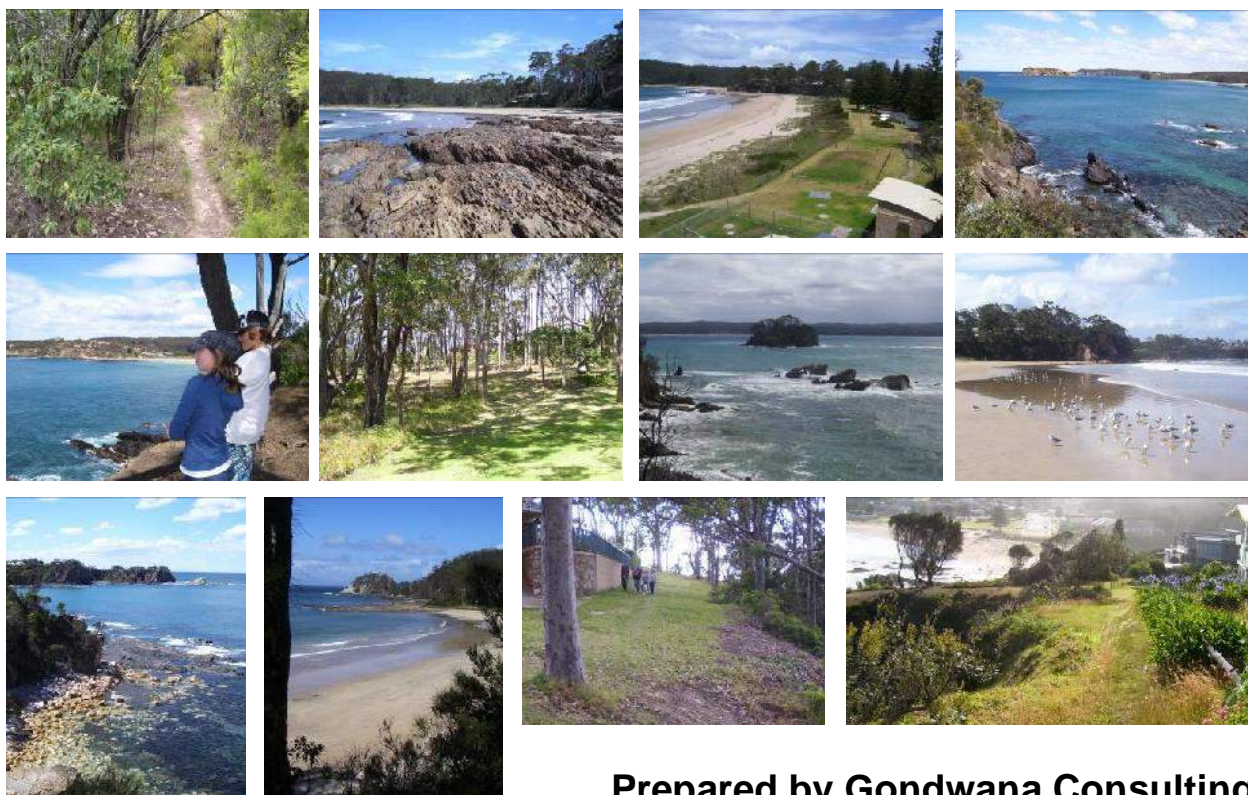


A Concept Plan for the Batemans Bay Coastal Headlands Walking Trail



**Prepared by Gondwana Consulting
for**

Eurobodalla Shire Council

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Executive Summary

In 2009 Eurobodalla Shire Council commissioned Gondwana Consulting Pty Ltd to prepare a concept plan to guide the planning and development of a formal walking trail linking the coastal headlands and beaches of the southern shoreline of Batemans Bay – the “Batemans Bay Coastal Headlands Walking Trail”. The concept plan’s preparation was jointly funded by the Department of Environment, Climate Change and Water.

The project’s objective was “to develop a Concept Landscape Plan and accompanying illustrations for a Batemans Bay Coastal Headlands walking trail through public lands between Observation Point and Pretty Point”.

Preparation of the concept plan drew on several information sources, directions and frameworks and the implications of these for the Trail’s planning and development:

- ❑ the natural, cultural and community attributes and values of the Batemans Bay Headlands;
- ❑ the directions set by existing Government and Council strategies and planning documents;
- ❑ relevant legislative and policy directions; and
- ❑ the project’s regional context, in terms of surrounding comparable or competing attractions and the Eurobodalla region’s recreation and tourism profile.

A comprehensive inventory and assessment was undertaken of the project area’s existing tracks, trails and pathways – both formal and informal – and the infrastructure for walkers now located along the foreshore. This entailed considerable fieldwork and on-ground investigations. Almost the entire length of the foreshore is “tracked” at present, however the greater majority of these routes are informal tracks that have been established through use – without planning, design or supporting track treatments (such as steps, drainage control and safety barriers). There is no signposting or direction/distance marking along any section of the foreshore at present. The result is a discontinuous track network that – while undoubtedly popular for many local residents – does not fully realise the area’s recreational or scenic potential and delivers less than optimal visitor experiences, is hazardous in places, generates a range of adverse environmental impacts, and is virtually unknown to visitors to the region.

Responding to this information and assessments, and the project objectives, a “vision” for the Batemans Bay Coastal Headlands Walking Trail was developed.

The trail is ultimately envisaged as a continuous, clearly legible, signposted and readily navigable walking track linking the coastal headlands and beaches of Batemans Bay’s southern shoreline that will appeal both to residents and visitors. It will be very user-friendly and constructed, ultimately, to a moderate to high standard throughout – but always in keeping with the Trail’s natural setting and striking landscape, as well as the need to achieve a sustainable and manageable facility (in terms of its development, use and maintenance). The Trail will be designed to cater for, and be safely used by, a cross-section of residents and visitors – from family groups to the elderly or less mobile visitors – and require limited, if any, bushwalking experience to enjoy. The route may include sections of shared trail or pathway, as well as accessible “all abilities” sections, where appropriate – but will be designed and managed for non-motorised access and use throughout.

Facilities and supporting infrastructure – such as lookouts, seating and rest stops, picnic areas, and others – will be provided at appropriate locations and in keeping with the environment and sensitivities of a site and the intended character of the Trail section where they are located. Route marking and information will ultimately be provided at a high standard, but with site-sensitive information delivery to guide, reassure and inform walkers. Both on-site and pre-visit or promotional information will be important to the Trail’s success.

The Trail is intended to present the striking coastal landscapes of the southern Batemans Bay area – from secluded coves to sweeping ocean views, typically framed by the trunks of Spotted Gums or backed by seaside residences. Lookouts will be numerous, allowing for everything from quiet contemplation to groups of excited whale-watchers. The Trail will also showcase the area's natural and cultural heritage values, and play an important educational and environmental awareness function. The Trail will complement the existing array of short, half-day and day walks in the Eurobodalla region but offer an experience not yet provided in the region – a stunning coastal walk in an alternating landscape of bushland and striking ocean views but with the accessibility, convenience and levels of comfort or security afforded by its suburban and residential setting.

The Trail will be suitable for, and targeted to, a wide range of visitors and experiences – from short evening strolls, through walks of a few hours, to full-day or multiple day walks to experience the entire route. Local residents can be expected to be the principal users – for casual walks, fitness training, relaxation, walking the dog, socialising, fitness training, adventure play or to access their favourite beach, fishing spot or lookout. They will take pleasure in using the Trail to “show off” the coast and the area's environment to their visitors. Armed with tourist information visitors from elsewhere in NSW or interstate, as well as international visitors, will enjoy the Coastal Headlands Walking Trail and the many attractions it will access. As well as being an attraction itself, the Trail will provide a platform for other experiences or activities. It will reinforce existing attractions and potentially generate additional tourism and visitor opportunities built around the bushy headlands, beaches and coastal scenery and the range of attractions and experiences they offer. Accordingly the Coastal Headlands Walking Trail can be expected to deliver a range of both direct and indirect environmental, community and economic benefits.

To guide the Trail's route selection and concept planning a range of planning principles and route selection/planning considerations were identified.

At the concept planning level three distinct routes have been identified for the Coastal Headland Walking Trail – an initial route, a medium term route and a long term route – as follows:

- ❑ the initial concept plan and route allows for the almost immediate establishment of the Trail as a continuous trafficable route from Observation Head to McKenzies Beach;
- ❑ the medium term concept plan and route aims for the targeted upgrading of the initial Trail to provide for enhanced walker/user experiences, more direct foreshore routes and more fully realised recreation and tourism attractions; and
- ❑ the long term concept plan and route provides for the full development and realisation of the Trail as an important regional recreation and tourism asset.

The “Initial” and “Medium” Term concept plans and routes for the Trail are detailed on a series of annotated aerial photographs (Figures 7 to 16, in Section 7).

The Initial route has been selected to allow for the almost immediate establishment of the Trail as a continuous trafficable route and has been based almost entirely on the existing track, trail and path network with an accompanying set of recommended works/actions at specific locations to define the route as a legible, safe and passable trail. The Trail extends just over 23.1 kilometres from Observation Head to McKenzies Beach as a direct route. It includes several alternative “inland” or high tide/high swell route sections, comprising a further 5.9 kilometres. Ideally the Initial Route could be achieved in a 1 to 2 year timeframe.

The Trail's Medium Term concept and route have been recommended to upgrade both the Trail and its facilities, and consequently to enhance the quality of the experiences it provides for walkers and users. The medium term route and associated works have been selected to “straighten” the Trail and remove many of the inland detours so that it more closely follows the foreshore (including during high tides/swells), to establish additional and higher standard lookouts and other vantage points, to provide additional sites offering park/picnic furniture along the Trail (including diversifying the type of picnic settings offered), sections of track upgrading and minor realignment including

new or improved steps and stairs in many places, some new track sections, and further walker/user safety improvements.

The medium term route and associated improvements provide direction for the Trail's gradual but planned upgrading over 2 to 5 year timeframe, and represent the Trail's continuing development as a recreation and tourism attraction.

Indicative orders of cost were estimated for the Initial and Medium Term routes and recommended works (in 2010 values and excluding Council staff time, vehicle operating costs, routine overheads, geotechnical investigations, risk audits and other preliminaries). It is estimated that establishment of the Trail's Initial route would cost in the order of \$335,000, as well as other staff and resources inputs by Council. The medium term upgrading of the Trail would require a more substantial investment – in the order of \$2,090,000. However it is considered that undertaking the bulk of the Trail upgrading works in this second stage will allow the early success of the Trail to be gauged, and plans amended if necessary, prior to this more substantial expenditure.

Sections of the Coastal Headlands Walking Trail – along with the associated facilities, attractions and environmental settings – have been identified as discrete “experience precincts” (or alternatively “visitor use zones” or “walk experience” segments). These are areas having largely homogenous landscape or environmental settings, generally consistent standards and conditions along the Trail's route, and their own recognisable character or unifying features. Each of these precincts has its own character or appeal, a “sense of place” founded on its natural and cultural environment and facilities, and each offers a particular set of visitor experiences. As such, each may be more attractive to particular visitor types, and can be usefully employed in promoting and marketing the Trail and matching visitor expectations, abilities, interests and available time with appropriate segments or activity centres along the route.

To help progress the Trail project, guidelines and examples for overall trail standards and the type/standard of track treatments and other improvements and facilities en-route have also been identified. These include elements such as drainage features, steps and stairs, boardwalks, bridges, barriers, lookouts, furniture and signage. As well as playing a major role in the presentation of a track and shaping the experiences of visitors, the standards of these features can have significant construction and maintenance cost implications.

A Longer Term Concept Plan is also discussed, to be achieved over 10 to 12 years, representing the full realisation and ultimate development of the Trail.

Finally key steps to progress the Trail project, both in terms of planning and design and community/political support, are briefly discussed.

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1. INTRODUCTION, PROJECT AREA AND OBJECTIVES

1.1 Introduction

In 2009 Eurobodalla Shire Council commissioned Gondwana Consulting Pty Ltd to prepare a concept plan to guide the planning and development of a formal walking trail linking the coastal headlands and beaches of the southern shoreline of Batemans Bay in southern New South Wales. The trail has the working title of the “Bateman Bay Coastal Headlands Walking Trail”. The project was jointly funded by the Department of Environment, Climate Change and Water.

1.2 Project Location and Overview

Batemans Bay is located on the south coast of New South Wales approximately 285 kilometres or a 4 hour drive south of Sydney, and 150 kilometres or a 2 hour drive south-east of Canberra – as shown in Figure 1. Batemans Bay is the largest settlement in Eurobodalla Shire with a resident population of over 18,000 people. The town and region also supports a large tourism industry, with a significant influx of people during the warmer holiday periods.

The township and outer suburbs of Batemans Bay are situated on a wide bay that forms the estuary of the Clyde River. The morphology of the bay is typified by coastal headlands, rocky cliffs and small coves. A vast majority of these foreshore areas are public land under Council’s care, control and management. The striking geology and landscapes, and remnant vegetation of the coastal zone and hinterland, provide a foundation for the town’s social amenity and the economic activity associated with the tourism industry.

The project area is situated in the southern coastal suburbs and settlements of Batemans Bay – comprising the coastal headlands and foreshore between Observation Head in the north and Pretty Point and McKenzies Beach in the south – as shown in Figure 2. This area is predominantly an urbanised, residential, landscape spread along the coastline south from Batemans Bay. It is characterised by a mixed housing stock, but principally detached dwellings of mixed ages and styles with significant numbers of holiday properties as well as retirement accommodation. The residential fabric is interspersed with linear and larger reserves of open space, slashed grass or remnant bushland in a landscape of bays, beaches, headlands and rocky outcrops. Striking vantage points up and down the coastline, and east to ocean islands, are common along the foreshore’s developed and more natural areas.

Concept planning for the Coastal Headlands Walking Trail is restricted to Council and Crown reserves within this project area.



Figure 1 Location Plan
(source: Google Maps, 2010)

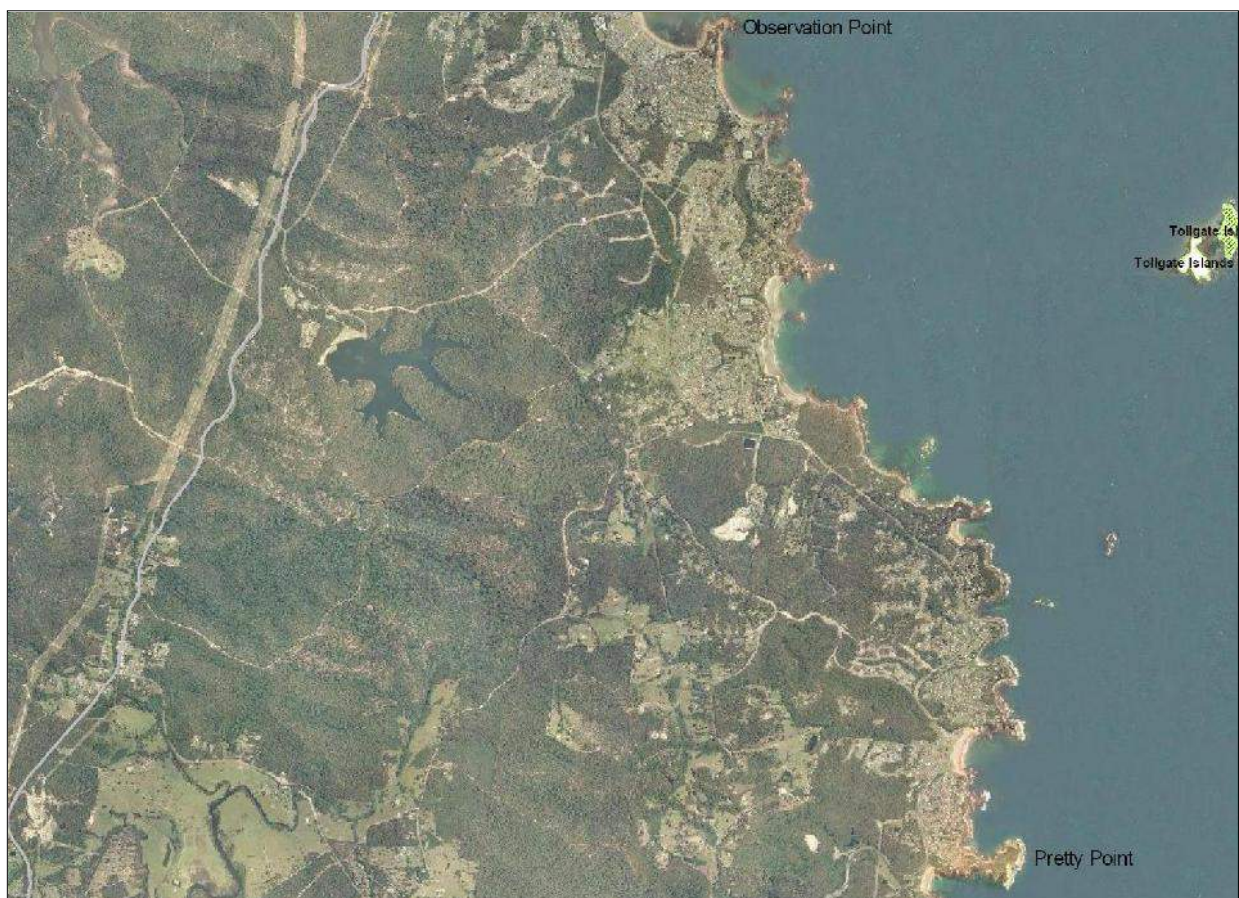


Figure 2 Project Area
(source: ESC, 2009)

1.3 Project Objectives and

Scope

The project's objective, as identified by Council, is "to develop a Concept Landscape Plan and accompanying illustrations for a Batemans Bay Coastal Headlands walking trail through public lands between Observation Point and Pretty Point".

Within this overall objective the project's scope, as originally set out in the project brief, was as follows [verbatim].

- ❑ Provide an inventory of existing walking trails and infrastructure (formal and informal).
- ❑ Grade current trails according to AS 2156.1.
- ❑ Provide an inventory of infrastructure and other works requirements that could see the Concept Plan implemented.
- ❑ A schedule of works to be implemented on a priority basis.
- ❑ Provide cost estimates that could be used as a guide for submitting applications to external grant providers and Council's own annual budget.
- ❑ Provide summary of whole of life costs for proposed and existing infrastructure.
- ❑ List Australian standards relevant to implementation and risk management associated with the Concept Plan (EG: AS1657, AS 2156.1, AS2156.2 & AS4360).

