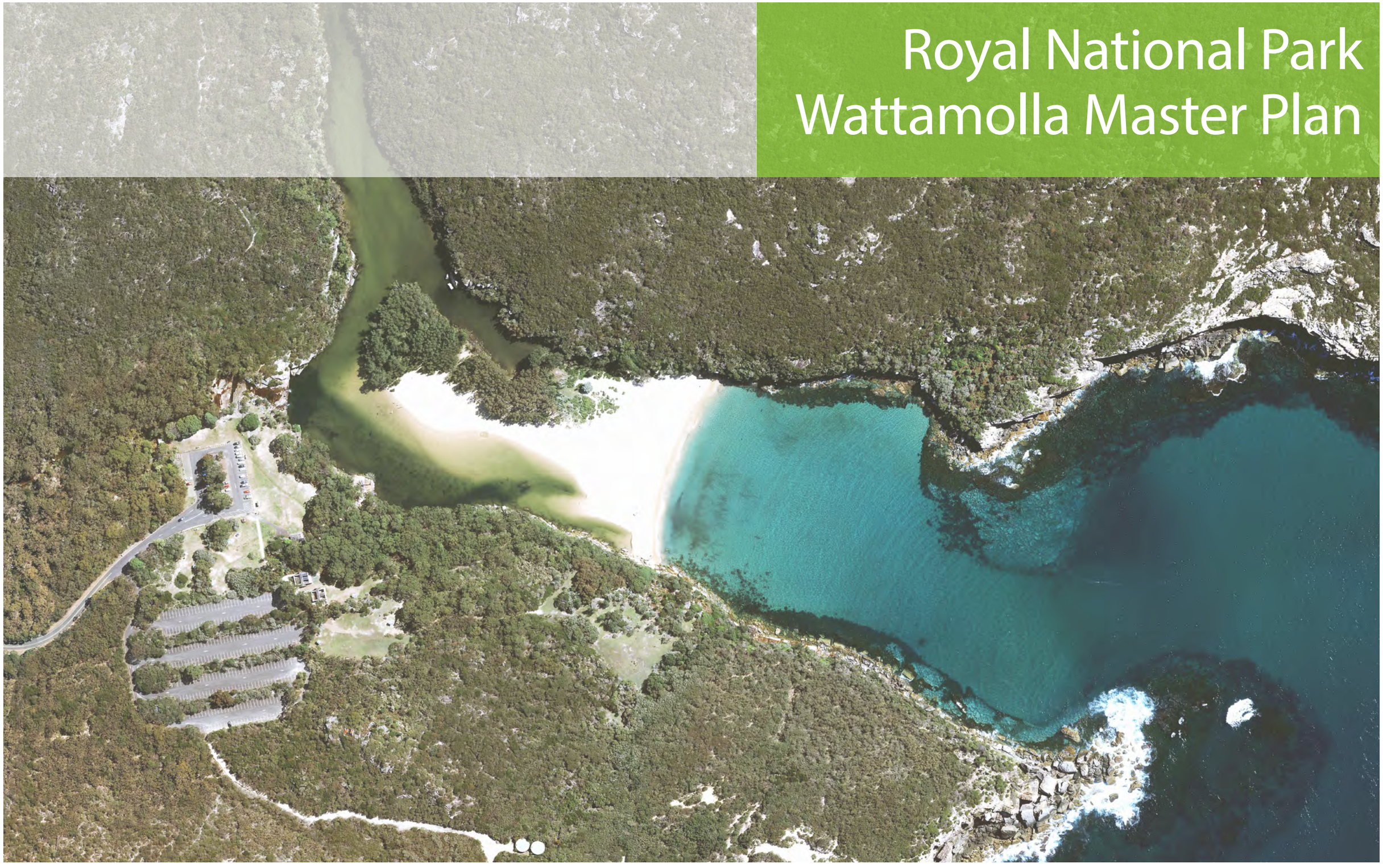
Office of Environment & Heritage

Royal National Park
Wattamolla Master Plan



Acknowledgments
The OEH acknowledges that Wattamolla is part of the traditional lands of the Dharawal people.

For additional information or any inquiries about Royal National Park contact Royal National Park Visitor Centre on (02) 9542 0648, or visit:
http://www.nationalparks.nsw.gov.au/visit-a-park/parks/Royal-National-Park

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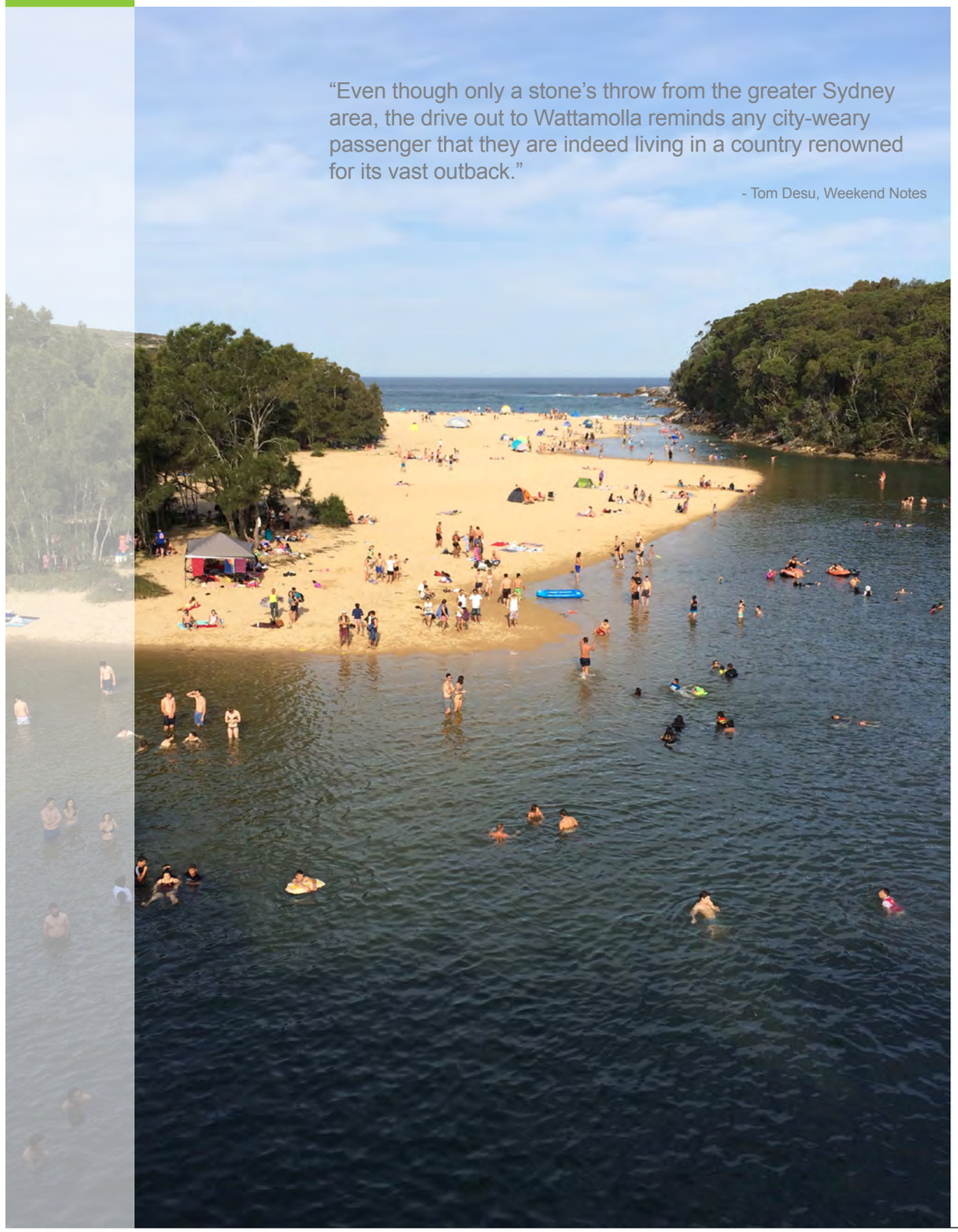


Fig1. Wattamolla Beach (CONTEXT 2015)

Wattamolla, with its estuarine lagoon, waterfall, beach and stunning coastal scenery, is the most popular destination within the Royal National Park, attracting over 300,000 visitors per year. It is located along the Royal Coast Track, an iconic walk of the Royal National Park.

CONTEXT has been engaged by NSW National Parks and Wildlife Service (NPWS), Office of Environment and Heritage to prepare the master plan for Wattamolla Beach. The CONTEXT team has worked closely with NPWS and a team of sub consultants including The Stafford Group (business planners) and WSP Parsons Brinkerhoff (traffic) in developing the master plan. As part of the process, the project group has also involved key stakeholders of the site in project meetings and presentations to gather input and recommendations for the proposed developments.

The master plan seeks to address NPWS’ challenge of managing peak visitation at the site while maintaining an attractive visitor setting at other times and catering for overnight use by individuals, groups and commercial operators on the Royal Coast Track. It aims to achieve this while protecting and conserving the park’s natural, cultural, social and aesthetic values by incorporating the following objectives:

- visitor safety
- recreational value
- financial sustainability
- operational efficiency
- visual and environmental amenity.

This master plan report describes the landscape framework for Wattamolla from its existing natural assets and overall master plan vision for the proposed facilities including picnic areas, open parkland, bushland reserve, camping and water bodies.

Vision

‘Sustainable solutions to improve and enhance the visitor experience within a unique natural and cultural setting.’

Fig2. Bird’s eye view westwards towards Wattamolla Falls with proposed master plan solutions

2.0 Existing Landscape

Fig3. Vegetation at Wattamolla (CONTEXT 2015)

2.1 The Site

The site lies within Royal National Park. It is located on the coastal fringe created by the egress of Coote Creek to the west. It is a relatively low lying area of dunal coastal vegetation that lies above the escarpment of Hawkesbury Sandstone, providing undulating views to the ocean and beach. It is bounded by Marley Head to the north-east, Garie Beach to the south-west, visitor facilities at Audley to the west and bounded on the eastern edge by the Pacific Ocean.

The site is predominately covered by heath vegetation, which currently filters easterly views to the beach front and distant low lying vegetated hills to the west.

The escarpment topography reflects its coastal location and presence of a quaternary dunal deposit system. The local microclimate is modified by on-shore breezes and south-east winds.

"The land may have been more open when the first Europeans came, whereas the higher, open ground is now covered with dense coastal heath with low open woodland along creeks."

- 'Judith Carrick, History of Royal National Park 1879 - 2013'

Fig4. Aerial view over Wattamolla on a peak day (NPWS)

Fig5. South Head entrance (State Library of NSW 1914)

Fig6. Camp sites at Wattamolla (Photographer unknown, date unknown)

2.2 Site History

The site has many layers of history, which have informed the development of the master plan. The following is an abbreviated history of land use on the site.

