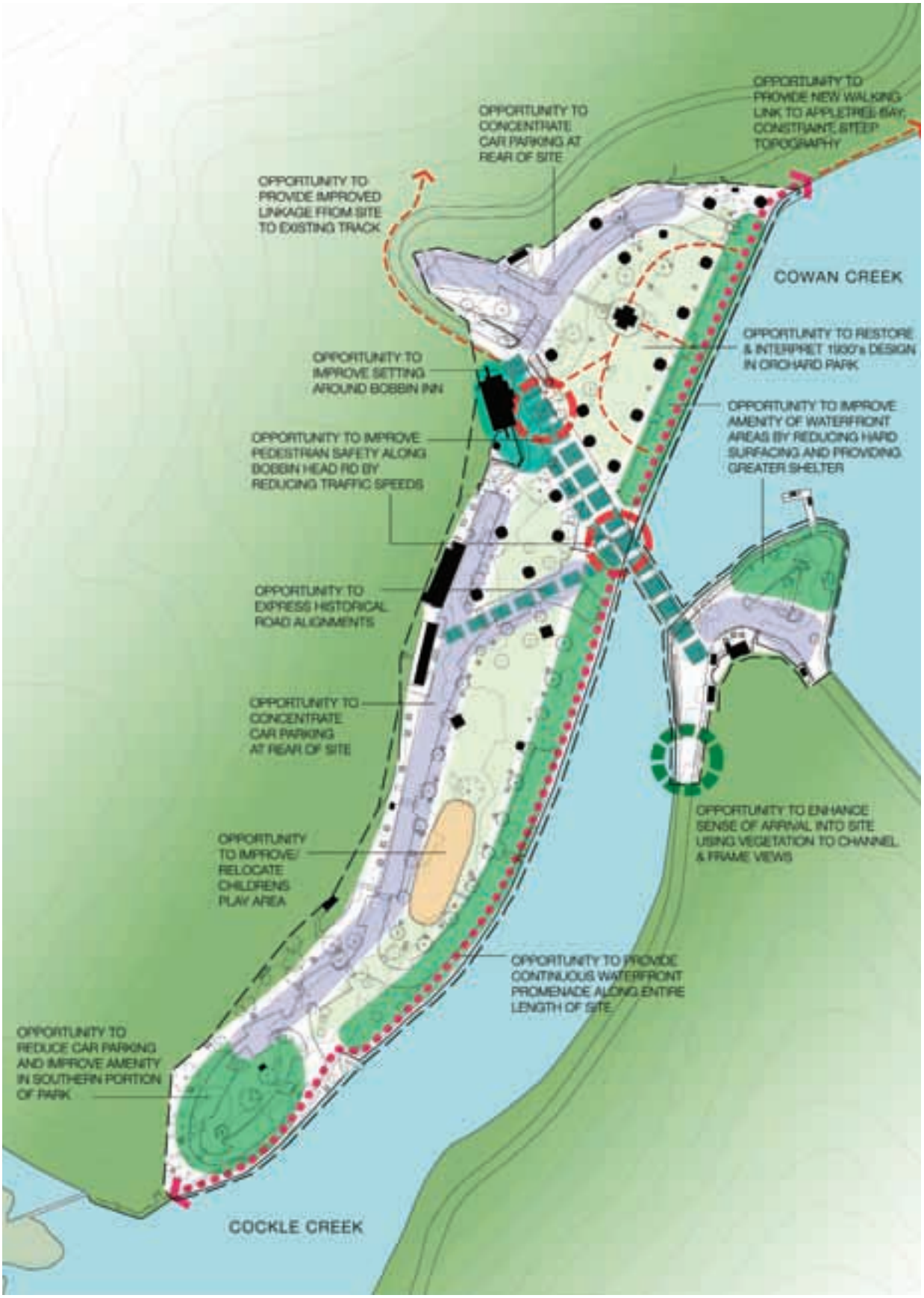


Figure 5.1. Opportunities & Constraints

This page left blank intentionally.

6.0 Management Actions

The following chapter outlines specific actions for Bobbin Head in relation to its planning and management and which address the issues identified in Volume 1, Part 3, Chapter 5.0 Issues and Opportunities. These actions are supported by design principles which inform the approach to implementation of the actions to ensure a coordinated, consistent design is achieved for Bobbin Head.

These actions and principles direct and inform the Landscape Management Plan for Bobbin Head as described in Volume 1, Part 3, Chapter 7.0 Design Description. This chapter should also be used as a general reference in relation to all future planning or management activities affecting the parklands.

The topic headings established in Volume 1, Part 3, Chapter 5.0 Issues and Opportunities provide a framework for this chapter.

6.1 Conservation

Refer to Volume 1, Part 2 CMP.

6.1.1 European Heritage

The Conservation Management Plan sets policy for the 1930s landscape character of Orchard Park, Orchard Park South and the Wharf Area to be reinstated and interpreted (Refer to Policy 6.4.27). There are a number of structures in the park which originate from the 1930s which should be retained and others upgraded. Some of the tree specimens also originate from this period and should be retained where possible. New facilities and plantings should be sympathetic to and reinforce the 1930s character, while coordinating with elements in other parts of the park. The Landscape Management Plan supports the reinterpretation of Orchard Park as a semi-formal parkland with exotic and natural plants and tree planting.

Actions

- Reinstate the historic planting and design theme and intent of the 1930s landscape in Orchard Park, Orchard Park South and the Wharf Area and area the around Bobbin Inn.
- Provide interpretation on the European heritage of Bobbin Head and its surrounds through interpretive and information signs, guided walks and talks, visitor information centres, brochures, newsletters and workshops.
- Encourage further non-destructive research into the history and historic features within Orchard Park.
- Ensure that work which will disturb, damage or destroy relics - such as excavation of saline soil in Orchard Park, Orchard Park South and the Wharf Area and replacement with new topsoil - is preceded by archaeological assessment and excavation that enables a full understanding of earlier landscape features and facilities to be understood.

Design Principles

- Where possible retain original tree plantings and built elements throughout Bobbin Head.
- Select tree species for Orchard Park which reinforce the desired 1930s character, but are not invasive.
- Select new facilities and infrastructure which are sympathetic to the 1930s character and which coordinate with existing heritage elements.

6.1.2 Aboriginal Heritage

Refer to Volume 3, Appendix 1.2 Aboriginal Research and AnalysisReport.

Ku-ring-gai Chase National Park contains extensive evidence of Aboriginal occupation. There are two known Aboriginal archaeological sites and one unconfirmed site at Bobbin Head and these provide opportunities for interpretation and the promotion of an understanding of Aboriginal culture associated with the area. Current access to the archaeological sites is uncontrolled and damage and vandalism has occurred to one of the sites. Management should aim to protect these sites and interpret them in a way which instils interest and promotes an appreciation of Aboriginal culture and the aboriginal heritage of the area.