Preparation of the Concept Plan was also to consider:

- ❑ ecologically sustainable development;
- ❑ economic benefits;
- ❑ conflict issues (including zoning, private property and access issues);
- ❑ educational and recreational opportunities including signage and look-out points; and
- ❑ current climate change models and predictions.

In short, this Concept Plan's aim is to present a broad case for the "Rationale – Route – Realisation" of a Coastal Headlands walking trail along with supporting cost estimates and design directions or examples.

2. PROJECT AREA DESCRIPTION, ASSETS AND VALUES

This section provides an overview of the natural, cultural and community attributes and values of the Batemans Bay Headlands and the implications of these for planning and development of the Walking Trail.

2.1 Geology and Landforms

The project area's geology and landforms can be described broadly as older rocky headlands separated by younger sandy foreshore of beaches, low sand dunes and smaller estuaries or creeks.

The region's geology dates from the Early Ordovician Era, 500 million years ago, and the project area's 14 major headlands (or headland groupings) are composed mainly of mudstones, fine-grained sandstones and shales from the former seabeds of this period. These have been layered, tilted, folded and in places metamorphosed by more recent earth movements and volcanic activity with the effects of this evident in the exposed strata of the project area's many cliffs. The area's layered sedimentary rocks are generally soft and tend to shatter into fine particles or smaller gravels and stones, or are ground readily to powder. However when metamorphosed they become far harder glassy, multi-veined and sharp-edged rock - as found on several of the area's rock platforms.

The more weathering resistant rocks remain as the headlands that dominate the coastline within the project area – variously as individual headlands (such as at Bronte Crescent or south of Garden Bay), or eroded and recessed sea cliffs behind sandy tidal beaches or rock platforms (such as at White Sands Place or Wimbie Street), or the incised and ragged longer headlands at South Head and Pretty Point, or the extended headlands of the Grandfathers Gully and Lilli Pilli area. Except for the more inland or recessed examples, most headlands are edged by sheer cliffs or steep rocky slopes and fringed by tidal rock platforms. These headlands typically rise steeply above the surrounding beaches and shoreline.

The sandy beaches between these headlands make up approximately 30-40% of the project area's coastline – depending on the tide. Caseys Beach in the north is atypical of the project area as a very narrow strip of sand backed by the rock seawall along Beach Road – it is only effectively a beach at low tides and small swell. The Denhams-Surf-Wimbie Beach group, and Malua Bay further south, are long and wide sandy beaches with a large (lateral) tidal range. These larger beaches are backed by low dunes, often developed for open space or urban land uses, and small estuaries or creeks. The project area's other beaches – such as Lilli Pilli and Circuit Beaches – are small sandy “cove” beaches typically only a couple of hundred metres wide or less, backed by bushland and hillslopes and usually flanked by rock platforms, and most with smaller creeks or drainages discharging across them.

A nationally significant geological site occurs within the project area. The “Denhams Beach and Lilli Pilli Geological Site” is registered on the Australian Heritage Database (formerly known as the Register of the National Estate) (Place ID: 16228, Place File No: 1/08/271/0034, registered 1992).

This site occurs as two exposures or sections covering about 7 hectares in total area – an area approximately 0.5 km south-east of Denhams Beach township on the southern side of Denham's Beach (between the top of the coastal cliffs or high water mark and low water mark, between AMG northings 6039300N and 6039650N) and a second area approximately 0.5 km north-west of Lilli Pilli on the northern side of Circuit Beach (again comprising the foreshore between the top of the coastal cliffs or high water mark and low water mark between the AMG northings 6037750N and 6037900N).

The site is described as low coastal cliffs and shore platforms exposing highly deformed beds of black shales and cherts. It is considered crucial in determining the age and evolution of Palaeozoic rocks on the south coast of New South Wales, with the beds identified as upper Ordovician in age between 488 to 444 million years old. It provides the first, and to-date only, unequivocal record of the age and environment of deposition of the Wagonga Beds and has significant implications for the stratigraphy of the region overall (DEWHA website, 2009). Graptolite fossils (extinct marine animals that formed branched twig-like or net-like colonies, superficially resembling seaweed) occur in the black shale outcrops, and are clearly visible at Denham's Beach on the surface of outcrop (but only at low tides, with the fossil beds also occasionally obscured by sand build-up).

2.1.1 Implications for Trail Planning

- ❑ The project area's landscape - of headlands, intervening sandy beaches, and sheltered coves - are a central element of its appeal.
- ❑ Cliffs, loose unstable edges, steep rocky slopes, sharp rocks and tidal rock platforms all present a hazard for walkers.
- ❑ The rocks of the project area's headlands erode to lose gravels and other fine materials that present a significant slip hazard for walkers, especially when on a slope or underlying harder surface.
- ❑ Tidal beaches and estuaries can limit trail connection/continuity along beaches.
- ❑ The area has an interesting, and readily observed, geology.
- ❑ National Estate registered sites are afforded differing levels of legislative protection, depending on their status and the legislation involved. These values, processes and constraints need to be acknowledged in the siting and design of new infrastructure, as well as the management of existing facilities and activities.
- ❑ The Denhams Beach and Lilli Pilli Geological Site has considerable interpretive and educational potential, and numerous accessible sites (as well as the area's striking geology generally) are well located and suitable for interpretation.

2.2 Soils and Hydrology

The project area's soils closely mirror its geology.

The soils of the sedimentary headlands are typically massive earths and grey- brown structured soils, both have sandy loam/clay surfaces with a significant red-brown to yellow clay content below. The massive earths have gradational texture profiles, in which the clay content increases gradually from the surface to light or medium clay sub-soils. The grey-brown soils show a more structured

transition to a clay subsoil with some profile development. Both types show moderate to good drainage, with an earthy porous fabric, and are medium to strongly acidic.

The project area's beaches and sandy bays are dominated by uniform Quaternary sands to sandy loams. These quartz and shelled beach sands are aeolian or marine in origin and typically structureless or show weak profile development, are excessively free-draining, and are easily and frequently reworked. Smaller areas of estuarine sediments and rich organic deposits occur on recent alluvial deposits in and around the minor floodplains, lagoons and wetlands occurring behind the area's beaches.

Acid sulphate soils occur at several sites immediately behind the foreshore within the study area, specifically:

- ❑ along and behind Caseys Beach (class 3);
- ❑ behind Sunshine Bay, west of Beach Road (class 3);
- ❑ associated with the estuarine area behind Surf Beach (class 4, as well as narrow bands of class 1 and 3);
- ❑ behind Malua Bay (class 3 behind much of the beach, and a band of class 1 along Reedy Creek at the beach's north end east of George Bass Drive).

Potential acid sulphate soils are usually found less than 5 metres above sea level, typically associated with estuaries, and when disturbed or oxygenated produce sulphuric acid which can move through the soil to affect ground and surface waters and severely impact on vegetation, biodiversity values, fish and other aquatic life.

Sheet flow dominates the project area's headlands with defined drainage lines and minor gutters only developed around the larger micro-catchments. These feed the minor creeklines that are found at the head of most of the small "cove" beaches – often these features have been formalised into stormwater drains or otherwise channelised in the more urban parts of the project area. The existing tracks and informal routes on the headlands have also captured and concentrated surface flows, leading to erosion and deposition problems in many areas. Soil surface horizons on the headlands typically harden or "seal" under foot traffic and other compaction, with erosion limited to minor rilling and gullyng. However this surface hardening also produces a hazardous surface for walkers when combined with loose gravels, sand or other "fines" with this exacerbated by even gentle slopes.

Larger creeks or Intermittently Closed and Open Lakes and Lagoons (ICOLLs) are located at the south end of Caseys Beach (Short Beach Creek), Wimbie Beach (Wimbie Creek), Grandfathers Gully Creek, Lilli Pilli Beach, and the north end of Malua Bay (Reedy Creek, which includes a small lagoon backed up by marine sands at its closed mouth). The entrances of these creeks are considered "highly dynamic" with several openings possible in any given year.

Managed stormwater systems dominate the urban areas along the coastal strip.

2.2.1 Implications for Trail Planning

- ❑ Although the soils of the headland are not highly erodible, drainage and erosion/deposition issues must be addressed in Trail planning and design.
- ❑ Loose gravels, stones, sand and other materials on hardened surfaces present a slip hazard, especially on slopes or near cliff edges.
- ❑ Sand and beach gravels can present hard walking conditions for less fit/mobile or elderly people.

- ❑ As minor works with minimal sub-surface disturbance, Trail construction poses minimal risks in terms of acid sulphate soil impacts, but these risks warrant acknowledging in Trail routing and infrastructure design.
- ❑ Creeklines are a constraint to Trail connection/continuity.
- ❑ Urban stormwater systems both concentrate and channelise flows, but can also support Trail crossing points.

2.3 Natural Heritage Values

Approximately 70% of Eurobodalla Shire is reserved as National Park, State Forest, Crown Reserve or other public reserves. Past land clearing pressures have traditionally been from agriculture, however more recent land use pressures have focused far more strongly on urban development - particularly along the coastal strips radiating away from established residential areas. Eurobodalla Shire Council has actively planned for these development pressures and sought to balance urban growth with biodiversity conservation and aesthetic concerns, with the result that sizeable areas of native vegetation and habitat have been retained.

Native vegetation has been retained along the majority of the headlands, foredunes and several beaches in the southern coastal suburbs of Batemans Bay and provides a “green-link” or corridor extending through much of the project area. Although some areas are impacted by past land uses and on-going pressures (such as weed invasion, illegal tree clearing, fragmentation by informal tracks, rubbish dumping, and other typical “urban bushland” pressures) much of this remnant bushland appears to be good condition and is of notable biodiversity, recreational and scenic value.

2.3.1 Vegetation Communities and Habitats

Vegetation mapping of the Eurobodalla LGA was undertaken in 200 as a follow-on from the Southern Comprehensive Regional Assessment (CRA) project (NPWS 2000). The project identified a total of 63 “Forest Ecosystems Types” within Eurobodalla Shire. It also recognised the requirement for a consistent, shire-wide native vegetation classification and mapping with the result that some forest types were subsequently combined.

Three Forest Ecosystems Types are currently mapped along the coastal strip of the project area for the proposed Batemans Bay Coastal Headlands Walking Trail, as follows. The remnant bushland of the projects area’s headlands and foreshore areas is predominantly one of two types (Eurobodalla Shire Council, 2006).

- ❑ Coastal Lowlands Cycad Dry Shrub Dry Forest – *Corymbia maculata*/*Macrozamia communis* (forest ecosystem type 9). A medium to tall forest, 25-30 metres in height, dominated by Spotted Gum (*Corymbia maculata*), with Grey Ironbark (*Eucalyptus paniculata ssp paniculata*) and Yellow Stringybark (*E. muelleriana*) as occasional co-dominants, over an open shrub layer characterized by Burrawangs (*Macrozamia communis*). This vegetation community is found in bands of varying depth along the headlands between Sunshine Bay and Denhams Beach, from Observation Point to Lilli Pilli Beach, Garden Bay to South Head, Malua Bay to Pretty Point Bay, and on Pretty Point itself.
- ❑ Southern Coastal Hind Dune/Headland Scrub and Southern Coastal Dune Scrub Complex (forest ecosystem type 2223). A shrubland dominated by Coast Banksia (*Banksia integrifolia*), or

scrubland with a variable shrub and grass layer, which occurs in coastal hind dunes. In drier dune areas a Coast Banksia Shrubland dominates over a sparse lower layer of Bracken (*Pteridium esculentum*), Spiny-headed Mat-rush (*Lomandra longifolia*) and shrubs with a low sparse ground cover of grasses and herbs. In moister sites this community exhibits a variable shrub and grass layer of Coastal Wattle (*Acacia sophorae*), Hairy Spinifex (*Spinifex sericeus*), and Coast Banksia over a patchy ground cover. This community occurs over most of the Grandfathers Gully area, as well as extending in large patches south behind Circuit Beach and along Lilli Pilli Headland, and also on Fairview Drive Headland.

A thin band of Coastal Headland Heathlands (forest ecosystem type 187) is also found, curving around the headland, south of Garden Bay (east of Yugura Street). Typically found on rocky headlands this is a tall shrubland with a dominant layer of Scrub She-oak (*Allocasuarina distyla*), Fringe Myrtle (*Calytrix tetragona*), Heath-leaved Banksia (*Banksia ericifolia* var. *ericifolia*), and *Leptospermum epacridoideum*.

None of these communities are listed as threatened or endangered under state or commonwealth legislation. Appendix A provides a fuller description of each of these vegetation communities within the project area.

Beyond these remnant native vegetation areas the project area is mapped as rock, sand or “clear” (observed on-site as native and introduced grasses, usually slashed or maintained as open space) according to vegetation mapping undertaken for Council in 2006 (and 2007), or has been developed for residential and urban land uses.

The condition of these remnant bushland areas varies, but can generally be described as good. However fragmented and in many places disconnected from adjacent vegetated areas, they are subject to typical urban bushland pressures and impacts warranting continuing management to maintain their biological integrity and value. The Southern CRA process used a scoring system to identify vulnerable Forest Ecosystem Types and urban development, clearing and recreation were identified as significant threatening processes for the above communities.

The Coastal Lowlands Cycad Dry Shrub Dry Forest – *Corymbia maculata*/*Macrozamia communis* (type 9) occurs very extensively across the hinterland of the project area and more widely across the Eurobodalla region and beyond – being one of the region’s dominant vegetation types. It is not considered vulnerable within the Eurobodalla LGA, however this extensive forest type is yet to be adequately reserved within public lands and is considered to be moderately vulnerable to on-going logging and land clearing impacts (NPWS, 2000).

The Southern Coastal Hind Dune/Headland Scrub and Southern Coastal Dune Scrub Complex (type 2223) is considered to be “relatively well reserved”, with 100% of the public land reservation target for this type achieved across the south coast region as a whole (NPWS, 2000; NGH Environmental, 2007). Within the Eurobodalla LGA this forest type is considered to be moderately vulnerable to on-going land clearing and recreation impacts (NPWS, 2000). Only 583 hectares of this community remained within the Eurobodalla Shire in 2000 (with most likely less than this today) representing a more than 30% reduction in its suspected pre-1750 extent.

The Coastal Headland Heathlands (type 187) is also reserved to 100% of its assigned target within public lands across the south coast region as a whole (NPWS, 2000). However within the Eurobodalla LGA this vegetation type is considered to be moderately vulnerable to on-going land clearing and recreation impacts (NPWS, 2000) and has also been reduced by more than 30% from its extent prior to European settlement extent with only 245 hectares of this community within the Eurobodalla Shire in 2000 (again most likely less than this today).

Given their limited overall occurrence within the Eurobodalla LGA, despite adequate reservation elsewhere, both the Southern Coastal Hind Dune/Headland Scrub and Southern Coastal Dune

Scrub Complex (type 2223) and the Coastal Headland Heathlands (type 187) communities warrant a cautious approach to their future management.

2.3.2 Native Fauna

The varied landscape of beaches, cliffs and rock platforms, headlands and foreshore bushland found across the project area can be expected to support a variety of native fauna. While systematic fauna surveys have not been undertaken for much of the area, a comprehensive flora and fauna study was carried out in the Grandfathers Gully catchment east of George Bass Drive at Lilli Pilli in 2006.

Grandfathers Gully represents the largest uninterrupted area of bushland reserve along this coastal stretch and the survey area covered approximately 35.5 hectares of public open space, virtually all of which is vegetated (but with varying degrees of impact and disturbance in places). The survey identified relatively high levels of biodiversity, including a number of threatened species, with the survey component of this investigation recording (as included in Appendix B):

- ❑ 22 species of native mammals (and 2 introduced species);
- ❑ 66 species of native birds (and 1 introduced species);
- ❑ 4 species of reptiles;
- ❑ 5 species of frogs; and
- ❑ 1 species of freshwater fish.

The Grandfathers Gully study area was found to be generally in excellent condition supporting a diversity of native fauna (and flora) with the site's habitats considered to be "well preserved" and the area having "good resilience" despite its mixed land use history. Grandfathers Gully was also noted as one of the remaining areas (outside formal conservation reserves) of relatively undisturbed habitat and native vegetation which provided a direct connection to the ocean for the more inland habitats. This corridor role was considered important both for flora and fauna.

Bushland within the remainder of the project area would also support native, and exotic, fauna. Although it is unlikely to be of comparable diversity or richness as recorded at Grandfather's Gully - due to the smaller areas involved, greater "edge effects" and disturbances and fragmentation from other natural areas. These natural areas provide habitat for common species such as Swamp Wallaby, Bandicoots and Ringtail Possums as well as a wide variety of birds.

The project area can also be expected to provide habitat and resources for transient or migratory fauna species.

Marine fauna is abundant in the Batemans Bay area generally - and the marine and intertidal areas adjacent to, and part of, the project area have been recognised as a significant marine habitat and protected within the Batemans Marine Park.

2.3.4 Species and Communities of Conservation Significance

The Eurobodalla region supports numerous threatened flora and fauna species and endangered ecological communities - listed under the NSW *Threatened Species Conservation Act 1995* and other relevant State and Commonwealth legislation.

2.3.4.1 Threatened Species

A search of the Atlas of NSW Wildlife identified 1 species of listed threatened native flora and 9 species of threatened native fauna recorded as occurring along the coastal strip, and so within

proximity of the project area and potential Trail route, since 1980. These threatened native flora and fauna species are listed in Table 1.