Aboriginal Land Use

Wattamolla is part of the traditional lands of the Dharawal people. Royal National Park and its environs has a rich suite of Aboriginal sites that provide much information about the life and activities of the Aboriginal people who lived in coastal Sydney prior to British colonisation. These archaeological sites include rock engravings, shell middens in rock-shelters and open locations, rock-shelters with drawings and stencils, as well as grinding grooves.

Archaeological excavations in Royal National Park in the 1960s were among the earliest in south-eastern Australia to provide evidence that the tools and equipment used by Aboriginal people and their way of life changed over time. Archaeological sites provide evidence of the tools and equipment people used in their daily lives, the raw materials to manufacture these items, as well as the animals they hunted, fished and gathered.

European Settlement

Bass and Flinders sought refuge in the cove in 1796. A memorial was erected in memory of this in 1938. The first European land owner at Wattamolla was Mark Orton who purchased 27 acres in 1839. The current land around Wattamolla was donated to the National Park Trust by EJ Coote in 1933 as a tribute to his lifelong friend WF Leighton-Bailey.

The national park was established in 1879, making it one of the world's first. It is recognised as a pioneer national park alongside Yosemite and Yellowstone in the US.

Fig7. Historical photo showing turning circle north of Coote Creek, Palm Flats and cabins at Wattamolla (F Hurley Date unknown)

Fig8. Current South Head entrance (CONTEXT 2015)

Depression Years

During mine stoppages, workers from Helensburgh established tents and humpies on the coast. These were later upgraded to shacks (cabins). During the Depression years of the 1930s many of these became occupied permanently as unemployed miners from nearby mining areas such as Coalcliff and Helensburgh sought refuge there. They included some who, by living independently of their parents, were able to claim the dole, while others simply wanted a weekender.

In the early 1930s bushwalkers began to publicly complain about the cabins' impact on the scenery and its enjoyment. By 1944, only two cabins were left at Wattamolla and these have since been removed.

World War II

From 1941 to 1944, during World War II, partly because of the security risk, the whole park was subject to army control with infantry manoeuvres taking place. The artillery range was brought back into use, and the park closed to the public on some days. A barrier was built across the Causeway at Audley, land mines were laid at Artillery Hill, and the beaches and Wattamolla southern cliffs were defended by gun emplacements and barbed wire. Some of these activities have contributed to subsequent erosion.

Military exercises at Wattamolla continued from time to time until 1967. The cleared area on the southern headland of Wattamolla is where the army's guns once stood.

Current National Park

Wattamolla is currently one of the most visited destinations within Royal National Park. Families and groups favour it as a location for picnics and as a beach destination, particularly during long weekends with warm weather. It is one of only three coastal locations within the national park that is accessible by car. Furthermore, it lies midway on the Royal Coast Track between Bundeena and Otford, making it an ideal location for overnight camping.

The park was placed on the Australian National Heritage List in 2006 and is seen as a pioneer national park with significant influence on the global parks conservation movement.

2.3 Climate

The table below provides a summary of weather conditions around Wattamolla based on data from 1929 to 2015, obtained from the Bureau of Meteorology.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max (ºC)	26.5	26.4	25.3	22.9	20	17.6	17	18.4	20.6	22.6	24.1	25.8	22.3
Mean Min (ºC)	18.9	19.1	17.6	14.2	11	8.7	7.2	8.2	10.5	13.2	15.4	17.5	13.5
Mean Rain (mm)	94	111.9	115.4	109.3	98.6	122.5	69.6	76.8	60.3	70.7	81.5	74.1	1084.3
Mean Rain (days)	11.2	11.5	12.4	11.1	10.9	11.2	9.3	9.1	9.3	10.6	11.4	10.6	128.6
Mean Daily Wind Run (km)	519	480	458	423	415	420	426	443	462	476	515	515	463

2.4 Microclimate

The site is protected from prevailing winds by the headlands, allowing for calmer waves suitable for visitors less confident at swimming. The shallow lagoon is quick to heat up in summer and is favoured by families with young kids to wade and swim in.

Taller native trees on site provide shade for visitors but they are often not in optimal locations. The sheltered cove and extensive grass lawns also ideal for picnics.

2.5 Site Soils

The soils of Royal National Park are closely related to the underlying rock-types. Those on the Hawkesbury Sandstone, which is the major base rock of the region, derived from the weathering of coarse grained quartzitic material, are thin, acidic, contain few minerals and are relatively infertile, being especially deficient in the essential plant nutrients nitrogen and phosphorous. Most of these soils are classified as Tenosols.

There are also some patches of lateritic soils (Ferrosols, rich in iron) on the surface of the Hawkesbury Sandstone, usually on higher ridges. These are the result of deep weathering of a once more extensive coverage of laterite of uncertain age. Patches of weathered igneous rocks such as that at Tall Timbers near Bundeena are relatively fertile. Patches of weathered shale lenses throughout the sandstones also give rise to nutrient-rich soils. In contrast to the soils occurring over most of the Hawkesbury Sandstone, the clayey shale soils (Kurosols and Kandosols) of the Narrabeen Group, wherever they have been exposed by erosion in the Upper Hacking River Valley and along the coast between South Era and Burning Palms, are deeper, moister and better-aerated. Having a higher nutrient status, they are more fertile.

On the more restricted Wianamatta Shale Group rocks, the dominant soil type is a podsolic sandy to silty clay loam (Kurosols). This is usually hard-setting, and of moderate acidity and fertility, and it mostly occurs outside Royal National Park.

The broad soil picture is completed by reference to the richly organic sandy sediments accumulated in the largely treeless upland dells (Organosols) and the Podosols of the ancient sand dunes.

2.6 Landscape Character

Banksia Dry Heath

Heath areas are characterised by small to medium dry heath and shrub species (predominantly banksias and tea trees) creating a dense silvery green textured landscape averaging 2-5 metres in height.

Dry Sclerophyll Forest

Dry sclerophyll forest is the main forest vegetation type on the Hawkesbury Sandstone. ‘Coastal Sandstone Ridgetop Woodland’ occurs mainly on ridges surrounded by heath and in some places in association with the ‘Sydney Shale Ironstone Cap Forest’. The ‘Coastal Sand Forest’ is found in small areas in sheltered deep sands on beach hind dunes, coastal flats and sandstone headlands. ‘Coastal Sandstone Gully Forest’ occurs on the lower slopes of sandstone gullies and is often intermediate to ‘Coastal Sandstone Ridgetop Woodland’ on the upper slopes, and ‘Sandstone Riparian Scrub’ occurring in narrow strips along creek lines.

The existing vegetation at Wattamolla has changed over time as evidenced by historical photographs. Early photographs (circa 1900-1950) show a much more heath-type of vegetation where the underlying soil or sands can be observed through the sparse vegetation. Current observation of the site shows much denser and taller vegetation. Regrowth on abandoned picnic lawn sites, for example to the north of Coote Creek, is dominated by Leptospermum laevigatum (coastal tea-tree). This could be a result of a change in burning frequency of the forest following cessation of traditional land management practices (Fig9).

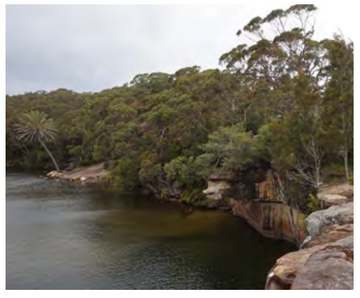


Fig9. Changes in the vegetation on site over time (State Library of NSW 1914, State Library of NSW 1947, CONTEXT 2015)

Fig10. Heath vegetation around the site (CONTEXT 2015)

Fig11. Vegetation cover around Wattamolla (CONTEXT 2015)

2.7 Population Change

Changes in population will influence the demand and visitation rates of the sites. The local population around the site is expected to increase by 157,350 by 2031 (2014 NSW Household and Dwelling Projection Data), creating a greater demand for access to national parks and open spaces and increasing the number of days in which visitation at Wattamolla is likely to exceed the site's current infrastructure capacity.

Wattamolla and Royal National Park needs to be planned and managed with the following principles in mind:

- adhere to its principles of conservation and protection
- satisfy the community's demand for experiences in nature and access to the natural environment.

Population Projections

LGAs within 25km	Population Size at 2016	Projected Population at 2031
Sutherland Shire	229,800	267,750
Bankstown	201,500	240,800
Rockdale	113,400	134,350
Hurstville	87,200	104,950
Marrickville	85,550	102,300
Kogarah	62,450	76,350
Botany Bay	45,300	56,050
Total Market Size	825,200	982,550

Fig12. Projected populations (2014 NSW Household and Dwelling Projection Data)

Fig13. Visitors walking along Wattamolla Road on a peak day (CONTEXT 2015)