Actions

- Protect Aboriginal sites from disturbance or damage by human activities.
- Provide interpretation on the Aboriginal heritage of Bobbin Head and its surrounds and promote a general understanding and appreciation of Aboriginal culture through interpretive and information signs, guided walks and talks, visitor information centres, brochures, newsletters and workshops.
- Encourage non-destructive research into past Aboriginal use of the area, including systematic surveys for Aboriginal sites and assessments of the real and potential impacts of people and other threats on sites.
- Ensure work which may disturb, damage or destroy relics as defined under the Heritage Act 1977 is be preceded by an archaeological survey, and work will only be undertaken with the approval of the Metropolitan Local Aboriginal Land Council.

Design Principles

- Avoid the use of fencing to control access where possible given its compromising visual effects.

Refer to Volume 1, Part 2, CMP, Policies 6.8 and 6.9

6.2 Environment and Sustainability

6.2.1 Parkland Vegetation and Soils

Parkland vegetation provides shade, visual interest, spatial structure and general amenity to the parklands. Much of the vegetation at Bobbin Head is either in decline or underperforming, primarily as a result of hostile soil conditions. Management of vegetation and associated soils is critical to the ongoing amenity of the park and should be an undertaken proactively as an integral component of the parkland's maintenance regimes.

Actions

- Reconstruct the soil profile and raise the park elevation above King Tide level (Refer to Appendix 1.6; Improving Soil Conditions for Trees and Turf).
- Implement soil management strategies which improve plant health and vigour (Refer to Appendix 1.6; Improving Soil Conditions for Trees and Turf).
- Implement vegetation management strategies which improve plant health and vigour (Refer to Appendix 1.6; Arborist's Report). This includes undertaking regular pruning to trees to remove dead wood and suckers and eliminate identified hazards.
- Undertake regular hazard assessments and update the Arborist's Report to account for the constantly changing nature of the tree defects and identify tasks requiring action.
- Use a suitable herbicide to kill grass under trees where it is seen to be having a detrimental effect on tree growth. Replace with mulch.
- Undertake sand slitting, coring and topdressing in grassed areas on a regular basis.
- Periodically monitor nutrient levels through soils testing to ensure ongoing suitability for tree and turf growth. Test soils around declining vegetation as a priority. Correct acidity and nutrient deficiencies by appropriate chemical amendments.
- Install replacement trees for ageing population before the population becomes depleted.
- Reinstate turf areas with a turf type which is easy to establish and tolerant to wear, drought, salt and shade.

Design Principles

- Use and manage vegetation to subtly define different use areas while retaining visual permeability through the park.
- Ensure trees are located to provide adequate shade to picnic facilities, foreshore areas and the children's playground.
- Consider branch dropping risks when placing new trees.
- Select species which reinforce the desired character of different precincts and which are suited to site conditions.

6.2.2 Natural Flora and Fauna

Ku-ring-gai Chase National Park is particularly important in conserving a large area of relatively undisturbed vegetation of the type which gives the Sydney bushland its distinctive character. At Bobbin Head, endemic flora occurs primarily on the natural slopes at the parkland perimeters and provides a visual counterpoint to the manicured landscape of the cultural park setting. The steepness of the terrain and the denseness of the natural vegetation tends to discourage trampling and damage in most areas, however ongoing maintenance is required to ensure that parkland use does not affect the natural bushlands and that endemic vegetation and erosion does not become a hazard to visitors.

Actions

- Prevent or discourage access to bushland areas except on existing tracks.
- Undertake regular hazard assessments and undertake pruning / felling works as necessary.
- Control weeds in accordance with the Pest Management Strategy for the Sydney North Region.
- Use only endemic species in any rehabilitation of existing natural areas on the fringes of the parklands. Where possible use locally collected seed stock.
- Require contractors to minimise disturbance to the natural flora and fauna surrounding the parklands and rehabilitate any damage resulting from the activity. Ensure protection of natural vegetation forms part of any contractual agreement by way of pre-determined protective measures or performance based criteria coupled with financial disincentives for damaged vegetation.

Design Principles

- Consider shade provision and branch dropping risks in relation to picnic facilities when selecting species for rehabilitation works to the rear of the parklands.
- Avoid the use of fencing to control access where possible given its visual incongruity with the bushland environment.
- Consider erosion control methods for upper areas of bushlands.

6.2.3 Water Quality

Maintaining appropriate water quality controls at Bobbin Head is important in order to protect the quality of Foleys Bay, and should embrace total catchment management principles and objectives.

Actions

- Protect and rehabilitate seagrass and mangroves wetlands and control access to these areas to maintain their value as nurseries and for improving water quality by stabilising sediments and functioning as biological filters of pollution.
- Use sedimentation control devices in reticulated stormwater systems to ensure that pollutants, litter and other solid material are not deposited in the waterways.
- Ensure that appropriate controls and procedures are implemented for minimising the impacts of construction water run-off and chemical spills into Foleys Bay. Ensure protection of water quality forms part of the contractual agreement by way of pre-determined protective measures or performance based criteria couples with financial disincentives for damaged vegetation.

Design Principles

- Avoid the use of fencing to control access to mangroves where possible given its visual incongruity with the bushland environment.
- Improve water quality throughout the parklands in relation to stormwater and pollution.

6.2.4 Water Sensitive Environmental Design (WSED)

The implementation of WSED at Bobbin Head involves the application of a broad range of measures aimed at reducing the reliance on the urban water supply system.

Actions

- Conserve water by the installation of water efficient fixtures and appliances.
- Harvest rainwater for external uses (eg Amenities building cleaning, irrigation).
- Investigate systems which recycle water.
- Investigate the use of swales in preference to a reticulated stormwater system.
- Investigate utilising the historic dam to supply toilets and irrigation.

Design Principles

- Minimise impervious surfaces and enhance the permeability of remaining pervious surfaces (soil decompaction / reconstruction, protection from future vehicle compaction).
- Utilise best practice standards to reduce potable water use.

6.3 Landscape Character and Visual Quality

The attractive setting of Bobbin Head is a primary reason for its high visitation levels. The semi-open, grassed nature of the parklands currently allows good visual permeability between trees to areas both within the parklands and to the adjacent waterways and natural slopes. These views and vistas are an important aspect of the experience of visiting Bobbin Head and should be retained, requiring consideration to the locating of vegetation and other elements which would potentially obscure views. The landscape design should also consider the desired character of the parklands, in particular reinforcement of the 1930s landscape character in Orchard Park and the Wharf Area and a distinctive characteristic to Gibberagong Park to highlight the historic development and differing characteristics of eras of recreational use. Finally it is important to ensure a harmonious visual relationship between the parklands and its surrounds.

Actions

- Relocate car parking from the water's edge to the rear of the parklands.
- Replace facilities in Orchard Park and the Wharf Area with facilities which are sympathetic to the cultural significance of the place and visually integrate and coordinated with the design of other infrastructure and facilities in the park.
- Improve the sense of entry into Bobbin Head on parkland roads.
- Plant trees to provide additional shade and shelter throughout the parklands.
- Replace the existing children's playground with play equipment which is visually integrated with the setting and which provides interpretation.
- Improve the condition of turf.