Table 1 Threatened Flora and Fauna Species Recorded in the Atlas of NSW Wildlife (since 1980) within the Project Area/Trail Proximity

Species	Scientific Name	Status (TSC Act 1995)
FLORA		
Tall Knotweed	<i>Persicaria elatior</i>	Vulnerable **
FAUNA		
<i>Birds</i>		
Osprey	<i>Pandion haliaetus</i>	Vulnerable
Glossy Black-Cockatoo *	<i>Calyptorhynchus lathami</i>	Vulnerable
Black-browed Albatross	<i>Thalassarche melanophris</i>	Vulnerable ***
Sooty Oystercatcher *	<i>Haematopus fuliginosus</i>	Vulnerable
<i>Mammals</i>		
Humpback Whale	<i>Megaptera novaeangliae</i>	Vulnerable ***
Eastern Freetail-bat *	<i>Mormopterus norfolkensis</i>	Vulnerable
Yellow-bellied Glider *	<i>Petaurus australis</i>	Vulnerable
Large-footed Myotis *	<i>Myotis adversus</i>	Vulnerable
Greater Broad-nosed Bat *	<i>Scoteanax rueppellii</i>	Vulnerable

* also recorded from 2006 flora and fauna survey of Grandfathers Gully

** also listed as Vulnerable under the *EPBC Act 1999*

*** also listed as Vulnerable (and Marine and Migratory) under the *EPBC Act 1999*

In addition to the Wildlife Atlas records, the 2006 flora and fauna survey carried out at Grandfathers Gully identified a further 4 confirmed and 3 possible threatened fauna records (as well as also recording 6 species already known from the Wildlife Atlas records, as shown in Table 1, although not necessarily from Grandfathers Gully).

The additional threatened fauna species recorded from Grandfathers Gully are listed in Table 2.

Table 2 Additional Threatened Fauna Species Recorded From Grandfathers Gully Survey, 2006

Species	Scientific Name	Status
FAUNA		
<i>Birds</i>		
White-bellied Sea-eagle	<i>Haliaeetus leucogaster</i>	Listed as "Marine" and "Migratory" under the <i>EPBC Act 1999</i> Listed under the China-Australia Migratory Bird Agreement (CAMBA)
Powerful Owl	<i>Ninox strenua</i>	Vulnerable (NSW TSC Act 1995)
<i>Mammals</i>		
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	Listed as Vulnerable under the <i>EPBC Act 1999</i> Vulnerable (NSW TSC Act 1995)
Eastern Bentwing Bat *	<i>Miniopterus schreibersii oceanensis</i>	Vulnerable (NSW TSC Act 1995)

* recorded under the common name of Large Bentwing Bat in the survey report

Two additional threatened species – the Yellow-bellied Sheath-tail Bat (*Saccolaimus flaviventris*) and Eastern Falsistrelle (*Falsistrellus tasmaniensis*) – both listed as Vulnerable under the *TSC Act 1995*, were “found” in Grandfathers Gully from “anabat” recordings. However their presence could not be confirmed. Anecdotal records suggest the threatened Square-tailed Kite (*Lophoictinia isura*), also listed as Vulnerable under the *TSC Act 1995*, is occasionally present within the Grandfathers Gully area – but was not recorded at the time of the surveys.

2.3.4.2 Endangered Ecological Communities

No Endangered Ecological Communities are found along the immediate coastal zone within the project area. However 4 Forest Ecosystems identified within the Eurobodalla LGA, analogous to listed Endangered Ecological Communities (EECs) under the *NSW Threatened Species Conservation Act 1995*, are located just inland of the Walking Trail's possible route as shown in Table 3.

Table 3 Forest Ecosystem Types, and Analogous Endangered Ecological Communities, Within Proximity of the Project Area

Forest Ecosystem Type	Analogous Endangered Ecological Community
24. Coastal Tall Wet Heath Swamp Forest – <i>Casuarina glauca</i> / <i>Melaleuca ericifolia</i>	Swamp Oak Floodplain Forest
25. South Coast Swamp Forest – <i>Casuarina glauca</i>	Swamp Oak Floodplain Forest
28. Coastal Sands Shrub/Fern Forest – <i>Eucalyptus botryoides</i> / <i>Banksia serrata</i>	Bangalay Sand Forest
189. Coastal Alluvial Valley Floor Wetlands	Freshwater Wetlands on Coastal Plains

These Endangered Ecological Communities are located as follows, as shown in Figure 3:

- ❑ an area of Swamp Oak Floodplain Forest (South Coast Swamp Forest) is located west of Beach Road at the south-western end of Caseys Beach;
- ❑ an extended area of Swamp Oak Floodplain Forest (Coastal Tall Wet Heath Swamp Forest) and Freshwater Wetlands on Coastal Plains (Coastal Alluvial Valley Floor Wetlands) occurs around the wetland east of Hume Road between Sunshine Bay and Denhams Beach;
- ❑ a large area of Swamp Oak Floodplain Forest (South Coast Swamp Forest) is located west of George Bass Drive on Reedy Creek at the north-west end of Malua Bay;
- ❑ a small area of Swamp Oak Floodplain Forest (South Coast Swamp Forest) is located along a drainage line at the south-western end of Malua Bay;
- ❑ a narrow strip of Swamp Oak Floodplain Forest (South Coast Swamp Forest) is located along a drainage line west of Illabunda Drive at the northern end of Pretty Point Bay; and

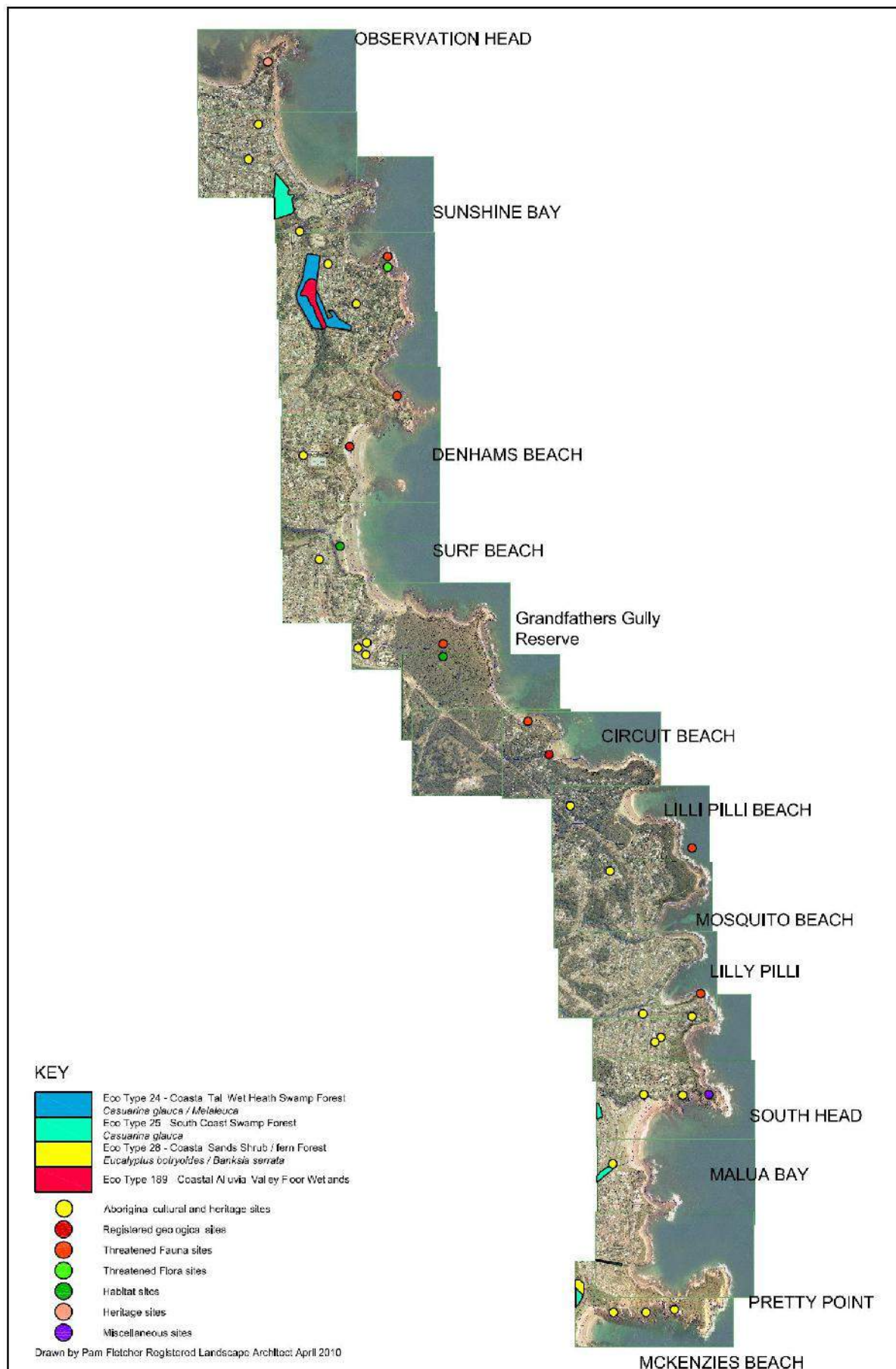


Figure 3 Significant natural and cultural heritage values of the project area

- an expanse of Swamp Oak Floodplain Forest (South Coast Swamp Forest) and Bangalay Sand Forest (Coastal Sands Shrub/Fern Forest) is found west of George Bass Drive at the north-western end of McKenzies Beach.



Endangered Ecological Communities – swamp oak floodplain forest (left) and freshwater wetlands on coastal floodplains (right)

(source: ESC)

2.3.5 Implications for Trail Planning

- The project area's native flora, fauna, habitats and natural landscapes are a large part of its visual appeal, residential amenity and valued recreational/tourism settings and attractions. They significantly enhance a walking track experience.
- The project area's native flora, fauna, habitats and natural landscapes have considerable educational and interpretive values, and can add value to a walking track experience.
- The coastline and vantage points provide the opportunity to view ocean life - such as seals, dolphins and migrating whales - while the bushland provides opportunities to view the varied birdlife and wildlife of the area.
- Threatened flora and fauna species, and endangered ecological communities, are afforded legislative protection under state and Commonwealth legislation.
- Walking track development and use, and greater accessibility, has the potential to impact vegetation communities, habitats, and individual species through a variety of mechanisms - ranging from scent displacement and behaviour modifications to habitat destruction.
- The occurrence of known, and unrecorded, threatened flora and fauna species, and endangered ecological communities, will need to be acknowledged in the siting, design and development of the Trail.

2.4 Cultural Heritage Values

2.4.1 Aboriginal Cultural Heritage

The project area is located within the traditional lands of the Yuin (or Djuwin) Aboriginal People, whose tribal area extends from the Shoalhaven River to the present-day Victorian border and inland as far as the Great Dividing Range. Within this larger area 13 sub-groups have been recognised – based around the 13 wives of the mythical ancestor “Bundoola”. The Eurobodalla region includes the areas belonging to the Walbanja, Bringa and Djirringanj tribal subgroups of the Yuin People. These sub-groups were further traditionally divided into recognisable clans or family-based groups. The project area is located within the clan area of the Browley (or Broulee) group, who occupied the area from Batemans Bay south to around Congo (south of the Moruya River).

Today the project area also falls in the area administered by the Mogo Local Aboriginal Land Council, which represents all Aboriginal people living within the Land Council’s area (regardless of where their traditional associations and where come from). There remains a sizeable population of Aboriginal people within the Eurobodalla Shire who have direct associations with the area’s traditional owners and have continuing links with the area’s landscape – both traditionally and as more contemporary cultural and social connections.

In 2006 Eurobodalla Shire Council, in conjunction with the Department of Environment and Conservation, finalised “The Eurobodalla Aboriginal Heritage Study” - a 3 year project undertaken in consultation with Aboriginal community members and organisations across the region. The project aims were to develop a better understanding of the region’s Aboriginal cultural heritage, via information from the Aboriginal people themselves, to enable these sites/values to be better managed and addressed in local land use planning.

This study identified a number of places within the project area that are of continuing cultural significance to local Aboriginal people - most of these occur in the Grandfathers Gully to Lilli Pilli area where the foreshore traditionally provided, and continues to be used for, food and other natural resources.

Lilli Pilli and Circuit Beaches, and their tidal zones, are still valued food resource areas – as they have been since pre-contact times. “Garara sticks”, for making spears, were also found in the Circuit Beach area.

Grandfathers Gully to the narrow tidal beach to the south, have also been more recently used as a resources gathering area, meeting place and living/camping place (perhaps as other beach areas became more developed and less appealing). The beach at the mouth of Grandfathers Gully Creek is known by many local Aboriginal people as the “Chapman’s Beach” - after Henry Chapman who was born at Moruya in the late 1800s. It was a popular camping, diving and food gathering place in the 1960s and 70s with lobsters, “muttonfish” (abalone) and “conk” (the shellfish *Anadara trapezia*) collected at low tide - with the latter two usually cooked and eaten on the beach. “Bush cherries” and won-dharma vine were also gathered from the surrounding bushland.

An ochre “pit” in the cliff face, immediately below Denise Drive at Lilli Pilli (visible from Chapman Beach at low tide), is understood to have been used since pre-contact times and into the present day.

This collection of places are all interlinked – as resource harvesting, camping, and meeting as well as sites for teaching Aboriginal cultural and resource practices. A subsequent Aboriginal cultural Heritage study, prepared by Eurobodalla Shire Council in 2009, includes the following statement of significance for the Grandfathers Gully area.

The Aboriginal community values Grandfather's Gully and Grandfather's Beach as a camping, teaching, meeting and resource collection place. Archaeological evidence suggests the area was used throughout the pre contact and early contact period. There are few places remaining in the region where cultural activities can be undertaken in a private, natural environment. ... There are few examples in the Eurobodalla Shire of accessible and secluded Aboriginal camping grounds dating back to the pre contact and early contact periods, that remain in pristine condition and continue to be valued by the present day Aboriginal community.

An ochre pit located at Observation Point (possibly on the northern side), is also reportedly still used on occasion by local Aboriginal people.

The intensive past, and continuing, use of the coastal strip by Aboriginal people has left a rich legacy of tangible heritage sites with the Eurobodalla region. The Aboriginal Heritage Information Management System (AHIMS) database, maintained by the Department of Environment, Climate Change and Water, lists 22 recorded Aboriginal sites along the foreshore and a short distance inland within the project area. However it must be acknowledged that the DECCW's AHIMS register is far from complete or comprehensive, and is focused very much towards tangible Aboriginal sites (where there is remaining physical evidence) with a strong bias towards pre-contact sites and a dearth of intangible cultural or spiritual sites represented in its listings. The absence of a listing on the register does not necessarily mean that no Aboriginal heritage sites are known, remain or could occur in any locality.

All of the 22 AHIMS records are "open sites" - that is, they are not located/protected within rock shelters or overhangs. The greater majority are middens. This full list of recorded sites, and key locations/groupings within the project area, are as follows:

- ❑ 16 open middens – including 3 on Pretty Point and a collection of 4 middens between Garden Bay and South Head;
- ❑ 3 open camp sites;
- ❑ 1 open camp site;
- ❑ 1 burial site; and
- ❑ 1 open site (type unspecified).

The approximate location of these sites is shown in Figure 3. Several of these sites, notably those away from the immediate coastline or outside reserves, can be expected to have been destroyed or covered by urban development and other land uses since their initial recording. Several Aboriginal heritage sites along the foreshore have been impacted by the informal access and track formation, and other unmanaged recreational uses.

2.4.2 Historic Heritage

European settlement of the Eurobodalla area dates from the early 1800s with dairying, gold mining and timber milling featuring heavily in the region's early European history. Batemans Bay developed initially as a coastal trading and rural service centre, before later waves of tourism/holiday and residential/retirement development. Much of the first phase of residential development occurred close to the beaches and on flatter areas, with subsequent development taking place on gently sloping lands close to forested areas – a settlement pattern typified by the project area where residential and urban development progressed south from Batemans Bay through the coastal area. Today "infill" and new urban development is taking place inland of the project area, as well as in the coastal zone further south.

Within the project area there are no historic heritage sites listed on the Australian Heritage Database, on State Heritage Register, or in the Heritage Items Schedule of Council's Local Environment Plan.

Eurobodalla Shire Council commissioned a Shire-wide heritage study in 1996 with the objective of preparing a preliminary inventory of European heritage sites/items. It is interesting to note that residents of Eurobodalla Shire nominated many natural areas to be listed, however natural areas were not within the scope of the study (and therefore could not be listed as European heritage items).

The final inventory of European heritage items or areas recommended for protection included over 230 features/locations, with an additional set of over 75 features/locations recommended as requiring further investigation. The Final Report of the Heritage Study, in 1997, recommended only one site within the project area for heritage protection – at the local level – via Council's Local Environment Plan. This was the Batehaven Hall at Observation Point, which was subsequently described as follows.

The Hall has local significance for having provided a much needed centre for the establishment of community activities on a site which has been used for public purposes for a period of fifty years. Socially it has local significance to generations of Batehaven residents for having provided a venue for a vast range of public meetings and cultural events during its lifetime. It has scientific significance for its potential to contribute to an understanding about the cultural and social life of local Batehaven citizens since the Second World War. The Hall is rare locally and representative of type in the south Coast Region.

However this structure is understood to have been demolished in the late 1990s, due to its very poor state of repair and desire for the area to be returned to public open space. Observation Point was also used during World War II for surveillance for Japanese submarines.

Past land uses and activities, and in some instances tangible remains, are still to be found at several places across the project area – such as Grandfathers Gully Reserve which was a site of timber harvesting activity, Mosquito Bay which is recorded as the site of “Sebbens Sawmill”, possible WWII remains behind Circuit Beach, as well as ample evidence of local fishing and more recent recreational uses. However none of these sites are of notable historic heritage significance.

2.4.3 Implications for Trail Planning

- ❑ The *National Parks and Wildlife Act 1974* provides legislative protection for all tangible Aboriginal heritage items, whether officially recorded/known sites or chance finds, regardless of their size or level of significance or land tenure (with the exception of Commonwealth Lands).
- ❑ Walking track development and use, and greater accessibility, has the potential to damage both recorded and unrecorded Aboriginal cultural heritage sites along the coastal strip – which is a landscape known to have a concentration of such sites.
- ❑ The occurrence of known, and unrecorded, Aboriginal cultural heritage sites will need to be acknowledged in the siting, design and development of the Trail.
- ❑ Although there are no listed or registered historic heritage sites within the project area that are afforded legislative protection, there remain a number of places of local historic interest.
- ❑ The project area's Aboriginal cultural heritage sites and values, as well as locations of historic heritage interest, have considerable interpretive and educational potential. Several accessible sites are well located and suitable for interpretation.

2.5 Land Use and Visual Character

The project area is predominantly an urbanised, residential, landscape spread along the coastline south from Batemans Bay. These areas are dominated by detached dwellings of mixed ages and styles, from older holiday homes to modern beachside dwellings, as well as areas of town houses and retirement accommodation. The residential fabric is interspersed with linear and larger reserves of open space, slashed grass or remnant bushland in a landscape of bays, beaches, headlands and rocky outcrops. Striking vantage points up and down the coastline, and east to ocean islands, are common along the foreshore's developed and more natural area.