3.0 Landscape Analysis

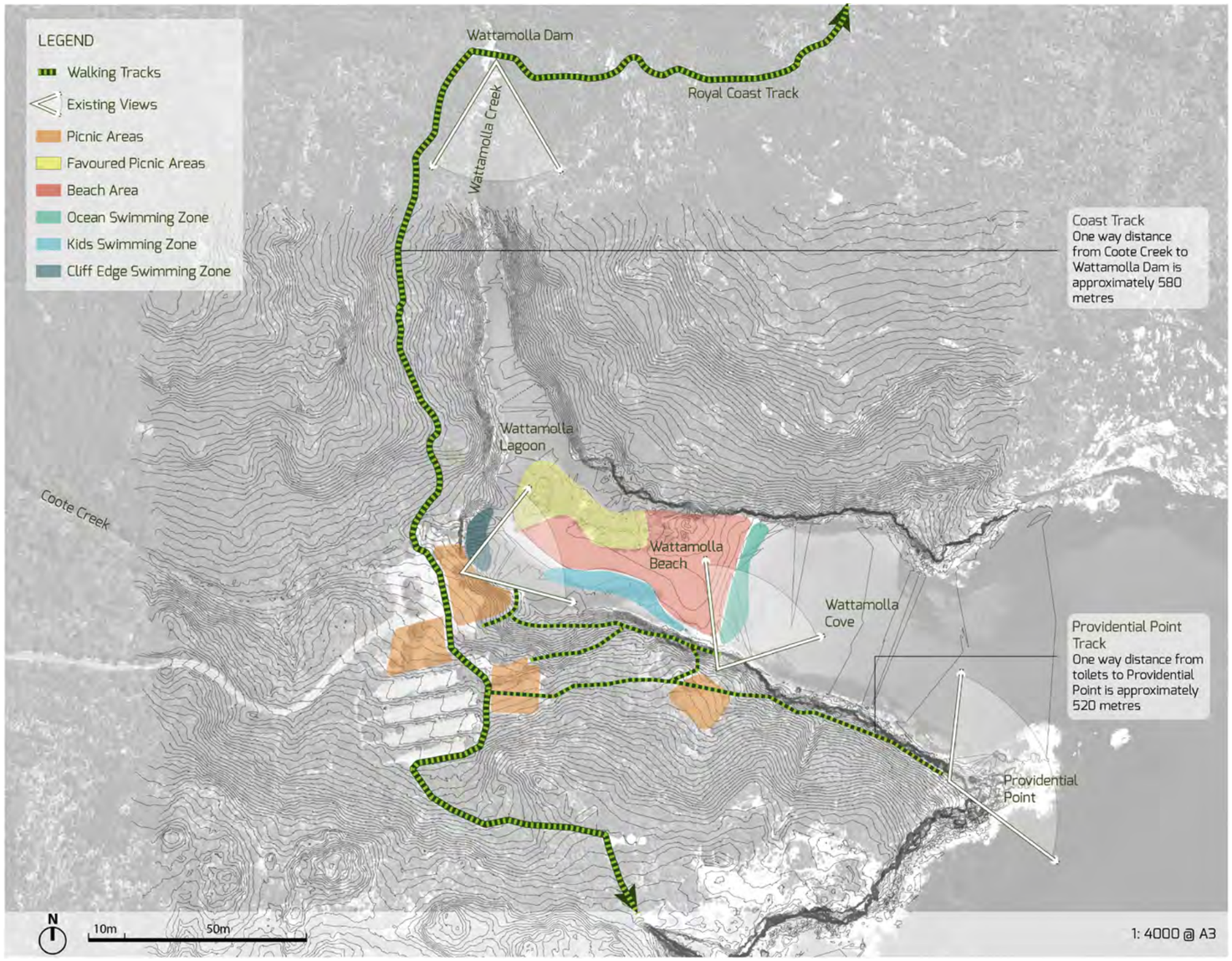


Fig14. Site analysis: recreational Use

3.1 Recreational Use

The recreational use map identifies the key areas and activity zones of the site based on observations made on a peak day. The beach, picnic areas and swimming zones with differing swimming conditions have been mapped. Walking tracks around the site were also identified. This provides a general understanding of how different conditions of the site would affect public use of each area.

Fig15. Calm and shallow waters of the lagoon are favoured by young children (CONTEXT 2015)

Fig16. Picnic areas with shade are essential on warm days (CONTEXT 2015)

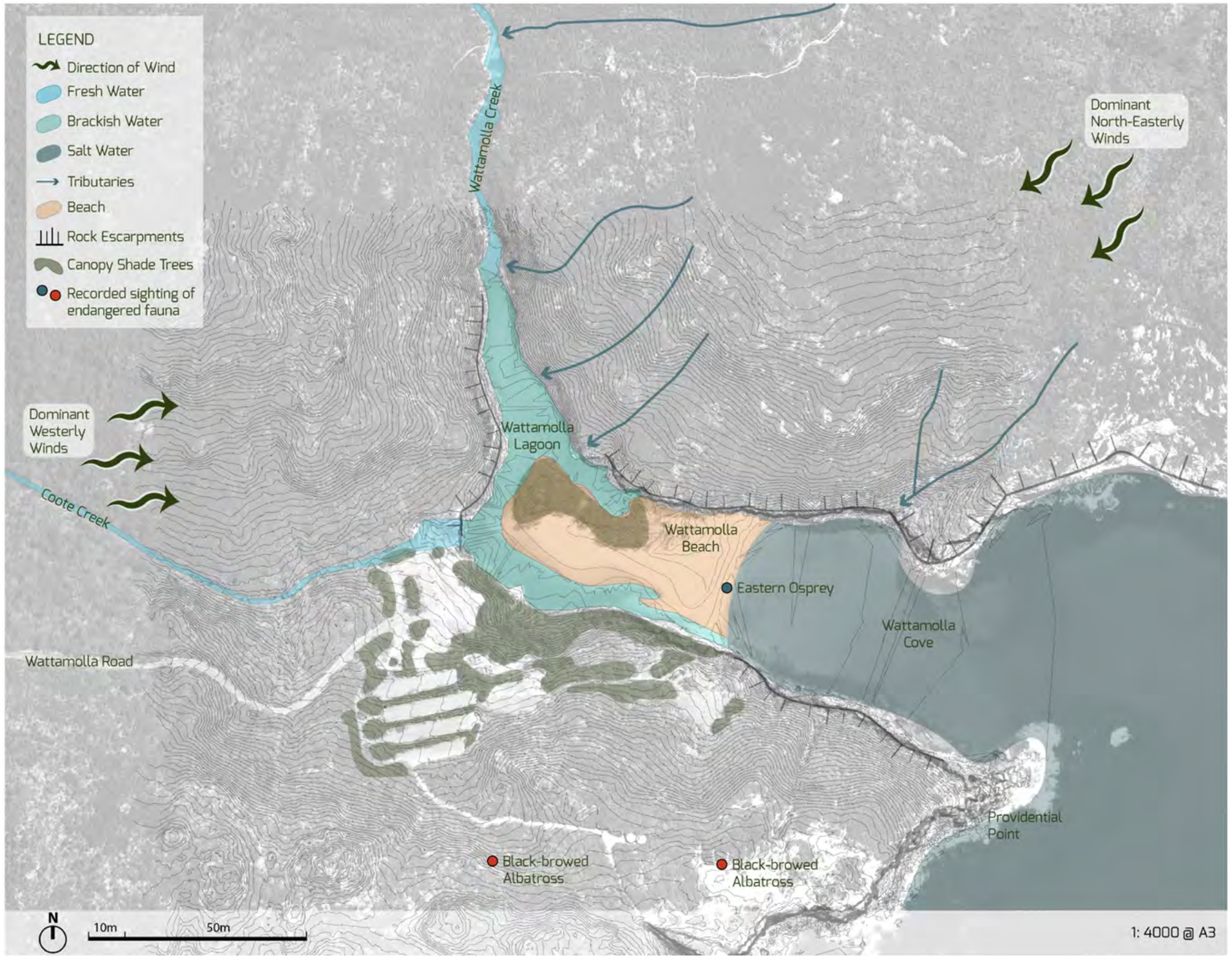


Fig17. Site analysis: environmental conditions

3.2 Environmental Conditions

Significant natural elements of the landform around Wattamolla include the two creeks: Wattamolla Creek and Coote Creek, which both flow into Wattamolla lagoon. The lagoon connects to the ocean across a narrow strip of sandbar on the south-eastern end of Wattamolla Beach. Canopy trees around the site, which provide much needed shade on warm days, were also noted.

Fig18. Casuarina trees on Wattamolla Beach (CONTEXT 2015)

Fig19. View along Coote Creek (CONTEXT 2015)

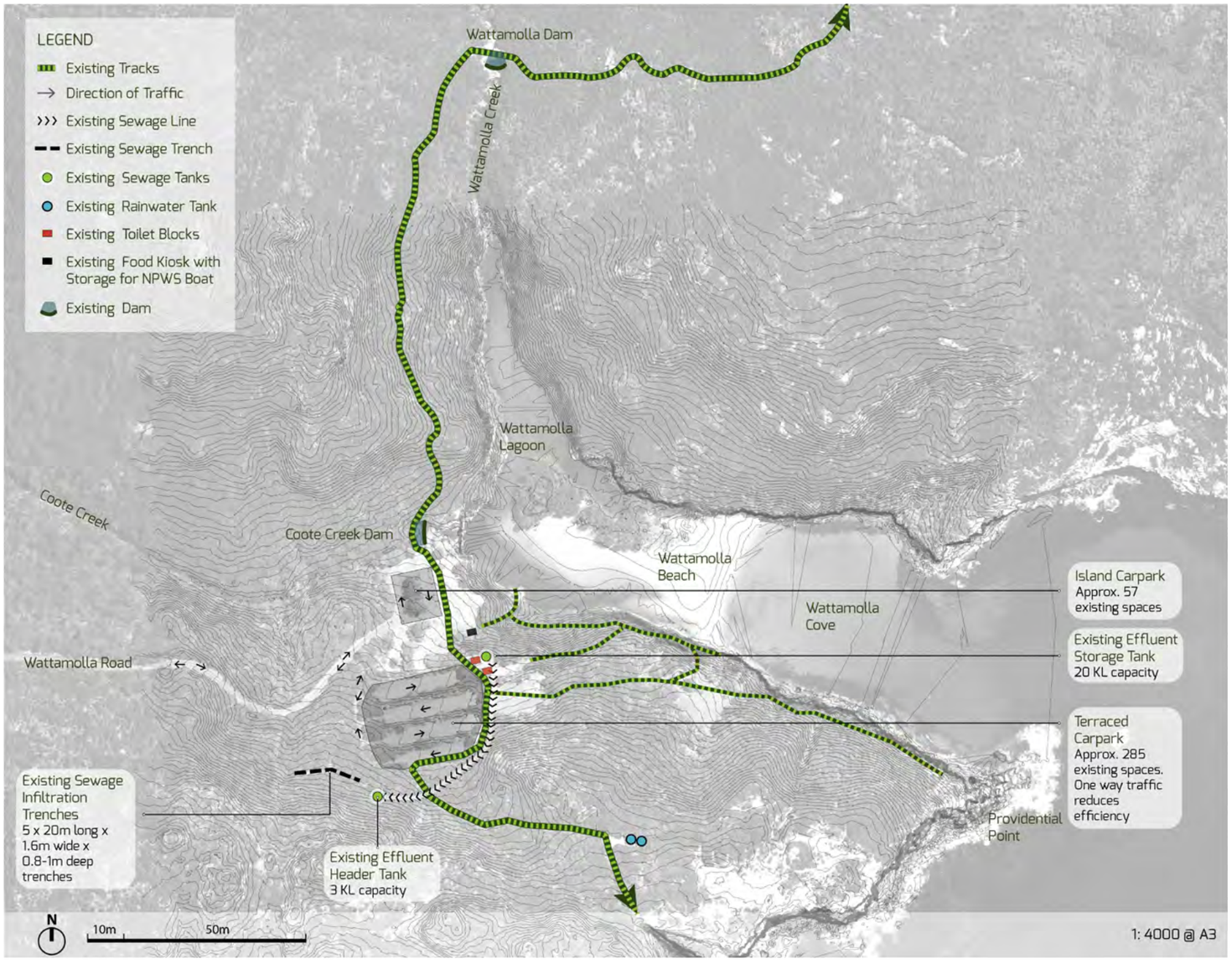


Fig20. Site analysis: existing infrastructure

3.3 Existing Infrastructure

The existing infrastructure on the site is in reasonable condition and has been positioned in suitable locations. However, the food kiosk and toilet blocks would benefit from refurbishments to increase the attractiveness of the site. The existing sewerage infrastructure has been reported to fail on peak days and requires further upgrades to cope with the site's projected future capacity.