Design Principles

- Retain the natural foreshores, hill slopes and ridgelines adjoining the parklands and keep free of built elements.
- Design, locate and maintain new facilities in the park so as to harmonise with their surroundings and not be visually intrusive. Avoid proliferation of new built forms.
- Avoid further dramatic alteration to the landform. Use formed undulations or shrub planting to reduce the impact of car parking areas but retain adequate visual permeability to allow casual surveillance.
- Ensure that facilities and infrastructure in the park communicate a consistent park image and are sympathetic to the character of the park's culturally significant elements.
- Ensure different use areas are clearly defined while maintaining legibility in the landscape by retaining sightlines between key elements.
- Ensure that active recreational pursuits do not impact detrimentally on areas provided for more passive activities.
- Contrast grassed areas with natural bushland areas at the parklands' edges.
- Ensure new buildings, shelters and other built form complement the character of existing in regard to scale, siting, shape and materials, to achieve a unified character.
- Maintain significant views and vistas from and to the park;
    - to and from Foleys Bay
    - near view of Cockle Creek from within Gibberagong Park and Gibberagong South
    - filtered views of the water throughout the parks and along the parkland roads
    - filtered views across the length of the park between tree trunks and park infrastructure
    - visual axes along parkland roads
    - views from Bobbin Inn across the park and to the water.

6.4 Recreation and Visitor Facilities

Refer to Volume 3 Appendix 1.5 Recreational Planning Report.

Facilities and infrastructure at Bobbin Head receive high degree of use owing to the numbers of visitors using the park each day. Most park facilities at Bobbin Head require upgrading and new facilities and infrastructure will be needed to cater to increasing visitor numbers and changing user requirements.[6] Facilities should be distributed through the park and sited to provide favourable aspect and shade to picnickers. Design should ensure that this infrastructure is sensitive to the cultural setting and coordinated with the existing facilities:

Actions

- Plant additional trees throughout the park for increased shade and amenity.
- Upgrade or replace the picnic benches with appropriate park furniture. Provide additional picnic facilities including shelters, BBQs, benches and tables, including facilities suited to larger groups and provide full recycling and rubbish facilities in the vicinity.
- Retaining heritage significance at all times, upgrade The Pavilion and existing picnic shelters in Orchard Park and adapt to suit current user requirements in accordance with the CMP.
- Retaining heritage significance at all times upgrade all buildings and structures including repairs to structural defects, improvements to facade presentation and upgraded access to Disability Discrimination Act compliance.
- Replace the existing play equipment with new equipment which visually integrates with the setting and which provides educational and interpretive opportunities.
- Implement a coordinated suite of interpretive and wayfinding signage throughout the parklands. Interpretation should focus on both the natural and cultural values of Bobbin Head and its environs.
- Upgrade track heads with new interpretive and directional signage to National Parks and Wildlife Service standards and coordinated with other parkland facilities and infrastructure.
- Provide an informal space for active recreation in Gibberagong Park.
- Promote canoe hire under supervision from Bobbin Head.
- Repair existing Orchard Park markers and ensure the landscape design does not screen the markers.
- Demolish the existing wharf and replace with a jetty and pontoon suited to ferry landings.
- According to identified heritage significance, undertake repairs to the existing seawalls.
- According to identified heritage significance, upgrade Bobbin Inn including improvements to the existing outdoor terrace and the service area and Disability Discrimination Compliance.
- Remove or terminate existing redundant systems and ensure new services such as stormwater drainage, electrical systems, telecommunications, sewerage, water supply, irrigation, fire fighting systems and security systems are concealed and safe.

Design Principles

- Ensure that active recreational pursuits do not impact detrimentally on areas provided for more passive activities.
- Locate facilities and signage to avoid obstruction of views.
- Ensure facilities meet best practice environmental standards in regards to water conservation, waste disposal and power efficiency.
- Ensure new buildings and facilities are sympathetic to the cultural significance of the place and visually integrate.
- Sandstone, brick, timber and steel should be primary materials used for any new built elements.
- Ensure materials are harvested in an ecologically sustainable manner.
- Ensure materials are able to be installed and managed with a minimal impact on the environment.
- Select paving and building materials which are durable with minimal maintenance requirements.
- Ensure new services are located to minimise damage to infrastructure and vegetation should service access be required.
- Park signage should be visually coordinated and should meet National Parks and Wildlife Service Signage Design Standards.

Refer to Volume 1, Part 2 CMP Policy 6.13 and 6.14.

[6] *Recreational Planning Report and Client Objectives*

6.5 Security

Vandalism to park infrastructure and car break-ins occur at Bobbin Head, particularly after hours owing to the uncontrolled access to the parklands. Consideration to the layout of elements and the choice of materials and fittings could reduce the incidence of anti-social behaviour and enhance the sense of security for visitors using the park. National Parks and Wildlife Service is considering the issue of providing limited lighting in the park.

Actions

- Install subtle, recessive lighting for security and ambience concentrated to access and areas required for night visitor use.
- Use vandal-resistant infrastructure (eg sturdy materials, tamper-proof fastenings).
- Consider security devices such as gates or surveillance equipment to improve security.

Design Principles

- Design to enable a certain level of casual public surveillance of all accessible areas of the parklands. In particular maintain adequate views to the car parking areas from other parts of the park.
- Avoid design of dead-end spaces in the park. Incorporate facilities into the wider vehicle and pedestrian circulation system to provide random visitor activity patterns through the park.

6.6 Access, Circulation and Car Parking

Refer to Volume 3, Appendix 1.3 Traffic and Transport Planning Report.

The dominance of roads and car parking at Bobbin Head is compromising the parkland's amenity and safety to visitors. Future planning should seek to overcome this dominance by consolidating roads and parking. This can be achieved by relocating car parking to the rear of the park, increasing parkland space at the water's edge for picnicking and recreation and reducing potential conflicts between pedestrians and vehicles. It is important to maintain car parking numbers due to the significant and growing visitor demand.

Actions

- Introduce traffic safety and calming devices to reduce speed of vehicles in the parklands. Install new park entry thresholds incorporating traffic calming devices and provide pedestrian crossings at key conflict locations. Refer to Volume 3, Appendix 1.5 Recreational Planning Report.
- Relocate car parking from the water's edge to the rear of the park.
- Establish a continuous promenade along the water's edge in all precincts with seating and shade opportunities.
- Incorporate provision for bus parking, minibus parking, bus pick up and drop off, disabled parking and short term parking. Ensure all spaces are adequately demarcated and signposted.
- Promote access to Bobbin Head by public transport (bus and ferry). Consideration should be given to negotiating public transport provisions with private or semi-private providers, especially for peak visitor times.
- Upgrade canoe launch facilities including the provision of canoe stands and dedicated canoe trailer bays.
- Establish an integrated way-finding strategy to assist with the orientation of users both inside the Park and in the surrounding pedestrian and vehicular road network.
- Ensure Disability Discrimination Act compliance standards throughout the parks for all amenities.
- Investigate the feasibility of constructing a walking trail to Apple Tree Bay along the water's edge.
- Consider a future loop track by extending the Mangrove Walk to the rainforest gully and back to Bobbin Head adjacent to Bobbin Head Road.