In broad terms, the project area falls into 4 main precincts, or areas of similar land use and visual characteristics, as follows:

- ❑ the northern residential areas of Caseys Beach/Batehaven, Sunshine Bay, Denhams Beach and Surf Beach – largely contiguous urban areas, with a greater mix of residential densities, fronting larger and more open beaches and bays;
- ❑ the elevated bushland area of Grandfathers Gully and Divers Point, which physically and visually divides the northern and southern residential areas;
- ❑ the southern residential areas of Lilli Pilli, the Mosquito Bay and Garden Bay areas, and Malua Bay – more or less continuous urban areas, but with greater topographic definition around the creeklines, headlands and the more numerous smaller enclosed bays and coves of this area, and a residential character strongly dominated by detached dwellings; and
- ❑ a relatively narrow band of open space and bushland that fringes the foreshore and headlands east of both residential areas (this bushland fringe is at its widest in the Lilli Pilli Point area) and runs back upstream along creek corridors, as well as the beaches and foreshore areas themselves.

Residents and visitors value Batemans Bay's environmental setting, sense of place, and spectacular and varied views very highly. The natural coastal landscape within which the urban land uses are set - as typified by the project area – affords views and vistas to the ocean, access to sandy beaches and rocky bays, and a sense of living in a coastal environment that are seen as unique by residents. The dormitory suburbs and villages of the project area have been described, in visual and urban character terms, by Council as follows:



- ❑ Denhams Beach, Surf Beach and Malua Bay are considered “mixed natural and urban settlements” characterised by a mix of natural and urban features;
- ❑ Sunshine Bay is a “predominantly urban settlement” typified by an urbanised built form, but also retaining elements of the natural environment and views to the surrounding more natural landscapes; and
- ❑ Lilli Pilli is a “predominantly natural settlement” where nature dominates the built form.

While the coastal residential landscape is highly valued, and there is strong community support for equitable ways to balance view sharing with the realistic expectations of landowners, in some parts of the project area's foreshore there have been instances of tree killing and vegetation clearing on public lands to enhance private views. In several places private residential blocks extend close to

headland margins, reducing the foreshore reserve's width and discouraging public access. This has been exacerbated in many places by the absence of rear fences or the gradual extension of private gardens (or in a few instances more blatant "pirating" of public land for private use). Conversely there are many examples of private landholders managing adjacent areas of foreshore reserve or providing cliff-edge fencing for safety or "home-made" seats and other park furniture that is then available for public use. Unfortunately many of these items are also in poor repair, or hazardous in several instances.

Major open spaces occur at Observation Point, although this area is poorly developed at present, as well as a bushland reserve behind Lilli Pilli Beach, and landscaped parklands at Surf Beach and Malua Bay. Council provided and maintained recreation facilities – typically seating, picnic tables, shelters, drinking water and occasionally barbeques and play equipment (or a mix of these) – are located at Caseys Beach North, Caseys Beach South, Denhams Beach North, Surf Beach (a major facilities node), Lilli Pilli Beach, Mosquito Bay, Garden Bay and Malua Bay (a major facilities node). Public toilets are provided at Caseys Beach North, Caseys Beach South, Surf Beach, Lilli Pilli Beach, Mosquito Bay and Malua Bay. Surf Beach and Malua Bay are patrolled beaches during the summer months, both have operational local Surf Life Saving Clubs. A public boat ramp is located at Mosquito Bay.

Elsewhere neighbourhood parks and minor open spaces are scattered within the residential areas. In addition to these larger open spaces, pedestrian access lanes and drainage/sewer reserves or access lanes provide access from surrounding residential streets to the linear foreshore reserve. Occasional creek corridors also provide foreshore access routes.

Minor retail centres are located at Surf Beach (classed as a small neighbourhood centre), Mosquito Bay (cafes only) and Malua Bay (classed as a small neighbourhood centre).

Off-street parking areas (with a capacity of more than 15 vehicles) are available at Observation Head (a larger, but unsealed, area), Caseys Beach North, Caseys Beach South (unsealed), Sunshine Bay (unsealed), Denhams Beach North, Surf Beach (a larger capacity area), Lilli Pilli Beach (unsealed), Mosquito Bay, Garden Bay (partly unsealed), Malua Bay (a larger capacity area) and McKenzies Beach. A scheduled public bus service operates north-south through the project area on the major road network - coming closest to the foreshore at Caseys Beach, Sunshine Bay, Surf Beach, Mosquito Bay and Malua Bay.

2.5.2 Implications for Trail Planning

- ❑ The Trail's urban location will allow for a multiplicity of access points and walk options.
- ❑ Careful siting of the Trail is warranted to minimise possible adverse visual impacts from its development and use.
- ❑ Encroachment - of lawns, gardens, fencing, garden furniture and more substantial structures onto public reserves along the foreshore both degrades the value of these areas and deters or prevents public access and enjoyment.
- ❑ Many residents have provided seats, stairs and other infrastructure on the headland reserves – some of these items are in poor repair and present a safety risk, while others are well-built and serviceable.

3. PLANNING CONTEXT – EXISTING PLANS, STRATEGIES, LEGISLATION AND REGIONAL SETTING

Following are the principal existing Government and Council strategies and planning documents, as well as the most relevant legislative and policy directions, that will provide a framework for the planning, development and management of a Coastal Headlands Walking Trail. The project's regional context, in terms of surrounding comparable or competing attractions and the Eurobodalla region's tourism profile, are also discussed.

3.1 Relevant Legislation

3.1.1 Commonwealth and State Legislation

The following Commonwealth and State legislation, while not specific to walking track design and development, contain a range of provisions related to the protection and management of natural and cultural heritage values, natural resources, environmental values and planning, and risk and hazards. These issues will become more relevant in the Trail's design, approval and management stages and so warrant consideration in the initial route selection and track planning process.

3.1.1.1 Commonwealth Legislation

Applicable Commonwealth legislation may include:

- ❑ Environment Protection and Biodiversity Conservation Act 1999; and
- ❑ Native Title Act 1993.

3.1.1.2 State Legislation

Applicable New South Wales legislation may include:

- ❑ *Environmental Planning and Assessment Act 1979*;
- ❑ *Local Government Act 1993*;
- ❑ *Local Government Amendment (Community Land Management) Act 1998*;
- ❑ *Crown Lands Act 1989*;
- ❑ *Coastal Protection Act 1979*;
- ❑ *Maritime Services Act 1935*;
- ❑ *Rivers and Foreshores Improvement Act 1948*;
- ❑ *Catchment Management Act 1989*;
- ❑ *Fisheries Management Act 1994*;
- ❑ *Marine Pollution Act 1987*;
- ❑ *Protection of the Environment Operations Act 1997*;
- ❑ *National Parks and Wildlife Act 1974*;
- ❑ *Threatened Species Conservation Act 1995*;
- ❑ *Threatened Species Legislation Amendment Act 1994*;

- ❑ *Marine Parks Act 1997*;
- ❑ *Native Vegetation Act 2003*;
- ❑ *Heritage Act 1977*;
- ❑ *Aboriginal Land Rights Act 1983*;
- ❑ *Rural Fires Act 1997*; and
- ❑ *Soil Conservation act 1938*.

3.1.2 Local Government Planning Controls

3.1.2.1 Eurobodalla Urban Local Environmental Plan 1999

The project area falls entirely within that part of the Shire controlled by the Eurobodalla Urban Local Environmental Plan (LEP) 1999 (as amended). In addition to the general objectives for orderly and sustainable land use and development, through zoning controls and providing the framework for more detailed Development Control Plans, the LEP has a number of specific objectives for particular issues. Those broadly relevant to planning for the Coastal Headlands Walking Trail include the following.

In relation to recreation and tourism:

- ❑ to promote the development of a range of recreational opportunities and facilities to meet the needs of people of various ages and with various interests at the neighbourhood, local and regional levels;
- ❑ to promote provision of land for local recreational use in reasonable proximity to residential areas; and
- ❑ to protect the quality, accessibility and attractiveness of the area's natural recreational resources and to protect their environmental characteristics and sensitivity.

In relation to environmental protection:

- ❑ to protect coastal areas, estuaries, wetlands, rainforests and other environmentally sensitive areas from the effects of inappropriate use or other inappropriate development;
- ❑ to promote the retention of trees and tree cover and to conserve as far as practicable the existing pattern of vegetation to maintain landscape quality and remaining natural ecosystems;
- ❑ to conserve soil, flora and fauna and significant natural features;
- ❑ to conserve and manage significant natural resources in such a way that their essential values are maintained and enhanced; and
- ❑ to provide for the existing and potential functions of riparian and foreshore areas to ensure stability and to protect water quality and ecological, visual and recreational values.

In relation to ecologically sustainable development – to take a precautionary approach to decision-making to ensure that resources are utilised in a sustainable manner, and to protect biological diversity.

In relation to land management generally – to minimise risks to life and property from natural hazards (including the impact of flooding, ocean inundation and geological hazards), and to ensure that coastal development is compatible with the degree of coastline hazard.

In relation to heritage conservation - to conserve items, structures and places of natural, historic, scientific or cultural significance, including Aboriginal relics and places.

The entire coastal strip from Observation Head to Pretty Point, through which the Trail will most appropriately be routed, is zoned “6a1 Public Open Space”. The objectives of this zone are:

- (a) to recognise the importance of land in the zone as open space and allow a limited range of uses compatible with keeping the land as open space and in public ownership, and

- (b) to permit a range of uses, especially recreational uses, where those uses comply with the plan of management for the land, and
- (c) to allow development on foreshores where that development is water-related and enhances the recreational use or natural environment of the foreshore, and
- (d) to reserve privately owned land that is essential for future public open space and provide for its acquisition by the Council, and
- (e) to ensure that development in areas of environmental significance does not reduce that significance.

Development and activities for a limited range of purposes can be undertaken, without development consent, within land zoned 6a1 Public Open Space – specifically:

- on community land, development by or on behalf of a public authority that is consistent with an adopted plan of management for that community land and, if not so consistent, would be allowed by subclause (2) [a specific set of development/activities that may be permitted with consent] or otherwise by this subclause,
- utility installations,
- works (including land clearing) carried out by or on behalf of a public authority involved in landscaping, gardening, bushfire hazard reduction, erosion control or rehabilitation, or drainage.

Development of a Coastal Headlands Walking Trail would be an appropriate and permissible use under this zoning.

3.1.3 Implications for Trail Planning

- Development of a Coastal Headlands Walking Trail would be an appropriate and permissible use under the current 6a1 Public Open Space zoning of the immediate coastal strip within the project area.
- Planning and development of a Coastal Headlands Walking Trail must acknowledge the provisions and requirement of relevant State and Commonwealth legislation, particularly those relating to biodiversity and heritage conservation and environmental planning.

3.2 Existing Strategies, Policies and Regional Plans

3.2.1 State Strategies, Policies and Plans

3.2.1.1 South Coast Regional Strategy, 2006-2031

The South Coast Regional Strategy represents the State government's pre-eminent planning document for the South Coast Region setting out land use planning directions for the region which balance the demands for future growth with the need to protect and enhance environmental values. It addresses areas including natural environment, natural hazards, housing and settlement, economic development and employment growth, rural landscape and rural communities, water and energy, waste and cultural heritage.

Within the project area the Strategy identifies issues to address in relation to planning and development of the Malua Bay area (which it identifies as a "Sensitive Urban Lands" site), including the following requirements which may have possible implications or relevance for the Trail's planning – protection of riparian zones and stormwater management on Reedy Creek, the

maintenance of forest connectivity through the area, and the application of environmental conservation zonings where appropriate.

3.2.1.2 State Environmental Planning Policies

The following four State Environmental Planning Policies (SEPPs) applying in the project area, and beyond, and warrant consideration in the Trail's planning and development.

SEPP 14: Coastal Wetlands (1985) – The purpose of this SEPP is the preservation and protection of coastal wetlands to maintain their environmental and economic value. The policy applies to over 1300 wetlands identified as being of high natural value, as well as setting general principles for wetland management.

SEPP 26: Littoral Rainforests (1988) - This SEPP protects littoral rainforests, a distinctive coastal rainforest form, requiring that the likely effects of proposed development be thoroughly considered in an environmental impact statement. The policy applies to “core” areas of littoral rainforest as well as a 100 metre wide “buffer” area surrounding these core areas (except for residential land and areas to which SEPP 14 Coastal Wetlands applies).

SEPP 44: Koala Habitat Protection (1995) – This SEPP encourages the conservation and management of natural vegetation areas that provide habitat, or corridors, for Koalas to ensure permanent free-living populations will be maintained over their present range. Development in an area affected by the policy requires an investigation of core Koala habitat values and protection/management measures.

SEPP 71: Coastal Protection (2002) – SEPP 71 applies in the NSW Coastal Zone – defined as the area generally 1 kilometres landward of the western boundary of the State's coastal waters of the State of any the margin of any bay, estuary, coastal lake or lagoon. As such it applies to the entire project area. This SEPP aims to ensure that the NSW coastal zone is managed and protected in accordance with ecologically sustainable development principles, that development in the coastal zone is appropriate and suitably located, to ensure that there is a consistent and strategic approach to coastal planning and management and to ensure there is a clear development assessment framework for the coastal zone. It also gives the Minister for Planning the consent authority role for specified

developments or State significant developments. It has a number of specific aims focusing on the sustainable use and management of the coast, including the following of relevance to the Coastal Headlands Walking Trail:

- ☐ protection and improvement of public access;
- ☐ preservation of beach environments and beach amenity;
- ☐ protection of native coastal vegetation, marine environments and rock platforms;
- ☐ protection of visual amenity;
- ☐ preservation of Aboriginal heritage and knowledge; and
- ☐ ensuring that the type, bulk, scale and size of development is appropriate for the location and scenic amenity is protected.

No Regional Environmental planning policies (REPPs, now also classed as SEPPs) are in force for the Eurobodalla Shire.

3.2.1.3 NSW Coastal Policy, 1997

The 1997 NSW Coastal Policy sets the context in providing for population growth and economic development while protecting the natural, cultural, spiritual and heritage values of the coastal environment. To achieve this, the Policy has a strong integrating philosophy based on the principles of ecologically sustainable development (ESD). The principles of ESD as set out in the policy are:

- ☐ conservation of biological diversity and ecological integrity,
- ☐ inter-generational equity,

- ❑ improved valuation, pricing and incentive mechanisms,
- ❑ application of the precautionary principle.

The Policy addresses a number of key coastal themes including:

- ❑ population growth in terms of physical locations and absolute limits;
- ❑ coastal water quality issues, especially in estuaries;
- ❑ disturbance of acid sulphate soils;
- ❑ establishing an adequate, comprehensive and representative system of reserves;
- ❑ better integration of the range of government agencies and community organisations involved in coastal planning and management;
- ❑ indigenous and European cultural heritage; and
- ❑ the integration of the principles of ESD into coastal zone management and decision making.

Management of the coastal zone is the responsibility of a range of government agencies, local councils and the community. The Policy provides a framework for the balanced and co-ordinated management of the coast's unique physical, ecological, cultural and economic attributes. When preparing a draft local environmental plan, local councils must include provisions that give effect to and are consistent with the policy. SEPP 71 (Coastal Protection) also strengthens the role of the Coastal Policy in the planning and development assessment process.

3.2.1.3 South Coast Regional Tourism Plan 2003-2006

The South Coast Regional Tourism Plan 2003-2006 provides priorities for tourism development and marketing for the South Coast Region, including Eurobodalla Shire and beyond. It aims to provide a co-ordinated whole-of-government approach to destination management over the period 2003-06, with implementation of the plan the shared responsibility of all stakeholders in the region.

Although now somewhat out-of-date two of the six strategic market opportunities identified by the Plan apply to the Trail's planning, development and potential visitor market. These two target markets - identified as having a clear connection to the strengths of the region – were “nature tourism” and “cultural and heritage tourism”. Also of relevance another of the Plan's objectives was to encourage the sustainable development of infrastructure to support visitor requirements and experiences.

3.2.1.4 Climate Change Projections for the Woolli Woolli Estuary and Batemans Bay, 2007

This report by the CSIRO, commissioned by the Department of Environment and Climate Change, investigated the impacts of climate change on estuaries in the Woolli Woolli River system and the Clyde River/Batemans Bay system (as two very different estuary systems that may facilitate the assessment of the impacts of climate change on other estuaries on the along the New South Wales coastline).

The study was technical in nature and looked at climate change impacts using different climate models and simulations for the 2030 and 2070 planning horizons. The study addressed the impact variables of temperature, rainfall, solar radiation, wind conditions, sea levels (both storm surge heights and mean sea level), and projections of rainfall extremes (both extreme rainfall events and drought frequency).

Depending on the models and assumptions applied the report found the following climate change projections for Batemans Bay for 2030:

- ❑ changes in annual average daily maximum air temperatures – increases of between a low estimate of 0.5°C to a high estimate of 1.5°C;
- ❑ changes in annual average daily minimum air temperatures – increases of between a low estimate of 0.4°C to a high estimate of 1.4°C;
- ❑ changes in annual average rainfall totals – from a reduction of 8% to an increase of 10%;

- ❑ changes in annual average solar radiation - increases of between a low estimate of 0.1% to a high estimate of 0.3%;
- ❑ an annual dominant wind direction of south-westerlies (between 202.5° and 247.5°);
- ❑ changes in the frequency of annual dominant wind direction days with average wind speeds greater than 8m/s - from a reduction of 1% to an increase of 2%;
- ❑ changes in the 1-in-100 year storm surge height - from a reduction of 1% to an increase of 1%; and
- ❑ changes in mean sea level, relative to global average mean sea level rise – both models predicted a sea level rise of 0 to 0.04 metres above the global average mean sea level rise.

Within the project area Caseys Beach is the area considered most susceptible to the impacts of sea level rise and increased storm surges (see section 3.2.2.12 below).

3.2.2 Council Strategies, Policies and Plans

3.2.2.1 Draft Recreation and Open Space Strategy - Eurobodalla Shire, 2010

The Draft Recreation and Open Space Strategy - at present on exhibition for public comment - provides a 20-year “blueprint” to guide strategic planning, development and investment, and use of recreation facilities and open space within the Eurobodalla Shire.