Fig21. The existing food kiosk (CONTEXT 2015)

Fig22. Toilets and bins (CONTEXT 2015)

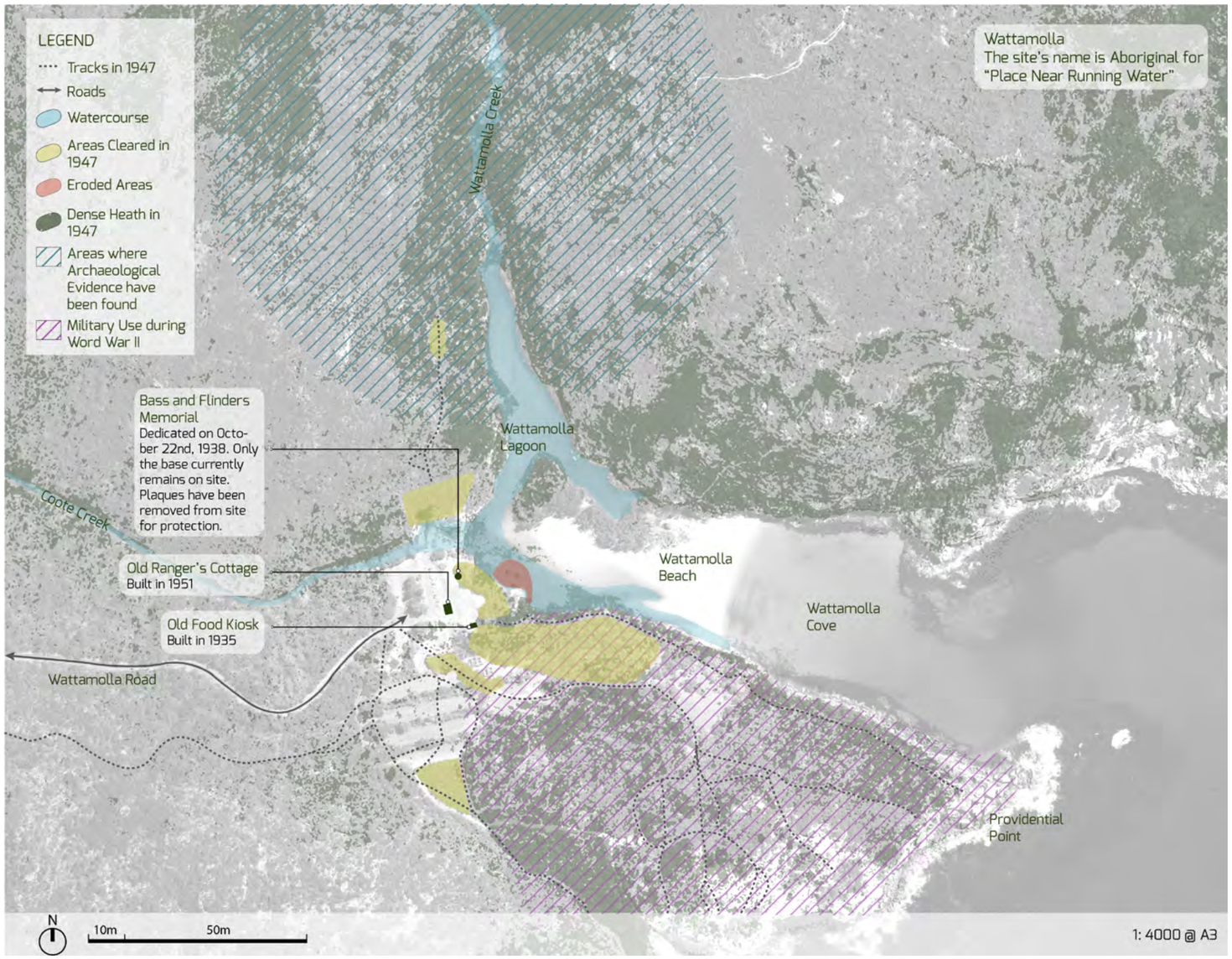


Fig23. Site analysis: historical and cultural mapping

3.4 Historical and Cultural Mapping

The historical and cultural analysis of the site was based upon observations of historic photos as well as writings and references on the history of Royal National Park. A significant change in the vegetation across the site was noticed in historic images, which also showed that many areas around Wattamolla were heavily modified by human use over time.

Fig24. Memorial plaques celebrating Bass and Flinders' landing and the Coote family donation of Wattamolla to the Crown (NPWS)

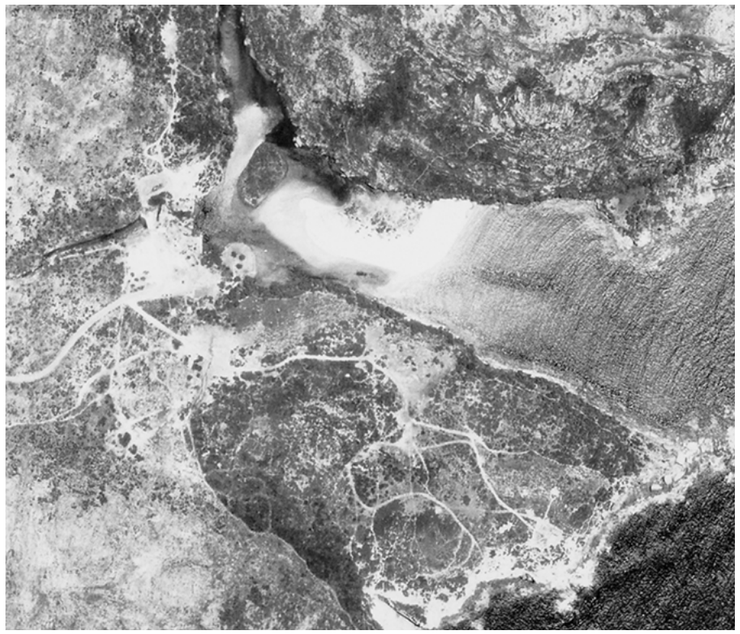


Fig25. Port Hacking aerial (Photographer unknown. Land and Property Information 1947)

4.0 Opportunities and Constraints

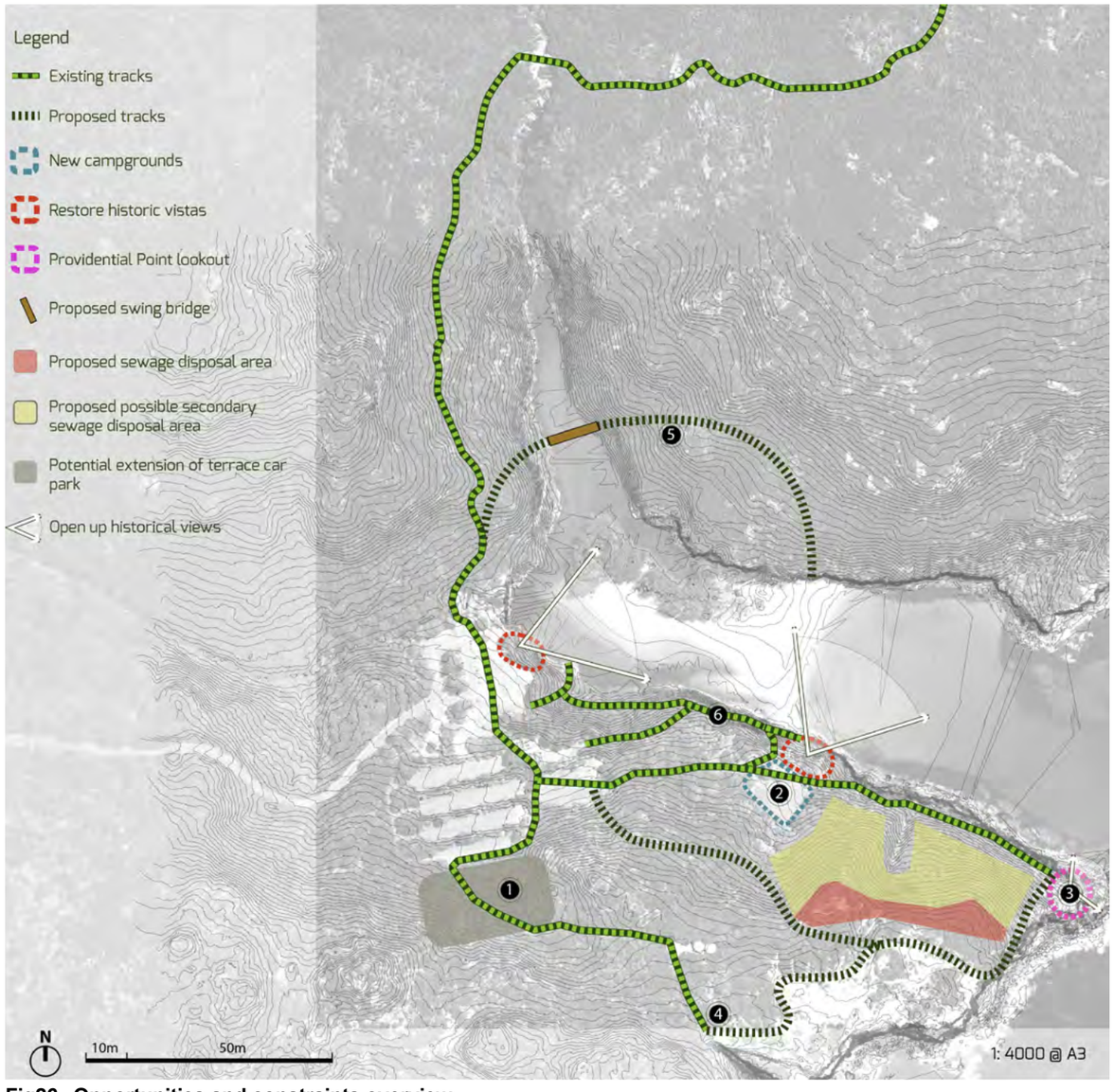


Fig26. Opportunities and constraints overview

The following opportunities and constraints have been identified through the analysis process and addressed in the master plan:

1 Terrace car park

Number of parking spaces does not meet the demand for parking on peak days

Visitors forced to park as far as Sir Bertram Stevens Drive and walk to the site

Insufficient parking exacerbates traffic congestion in Royal National Park

Historical photos indicate that part of the area proposed for parking extension used to be cleared

Extension of the terrace car park southwards to provide up to 700 car spaces across the site

2 Campgrounds

Limited opportunities

No separate amenities block

Provide a campground for independent Royal Coast Track walkers

Provide a campground with separate amenities

3 Providential Point Lookout

Lookout is not frequented by visitors and is in poor condition

Location and access to lookout not evident

One way track

Opportunity to create a viewing platform at the lookout to increase the recreational value of the site

Opportunity to create a new loop track to the lookout point and provide additional wayfinding signage

4 Royal Coast Track

Coast Track directs walkers through the terrace car park

Requires track upgrade works along certain parts of the track

Opportunity to realign the Royal Coast Track to follow a more scenic route around Providential Point

Create a better directed journey through the site with connection to campgrounds

5 Beach access

Only one access route across the lagoon outlet

Opportunity to create a new loop track and access to the beach

6 Existing beach access paths

Paths are in poor condition with erosion in certain areas and built structures that require replacement