Design Principles

- Ensure an efficient vehicular circulation system which reduces speeds, minimises conflicts with pedestrians and is visually subordinate within the park environment.
- Ensure a legible, structured pedestrian circulation system comprising a hierarchy of paths that recognise desired movement patterns within and through the park, and which caters to the needs of the range of users expected in the park.
- Minimise impermeable hard surfaces and locate parking away from prime vistas.
- New pedestrian crossings and roads should be designed in accordance with circulation desire lines and the heritage significance of the area where possible.

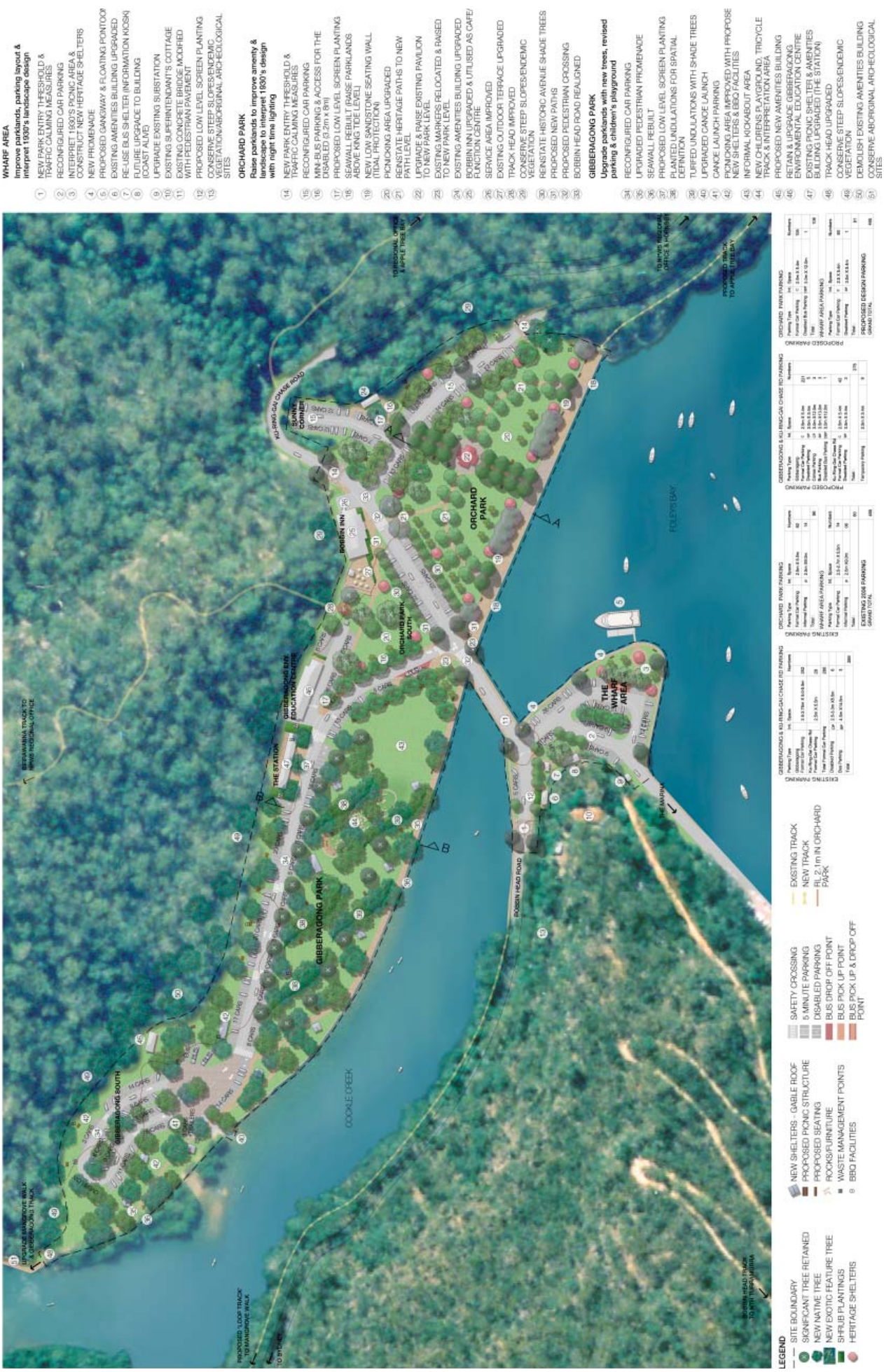


Figure 7.1. Masterplan - NTS

7.0 Design Description

This chapter describes the design for Bobbin Head and is intended to be read in conjunction with the Illustrative Masterplan and Sections. The design addresses the issues outlined in Volume 1, Part 3, Chapter 5.0 and is informed by the Management Actions for Bobbin Head as outlined in Volume 1, Part 3, Chapter 6.0. The Landscape Management Plan also draws upon the policies established in Volume 1 Part 2: Conservation Management Plan, the Actions outlined in Volume 1 Part 1: Masterplan and recommendations described in Volume 3, Appendix 1.5: Recreational Planning Report.

The revitalised landscape design for Bobbin Head aims to conserve and interpret significant existing fabric and proposes new works to improve facilities and address the increasing visitor demands at Bobbin Head. The recognition of the natural and cultural values of the park is reflected in the proposed new works including adaptation of existing built forms, new built forms which reflect greater visual and physical connectivity and which encourage a diversity of recreational and educational uses alongside conservation of the natural and cultural environment.

A detailed description of each of the five sub-precincts at Bobbin Head follows:

P42. Exotic, culturally appropriate new plantings (source: unknown)

Orchard Park and Orchard Park South

Refer to Volume 1, Part 2 CMP, Policy 6.4.1-6.4.4, and 6.4.27

The proposed design for Orchard Park responds to the cultural significance of the 1930s parkland character as identified in Volume 1 Part 2: Conservation Management Plan. The 1930s landscape character of Orchard Park is proposed to be reinstated and interpreted due to it's significance, with historic picnic shelters and formally laid out exotic plantings providing a shaded setting for picnicking and other relaxing recreational activities, as part of the reconstruction of Orchard Park to avoid sea water flooding. Bobbin Inn, the historic picnic shelters and The Pavilion will be upgraded to cater better to visitor requirements and facilities will be upgraded and improved generally and additional facilities implemented to cater to increasing visitor demands. Car parking is proposed to be relocated to the rear of the site to improve pedestrian access and safety and allow upgrading of the foreshore promenade along Foleys Bay.