The Strategy takes a broad definition of recreation. Walking is identified as a popular recreation activity within the Shire at present – featuring in four of the top ten popular spaces/facilities and the activities undertaken in them. This includes walking on beaches which are the region’s most popular urban recreation setting, a walking as one of several activities undertaken in parks and foreshore parks (the second most popular recreation settings), walking or cycling or jogging on cycleways/pathways (the fifth most popular recreation settings), and bushwalking.

The Strategy predicts increased demand for open space and recreation due to a growing local population with the main groups influence this growing demand being seniors, families with children, couples without children, people living alone, youth and visitors. Within these groups walking and cycling are seen as particular demand growth areas for couples without children, visitors, seniors, and families with children. Recreation demand projections are elaborated by planning area, with the following two precincts falling within the project area.

- ❑ Surf Beach - Batehaven - Sunshine Bay - Denhams Beach – An area of forecast medium growth predicted to continue to have large number of retirees and see significant gains of children, gains in young families and “empty nesters”/retirees but a loss of young adults. Additional facilities will be required to accommodate this forecast population growth, including youth facilities and playgrounds, as well as the enhancement of beach and foreshore areas, which are already a main recreation focus in this area.
- ❑ Malua Bay - Lilli Pilli - Rosedale - Guerilla Bay (Rosedale and Guerilla Bay are immediately south of the project area) – An area of forecast high growth (over 2% annually, excluding the additional “urban expansion zones” likely to come on stream in this area) predicted to see a significant increase in (and high concentration) of children, a large and increasing amount of older adults including “empty nesters”/retirees, and a gain of young families but a loss of young adults. This area is seen as one where existing infrastructure is lacking and a high amount of residential “gain” is forecast. Probable needs identified in this area, applicable to the proposed Trail, include additional facilities at the area’s quality beaches and foreshore space (such as amenities, showers and paths) and natural recreation opportunities in the numerous environmental conservation areas of this zone.

Overall “drivers” for future recreation and open space planning identified by the Strategy, as applicable to the need for and planning of a Coastal Headlands Walking Trail, include the following:

- ❑ increased demand for unstructured recreation pursuits, such as walking and the general enjoyment of parks and open space;
- ❑ the need for a mix of facilities, including non child-oriented sites such as walking trails, to cater for a high proportion of couples without children;
- ❑ increasing pressure to cater for an older demographic through upgrading or modifying infrastructure;
- ❑ encouragement for older people to participate in recreation pursuits for health and well-being benefits;
- ❑ the need to provide facilities to meet the demand of, and attract, young families;
- ❑ increasing demand for access to natural areas, and the need for Council to investigate the viability of providing facilities to support bushwalking and other trail uses in these areas (in conjunction with other conservation/land managers where appropriate);
- ❑ the need to implement appropriate protection measures to ensure minimum negative impacts on the natural environment while still providing the necessary facilities for a range of recreational activities in the extensive natural areas under Council’s management;
- ❑ accommodating tourist activities and destinations/attractions in the future provision and development of facilities and open spaces;
- ❑ a lack of information about available recreation opportunities/activities among residents as a barrier to participation;
- ❑ the use of recreational opportunities provided in the natural environment to play an educational role, and promote an understanding of nature and the environment, are largely unrealised at present.

Of the top four overall recreation and open space priorities identified for Council action, the following three are applicable to the Trail’s justification, planning and development:

- ❑ Priority 2 - “adventure” sports or non-traditional outdoor recreation activities, within which bushwalking and mountain biking are specified;
- ❑ Priority 3 - foreshore reserves, including developed and undeveloped lands in coastal and estuarine locations; and
- ❑ Priority 4 - shared pathways, including both sealed and off-road cycleways and shared paths as well as supporting infrastructure.

Strategies identified to achieve these priorities include the following:

- ❑ 1.1.3 - Improve equity and affordability in access to recreation facilities and open space;
- ❑ 1.1.4 - Provide appropriate facilities, services and spaces to cater for and engage an ageing population;
- ❑ 1.1.5 - Provide inclusive facilities, spaces and opportunities for people with a disability;
- ❑ 1.2.2 - Protection and enhancement of landscape amenity to enforce character;
- ❑ 2.2.5 - Investigate and provide appropriate facilities for unstructured ‘adventure’ recreation in strategic locations;
- ❑ 2.2.6 - Undertake continued development of Councils shared pathway network and supporting facilities;
- ❑ 2.2.7 - Improved planning, development and maintenance of foreshore reserves;
- ❑ 3.1.3 - Take a proactive approach to promoting and increasing the use of facilities and spaces through marketing and programming;
- ❑ 4.1.1 - Ensure development of open space and recreation facilities complements the natural environment or waterways;
- ❑ 4.2.1 - Improve useability of natural areas through provision of facilities to support recreation opportunities; and
- ❑ 4.2.2 - Recognise and enhance the educational role of the natural environment.

Specific actions identified in the Strategy, of relevance to the Coastal Headlands Walking Trail, include the following (grouped by priority level as identified in the strategy):

- ❑ promoting the health and environmental benefits of cycling and walking (high);

- ❑ ensuring spaces and facilities are connected by shared paths, to facilitate movement of pedestrians and cyclists (high);
- ❑ recognise and protect Aboriginal and European heritage (high);
- ❑ protect and enhance the cultural, social, heritage, ecological and visual characteristics of each planning area (high);
- ❑ protect and enhance sites and areas identified as having significant landscape amenity value for their contribution to local character and identity (high);
- ❑ facilities and surfaces are to be designed to a standard that ensures optimum use and does not leave users or Council open to significant risk (high);
- ❑ ensure that the design and development of recreation and open space incorporates environmentally sustainable practices (high);
- ❑ encourage and facilitate conservation of sensitive, remnant or scenic natural areas (high);
- ❑ continue to protect sensitive coastal locations by limiting recreation development to strategic nodes (high);
- ❑ investigate opportunities in prominent foreshore locations to provide - public art, accessibility, parking, dogs, walking links, picnic areas, shade, seating, signage, landscaping, and showers (medium);
- ❑ manage natural areas within a strategic framework encouraging ecological sustainability practices (medium);
- ❑ investigate the need to constrain the type and use of infrastructure provided in natural areas (medium);
- ❑ improve the “useability” of bushland - including interpretative and directional signage, rest areas and activity nodes to support a track network (medium);
- ❑ develop greater community understanding of the value of natural areas and conservation of habitat through signage, brochures, interpretation and education (medium);
- ❑ improve signage, interpretation and the promotion of key recreation facilities and spaces (low);
- ❑ investigate and implement programmes for the provision of unstructured recreation facilities designed to encourage people to participate in informal recreation and sporting activity in strategic locations across the shire (such as bushwalking tracks) (low); and
- ❑ investigate opportunities to develop the Batemans Bay Coastal Walking Track (low).

The Strategy foreshadows the development of a “Batemans Bay Coastal Walking Track, noting that this initiative would create a need for supporting facilities in the areas through which it passes. Implementation of the “Batemans Bay Coastal Walking Track Project” is a key recommendation for the Surf Beach - Batehaven - Sunshine Bay - Denhams Beach area.

3.2.2.2 Eurobodalla Pathway Strategy – A Strategy for Footpaths, Shared Pathways and Cycleways in Eurobodalla Shire, 2009

This strategy is intended to guide Council in the planning and development of new cycling and pedestrian facilities within Eurobodalla - integrating the needs for the Shire, safety, education, promotion and infrastructure. The Strategy recognises the value of walking and cycling as ‘a popular method of regular, low impact exercise’ for residents as well as increasingly popular tourist activities important in attracting visitors to the area. Council has allocated \$1.21M within its 2009/14 Management Plan to improve off-road pathways (footpaths and shared pathways), as well as requiring the involvement and contributions of developers and seeking appropriate grant funding.

The Strategy outlines an integrated network of paths and routes - a mix of bike lanes, off-road paths, pathways and local streets - that are designed to link people to the main “attractors” of the region or other significant destinations. Several of the proposed routes and works are within the



project area, and have the potential to be part of or integrated with the Coastal Headlands Walking Trail.

3.2.2.3 Eurobodalla Local Government Area – Preliminary Public Aboriginal Heritage Inventory, 2009 (last update)

This report identified the Grandfather's Gully and Beach area as one of 12 "places of Aboriginal heritage significance" across the shire proposed for listing in Schedule 5 for protection in under the Draft Eurobodalla Local Environmental Plan [LEP]. The area identified is that described in the earlier "Eurobodalla Aboriginal Heritage Study" 2006 (see section 4.4.1. above), and as shown in Figure 4. The inventory elaborated this area's significance, noting that its "heritage integrity remains intact" and that the site has "archaeological potential". It recommended that the area be managed "in consultation with the Aboriginal community" to "allow for the ongoing maintenance of Aboriginal cultural practices".

3.2.2.4 Eurobodalla Community Strategic Plan 2008-2013, 2008

Figure 4 Grandfathers Gully "place of Aboriginal heritage significance"

The Eurobodalla Community Strategic Plan is an over-arching document intended to inform the community of Council's major directions and programmes for the Shire over the period 2008 to 2013 – or serving as the shared "blueprint" for the future around which Council's activities will be centred. Council's broad aims for this period are focussed on "stimulating economic and community development, conservation of our natural resources, respecting our cultural heritage, and providing efficient public services".

Within the aims, programmes and actions described in the Strategic Plan are several actions or initiatives that will support, or be consistent with, or be enhanced by the development of a Coastal Headlands Walking Trail – including:

- ❑ building on the region' tourism opportunities and brand;
- ❑ conserving, managing and enhancing the Eurobodalla Nature Coast values in perpetuity - by ensuring that development does not harm or compromise significant environmental values;
- ❑ respecting the values Aboriginal people placed on the land, water and biodiversity, and the special places that sustain their lives, history and culture;
- ❑ encouraging more active and healthy lifestyles;
- ❑ enhancing recreational facilities;
- ❑ promoting, enhancing and celebrating the character, heritage and culture of our community, towns and villages;
- ❑ reviewing our footpath and cycleway strategies; and
- ❑ preparing a Recreational Facilities Strategy.

The Strategy also requires that climate impacts are considered when planning for land uses, infrastructure and the management of land.

3.2.2.5 Eurobodalla Shire Council Youth Strategy 2008-2013, 2008

A part of the desire to encourage more active and healthy lifestyles among the region's youth Council has identified the need to provide sporting and recreational facilities and the specific action to "develop integrated footpath, cycleway and walking track system through urban areas (Action A17).

3.2.2.6 Greater Batemans Bay Structure Plan, 2006

This Structure Plan, which covers the entire project area, identifies the future growth, land use and character of the Greater Batemans Bay area. In doing so it places considerable emphasis on "preserving the diverse natural environment of for its environmental benefits, sense of place and spectacular and varied views"

Within the project area the Structure Plan identifies

- ❑ Malua Bay as a major regional growth centre - undeveloped land west of George Bass Drive is identified as an “Urban Expansion Zone” holding substantial development potential and is well-suited for residential development and appropriate for more intensive development, an additional 1,150 dwelling units are considered possible;
- ❑ expansion of the business zone at Malua Bay east towards the beach from (along Kuppa Avenue);
- ❑ Sunshine Bay as an urban growth area, despite being the fastest growing settlement in Greater Batemans Bay this zone was seen as still having significant development potential with planning to support an additional 328 dwelling units;
- ❑ extension of the existing cycleway/pathway from Batehaven through to Surf Beach;
- ❑ a potential access track and lookout on the high point between Divers Point and Grandfathers Gully Creek, using existing fire trails, accessed off George Bass Drive; and
- ❑ recommended changes to the Eurobodalla Local Environmental Plan (LEP), however the existing “public recreation” zoning for the entire foreshore strip within the project area is retained.

The Structure Plan acknowledged the coastline as an “ecologically sensitive area”, and requires that development adjoining this zone “recognises and enhances the high visual and biological quality of the coastline”. The protection of foreshore scenic areas and the key visual elements of timbered ridges between and within settlements, coastal gum forests, burrawangs and visually dominant native vegetation within the overall landscape are also emphasised within the Structure Plan. Natural areas that are highly visible from public places throughout the Greater Batemans Bay are considered especially valuable – this would include the forested foreshore and prominent headlands that will be accessed by any Coastal Headland Walking Trail. Appropriate coastal development is a specific objective of the Plan, and the related *Draft Nature Coast Style Guide*.

The Structure Plan recognises the value of the area’s “many coastal reserves that have been left primarily in their natural state” and the role of these areas in providing “opportunities for people to walk, bird-watch and relax”.

The Plan also recognises that walking and cycling should be “highly encouraged as ways of exploring and enjoying Greater Batemans Bay” and identifies the importance of extending the coastal cycleway to link and enhance access and circulation within the area’s settlements/suburbs. Ensuring pedestrian and cyclist access to “desirable environments, such as coastal and estuarine foreshores” are specific actions or directions identified by the Structure Plan. However the Plan also requires that “recreational developments, such as cycle paths, are sited and designed so they do not degrade environmental values, including riparian buffers”. The need for the provision of passive recreation spaces and their facilities to keep pace with the changing needs of residents and visitors as the population ages, such as additional seating and improved access for wheelchairs, is also acknowledged.

The Plan addresses issues associated with human-induced climate change on the south coast of NSW, noting that “coastal areas may be particularly affected by sea-level rise, increased temperatures and changed storm events”. Zoning high-risk to moderate-risk areas for recreation, open space or public uses - and limiting the types of development allowed - is seen as one direction for reducing the potential impacts of hazard events. The Plan also recommends accommodating potential impacts of climate change in the design and siting of infrastructure.

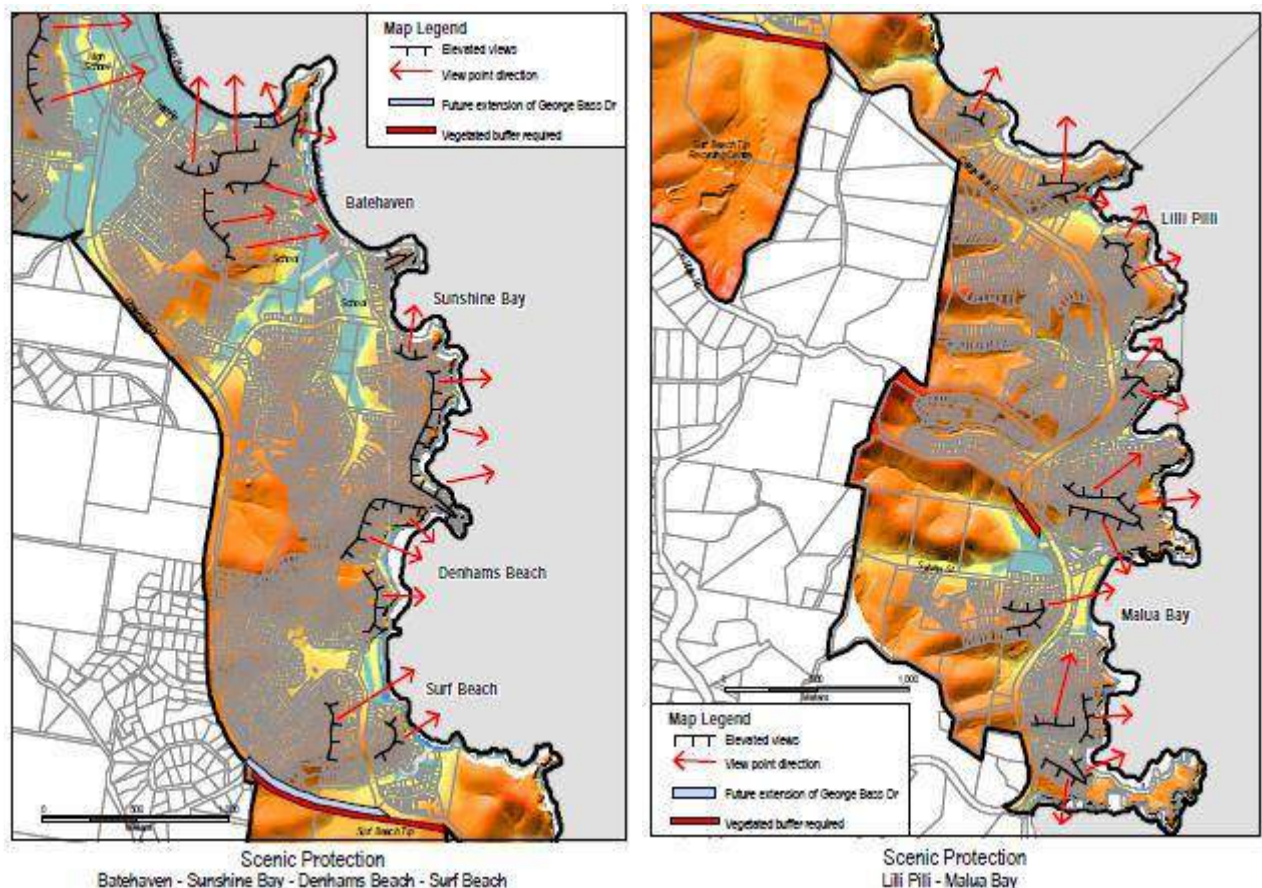


Figure 5 “Scenic protection” measures from the Greater Batemans Bay Structure Plan (2006) for the project area

3.2.2.7 Eurobodalla Shire Cultural Plan 2006-2010, 2006

Council’s first cultural plan, aimed at fostering the “creative cultural life” of the region’s communities takes a wide definition of culture and cultural activities to include activities that increase appreciation or understanding, and hence protection, of the Shire’s natural and cultural heritage.

The following directions or actions from the Cultural Plan will support, or be consistent with, or be enhanced by the development of a Coastal Headlands Walking Trail – including:

- ❑ Direction 4.2 - Conserve, enhance and protect biodiversity in Eurobodalla;
- ❑ Response 4.2.1 - Facilitate community understanding of and involvement in biodiversity conservation;
- ❑ Action 4.1.1.2: Develop community awareness and education programmes on environmental sustainability and the value in protecting Aboriginal and non-Aboriginal heritage sites; and
- ❑ Action 4.1.1.3 - Investigate the opportunity to raise awareness of Aboriginal heritage.