Provide safe access to the beach

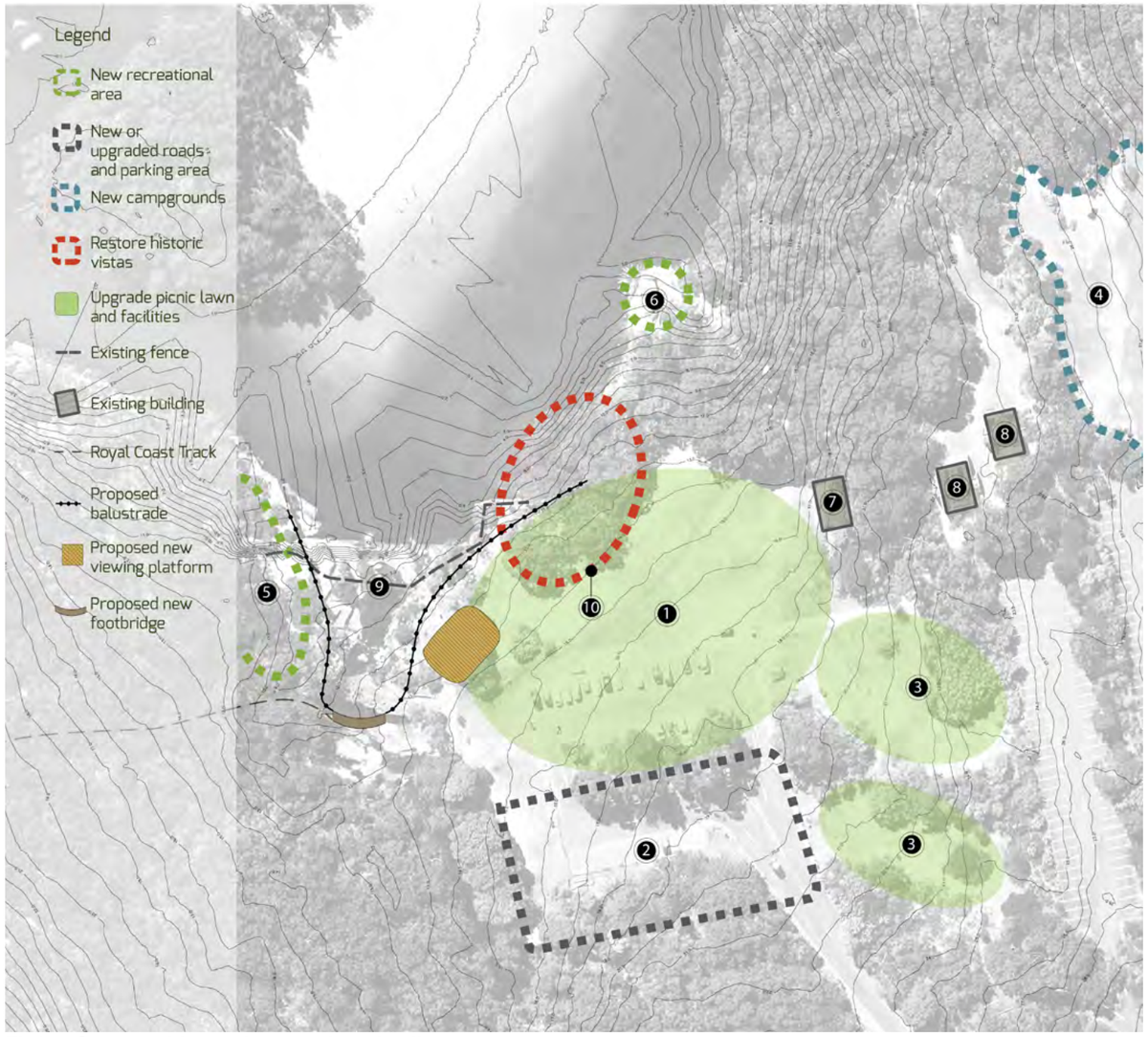


Fig27. Opportunities and constraints detail

1 Main lawn area

Underused even on peak days	Reinforce this area as the core of the site through appropriate design interventions
Lack of shade	Restore historic views and vistas
Restricted views	Relocate island car park to reclaim prime visitor use area
Erosion in certain areas	Increase usability of space by providing shade through trees or shelters
	Reduce erosion by providing footpaths along key desire lines

2 Island car park

Occupies a prime location of the site	Relocate further west
Lacks a sense of arrival into the site	Create a stronger sense of arrival into the site through appropriate landscape design
	Provide additional shade for visitors

3 Existing picnic areas

Lack of shade	Opportunity to upgrade and increase available picnic facilities
No visual connection to the lagoon	

4 Existing picnic area

Location is isolated from the core areas of the site	Convert clearing into campgrounds
Underutilised	Locate an area for a new picnic space to make up for lost space

5 Area north of Coote Creek

Historical photos show that the area used to be cleared	Restore historic visitor area
Poor accessibility	Provides a higher vantage point with good views over the site
	Provides additional space for picnics

6 Palm Flats

Erosion has reduced the size of the flats significantly over the years	Restore edge around the flats to protect from further erosion and sea level rise
Gradient of ramp toward the flats is too steep	Provide improved access to the water
Lack of usable spaces around the flats	Provide a set of stairs towards the flats
	Create usable lawns around the flats

7 Existing kiosk

Building underutilised	Provide a better service to park visitors
Mobile vendor has ad hoc days of operation	Refurbish building and create an outdoor seating area
	Re-establish a viable kiosk or cafe

8 Existing toilet blocks

Exterior of buildings are not visually attractive	Refurbish buildings and add new roof
Roofless buildings means rainwater flows into and overloads the sewerage system	Rainwater collection with new roof for use in outdoor showers
Indoor showers to be removed	Allow outdoor shower runoff to drain into vegetation and soils

9 Existing fence over waterfall

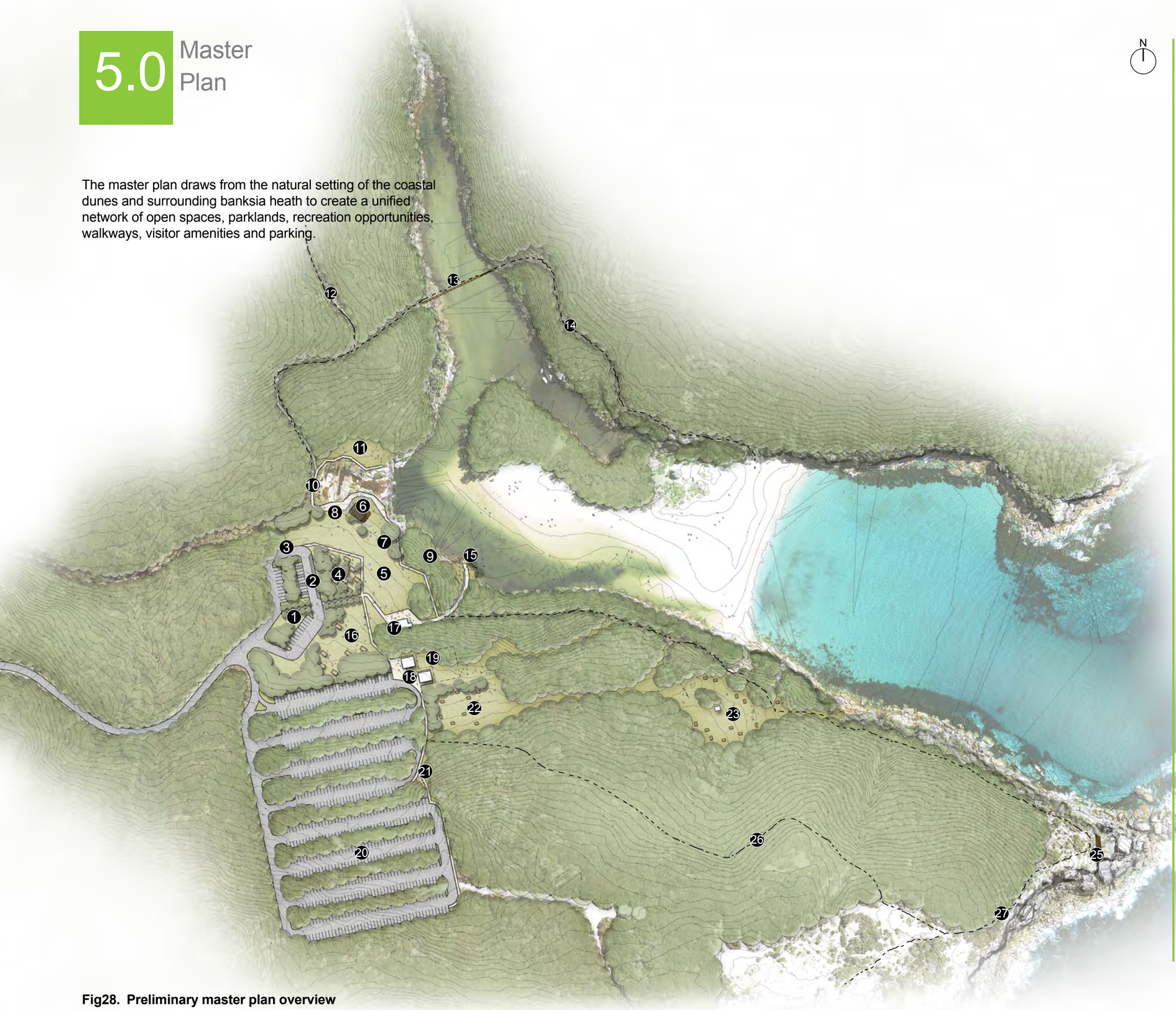
Negative visual impact on the waterfall	Opportunity to create a balustrade integrated with a pathway that is set further back from the cliff edge
Objective of restricting cliff jumping has not been met	Design and position the balustrade in a manner that discourages climbing over the fence

10 Bass and Flinders memorial

Memorial is in poor condition and plaques removed for protection	Opportunity to remount the plaques and preserve the memorial in place
	Opportunity to remove and reinterpret the site's history in a more suitable location

5.0 Master Plan

The master plan draws from the natural setting of the coastal dunes and surrounding banksia heath to create a unified network of open spaces, parklands, recreation opportunities, walkways, visitor amenities and parking.