It is proposed that Orchard Park and Orchard Park South be raised above King Tide levels, involving reconstruction of the seawall, raising Ku-ring-gai Chase Road, the removal of saline soils, installation of drainage and infilling with suitable fill including a layer of topsoil and installation of an irrigation and drainage system. Failure to raise the park levels would result in a continued decline in site vegetation and grass, further reducing the amenity of the park in spite of improvements to facilities. Successful implementation of the design requires inundation resolution, which is causing an ongoing decline in the aesthetic and environmental characteristics of the park. Further information on the condition of Orchard Park, seawall re-construction and the reason for the raising of the park is contained in Volume 3, Appendix 2 Bobbin Head Seawall Advice Report and soils reconstruction is provided in Volume 3, Appendix 1.6 Improving Soils Conditions for Trees and Turf Report.

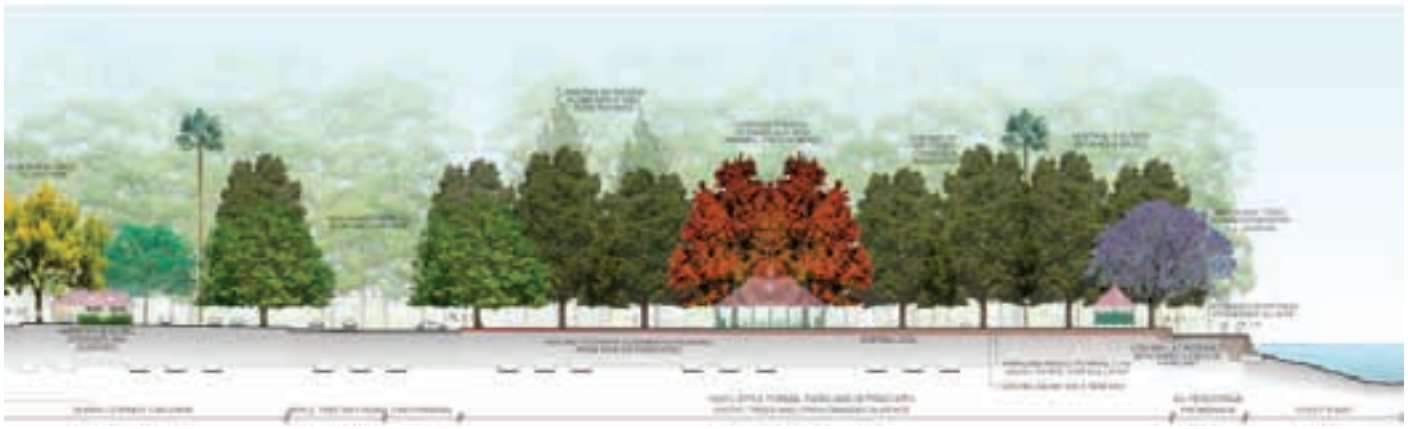


Figure 7.2. Orchard Park Section (not to scale)

Key elements of the design are described as follows:

Shelters and Picnic Facilities

Refer to Volume 1, Part 2 CMP, Policy 6.4.31 and 6.4.32.
Refer also to Volume 1, Part 1 MP, Chapters 3.7 and 3.8

P43. Heritage Shelters (source: CM+)

Currently there are a variety of picnic shelters and barbeque shelters. So as to reduce the visual confusion it is proposed that during the upgrade to Bobbin Head two families or types of shelters will eventuate in Bobbin Head. The original 1930s conical roof shelters will be seen in Orchard Park, Orchard Park and the Wharf Area. A new shelter and barbeque shelter type will be seen in Gibberagong Park and Gibberagong South.

The design seeks to address the increasing demand for picnic facilities in the park as identified in the recreation study. The Pavilion and existing shelters in Orchard Park are significant heritage items which are proposed to be upgraded and adapted to suit current user requirements, particularly to enable catering to larger groups. The raising of the park levels will require that these structures be raised to suit the new levels. The shelters are proposed to be repositioned within the park to reflect the historic alignments.

New picnic facilities are proposed and include upgraded park benches, tables and BBQs. These will be distributed through the park and sited to provide favourable aspect and shade to picnickers. Detailed design should ensure that this infrastructure is sensitive to the cultural setting and coordinated with the design of other infrastructure and facilities in the park, utilising similar materials, forms and finishes.

Waste disposal facilities will be provided near to all major picnicking facilities and will be visually downplayed by sensitive detailed design.

P44. Alfresco dining (source: Landscape Architecture: Defying the Craft, Peter Walker & Partners, 2005)

Bobbin Inn

Refer to Volume 1, Part 2 CMP, Policy 6.4.22-6.4.26

Bobbin Inn is proposed to be upgraded and refurbished, including improved café facilities, upgraded access to Disability Discrimination Act compliance and the possible implementation of water and power saving technologies and devices. The existing outdoor terrace is also proposed to be upgraded to provide an enhanced setting for outdoor dining environment. The presentation of the Bobbin Inn will be improved by a road realignment of Ku-ring-gai Chase Road to provide more space at the entrance to the building and improved parking provisions. This will improve the pedestrian environment, enhance the address to the building, rationalise signage and infrastructure around the building and provide sensitive landscaping which maintains and frames views to the facade. The service area on the northern side of the building will be similarly improved.

Park Entry Threshold

Traffic calming devices are proposed for the key entry points into the park along Bobbin Head Road, Ku-ring-gai Chase Road near Bobbin Inn and along Apple Tree Bay Road to reduce vehicular speeds entering the park. Treatments may include different pavement treatments, raised thresholds, entry structures and road narrowing devices.

Car Parking and Roads

Refer to Volume 1, Part 2 CMP, Policy 6.4.12-6.4.16

The LMP seeks to reduce the dominance of car parking in the parklands by relocating parking from the foreshore to the rear of the park, freeing the water's edge for picnicking and recreation and reducing conflicts between pedestrians and vehicles. The proposed design maintains car parking numbers to that currently available in Orchard Park. Provisions are also made for minibus parking, disabled parking and short term parking. New tree plantings will provide shade and amenity to car parking areas.

Proposed car parking numbers are as follows:

- Formal car parking: 105
- Disabled bus parking: 1
- TOTAL proposed design parking numbers: 106

P45. Appropriate construction (source: unknown)

New pedestrian crossings are proposed to be installed in front Bobbin Inn and adjacent to the bridge to improve pedestrian safety at these locations.

Waterfront Promenade

Refer to Volume 1, Part 2 CMP, Policy 6.4.17

The removal of car parking to the rear of the site will allow the waterfront zone to be developed as a pedestrian promenade with seating and shade. A terraced interface with the water's edge is proposed, with the promenade between the re-constructed seawall and the seating on the low landscape wall retaining the raised park profile. To ensure that new fill in the park does not affect the structural condition of the existing seawalls, an 8 metre setback to this new retaining wall is required, therefore establishing the width of the promenade. The use of different paving materials and areas of feature paving will add visual interest to the promenade.