3.2.2.8 Eurobodalla Disability Action Plan 2006-2011, 2006

Community consultation undertaken for preparation of Council’s 2006 Disability Action Plan identified the need to improve access to beauty spots such as beaches and rivers. In response one of the Plan’s actions, A30, is that council will “explore solutions to improve access to popular places of interest such as beaches, bushland and river reserves”. Planning and development of the Coastal

Headlands Walking Trail may provide some potential to achieve this at the more heavily used or developed attractions along the route.

3.2.2.9 Eurobodalla Shire Social Plan 2005-2009, 2005

The Eurobodalla Shire Social Plan 2005-2009 provides a framework for identifying the issues and attributes relating to the social values and needs of the local community. It provides strategies that addresses identified needs and seeks to enhance community health and wellbeing.

In community focus groups during the Plan's preparation a prominent theme was preservation of the environment, with the community placing a very high value rating on lifestyle, the retention of scenic beauty and natural environment.

In response Council identified a range of directions and actions, of which the following are relevant for the Trails' planning and development:

- ❑ provide an environment that encourages more active and healthy lifestyles (1 of 18 overall directions);
- ❑ improve community participation in recreation and leisure activities (1 of 18 overall directions);
- ❑ promote physical, social and mental well-being through a diverse range of activities - including volunteering, heritage activities, libraries, halls, swimming, sport, parks, gardens, playgrounds, barbecues, walking, cycling and fishing (Council response 23);
- ❑ plan and design public spaces and places according to sustainable design principles that reflect and express the heritage, environmental and cultural identity of local communities and contribute to community wellbeing (Action 51);
- ❑ identify where Council may continue to provide safe, accessible and culturally appropriate environments that provide physical activity (Action 55).

3.2.2.10 Batemans Bay and Clyde River Estuary Management Study - Final Report, 2004

That part of the project area covered by this Estuary Management Study extends from Observation Point to Lilli Pilli. Community surveys identified "riding and/or walking" as the third most frequent, and valued, use of the Batemans Bay and Clyde River Estuary (after recreational fishing and swimming, and ahead of picnicking and boating). One of the 12 objectives identified by the study to guide the estuary's future management is to "promote waterway and foreshore based recreational, commercial and tourist-oriented activities consistent with social and environmental impacts and waterway capability".

3.2.2.11 Creek Management Policies for Joes, Wimbie, Short Beach and Surfside Creeks, Batemans Bay - Final Report, 2004

This plan presents the creek management policies for Wimbie Creek and Short Beach Creek within the project area (as well as Joes and Surfside Creek).

Most of the directions and actions refer to creek opening, water quality, odour and catchment management. However the following actions have implications for the planning of a Coastal Headlands Walking Trail in the vicinity of the mouth of Wimbie Creeks.

- ❑ Better delineation of Council Reserve land to discourage illegal dumping of wastes and encourage usage of the creek corridor for recreational purposes - At present there is insufficient signage to identify Council Reserve land. If the Reserve boundary is marked this may encourage people to recreate in the area, as they will know that they are not trespassing. It will also encourage homeowners not to dispose of wastes outside their land boundary. If signage is used, it should stipulate that there is to be no dumping of wastes in Wimbie Creek. Signage will improve ability of residents and visitors to traverse along the creek without trespassing or being accused of trespassing.

- ❑ A “one off” campaign to remove old or unused creek structures, such as old/derelict crossings and other potentially hazardous structures, which would improve the safety and recreational amenity of the creek.
- ❑ Campaigns to reduce weed infestation – this will both improve terrestrial ecology around the creek and improve the aesthetics of the creek and hence passive recreational potential.

3.2.2.12 Batemans Bay Coastline Hazard Management Plan (Draft for Public Exhibition), 2001

The Batemans Bay Coastline Hazard Management Plan addressed coastline hazards and formulated and assessed protective management options for foreshore and backbeach areas at ten sections of coastline between the Batemans Bay BBD and Caseys Beach at the northern end of the project area. It built on earlier coastal hazards vulnerability studies (1996) and estuary processes information (1999) and was based on procedures set out in the NSW Government’s Coastline Management Manual (NSWG, 1990). Coastal hazards information was combined with a consideration of wider coastal management issues - such as land ownership and tenure, aesthetics and ecological factors, recreational amenity, social issues, and economic issues.

The coastal hazards addressed included - coastal inundation (the flooding of beach and back shore areas by elevated ocean levels as a result of storm conditions), shoreline recession (the progressive loss of beach sands over time due to sand movement off the beach and out of the beach embayment, including recession associated with climate change related sea level rise), beach erosion (the loss of sand from the beach dune system during storms, or “storm bite”), sediment accretion (due to wind or water movement, which can cover valuable habitat areas such as rocky reefs, damage infrastructure and/or block access ways) and slope stability (by waves or currents attacking the face of a slope, such as dunes or dumped rock seawalls, and causing them to become unstable).

The study also addressed climate change uncertainty. It included an allowance for climate change based on a predicted rise in ocean levels of 0.2 metres over the next 50 years (noting that the Batemans Bay Catchment Management Committee adopted a fifty year planning period for the inclusion of a 0.2 m “most likely” climate change surcharge level in coastal hazards assessments for the Batemans Bay coastline). Climate change effects were factored into foreshore level assessments and shoreline recession estimates. The predicted effects of Greenhouse gases in changing weather patterns and the likelihood for increased storminess was factored into the assessment of management options, in terms of their flexibility and robustness.

The Management Plan assessed a range of options for managing coastal hazards, including - the voluntary purchase of land, building setbacks, minimum floor-levels, foreshore building protection, and the relocation of assets.

The main hazards affecting Caseys Beach were identified as wave overtopping of the existing seawall and the structural stability of the wall revetment under wave attack during major storm/tide events. This would result in coastal inundation and wave damage to the foreshore revetment wall, the roadway along the beach, and the back beach area. The following options, or combinations of management options, were identified as available for Caseys Beach:

- ❑ Do Nothing – leading to potential coastal damages valued at around \$450,000 over a 50 year planning period plus significant amenity and social losses.
- ❑ Development Controls - building protection and hazard proofing properties from inundation using a wave deflection barrier/roadside gutter, costing around \$100 000, but an option that would not prevent damage to the existing seawall and road with an on-going repair and maintenance/upgrading cost for these structures estimated at around \$150 000 for each 10 year event (or over \$600,000 total over a 50 year period); and
- ❑ Protective Works - reforming of a dune/sandy beach along the seawall was estimated to cost around \$2M (and require additional engineering feasibility investigations), or reconstructing the

seawall to a standard sufficient to prevent damage would cost around \$3M, or constructing an offshore breakwater/reef would exceed \$5M.

The Management Plan recommended ongoing maintenance/upgrading of the seawall and Beach Road as economically the most feasible solution, combined with the construction of a wave deflection barrier to provide an “adequate social solution”. The plan did not fully address other options - such as staged shoreline retreat, modification of the road network, creation of foreshore reserves/open space buffers, or others.

3.2.2.13 Plan of Management - Developed Reserves and Facilities (Edition 3), 1999

This generic plan of management addresses those parcels of Council-owned land classified as community land that are categorised as Parkland, Playgrounds, Sporting Use or General community Use and that are, in some way, developed or improved (or land not already covered by a specific Plan of Management). It encompasses 350 parcels of Council-owned Community Land, covering over 800 hectares, across the Shire but mostly situated in and around urban area and villages.

It includes numerous foreshore land parcels within the project area along the likely routes for a Coastal Headlands Walking Trail.

In accordance with the requirements and definitions within the *Local Government Act 1993*, and *Local Government Amendment (Community Land Management) Act 1998*, the generic plan of management categorises these areas, or parts thereof, mainly as either “Park”, “Sportsground”, or “General Community Use” (plus some smaller areas categorised as “Natural Area”). Each of these categories has a set of core objectives defined within the *Local Government Act 1993* (as amended) to guide how they are to be managed. All of the core objectives defined for these categories under the Act, and in this plan, provide for recreational use and the provision of appropriate recreational facilities.

The Operating Plan in this document includes the “Objective and Performance Targets” to maintain public accessibility and the opportunity for the public to participate in designated recreational activities on these reserves, with one of the associated “Means Of Achievement” being the definition of pathways and/or fencing if required for safe access.

Schedule B of the plan specifies “Restrictions on Community Land” with only one such restricted site within the project area – at Highview Avenue at Surf Beach (property no. 2802.500) where there is an area of potentially contaminated land (possibly the area around the Sewage Pumping Station on the north-west side of Wimbie Creek).

There are no reserves within the project area included within the plan’s “Schedule C - Areas of Significance or Potential Significance”.

3.2.2.14 Plan of Management - Natural Areas and Undeveloped Reserves, 1997

This generic plan of management addresses those parcels of Council-owned land classified as community land that are natural areas or “undeveloped” community land (or land not already covered by a specific Plan of Management). It encompasses 360 parcels of Council-owned Community Land, covering over 700 hectares, across the Shire but mostly situated in and around urban area and villages.

It includes numerous foreshore land parcels within the project area along the likely routes for a Coastal Headlands Walking Trail.

The plan’s broad objectives are to:

- restore, preserve and protect the valuable characteristics of the subject “Natural Areas” of
- Community Land;

- ❑ manage passive recreation opportunities that meet the needs of the community in these undeveloped areas consistent with the conservation of natural values of these areas;
- ❑ manage a portfolio of smaller undeveloped areas for passive recreation in urban areas; and
- ❑ promote visitor safety, awareness and appreciation of the natural environment.

In accordance with the requirements and definitions within the *Local Government Act 1993*, and *Local Government Amendment (Community Land Management) Act 1998*, the generic plan of management categorises these areas, or parts thereof, mainly as either “Natural Areas” or “General Community Use” (plus some smaller areas categorised as “Park”). Natural areas are further categorised as “Natural Bushland”, “Natural Escarpment”, “Natural Foreshore”, “Natural Watercourse” or “Natural Wetland”. Each of these categories or sub-categories has a set of core objectives defined within the *Local Government Act 1993* (as amended) to guide how they are to be managed. All of the core objectives defined for these categories under the Act provide for appropriate, sustainable or low-impact community “use of and access to the land” or “community use and enjoyment” or “ecologically sustainable use” or “to meet the current and future needs of the local community and of the wider public in relation to public recreation and the physical, cultural, social and intellectual welfare or development of individual members of the public”.

The generic plan goes further than the requirements of the Act and sub-categorises lands identified as “General Community Use” into general, drainage, open-slashed, undeveloped and water. However again, each of the sub-categories allows for “public recreation”.

For those parcels affected, the development of a Coastal Headland Walking Track would be consistent with the directions and requirements of this Generic Plan of Management - although minor adjustments to the plan may be warranted, or appropriate, in some instances.

There are no reserves within the project area included within the plan’s “Schedule B - Restrictions on Community Land” or “Schedule C - Areas of Significance or Potential Significance”.

3.2.3 Other Strategies and Plans

3.2.3.1 Batemans Marine Park – Zoning Plan and Users Guide, 2006

The Batemans Marine Park abuts the entire project area, including all of the seabed and waters from mean high water mark eastward as well as all estuaries, creeks, rivers and lakes along this section of shoreline (to the tidal limit). Planning for the Marine Park began in early 2006, and has involved the preparation of a zoning plan to guide use and enjoyment of the Park and permit different activities in appropriate locations or “zones” within the area.

All of the Marine Park abutting the project area is a “Habitat Protection Zone”. Within this zone the following activity management measures apply (below the high water mark and tidal limit):

- ❑ recreational fishing by line, spear, trap or net is permitted (unless banned under seasonal controls);
- ❑ recreational fishing by haul net is prohibited;
- ❑ baitweed can be collected by hand, beach seaweed and dead shells can be collected (subject to daily limits per person), and collecting invertebrates is usually permitted;
- ❑ collecting of cunjevoi is prohibited;
- ❑ anchoring is permitted;
- ❑ research, competitions and organised events, commercial operations, and infrastructure development all require a permit/approval.

3.3 Regional Setting

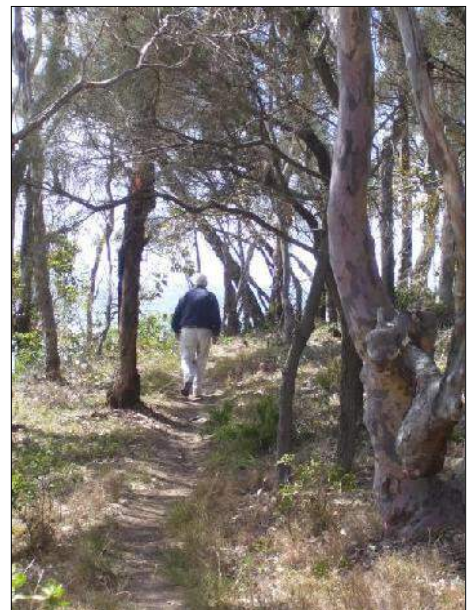
3.3.1 Population and Recreation

Over 38,000 people are at present – in 2010 – estimated to live in the Eurobodalla local government area. At the 2006 census the area had a recorded population of just over 35,000 people, representing a 6.7% increase (or over 2,350 people) since the 2001 census. This continues the trend for population growth of the Eurobodalla Shire to be ahead of the state average, as it has done for the past two decades. Eurobodalla's population is projected to increase to more than 50,000 by 2030.

Over 1,500, or 4.4%, of the Shire's residents identify themselves as of Aboriginal or Torres Strait Islander descent.

Eurobodalla's population is strongly focused on the coastal strip, with Batemans Bay the largest urban centre and residential population area in the Shire. The suburbs and villages south along the coastal strip from Batemans Bay, including the project area, are one the Shire's strongest urban growth areas.

The Shire has a “mature” age structure with nearly one quarter (23%) of residents aged 65 years or over in 2006 (compared with a statewide average of 13.1%), and conversely has a smaller proportion of young people and younger adult age groups. The Shire's aging trend is increasing, with 56% of the total population growth in the 2001-2006 census period being in the 60 years and over age brackets. The area is recognised as a significant “Sea Change” and retirement destination with the region attractive to retirees from the ACT, Sydney, Melbourne and regional New South Wales and Victoria. The proportion of families with children (both two parent and single parent families) is also somewhat below the average for the South-eastern Statistical Division (at 47.7% compared to 55.9%), and 21.8% of the Shire's population are children or youths 17 years old or under.



2006 census data for the two areas that approximate the suburbs/villages immediately inland from the project area shows a resident population of over 7,300 people (for Surf Beach - Batehaven - Sunshine Bay - Denhams Beach in the north and Malua Bay - Lilli Pilli - Rosedale - Guerilla Bay in the south, noting that these data areas extend both north and well south of the project area). Of these 7300 people, 25.6% or over 1,880 are over 65 years of age (above the Shire average) and 21.8% or over 1,610 are aged 17 years or younger (the Shire average).

As noted in section 3.2.2.1 above, walking is one of the most popular recreation activities undertaken by Shire residents. This may be beach-walking, “walking the dog”, strolls in parks and foreshore parks, scenic coastal walks, walking and jogging/training on pathways and bush tracks, and more strenuous bushwalking. For a significant number of the Shire's residents, walking and cycling is a popular method of regular, low impact exercise as well as a way to get “out and about” to interact within the community. This is especially the case for the area's ageing population.

There is a strong relationship between the natural environment or natural settings and recreation activities, and an increasing interest in the use of natural locations for recreation, relaxation and inspiration purposes. Residents relocating to the Eurobodalla region very often cite opportunities to

“get back to nature” and enjoying the area’s natural environment and scenery as strong motivations for their move. Prominent or significant natural landscape features are very often the focus of recreation interests or activity - including the foreshore bushland, numerous lookout points and extended beaches of the project area and other parts of the Shire.

3.3.2 Tourism Profile

Tourism is Eurobodalla Shire’s top economic driver. Tourism data (from Tourism Research Australia) indicates that the region attracts 748,000 overnight domestic visitors annually, with a total of 2.9 million visitor nights. A further 449,000 domestic day visitors are believed to visit the region each year. Domestic tourists dominate the region’s visitor load, however approximately 17,000 international visitors also arrive annually spending a further 77,000 visitor nights in the region, with another 13,000 estimated international day visitors.

Tourism was estimated to inject \$426M into the local economy each year (as at the end of 2008), and employs more than 2,900 people.

Due to the dominance of domestic visitors, tourism within the region is strongly seasonal with an emphasis on holiday periods during the summer and warmer months. Eurobodalla Coast Tourism estimates that the Shire’s population increases to around 120,000 in the post Christmas period each year. A large proportion of these “annual holiday” visitors arrive from Canberra and the ACT. However the region also attracts visitors from Victoria, rural NSW and Sydney. “Grey nomads” and people visiting friends and relatives can also be expected to be well represented in the visitor load – and more evenly spread throughout the year.

The region’s beaches and lakes are its primary tourism drawcards – as reflected in the regional tourism by-line of “Eurobodalla - Land of Many Waters”. Swimming, surfing, fishing, beach relaxation and outdoor “family fun” all feature strongly in tourism collateral and are presumed to make up a dominant proportion of the activities undertaken and settings/attractions enjoyed by visitors. Supporting and hinterland attractions, typical of a coastal tourism region – such as national parks, golfing, galleries, markets, craft fairs, rural villages, scenic drives, and so on – are also marketed (the project area is part of “Tourist Drive 7” – a coastal route from Batemans Bay to Moruya via Batehaven, Malua Bay, Tomakin, and Broulee). However these are generally secondary destinations and activities that support the prime attractions of the region’s beaches, oceans and lakes. The region also has ample opportunities for “adventure style” recreation in natural settings such as fishing, boating, bush walking and mountain bike riding.



Eurobodalla Shire Council markets the region as the “Nature Coast” - and the “clean”, “green” and uncrowded characteristics of the region’s beaches and waterways, in conjunction with the area’s scenic beauty and natural attractions, are a foundation of Eurobodalla’s visitor appeal. High quality environments, offering attractive natural settings and activities, form a core part of this appeal - and believed to be a strong motivator for many of the region’s visitors. However many visitors still come for a traditional beach holiday.

Walking and cycling are increasingly popular among visitors, and many holiday makers now expect or look for opportunities to cycle and walk when choosing their holiday destination or their activities

once at a location. For visitors drawn by the area's environmental qualities and seeking to experience natural areas these activities, and the usually undeveloped settings that support them, are particularly attractive. For those enjoying a family beach holiday they can provide an alternative activity, offering a "break" from the beach or a choice for more overcast or "no-swell" days.