1. Proposed Entrance and Turnaround
Landscaped entrance to provide visitors with a better sense of entry and arrival to the site
2. Proposed Bus Drop-Off Zone
3. Garbage Vehicle Pick-up Zone
4. Proposed Shade and Picnic Area
Main picnic area with amenities and new shade trees
5. Main Lawn
Reinforce the main lawn as the focal point of the site
6. Proposed Viewing Platform
Wooden deck built under and around existing trees
7. Memorial
Consider removal of memorial and integration of plaques and interpretation into new landscape features
8. Proposed Pathway and Balustrade
Pathway and balustrade set back from edge of cliff with minimal visual impact
9. Strategic Clearing of Vegetation
Up prune trees in this area to allow views towards the lagoon
10. Proposed Footbridge
Footbridge over Coote Creek to provide all weather access for Royal Coast Track walkers.
11. Reinstated North Lawn
New picnic area that would provide excellent views across the creek and waterfall. Implementation in Stage Three subject to success of other proposals in distributing peak visitation across the site
12. Existing Coast Track
13. Proposed Swing Bridge
Swing bridge over Wattamolla creek to be considered as part of Stage Three upgrades
14. Proposed Beach Loop Track
To be considered as part of Stage Three upgrades
15. Palm Flats Upgrade
Reinstate the space around Palm Flats as a water-side recreation area. Create an edge with sandstone blocks to reduce erosion, provide new lawn recreation areas and new steps alongside existing ramp for easier access
16. Secondary Picnic Area
17. Refurbished Kiosk
Refurbished kiosk with outdoor dining area
18. Refurbished Toilet Blocks
Refurbished toilets with outdoor showers. Consider potential to utilise recycled stormwater
19. Proposed Sewerage Infrastructure Location
20. Proposed Extended Parking
To be completed in stages based on assessment of demand and efficacy of parking booking system
21. Proposed Footpath to Car Park
22. Proposed Campground
Campground with raised platforms available for booking by independent Coast Track walkers
23. Proposed Campground
Campground with raised platforms and separate amenity block suitable for commercial operators and group bookings
24. Upgraded Providential Point Lookout
25. Proposed Providential Point Loop Track
26. Proposed Coast Track Realignment
Proposed new alignment through a more scenic route and Providential Point

Fig28. Preliminary master plan overview

1 : 3000 @ A3 50 m 100 m

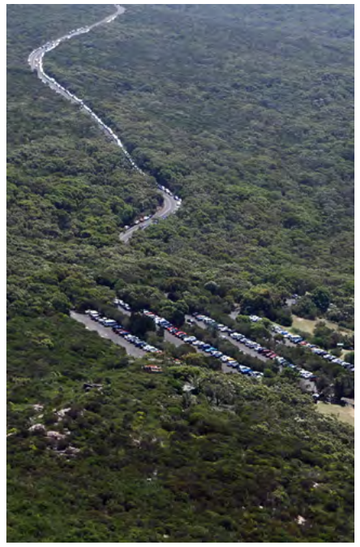


Fig29. Peak day parking at Wattamolla (Photographer unknown NPWS 2010)

Fig30. Crowd at Wattamolla (CONTEXT 2015)

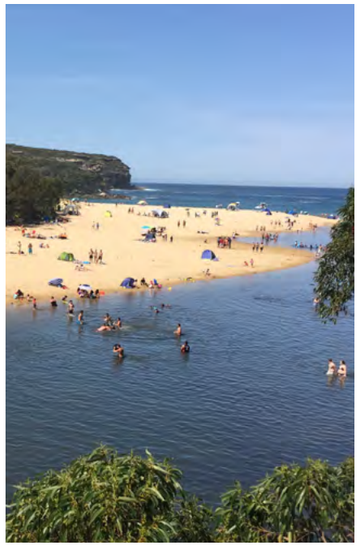


Fig31. Crowd at Wattamolla (CONTEXT 2015)

5.1 Design Capacity

As part of the development of this master plan, an assessment of carrying capacity was completed to determine an appropriate visitor capacity for Wattamolla.

An estimated peak day capacity of approximately 2646 visitors at one time, or 700 vehicles at one time, has been recommended for Wattamolla in the future. Taking into account expected turnover rates, this equates to an estimated number of 3500 visitors per day, or 950 vehicles.

This estimate has been based on past peak day observations and considerations for proposed developments as part of this master plan. Traffic data collected by NPWS across a 14 day period during the peak season in December 2014 to January 2015 was used and extrapolated, as well as an estimated average of 3.78 persons per vehicle during peak seasons.

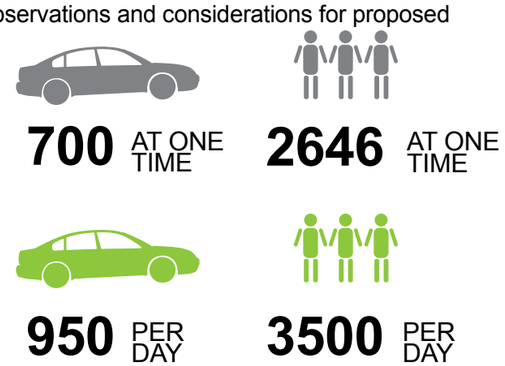


Fig32. Visitor capacity at Wattamolla

The carrying capacity of the site was considered from both an environmental and social point of view. Designing to this capacity is expected to allow the site to be sustainably managed for continued use in the future while also respecting the social expectations of visitors to the site.

Five issues that were limiting factors to the recommended capacity were identified. They are:

- insufficient parking spaces
- traffic congestion
- sewerage system capacity
- lack of ideal picnic spaces
- visitor and coast track walker expectations.

The master plan has been designed with this recommended visitor capacity in mind and has considered measures required to address the five issues identified.

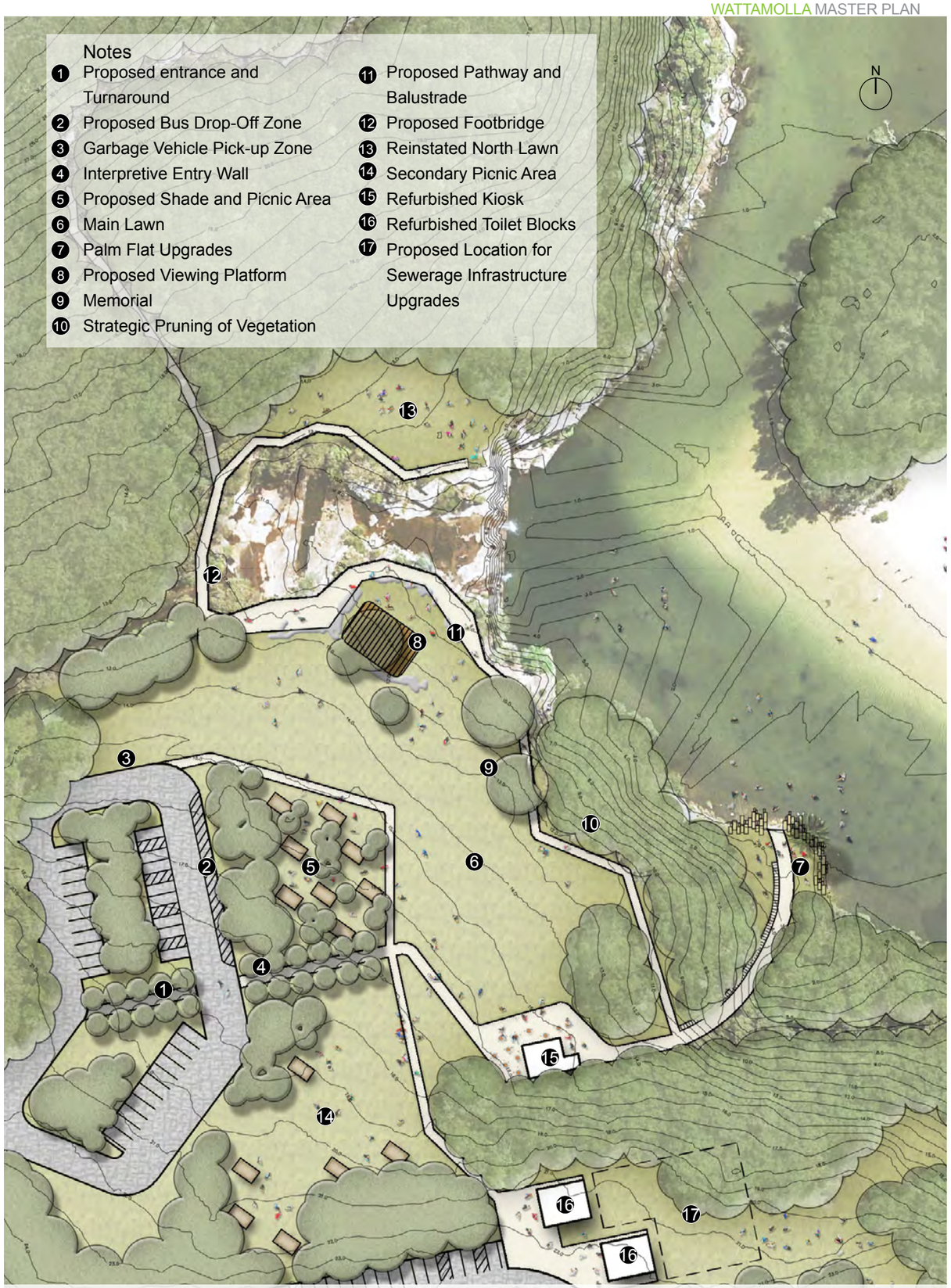


Fig33. Preliminary master plan detail: Main lawn and adjacent areas

5.2 Key Elements

The following sections in this report describe the key elements that satisfy the objectives of the master plan.

5.2.1 Visitor Amenity

Restore Historic Vistas

- Strategic pruning of trees and understorey vegetation along the cliff edge to restore views from the main picnic area
- Allow extensive views towards the lagoon and beach to be opened up and improve passive surveillance of cliff jumping

Shade

- Provide new sheltered picnic areas and shade trees by relocating the existing island car park further west

North Lawn Area

- Reintroduce the north lawn area as a picnic space with extensive views over the site

Palm Flats

- Create a sandstone block edge to allow easier access to the water
- Sandstone block surfaces allow seating and picnicking or people watching and provides a level area for a new picnic lawn
- Construct a set of stairs adjacent and parallel to the existing ramp leading towards Palm Flats to allow easier access

Entrance and Turnaround

- Create an entry that provides a stronger sense of arrival to the site
- Emphasise the amenity of the landscape and the sequencing of spaces rather than the parking

Interpretive Entry Wall

- Opportunity to create an interpretive entry wall at the relocated island car park entrance

Refurbished Buildings

- The existing toilet block is considered to be appropriately sited and integrated with its surroundings. The structures are sound, being of double brick construction with concrete lintels. However there is a general perception that they are ugly buildings and would benefit from a refurbishment that provides a new architectural façade and roof
- Apart from the obvious disadvantage in wet weather, the lack of a roof means that stormwater is currently captured by the shower cubicles and ends up in the sewerage system, adding to the load. By providing a roof, water can be captured and stored in rainwater tanks and used for new outdoor showers. The runoff from outdoor showers will be directed to vegetated areas and not into the sewerage system
- Retrofit the existing kiosk with a new outdoor seating space and additional shade or shelter
- Provide a new façade to the existing building using appropriate natural and contemporary sustainable materials, such as weathering steel and timber, to integrate it more appropriately with its surroundings and with other proposed master plan elements