P46. Formalised paths (source: Dan Kiley in his own Words, America's Master Landscape Architect, D. Kiley, 1999)

Footpaths

Refer to Volume 1, Part 2 CMP, Policy 6.4.18

The historic alignment of footpaths radiating from The Pavilion is proposed to be reinstated in Orchard Park, including a central axis through The Pavilion dissecting the park, curving paths leading from The Pavilion to the waterfront and a path from Bobbin Inn to The Pavilion. Ramped sections will transition from the raised park levels in the parkland to the lower waterfront promenade. Additional pathways are proposed in the park reflecting pedestrian desire lines, in particular adjacent to car parking areas and access to the Amenities Buildings.

Tracks

Refer to Volume 1, Part 2 CMP, Policy 6.4.19-6.4.20, and 6.7.5

Two track heads are currently located in Orchard Park. These are proposed to be upgraded with new signage and interpretation. A new track to Apple Tree Bay along the water's edge is proposed in the future originating from the northern edge of Orchard Park. The existing mangrove walk is proposed to be extended to the rainforest gully and back to Bobbin Head adjacent Bobbin Head Road, forming a loop track.

P47. Jacaranda mimosifolia (source: unknown)

P48. Cupressus macrocarpa (source: unknown)

Vegetation

Refer to Volume 1, Part 2 CMP, Policy 6.4.5-6.4.7

The design proposes to retain original trees where possible. The retention of specific trees will be required to conserve the heritage plantings where possible. It is anticipated that the majority of original tree plantings will be able to be retained, with special detailing of soil profiles for trees with significant cultural or landscape value. Trees which are likely to be retained are indicated on the Illustrative Masterplan.

New tree planting is intended to reinterpret the 1930's parkland character, utilising exotic species in a formal, geometric layout. Tree selection for new plantings is based on a variety of species with good shade provision which are tolerant of site conditions (including salinity) and not invasive to bushland. A suggested planting list is provided in Table 7.1.

Key planting recommendations include reinstatement of the former avenue of Monterey Cypress (*Cupressus macrocarpa*) along the central axis of Orchard Park; the use of Norfolk Island Pines (*Araucaria heterophylla*) at entrance locations and nodal points in the design; ornamental trees such as Jacarandas (*Jacaranda mimosifolia*) along the waterfront zone; and shade trees to all car parking areas.

Precinct	Species Type	Species	Common Name
Orchard Park & The Wharf Area	Trees	*Araucaria heterophylla*	Norfolk Island Pine
		Brachychiton acerifolius	Flame Tree
		Cypressus macrocarpa 'cv'	Monterey Cypress
		Fraxinus oxycarpa raywoodii	Claret Ash
		Jacaranda mimosifolia	Jacaranda
		Liriodendron tulipifera	Tulip Tree
		Platanus x hybrida	London Plane Tree
		Podocarpus falcatus	Yellowwood
		Sequoia sempervirens	Coast Redwood
		Stenocarpus sinuatus	Firewheel Tree
	Palms	*Livistona australis*	Cabbage Tree Palm
		Phoenix canariensis	Date Palm

Table 7.1: Suggested Planting List for Orchard Park, Orchard Park South & The Wharf Area

P49. Interpretative elements (source: unknown)

Signage

Refer to Volume 1, Part 2 CMP, Policy 6.13 - 6.14

A coordinated suite of wayfinding and interpretative signage is proposed to be installed in Orchard Park. Detailed design should ensure that this infrastructure is sensitive to the cultural setting and coordinated with the design of other infrastructure and facilities in the park, utilising similar materials, forms and finishes. Interpretation is proposed to emphasise the cultural significance of Orchard Park, its development history and its historic use as a pleasure ground.

Markers and Drinking Fountains
Refer to Volume 1, Part 2 CMP, Policy 6.4.11

The historic markers near the bridge are proposed to be repaired, raised and relocated to form portal features into Orchard Park as the bridge over Cockle Creek is crossed. Landscape planting will be designed to ensure the markers are features of the park and not obscured. Investigation into recommissioning the drinking fountains will be made at later stages.

Existing Amenities Building (Sunny Corner)
Refer to Volume 1, Part 2 CMP, Policy 6.4.35

The existing Amenities Building is proposed to be upgraded, including repair of structural defects, upgrading of access to Disability Discrimination Act compliance and possibly the implementation of water saving technologies and devices. Low vegetation planted to the front of the building will help to reduce its visual impact.

Seawalls
Refer to Volume 1, Part 2 CMP, Policy 6.4.9-6.4.10
Refer also Volume 3, Appendix 2, Bobbin Head Seawall Advice Report.

Repairs to the existing seawalls are required. This may include re-construction with suitable geotechnical soil and structural investigations at a later stage. Sandstone will be used in all seawall reconstruction works. If walls are reconstructed a representative sample is to be retained and an archival recofding is to be done before, during and after works

P50. Lighting for ambience and security (source: unknown)

Lighting
Refer to Volume 1, Part 2 CMP, Policy 6.4.27-6.4.32

Subtle, recessive lighting will be provided for security and ambience and will be concentrated to access and use areas required for night visitor use, including Bobbin Inn and The Pavilion.

Utilities and Services
All utilities and services will be concealed underground and will be adapted and coordinated with proposed power and water saving systems and technologies which will be investigated at a detailed design stage.

WHARF AREA

Refer to Volume 1, Part 2 CMP, Policy 6.4.1-6.4.4, 6.4.27

The Wharf Area was one of the first reclamation areas forming Bobbin Head. This area was variously modified. Reference should be made to the Conservation Management Plan for more information regarding the historic development of this parkland space.

The Wharf Area is currently dominated by car parking dispersed over the entire area except for a narrow band of grass and footpath at the water's edge and an island of native plantings in the parking area. It is proposed that car parking be concentrated to the rear of the parkland allowing a broader area of waterfront area for recreational space. The relationship of the peninsula of land that makes up the Wharf Area to Orchard Park (across Cockle Creek) is evident from historic photographs. Therefore the, the 1930s landscape character of the Wharf Area, as an extension of Orchard Park is proposed to be interpreted, with formally laid out exotic plantings and new heritage shelters similar to those in Orchard Park as were evident in photographs from the 1930s. The area is subject inundation and further studies will be required to determine if this area of the park is required to be raised.

Key elements of the design are described as follows:

P51. Heritage shelters in The Wharf Area (source: NPWS Archives)

Shelters and Picnic Facilities

Refer to Volume 1, Part 2 CMP, Policy 6.4.32

Currently there are no picnic facilities in the Wharf Area. New picnic facilities including shelters, benches and tables are proposed, encouraging greater use of this parkland. The shelters and other facilities are proposed to be similar to those in Orchard Park, helping to strengthen the visual connection between the parklands which is appropriate given their closely related historic associations and cultural significance. Waste disposal facilities and recycling will be provided near to picnicking facilities and will be visually downplayed by sensitive detailed design.