3.3.3 Competing and Complementary Walks and Attractions

There are a number of short and half day, or longer, walks in the Eurobodalla region that are already developed and marketed to visitors (in addition to the urban paths, cycleways and shared routes of the Batemans Bay and other urban areas). These walks vary in their length, standards and degree of difficulty, and the environments or core attractions they access. The main existing walks (over 1 kilometre) are briefly described below (divided by coastal or forest/inland location, and listed by increasing distance from the project area).

3.3.3.1 Coastal Walks

- ❑ Batemans Bay Cycleway – Batemans Bay CBD to Corrigans Beach. A 4 kilometres (one way) sealed shared pathway, with sections of boardwalk at the CBD end, along the urbanised/developed foreshore of the Clyde River. Grade – easy.
- ❑ Mangrove Walk - Cullendulla Creek Nature Reserve, Surfside (north Batemans Bay). A 1 kilometre (50 minute) boardwalk, with interpretive signs, winding through a large Mangrove area and significant Aboriginal sites (including middens and burial sites). Grade - easy with some wheelchair access, 300 metre boardwalk section plus beachwalking at low tide or bush tracks at high tide.
- ❑ Durras Discovery Trail – North Durras (Murramarang National Park, north Batemans Bay). A 1.5 kilometre nature walk (45 minutes) comprising a mix of boardwalks, flat lakeside track, bridges and steps through Spotted Gum open forest beside Lake Durras. Grade - easy.
- ❑ Banksia Walk - Burrewarra Point, Guerilla Bay (off George Bass Drive, south of Batemans Bay). A 1.5 kilometre (50 minute return) easy walk through mature coastal Banksia forest on Burrewarra Point with views up and down the coast, including whale-watching vantage points, and views west to the hinterland. Grade – easy, but unfenced cliff edges.
- ❑ Pebbly Beach Coast Walk - Pebbly Beach to Snake Bay (Murramarang National Park, north Batemans Bay). A 7 kilometre (return) (3.5 hours) section of the Coast Walk, along bush tracks and beaches, offering spectacular scenery and vantage points and passing through coastal heath and along "pristine" beaches. Grade – moderate.
- ❑ Broulee Island Walk – Broulee (off North Head Drive, south of Batemans Bay). A walk across a permanent sand bar leading to an island bushwalk (4 kilometres and 2 hours) offering coastal bushland, ocean views and whale-watching vantage points. Grade – moderate.
- ❑ Bingie Dreaming Track - Congo Headland to Bingie Bingie Point (and Tuross Heads) (access off Princess Highway). An extended coastal walking track running 8 kilometres (one way) (3 hours) from Congo Point to Bingie Bingie Point, mostly within Eurobodalla National Park, with a possible 5.5 kilometre extension south to Tuross Head (one-way) (2.5 hours). It comprises bush tracks and section of beach walking. The track follows part of the dreaming track used by the Brinja-Yuin people to access campsites, campsites, fresh water sources, ceremonial and trade sites, beacon sites for sending smoke signals, and lookouts traditionally used to spot visitors and schools of fish. It has a strong Aboriginal cultural theme also passing shell middens, stone quarries, and stone tool making sites. It traverses a variety of coastal plant communities, from

eucalyptus forests to heath lands, with abundant birdlife and also accesses whale-watching vantage points. Grade – moderate in north, moderate to difficult in south, car shuffle required.

- ❑ Lake Brou Coastal Walk - Dalmeny to Potato Point (access off Princes Highway). A 14 kilometre (return) (4-5 hours) un-marked sandy beach walk in Eurobodalla National Park, past coastal heath and the mouth of Lake Brou. Grade - moderate to difficult, sand walking, car shuffle required.
- ❑ Mill Bay Boardwalk – Narooma (urban area). An urban foreshore walk, ranging from 700 metres to 4 kilometres (30 minutes to 2 hours), with a combination of foreshore boardwalk and footpaths around Wagonga Inlet offering a mix of waterway activity/views, mangroves, cafes, parks, caravan parks and breakwater. Grade – easy, level, with wheelchair access on boardwalk (350 metres) and elsewhere.
- ❑ Mystery Bay Walk - Mystery Bay to 1080 Beach (Cape Dromedary, south of Narooma). A 5 kilometre (return) (2 hour) walk on bush tracks and fire trails, with some tide-dependent beach walking, from Mystery Bay to Pooles Beach and 1080 and back again. The walk passes through open heath, wetlands and mixed coastal forest in the southern section of the Eurobodalla National Park with coastal views. Grade – moderate.

3.3.3.2 Forest or Inland Walks

- ❑ Eurobodalla Regional Botanic Gardens – Batemans Bay. A network of 6 developed paths/tracks offering walks from 500 metres to 6 kilometres (20 minutes to 2 hours) through a botanic garden setting with a range of displays and a cafe. Grade - easy, some tracks suitable for limited mobility access.
- ❑ Durras Mountain Walk – Durras (Murrumbidgee National Park, north of Batemans Bay). A steep climb on bush tracks 4.5 kilometres (return) (2 hours) to the top of Durras Mountain offering the 360° bushland and ocean views. Grade – Moderate to difficult.
- ❑ Mogo State Forest Bushwalk – Mogo (access off Princess Highway). A good standard 1.6 kilometre (return) (20 minutes) family-friendly bush track, with occasional steps, through wet and dry eucalyptus forest. Grade – easy.
- ❑ The Corn Trail Walk - Monga National Park (west of Batemans Bay, accessed off the Kings Highway). A 15 kilometre (one way) (5-6 hours, if downhill) track crossing high mountain ridges and deep rainforest valleys, following the route used by packhorse teams in the 1830s, very steep in parts, offering filtered views of coastal ranges and old growth forests. Grade - Moderate to difficult, car shuffle required.
- ❑ Mt Gulaga (Mt Dromedary) Walk - Mount Gulaga (south of Narooma). A steep spiralling rainforest walk (11 kilometres, and 4-5 hours, return) climbing this extinct 860 metre high volcano that is extremely powerful and important for Aboriginal people. Grade – difficult, steep and strenuous.

4. INVENTORY – EXISTING TRAILS AND TRACK INFRASTRUCTURE

This section provides an inventory of the existing trails – both formal and informal - and associated infrastructure for walkers that are now located along the project area’s foreshore.

Almost the entire length of the foreshore is “tracked” at present, however the greater majority of these routes are informal tracks that have been established through use - without planning, design or supporting track treatments (such as steps, drainage control and barriers). There is no signposting or direction/distance marking along any section of the foreshore at present.

The result is a discontinuous track network that – while undoubtedly popular for many local residents – does not fully realise the area’s recreational or scenic potential and delivers less than optimal visitor experiences, is hazardous in places, generates a range of adverse environmental impacts, and is virtually unknown to visitors to the region.

4.1 Building on an Existing Network

A foreshore walking route already largely exists between Observation Head and Pretty Point.

However this is as a loose collection of informal unplanned tracks, local recreational walks (both formal and informal), rough tracks established and maintained largely through use or the efforts of local residents, foreshore access lanes, anglers’ access tracks, Council-provided steps and stairs, on-street segments, and short sections of higher standard paths. Tracks that have grown up from usage rarely have supporting track treatments - such as steps, drainage control, safety railings, or distance/direction marking - and often generate adverse environmental impacts or present hazards for less cautious visitors or those unfamiliar with a track and terrain. Developed supporting facilities – such as car parking, toilets, picnic furniture and drinking water – are provided. However these are associated with activity nodes and existing reserves along the foreshore, and have not been consciously sited or designed with coastal walkers in mind.

The entire coastal strip, from Observation Head to Pretty Point, is a public reserve (zoned as Public Open Space), which provides the “corridor” or setting within which these existing informal tracks, trails and more developed paths are located and the Coastal Headlands Walking Trail can be more formally developed.

However even this valuable asset is poorly defined in many places, and in some areas not identified at all as accessible public open space. It is under continual pressures from encroaching lawns, gardens, furniture fencing and other intrusions from the adjoining private properties – which can also act to deter walkers from passing through and enjoying these public areas. Conversely local residents have been responsible for establishing and maintaining seats, lookouts and even picnic tables in these areas or clearing and mowing pathways or constructing steps and stairs (of varying standards) for foreshore and headland access.

4.2 Existing Trails and Track Infrastructure

A structured approach to concept planning and design for the Coastal Headlands Walking Trail requires identification of the tracks, trails, paths and connections that already exist along the coastal strip and immediate hinterland. Concept planning also requires an appreciation of the topography, layout, constraints and opportunities, layout, attractions, walker experiences and potential of this zone.

More than 10 days were spent in the field conducting a thorough inventory and on-site assessment of the existing tracks/trails, facilities, and setting of the project area.

Table 4 presents an inventory of the existing tracks, trails, paths and supporting infrastructure now found within the project area – described by sections identified according to logical access points or key landscape features. The greater majority of the tracks and trails described are informal routes that have been established and maintained through usage. As determined by their inherent characteristics most of these tracks will largely fall within Class 3 of the Australian Standards for walking tracks – as discussed further in section 4.3 below. However, simply applying the Australian Standards during the track/route inventory would have not provided an adequate degree of resolution or route differentiation and the level of detail required for concept planning purposes. Therefore a wider range of track/route types was applied. Illustrated examples of the track/trail, pathway and route types used in Table 4 are given in Figure 6.

Within Table 4 the existing tracks/trails and facilities are described starting from Observation Head and travelling south. Alternative or multiple routes are described where applicable.

4.3 Track Standards and Classification

A variety of walking track “standards” are available and used by public agencies around Australia.

The relevant Australian Standards in relation to walking tracks, trails and pathways are:

- *Australian Standard Walking Tracks Part 1: Classification and Signage [AS 2156.1-2001]*; and
- *Australian Standard Walking Tracks Part 2: Infrastructure Design [AS 2156.2-2001]*.

However these standards are extremely broad in their coverage, classifying all walking tracks into six “classes” ranging from hard surfaced tracks suitable for wheelchair access (Class 1) to unmarked routes in remote and unmanaged natural environments or wilderness areas (Class 6). Tracks are allocated to a class according to a combination of six parameters – track conditions, gradient, signage, infrastructure, terrain and weather. The standards also include “guidance for managers” in developing and managing tracks in each class. A copy of the classification system and each of the six track classes are included in Appendix C.

Given their breadth the Australian Standards are of only limited application in situations where many of the parameters are constant along a track network (such as the urban bushland foreshore setting which dominates the project area) yet there is nevertheless an observed, or intended, variation in the track types and surfaces. Acknowledging the current short-comings



Undefined Section
– no discernable worn track, marked route or travel path but unobstructed and readily passable



Trample Track – indistinct but passable alignment, vegetation "trampled" to define the route but not to bare earth, may be obstructions



Informal Track – clearly defined surface of in-situ material, but narrow with surface unevenness and intrusions



Improved Track – wide clear easily navigable route, surface of in-situ and/or imported materials, some drainage controls or other improvements



Path Sealed – asphalt, brick concrete or other sealed path surface, usually with drainage treatments



Road Shoulder Grassed – mown/managed grass directly abutting road surface (no kerb & gutter)



Nature Strip Grassed – mown/managed grass with kerb & gutter



Unmarked Beach Walk



Footpad – distinct route defined by heavily trampled vegetation and worn bare earth



Track – wide clear easily navigable route, surface of in-situ material with few obstructions



Path Unsealed – constructed path with imported materials but unsealed ("soft-surfaced") and usually with edge definition or containment



Footpath – sealed footpath beside roadway





Road Shoulder Unimproved – unmanaged or unimproved surface directly abutting road surface (no kerb & gutter)








Nature Strip Unimproved – unmanaged or unimproved surface with kerb & gutter




Figure 6 *Track/Trail, Pathway and Route Types Used in Inventory*



Table 4 Inventory - Existing Tracks, Trails and Routes and Supporting Infrastructure





Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Observation Head	<p>Track, well worn/used track to/from point of headland from carpark.</p> <p>Informal track along eastern edge of point north from PP to main carpark area.</p> <p>Footpad along eastern side of headland connecting to Caseys Beach North.</p> <p>Community-built informal steps, of broken concrete slabs and pavers, off south-east end of headland to Caseys Beach North.</p> 	<p>Large unsealed carpark (approx. 50+ spaces), fenced, old and newer interpretive panels, and rubbish bin – unattractive and poorly designed/managed.</p> 	<p>Hazardous gravel slope at lookout on point of headland.</p> <p>Several hazardous track sections close to cliff edge on north-east side of point (off carpark, temporary mesh barrier)</p> <p>Very steep scramble tracks off east side of headland point to rock platforms below.</p> <p>Major trample track, eroded, off south-west side of headland point to rock platforms below.</p> <p>Major PP encroachment at end of Observation Ave – driveway, garden beds and plantings, picnic furniture.</p>
Caseys Beach North	No defined track, but an easily traversed area	<p>Landscaped/developed picnic area – sheltered picnic tables, picnic table, electric barbeque, toilets, play equipment, fencing and short timber steps to beach.</p> <p>Off-street sealed parking area (approx. 20 spaces)</p>	<p>No defined pedestrian link up to east side of Beach Rd.</p> <p>Hazardous pedestrian crossing point on Beach Rd – poor sightlines on curve and higher speeds.</p>

Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Caseys Beach	<p>Footpath - narrow concrete footpath along west side of Beach Rd.</p> <p>Road shoulder, part sealed but mostly unsealed gravel road shoulder along east side of Beach Rd on top of rock seawall, varies from 2 to 4.5 m wide.</p>	<p>No track-specific infrastructure.</p> 	<p>Short concrete steps to beach at south end of beach.</p> <p>Concrete footpaths on both sides of Short Beach Creek bridge.</p> <p>Informal carparking on wider eastern road shoulder towards south end of beach.</p> <p>East side of road subject to wave impact/splash on larger tides/swells.</p>
Caseys Beach North	No defined track, but an easily traversed area	<p>Off-street unsealed carpark/turning area (approx. 15 spaces).</p> <p>Toilets (attached to SPS) and rubbish bins.</p>	<p>Mown grassed area signposted as "Picnic Area" on Beach Rd, but no picnic furniture/facilities.</p> <p>Low grassy scarp, with some rock, from carpark to beach.</p>
Bronte Crescent Headland (north and east)	<p>Short section of community-built in-ground timber steps, with timber handrail, up mown grass slope east from Caseys Beach North "Picnic Area".</p> <p>Footpad, with some undefined sections, over mown grass along headland's northern edge, regularly used.</p> <p>Informal track around the eastern end of the headland, regularly used.</p> 	<p>No track-specific infrastructure.</p> 	<p>Laneway access off north-east end of Bronte Cres to northside of headland reserve.</p> <p>Passable area of reserve narrows to 2-3 m between PP boundary and steep slope edge at north-east end of Bronte Cres, minor hazard.</p> <p>PP encroachment, garden beds and unfenced lawns, in places along northside of headland.</p> <p>Eastern end of headland is open Spotted Gums with former PP/garden encroachment (complete with drip irrigation and garden edging) – track contained by timber edging, but causing drainage capture and erosion/concave track surface.</p> <p>Local-scale lookout, with expansive views north and east through Spotted Gums' trunks, from end of headland.</p>

Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Bronte Crescent Headland (south)	<p>Road shoulder of periodically slashed grass 2-3m wide, between residential road and low timber-post wire-mesh fence along vegetated cliff edge.</p> <p>Footpad over mown grass area beside PP at western end (leading to link down to Sunshine Bay beach).</p>	<p>No track-specific infrastructure.</p> 	<p>Local-scale views south over Sunshine Bay and opposite (southern) headland.</p> <p>On-street parking only.</p>
(Alt. Route - Bronte Crescent & Beach Road, Sunshine Bay)	<p>Road shoulder of mown grass along western end of Bronte Cres.</p> <p>Nature strip of mown grass in north and less well maintained grass and bare earth along eastside of Beach Rd.</p>	<p>No track-specific infrastructure.</p>	<p>Nature strip along Beach Rd narrows at southern end.</p> <p>Beach Rd subject to higher traffic speeds and volumes, unattractive walking route.</p>
Sunshine Bay	<p>Footpad over mown grass area beside PP off Bronte Cres above, leads to community-built narrow in-ground timber-retained and fill steps, across/down earth slope to beach</p> <p>Unmarked beach walk along coarse sand/gravel beach to foreshore carpark at southern end.</p>	<p>Off-street carpark/turning area, part asphalt part grass (approx. 25 spaces).</p> <p>Signs and rubbish bin.</p> 	<p>Community-built steps narrow, mostly sub-standard, lower steps have failed, minor hazard.</p> <p>Beach impassable in high tide/swell.</p> <p>Narrow vegetated bench just above HWM for southern two-thirds of beach.</p> <p>Several informal access tracks from residences above down vegetated slope to beach.</p> <p>Coarse sand/gravel beach is not easy walking.</p> <p>Low grassy scarp from carpark to beach.</p> <p>Interesting sculpted rock outcrop on northern end of beach.</p>


Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Beachwood Court Headland	<p>Unmarked beach walk along coarse beach south from foreshore carpark past PP down to HWM (and below).</p> <p>Informal track on steep slope east of PP, narrow and eroded with switch-backs, rough built and unstable steps of timber, concrete and tiles – low to moderate use, emerges opposite laneway access off Beechwood Crt.</p> <p>Footpad and informal track mostly over bare earth along rear of PP, eroded and loose gravel in sections, short section of community-built in-ground steps.</p> 	<p>No track-specific infrastructure.</p>   	<p>Warning sign “No access to Denhams Beach or Surf Beach” on rock platform at south end of Sunshine Bay beach.</p> <p>PP at south end of Sunshine Bay down to HWM (and below) signposted as “private property”, informal seawall of logs and rocks (with log boat ramp/skid across beach) – no access at high tide/swell.</p> <p>Steep informal track up to headland reserve - hazardous in current condition, not signposted.</p> <p>Laneway access off Beechwood Crt to west end of headland reserve.</p> <p>PP encroachment, garden beds and unfenced lawns, in places along northside of headland.</p> <p>Passable area of reserve narrows to 3-5 m between PP boundary and steep slope edge at east end of Beechwood Crt, minor hazard.</p> <p>Vacant block allows informal access off end of Beechwood Crt north to headland reserve.</p> <p>Former PP/garden encroachment, as large cleared area with sleeper edging, on point – track contained by timber edging, but causing drainage capture and erosion/concave track surface.</p> <p>Trample track to bare earth lookout area at eastern end of point, hazardous edge, regional lookout with views over sunshine Bay, Clyde River mouth, Pigeonhouse and Tollgate Islands.</p> <p>Commemorative plaques on lookout point.</p> <p>Laneway access off east end of Beechwood Crt to headland reserve on point, road end is a concrete path but remainder of access is indistinct (PP boundaries not defined with garden encroachment), confusing signposting.</p> <p>On-street parking only.</p>