Coast Track

- Realign the Royal Coast Track to avoid the car park and provide a more scenic route
- Realign the Royal Coast Track to follow the coastline and through Providential Point

Fence

- Replace the existing fencing near the waterfall with new balustrades set further back in conjunction with the Coast Track alignment to reduce visual impact on the falls

Fig34. Sandstone steps at Apple Tree Bay (CONTEXT and CM+ 2006)

Fig35. Artist's impression of proposed kiosk refurbishment

5.2.2 Recreation

Picnic Areas

- Encourage picnics near the falls by providing a formal picnic area adjacent to the main lawn
- Re-establish the north lawn area for picnics, subject to success of other proposals in distributing visitors across the site

Loop Tracks

- Introduce new loop tracks that are suited to visitors who are only visiting Wattamolla so they can start and end in the same site

Camping

- Provide camping platforms for independent Royal Coast Track walkers
- Provide camping platforms with separate amenitiies block suitable for use by commercial operators and group bookings

Providential Point Lookout

- Upgrade the lookout at Providential Point and integrate as part of the proposed Providential Point loop track

Fig36. Platform camping example

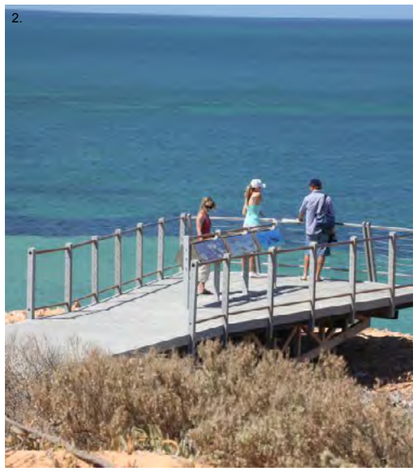


Fig37. Lookout example

1. Grampians Peaks Trail, Bugiga Hiker Camp by Sean Godsell Architects
2. SkipJack Point Lookout, WA. Image from Tourism Western Australia.

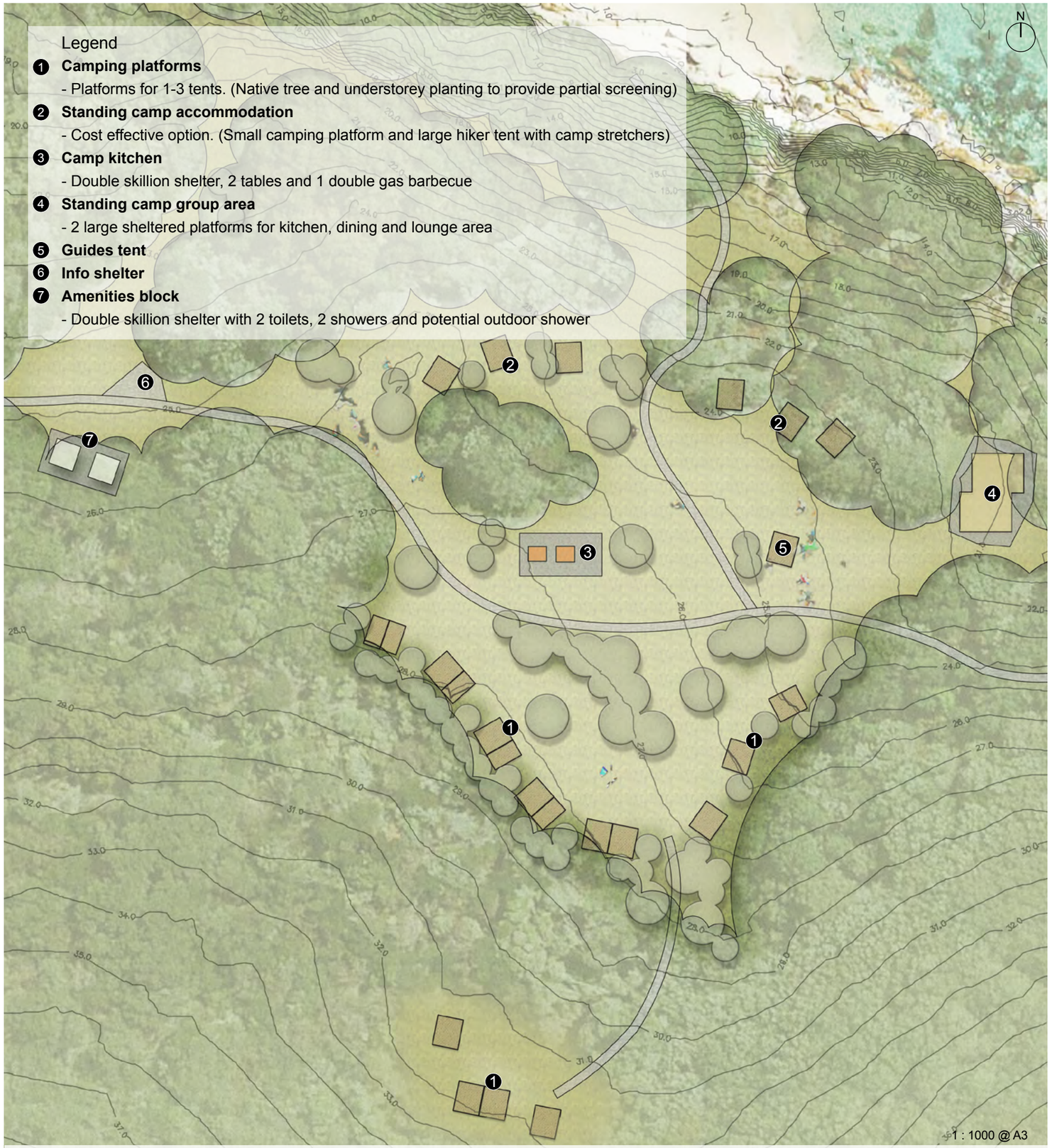


Fig38. Providential Point commercial camping area (based on concept by Environmental Partnership)

5.2.3 Circulation

Pathways

- Provide a network of paths with clear visual hierarchy to improve circulation
- Provide Class I ‘All Access Tracks’ around the island parking and main lawn area to allow for equal access

Footbridge

- Introduce a footbridge across Coote Creek to allow all weather access to areas north of the creek

Track Upgrades

- Upgrade and replace degraded walking tracks on site to increase safety and ease of access

Loop Tracks

- Introduce two new loop tracks: the Beach Loop Track and the Providential Point Loop Track

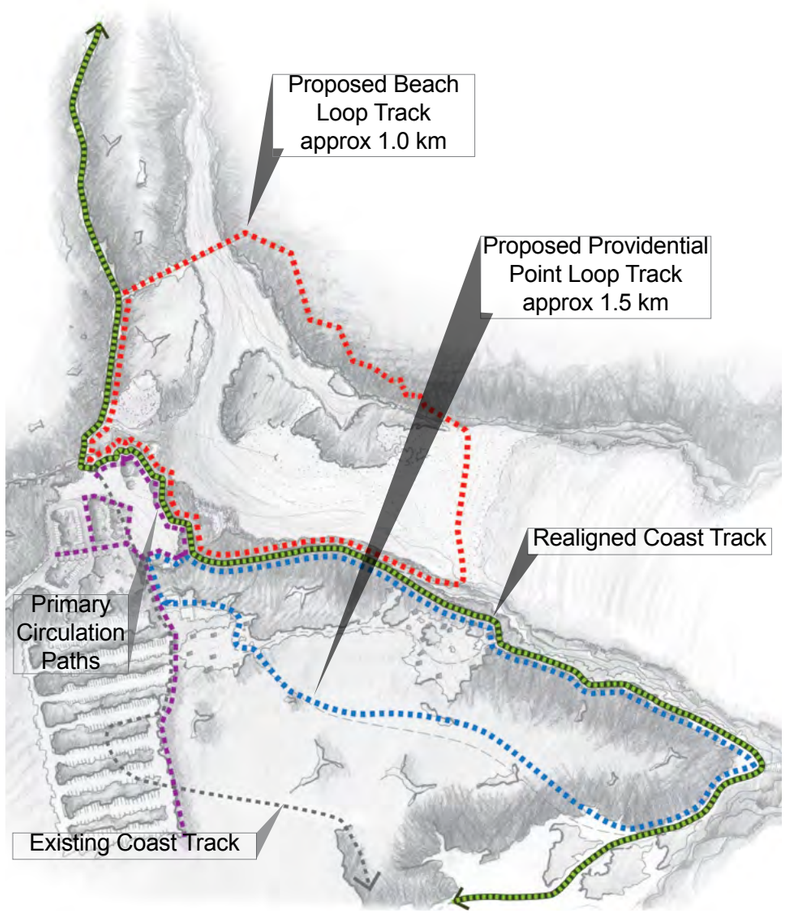


Fig39. Circulation diagram

– 5.2.4 Safety

Access to Site

- Allow sufficient parking on peak days and restrict visitation to the peak day capacity to prevent visitors walking long distances along the road to the site in high temperatures
- Ensure quality footpaths connect parking areas with the site and avoid pedestrian and vehicular conflict
- Balustrade along edge of cliff will ensure safety of users, especially children, around the main lawn

Bush Walking

- Upgrade existing tracks and facilities that have degraded over the years to ensure safety and prevent accidents resulting from eroded soils or failing infrastructure

Cliff Jumping

- Improve passive surveillance of the cliff jumping area by strategically positioning the pathway and balustrade
- Install balustrades at a location set back from the edge of the falls so that the balustrade will not be used as a jumping pad
- Design balustrades to discourage visitors from climbing over
- Continue to monitor and review strategies to minimise the risk of injury as a consequence of cliff jumping