P52. Traffic Calming Measures. (source: unknown)

Park Entry Threshold

Traffic calming devices are proposed for the entry locations into Bobbin Head. Treatments may include different pavement treatments, raised thresholds, an entry feature and road narrowing devices. Ku-ring-gai Chase Road is realigned to improve sightlines on approach to Bobbin Head Bridge.

Car Parking and Roads

Refer to Volume 1, Part 2 CMP, Policy 6.4.12-6.4.16

The proposed design reduces the dominance of car parking by consolidating and relocating parking to the rear of the parklands, freeing a broader landscape area at the water's edge for picnicking and recreation. The proposed design maintains car parking numbers. Provisions are also made for bus drop-off , disabled parking and short term parking. New tree plantings will provide shade and amenity to car parking areas. Pedestrian safety features and traffic slowing measures are included in the design proposal to improve safety, including a pedestrian crossing connecting the Coast Alive Centre to the bridge over Cockle Creek.

Proposed car parking numbers are as follows:

- Formal car parking: 80
- Disabled car parking: 1
- TOTAL proposed design parking numbers: 81

P53. Water interaction (source: unknown)

Track Heads

Refer to Volume 1, Part 2 CMP, Policy 6.4.19-6.4.20 and 6.7.5

The track head for the Warrimoo and Bobbin Head Track are located in the Wharf Area. This is proposed to be upgraded with new signage and interpretation.

Proposed Floating Pontoon and Gangway

The existing wharf will shortly reach the end of its current life and is proposed to be replaced with a floating pontoon and jetty which will serve the ferry.

Vegetation

Refer to Volume 1, Part 2 CMP Policy 6.4.27

In Orchard Park, proposed tree planting is intended to reinforce the 1930s parkland character, utilising exotic species in a formal, geometric layout. Tree species selection is proposed from the same planting palette as for Orchard Park. Refer to the suggested planting list provided in Table 7.1.

The design proposes to retain original trees where possible. Key planting recommendations include the use of Norfolk Island Pines (*Araucaria heterophylla*) at entrance locations and nodal points in the design combined and ornamental trees providing shade to picnic facilities and car parking areas.

Signage

Refer to Volume 1, Part 2 CMP, Policy 6.13 -6.14

Wayfinding and interpretative signage in the Wharf Area is intended to be coordinated with and match the signage in Orchard Park.

Existing Buildings

Refer to Volume 1, Part 2 CMP, Policy 6.4.35, 6.16.1-6.16.2

The existing Amenities Building is proposed to be upgraded and refurbished, including repair of structural defects, upgrading of access to Disability Discrimination Act compliance and the possible implementation of water saving technologies and devices. Low vegetation planted to the front of the building will help to reduce its visual impact. The existing Coast Alive premises and Bus Stop are also proposed to be upgraded and adaptively re-used respectively. Both buildings will be improved with additional landscape space in front of the buildings.

Seawalls

Refer to Volume 1, Part 2 CMP, Policy 6.4.9-6.4.10

Repairs to the existing seawalls are required. This may include re-construction with suitable geotechnical soil and structural investigations at a detail design stage. Sandstone will be used in all seawall reconstruction works.

Refer to Volume 3, Appendix 2, Bobbin Head Seawall Advice Report.

Lighting

Subtle, recessive lighting will be provided for security and ambience and will be concentrated to access and use areas required for night visitor use.

Utilities and Services

All utilities and services will be concealed underground and will be adapted and coordinated with proposed power and water saving systems and technologies which will be investigated at a later stages.

P54. Estuarine ripples (source: unknown)

P55. Shady, informal creekside parklands (source: unknown)

GIBBERAGONG PARK AND GIBBERAGONG SOUTH

Refer to Volume 1, Part 2 CMP, Policy 6.4.1-6.4.2

The existing character of Gibberagong Park provides the greatest opportunity for improved parkland landscape and amenities at Bobbin Head. Changes to the parkland spaces and the children's playground area, currently surrounded by car parking are necessary. Currently the foreshore is dominated by car parking and a loop of *Araucaria* trees following the parkland roads, this layout should also be modified. The CMP determines this area to have cultural and landscape significance and consequently landscape improvements to this area of the parklands will be possible and desirable.

Car parking is proposed to be removed from waterfront areas and relocated to the rear of the parklands, creating a safer pedestrian environment and opening up a large area of parkland with unimpeded access to the waterfront. Native trees will provide shade and amenity for users and frame and direct views to Cockle Creek and Cowan Creek. The proposed landscape design of Gibberagong Park is to reflect natural patterns in the landscape, with formed undulations laid out in a pattern symbolising the sand ripples of the estuarine habitat which once occupied the site. The undulations will also provide a buffer between the parkland space and the road network, while being sufficiently low in profile to maintain views across the parklands and to the water. New shelters, picnicking, seating, Amenities Building and barbeque facilities will be provided and the children's playground is proposed to be replaced with a new children's playground which is to include sculptural and interpretive play elements for children and infants. An area for informal ball games will be maintained at the northern end of the parklands, associated with the playground area. The consolidation of active recreation into one area of the parkland will provide the opportunity for quieter park spaces towards the southern end of Gibberagong Park. The waterfront promenade will be upgraded and access to the water for canoes retained with additional parking for this recreational activity. Interpretive signage will focus on the natural, cultural and Aboriginal aspects and significance of the park.

Key elements of the design are described as follows:

Shelters and Picnic Facilities

Refer to Volume 1, Part 2 CMP, Policy 6.4.33.
Refer also to recommendations in Volume 1 Part 1 MP, Chapter 3.7.

P56. Picnic facilities catering to groups (source: NPWS Park Facilities Manual, 2006)

Currently there are only three picnic shelters in Gibberagong Park, and "The Station" the barbeque building for group amenities. Proposed new picnic facilities include additional picnic shelters, benches and tables, encouraging greater use of the parklands. The shelters and other facilities will have a contemporary character contrasting but integrating with the heritage shelter design proposed for Orchard Parks and the Wharf Area, reflecting the distinct character intended for this parkland. These new shelters will have pleasing forms and materials, be robust, functional, ergonomic, durable and should enhance the overall parkland experience and will complement the 1930s shelters in Orchard Park.

Barbeque facilities will be upgraded. Waste disposal facilities, including recycling facilities, will be provided near to picnicking facilities and will be visually downplayed by sensitive detailed design.

Figure 7.3. Gibberagong Park Section (not to scale)

Car Parking and Roads

Refer to Volume 1, Part 2 CMP, Policy 6.4.12-6.4.16

The proposed design reduces the dominance of car parking and roads in Gibberagong Park by relocating the road and parking from foreshore areas to the rear of the site. The proposed design maintains car parking numbers. However provision for additional peak parking is considered in Gibberagong South by removing bollards in specific locations. Provisions are also made for bus parking at the rear of the park to reduce visual dominance. Bus pick-up and drop-off, and disabled persons parking all located near to a new ablution facility. The new car parking layout is designed to provide shade areas under the existing *Araucaria* Trees, while considering their long-term survival.