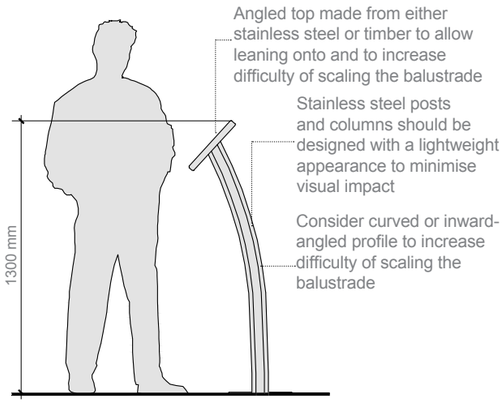
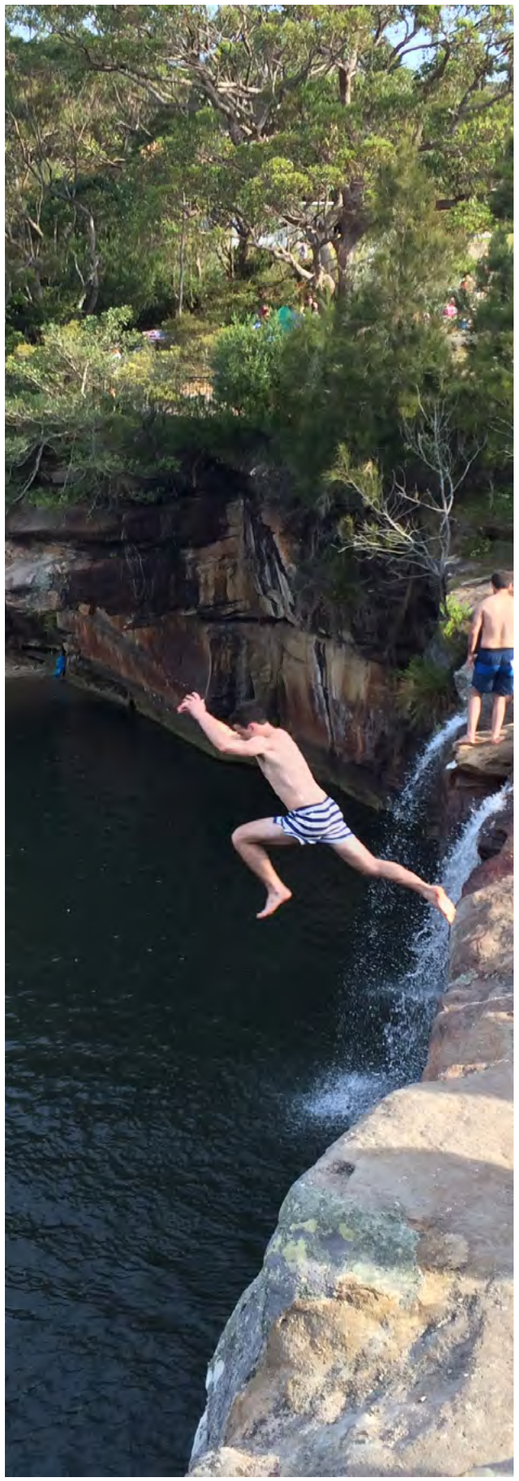


Fig40. Sectional diagram of proposed balustrade



5.2.5 Environmental Sustainability

Erosion Control

- Stabilise soils at Palm Flats and prevent further erosion by creating a sandstone block edge
- Reduce pedestrian traffic on the beach to minimise environmental impact by distributing the crowd more evenly over the site and upgrading the main lawn to become the primary picnic and recreation space
- Re-establish Palm Flats to provide access to water for picnickers on the main lawn
- Provide footpaths along key desire lines

Stormwater

- Integrate water sensitive design and planting swales to filter run-off from car parks
- Allow for retention of run-off within softscapes and infiltration of water into subsoils
- Direct shower run-offs into landscaped areas rather than into the sewerage system

5.2.6 Sustainable Materials

Material Selection

- Ensure materials are durable and suited to the coastal location
- Adopt designs and materials that will minimise visual impacts
- Integrate proposed pathways with the existing sections of site sandstone outcrops

5.2.7 Financial Sustainability

Parking

- Parking on peak days will be reserved through an online booking system
- Visitors will have the option to make full or half day bookings

Kiosk

- Lease the refurbished kiosk to an operator

Campgrounds for Royal Coast Track Walkers

- Allow commercial tour operators and groups to use the campgrounds for a fee
- Allow independent walkers to book and use the BYO campgrounds for a fee

Fig41. Images of proposed materials

In situ concrete

Interpretation signage

Balustrades

Fibreglass reinforced plastic steps

Footbridge

Walking tracks

1,2. Tudela (Club Med) by EMF landscape architects. Images by Marti Franch, Pau Ardevol & Esteve Bosch
3. Westhaven Marina, Auckland
4. Gap Bluff, Sydney Harbour National Park, CONTEXT 2016
5. Smith Creek Pedestrian Bridge by design/buildLAB. Image by Jeff Goldberg/ESTO
6. Wentworth Falls, Blue Mountains, NSW. National Parks NSW
7. National Pass, Blue Mountains, NSW. CONTEXT 2015

5.2.8 Operational Efficiency

Sewerage

– Upgrade sewerage treatment and storage facilities to ensure sewerage output is treated to required levels

Parking Booking System

– Introduce an online parking booking system on peak days to manage the number of visitors

Traffic Management

– Introduce differential pricing as part of the parking booking system to encourage visitors to come at different times of the day and thereby reduce peak time congestions

Litter Management

– Ensure adequate bins are placed around the site

– Ensure that kiosk and camping operators supervise and manage litter issues

– Introduce additional signage that discourages littering

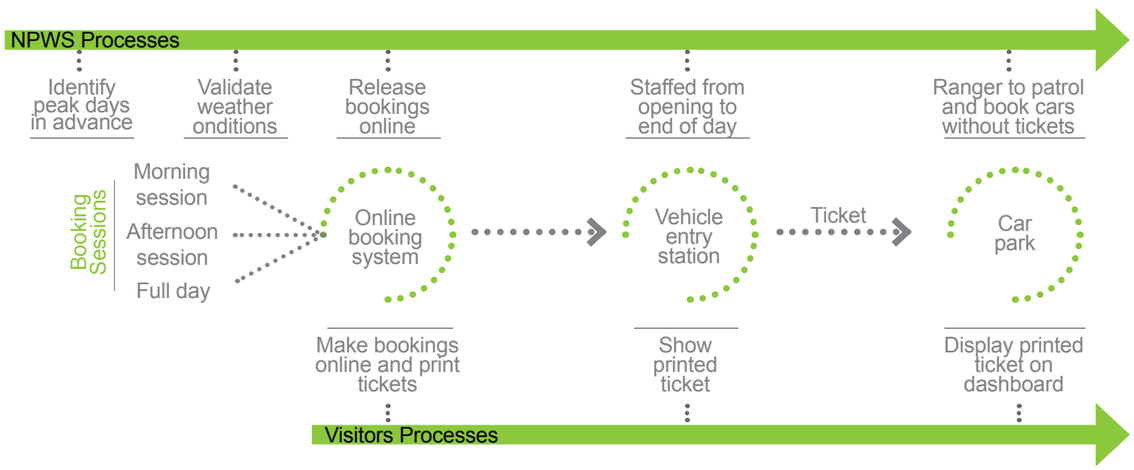


Fig42. Booking system diagram

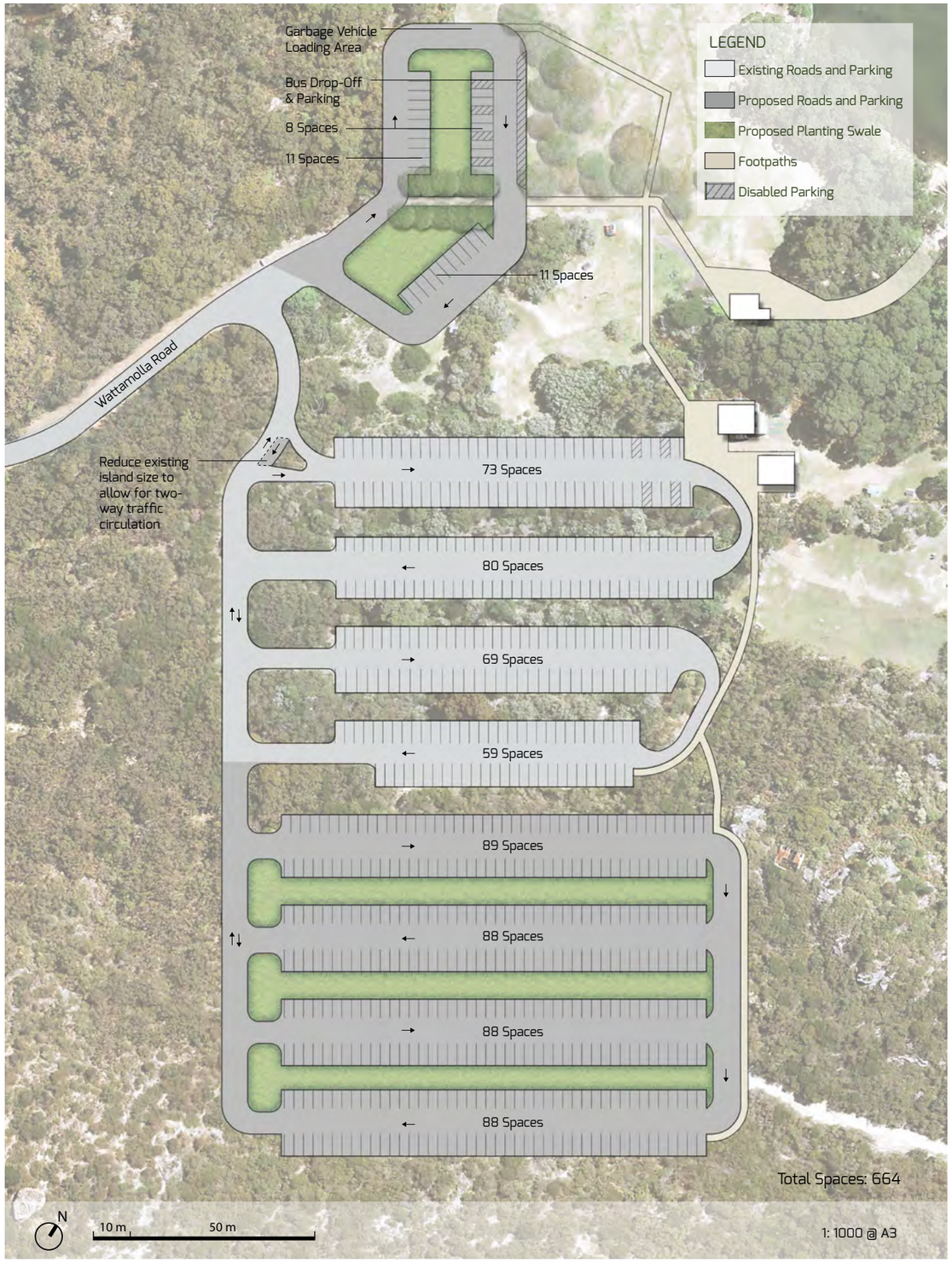


Fig43. Proposed parking layout plan

5.3 Development Staging

The delivery of proposed developments in the master plan is to be carried out in different stages to suit budgetary and construction constraints.

At the completion of each stage, public acceptance and response will be monitored to inform, review and reconsider the development for subsequent stages.

Fig44. Staging diagram

STAGE ONE
CORE AREA

- Main lawn
- Island car park
- Palm Flats
- Deck and viewing platform
- Parking booking system
- 5th and 6th terrace extension of car park
- Path and balustrades
- Kiosk refurbishments
- Toilet refurbishments

STAGE TWO
CAMPS &
SOUTHERN
HEADLANDS

- Campgrounds
- Providential Point lookout
- Providential Point loop track
- Coast Track realignment
- Existing track upgrades

STAGE THREE
NORTH AREA

- North lawn
- Footbridge
- Swing bridge
- Beach loop track
- 7th and 8th terrace extension of car park

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