Proposed car parking numbers are as follows:

- Gibberagong Park formal car parking: 221
- Gibberagong Park disabled parking: 5
- Gibberagong Park canoe parking: 3
- Gibberagong Park bus parking: 3
- Gibberagong Park disabled bus parking: 1
- Ku-ring-gai Chase Road formal car parking: 42
- Ku-ring-gai Chase Road disabled parking: 3
- TOTAL proposed design parking numbers: 278
- Gibberagong Park & Ku-ring-gai Chase Road temporary parking: 9

P57. Children's playground with nature based interpretive elements (source: Great Kid's Spaces, Marta Rojals, 2006)

Children's Playground

Refer to Volume 1, Part 2 CMP, Policy 6.4.34

The existing children's playground is proposed to be replaced with a new playground which provides sculptural and interpretive play elements for children and infants including a tricycle track. Tree planting will provide shade to the playground and seating and drinking fountains will be installed. It is intended that the design of the playground will visually integrate with its setting and be aesthetically pleasing. Several picnic shelters will be located near to the playground area for passive surveillance purposes. Safety fencing will be provided, the design of which will be integrated with the overall parkland qualities.

Kickabout space

An area of open space is proposed to be retained in Gibberagong Park for informal ball games. The location of this space adjacent to the children's playground will limit these noisier recreational activities to one location in the parklands. A couple of picnic shelters will be located near to this area of the parklands for passive surveillance purposes.

P58. Sculptural elements and facilities (source: unknown)

Gibberagong Environmental Education Centre

Gibberagong Environmental Education Centre is proposed to be upgraded and improved, including upgrading to Disability Discrimination Act compliance, and possible implementation of water saving technologies and devices.

Waterfront Promenade

Refer to Volume 1, Part 2 CMP, Policy 6.4.17

The removal of car parking to the rear of the site will allow the waterfront zone to be developed as a pedestrian promenade with seating and shade. The promenade will have shade trees located to ensure that views to Cockle Creek, Cowan Water's and the Wharf Area are maintained from deep within Gibberagong Park. The shady promenade with seating will wind its way through new picnic shelters located at the water's edge at the southern end of the park, and will connect to the existing Mangrove Track.

P59. Native vegetation (source: unknown)

P60. Araucaria heterophylla (source: unknown)

P61. Corymbia maculata (source: unknown)

P62. Cupaniopsis anacardioides (source: unknown)

Footpaths

Refer to Volume 1, Part 2 CMP, Policy 6.4.17. and 6.7.5

Pathways are proposed in the park reflecting pedestrian desire lines, in particular adjacent to car parking areas and access to the Amenities Building.

Track Heads

Refer to Volume 1, Part 2 CMP Policy 6.4.19-6.4.20

The track head for the Mangrove Walk and Gibberagong Track occurs at the far southern reach of the park in Gibberagong South. This is proposed to be upgraded with new signage and interpretation facilities.

Signage

Refer to Volume 1, Part 2 CMP, Policy 6.13.1-6.14.2

A coordinated suite of wayfinding and interpretative signage is proposed to be installed in Gibberagong Park. Detailed design should ensure that this infrastructure is sensitive to the cultural setting and coordinated with the design of other infrastructure and facilities in the park, utilising similar materials, forms and finishes. Interpretation is proposed to emphasise the Aboriginal and natural significance of the park.

Vegetation

Refer to Volume 1, Part 2 CMP, Policy 6.4.8

The design proposes to retain original trees where possible, including the loop of *Araucarias* (*Araucaria heterophylla*) in Gibberagong Park which will be integrated into the car park design providing shade to parked vehicles.

New tree planting is proposed to include both endemic and non-endemic species, providing a contrast with the exotic species proposed for Orchard Park, Orchard Park South, and the Wharf Area but integrating with bushland at the rear of the site. Tree selection will be based on species with good shade provision and those tolerant to site conditions (including saline conditions) and not invasive to bushland. A suggested planting list is provided in Table 7.2.

Precinct	Species Type	Species	Common Name
Gibberagong	Trees	*Agathis robusta*	Kauri Pine
		Angophora costata	Smooth Barked Apple
		Araucaria heterophylla	Norfolk Island Pine
		Brachychiton acerifolius	Flame Tree
		Brachychiton populneus	Kurrajong
		Corymbia maculata	Spotted Gum
		Cupaniopsis anacardioides	Tuckeroo
		Elaeocarpus grandis	Blue Quandong
		Eucalyptus botryoides	Mahogany Gum
		Ficus rubiginosa	Port Jackson Fig
		Glochidion fernandii	Cheese Tree
		Lophostemon confertus	Brush Box
		Stenocarpus sinuatus	Firewheel Tree
	Palms	*Livistona australis*	Cabbage Tree Palm

Table 7.2. Suggested Planting List for Gibberagong Park

In Gibberagong Park, formed undulations (for sound mitigation purposes) with plantings of native grasses or turf and trees are proposed, providing framed views toward Cockle Creek and Foleys Bay. Turf between the undulations will provide a surface for picnicking and recreation. In Gibberagong South this pattern becomes more informal, with trees planted irregularly into turf, integrating with the natural backdrop at the site perimeters. The undulations are proposed to alter the parkland topography and to create revitalised parkland spaces.

Canoe Launch Facilities

Refer to Volume 1, Part 2 CMP, Policy 6.4.37

The canoe launch facilities are proposed to be upgraded, with the provision of wash down facilities, information and directional signage and designated parking area for three vehicles.

Amenities Building

Refer to Volume 1, Part 2 CMP, Policy 6.4.35

The existing Amenities Building is proposed to be demolished and replaced with a new high quality Amenities Building which utilises water saving technologies and meet Disability Discrimination Act compliance requirements. Low vegetation planted to the front of the building will help to reduce the visual impact of the structure on the parklands.

Seawalls

Refer to Volume 1, Part 2 CMP, Policy 6.4.9-6.4.10

Repairs are required to the existing seawalls. This may include complete reconstruction of much of the seawalls. Sandstone will be used in all seawall reconstruction works. Further information on this aspect of the project can be found in the Appendix 3 – Bobbin Head Seawall Advice Report.

Refer to Volume 3, Appendix 2, Bobbin Head Seawall Advice Report.

Lighting

Subtle, recessive lighting will be provided for security and ambience and will be concentrated to access and use areas required for night visitor use.

Utilities and Services

All utilities and services will be concealed underground and will be adapted and coordinated with proposed power and water saving systems and technologies which will be investigated at a detailed design stage.

This page left blank intentionally.

8.0 Implementation

Refer to Volume 1, Part 1 Masterplan, Chapter 9.0.

Details of the implementation of the Masterplan including the Landscape Managment Plan are dealt with in Volume 1, Part 1 MP.

END OF LANDSCAPE MANAGEMENT PLAN

This page left blank intentionally.