Section/Location	Existing Trails	Track/Support Infrastructure	Comments
(Alt. Route – Beach Road & Beechwood Court & access lane)	Nature strip of grass and bare earth along eastside of Beach Rd, and nature strip of mown grass along north-west side of Beechwood Crt to access lane to headland.	No track-specific infrastructure.	Beach Rd subject to higher traffic speeds and volumes, unattractive walking route.
Burrawang Crescent Headland	<p>Footpad wide and well-worn in places in north but narrower and less distinct in south where the headland is more undulating, through alternating areas of encroaching lawns/gardens and patches of remnant bushland.</p> <p>Some undefined sections over mown grass encroachments.</p> 	<p>Older community-built fencing along sheer cliff edge for approx. 150m in north and centre of section – steel cable secured to trees (with overgrowth) and on star-pickets and posts, with stone edge/base in places.</p> 	<p>PP encroachment, garden beds and unfenced lawns, along much of section.</p> <p>North-facing section of cliff actively undercutting. Narrow point with local-scale views, north to east and Tollgate Islands and to south along coastline, but limited capacity and hazardous edges.</p> <p>Public reserve extends west back to Burrawang Cres, with trample track access (part possibly over PP).</p> <p>Route more undulating in south with several dips, with a side slope down to east and cliff edge.</p> <p>Passable area of reserve narrows to 3-4 m between PP boundary and steep slope edge in south, minor hazard.</p> <p>SPS at south end, with bitumen access lane off Burrawang Cres.</p> <p>Trample track down to tidal rock platforms below SPS, steep track benched into earth with community-built handrail of rope strung on star-pickets.</p> <p>On-street parking only.</p>



Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Burrawang Crescent Headland to Pleasurelea Park	<p>Informal track and footpad – narrow, but regularly used, largely through remnant bushland and scattered trees, mostly well back from cliff edge.</p> <p>Some undefined sections over mown grass encroachments.</p> 	<p>Pleasurelea Park – unmade road reserve (?) of slashed grass and scattered trees, with unsealed informal parking area (approx. 5 spaces) and 2 backed “garden” seats on concrete bases.</p> <p>Community-built timber bench seat near cliff edge, views east out to sea.</p> 	<p>PP encroachment, mainly unfenced lawns, along parts of section.</p> <p>Indistinct track to “cubby house” on point in north, with coastal views to south.</p> <p>Very well-made community-built narrow timber stairs and steps with timber handrails, and in-ground timber-retained and fill steps with chain handrail/grip in places, down to attractive small pebbly beach/cove on south side of point.</p> <p>Paver access track from PP to west.</p> <p>Recent native plantings north from Pleasurelea Park.</p> <p>Local-scale views east out to sea from Pleasurelea Park, but traffic on Beach Rd and adjacent overlooking PP residences detract from park’s appeal.</p> <p>On-street parking on Beach Rd.</p>
(Headland south of Pleasurelea Park)	<p>Informal track and footpad – narrow, but regularly used, largely through native grasses under scattered open trees, mostly well back from cliff edge.</p> <p>Informal track with switchbacks down very steep slope at north end of un-named beach, occasional timber-retained fill steps and benching, eroded, “ESC Path Closed” sign at top and blocked at bottom by wire mesh barrier/fence on PP boundary.</p> 	<p>Community-built log bench seat near cliff edge, views east out to sea.</p> 	<p>No access to un-named beach to south.</p> <p>Side-track, footpad, to lookout on cliff edge, sheer drop and hazard.</p> <p>Views to un-named beach/cove from south end of track.</p> <p>Area of substantial tree/vegetation clearing on headland reserve in south.</p>





Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Beach Road south from Pleasurelea Park and Barbara Crescent	<p>Nature strip of grass and bare earth along eastside of Beach Rd in north, more mown lawns in south.</p> <p>Nature strip of mown grass, sloping in places, along northside of Barbara Cres.</p> 	No track-specific infrastructure.	<p>Beach Rd subject to higher traffic speeds and volumes, unattractive walking route.</p> <p>Access lane from Beach Rd (between nos 227 and 229), near junction with Barbara Cres, down to un-named beach – steep and vegetated, no track and not used for access at present, not signposted as beach access.</p> <p>Barbara Cres signposted at junction with Beach Rd as “No Vehicular Access to Beach”.</p> 
Denhams Headland (Barbara Crescent to Graydon Avenue carpark)	<p>Track, well defined and used but no track treatments, on clay base, concave and eroded with protruding tree roots in sections. Mostly grass under open scattered trees with some bush patches.</p> <p>Undefined section over large mown grass clearing in south-west.</p> <p>Track mostly well back from cliff edge, but side-tracks to lookouts.</p> <p>Sealed path of concrete steps and ramp with galvanised pipe handrail down to Graydon Avenue carpark at south-west end.</p>	<p>No track-specific infrastructure.</p> 	<p>North-east end off southside of turning area at end of Barbara Cres.</p> <p>Side-tracks, well-used footpads and trample tracks, loop to 3 lookout points on cliff edge - sheer drop and hazard. Local-scale views south over Denhams Beach to Surf Beach and Divers Point. Same view from cleared grass area in south-west.</p> <p>Illegal tree clearing area.</p> <p>Intrusive sewer access pits in places.</p> <p>On-street parking at end of Barbara Cres.</p> <p>No access around Denhams Point to east – either along cliff top or via rock platforms.</p>




Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Denhams Beach, south from Graydon Avenue carpark	<p>Sealed path of ramped concrete steps (step-and-run) from southside of carpark down to rear of beach.</p> <p>Unmarked beach walk along sandy beach, south to access tracks near minor creekline and SPS.</p> <p>Footpads over sand/grass north of minor creekline lead west to sealed area around SPS, then asphalt path (and SPS access road) west up to southern corner of Graydon Ave.</p> <p>Unmarked beach walk continues south across mouth of minor creekline.</p> 	<p>Graydon Avenue carpark – sloping sealed carpark (approx. 20 spaces), tap/shower, bubbler, backed “garden” seat, rubbish bin, and grassed slope to beach.</p>  	<p>Old galvanized signpost – sign removed – on beach at access to rock platforms at north end of Denhams Beach.</p> <p>Stormwater drain discharges onto beach below carpark.</p> <p>Lower end of concrete steps (step-and-run) eroding/undercut, due to diverting foot traffic.</p> <p>Wide flat area of grass and pigface at rear of beach, still passable at high tide.</p> <p>Mown grass bench, unfenced lawn encroachments at rear of PP residences along eastside of Graydon Ave, is part of beach reserve, narrows to south but links to asphalt access track down to SPS, steep vegetated bank down to beach with occasional access track from PP above.</p> <p>Mown grassed area with scattered trees, at rear/east of townhouses beside asphalt path at southern corner of Graydon Ave, sign beside path “Private Property Residents Only” deters public use even though area is public open space. On-street parking at southern corner of Graydon Ave.</p>



Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Denhams Beach/Headland south to White Sands Place	<p>Unmarked beach walk from north across mouth of minor creekline. Footpads over sand/grass south of minor creekline link west to concrete path leading up from beach.</p> <p>Sealed path - ramped timber-edged asphalt path, with long step-and-runs, up and across slope with concrete side-drain.</p> <p>Track – timber-edged with some gravel fill, slightly back from top of cliff/slope through open Spotted Gums with lawn/garden encroachments to west. Concave, with drainage capture and erosion, in several places. Heavily used.</p> <p>Informal track to south and around point – mostly through low understory with scattered trees and set back from cliff edge, but close to cliff edge and hazardous for part in south as well as side-tracks to lookouts in places.</p> <p>Informal track and footpads downslope to White Sands PI, track splits and eastern track runs very close to cliff edge with loose gravel surface and protruding tree roots on slope – hazardous.</p>	<p>Backed garden seat on concrete pad at rear of beach in north (beside minor creekline). Timber bench seat at top of ramped asphalt path.</p> 	<p>PP encroachment, garden beds and unfenced lawns, along much of section.</p> <p>High-standard, sealed paver, pathway with lighting leads off foreshore route to switchback up slope to PP (Nursing Home) and picnic shelter – only signposted at top as private property.</p> <p>Laneway access links to headland reserve from end of Edgewood PI, signposted at west end as “Public Pathway” but does not look like a public access due to encroaching formal garden beds with entry archway and unfenced PP.</p> <p>3 adjacent lookouts on southern point, 1 on main route and 2 on side-tracks, well-used informal tracks, regional-scale views from Tollgate Islands to Divers Point and over sandy beach below – but hazardous edges with sheer drop and loose gravel/stone.</p> <p>Track splits at White Sands PI access, with through route along cliff edge – hazardous – and access tracks to road access from north and south. Mown grass area at White Sands PI access point.</p> <p>Wide sandy intertidal zone allows for attractive beach walk, below cliffs, from Denhams Beach to Surf Beach - but impassable in high tide/swell. On-street parking at end of Edgewood PI and corner of White Sands PI.</p>



Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Denhams Beach/Headland, from White Sands Place south to Surf Beach	<p>Footpad through open understory and grasses with scattered trees, mostly well back from cliff edge but headland reserve narrows in south-west to a 3 m wide corridor between PP fences and steep vegetated slope.</p> <p>Trample track /footpad down steep clay slope to weedy area at rear of flats at north end of Surf Beach.</p> <p>Track, also serving as vehicle access, from access laneway off end of White Sands PI to Beach Rd.</p> <p>Footpath beside Beach Rd south to Surf Beach carpark.</p>	<p>No track-specific infrastructure (major carpark to south).</p> 	<p>Track splits at White Sands PI access, with through route along cliff edge – hazardous – and access tracks to road access from north and south. Mown grass area at White Sands PI access point.</p> <p>Trample track accesses point with local-scale views south over surf Beach to Divers Point.</p> <p>Rock scramble down sloping spur of rock/clay off point to beach/rocks below, or steep trample tracks on slope to north, regularly used.</p> <p>Grassed access laneway off end of White Sands PI to headland reserve.</p> <p>Wide sandy intertidal zone allows for attractive beach walk, below cliffs, from Denhams Beach to Surf Beach - but impassable around point in high tide/swell.</p> <p>On-street parking at end of White Sands PI and on Beach Rd (and major carpark to south).</p> <p>Beach Rd subject to higher traffic speeds and volumes, unattractive walking route.</p> <p>Neighbourhood shopping centre on west side of Beach Rd.</p>



Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Surf Beach	<p>Undefined section over large mown/landscaped park between carpark and beach (or undefined route through carpark from footpath along Beach Rd), with short sealed path (concrete loop) in centre of reserve.</p> <p>Footpad through low foredune vegetation and grass to beach off south end of landscaped reserve.</p> <p>Unmarked beach walk to south, across mouth of creekline to base of headland.</p> 	<p>Major facilities node – large sealed carpark (approx. 50+ spaces, including 4 disabled parking spaces), 6 covered picnic table settings, electric barbeques, toilets (including disabled access), shower, drinking water, and rubbish bins. Additional facilities to the west over creek, access off Beach Rd or via timber footbridge from main area, include an unsealed overflow parking area, covered picnic table setting and play equipment.</p> 	<p>Patrolled surf beach in summer. Fenced beach access points over foredune. Neighbourhood shopping centre on west side of Beach Rd, and take-away food kiosk at north end of carpark.</p>
(Alt. Route – Surf Beach to Billabong Place Headland)	<p>Undefined section over mown/landscaped park west of creek.</p> <p>Nature strip of mown grass along eastside of Beach Rd (and residential side-road).</p> <p>Nature strip of mown grass and areas of bare earth along northside of Wimbie St.</p> <p>Nature strip of mown grass along westside of Billabong Pl.</p>	<p>No track-specific infrastructure.</p>	<p>Beach Rd subject to higher traffic speeds and volumes, unattractive walking route. Access laneway off north end of Billabong Pl to headland reserve, at top of timber stairs.</p>



Section/Location	Existing Trails	Track/Support Infrastructure	Comments
<p>Surf Beach to Wimbie Creek</p>	<p>Timber stairs with handrails both sides, 1m wide with landings midway and at top (appears to meet BCA standards) from southside of creekline angling up slope to reserve area on top of headland opposite end of access laneway from Billabong PI</p> <p>Mostly undefined sections over mown grass encroachments, along cliff edge/slope under scattered open trees, on north and northeast of headland.</p> <p>Footpad over mown grass encroachments and modified vegetation remnants and scattered open trees, along east side of headland, narrows to a 2m wide corridor above a bush slope in one place.</p> <p>Nature strip of slashed grass and bare earth, on slope down to Wimbie Beach, on northeast side of Wimbie St.</p>	<p>No track-specific infrastructure.</p>   	<p>PP encroachment, garden beds and unfenced lawns, along much of section – especially along north and northeast side of headland. PP along eastside of headland has more fencing, and some sections of retaining wall.</p> <p>Creek often flowing/connected to sea, requiring “wet” crossing along beach/mouth.</p> <p>Confusing fencing at top of stairs from Surf Beach deters public access to headland.</p> <p>Northeast point offers regional-scale views from Surf Beach to Tollgate Islands to Divers Point.</p> <p>Slightly sloped mown grass bench on east side of headland with local-scale views to Tollgate Islands and over Wimbie Beach to Divers Point.</p> <p>Wide sandy intertidal zone allows for attractive beach walk, below cliffs, from Surf Beach to Wimbie Beach - but impassable around point in high tide/swell.</p> <p>On-street parking at end of Billabong PI and along Wimbie St.</p> <p>Small unsealed parking area off end of Wimbie PI at rear of beach beside Wimbie Creek (approx. 10 spaces), low timber fence in poor repair.</p> 



Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Wimbie Creek to Wimbie Beach	Footpads over sand and grass to beach off end of Wimbie St. Unmarked beach walk along Wimbie Beach, across mouth of Wimbie Ck, to foreshore reserve.	No track-specific infrastructure.	Wimbie Ck often flowing/connected to sea, requiring “wet” crossing along beach/mouth. Low grassy scarp from beach to Wimbie Beach foreshore reserve.
(Alt. route – around Wimbie Creek)	Track along northwest side of Ck from Wimbie St carpark to grassed area at end of Highview Ave, flat and wide and heavily used. Timber footbridge , with handrails both sides and concrete approaches (appears to meet BCA standards) across Wimbie Creek to grassed open space on Ck’s southwest side. Undefined section over strip of mown grass then open bushland beside PP on southwest side of Ck. W. Undefined section over mown grass under scattered trees in front of PP, east to Newth PI.	No track-specific infrastructure.  	Drainage gutter runs west-east off Wimbie Ck in front of PP at northeast end of Newth PI, defines end of Wimbie foreshore managed reserve. Mouth of Wimbie Ck is approx. 15m wide, with higher bank on eastside. On-street parking at end of Highview Ave and Newth PI (enlarged turning/parking area, approx. 8 spaces). SPS in grassed area at end of Highview Ave.
Wimbie Beach	Undefined section over mown grass foreshore reserve. 	Backed “garden” seat on concrete base on point with ocean views. Rubbish bins. 2 community-built simple single-slat timber seats.	Low grassy scarp from reserve to beach. Faint footpad over grass at eastern end, links to tracks to Divers Point. Bush regeneration exclusion plot. On-street parking at end of Newth PI (enlarged turning/parking area, approx. 8 spaces). Local-scale views north.


Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Wimbie Beach to Divers Point	<p>Track along foreshore at rear of beach/rock platforms (tidal zone), well defined and heavily used, short sections of erosion and undercutting in places (former sewer outfall construction access). Leads to unmarked beach walk across small sloping pebbly beach immediately west of Divers Point.</p> <p>Footpad along top edge of slope above lower track, through edge of open understory bushland, undulating and close to slope/cliff edge in places.</p> <p>Track through open understory bushland upslope from Wimbie Beach reserve to track junction south of Divers Point, wide former management/vehicle access track, actively eroding over western third with gutters and protruding tree roots, large gravel deposition fan in Wimbie Beach reserve.</p>	<p>No track-specific infrastructure.</p> 	<p>Lower track eroding and undercutting in places, but still serviceable, receives high levels of use, but may be impacted and unusable in high tides/swells.</p> <p>No easy link onto Divers Point from lower track.</p> <p>Minor hazard on upper edge track due to proximity to slope/cliff edge and walkers on track below.</p>
Divers Point	<p>Informal track along saddle at southwestern approach to point, with slopes off both sides.</p> <p>4 steep trample tracks up/down southwest face of point.</p> <p>2 very steep trample tracks off southeast side of point to narrow beach below.</p> <p>Faint trample track climbs up and over steep north-east spine of point – very hazardous.</p>	<p>No track-specific infrastructure.</p> 	<p>Area of existing and potentially high visitor interest, but hazardous and would require close management.</p> <p>Local-scale coastal views south-east from saddle.</p> <p>Southwestern trample track from pebbly beach below is the most heavily used access up onto the point, runs beside a drainage gutter that is still eroding due to drainage from major tracks above to south.</p> <p>“Walk-in” destination only, no vehicle access.</p>




Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Divers Point to Grandfathers Gully Creek	<p>Track through open understory Spotted Gum bushland upslope from Divers Point, wide former management/vehicle access track, runs directly up slope and actively eroding with deep gutters and protruding tree roots.</p> <p>Footpad detours east off eroded management track near top of slope, runs close to cliff edge in places – hazard.</p> <p>Large clearing on crest/ridge, junction of former management/vehicle access tracks.</p> <p>Track through open understory Spotted Gum bushland downslope from crest to Grandfathers Gully Ck, wide former management/vehicle access track at top narrows to 1.5m wide towards bottom of slope, runs directly down slope and actively eroding with protruding tree roots, gravel deposition fan at base on northside of Ck.</p> <p>Footpad runs along cliff edge downslope from crest – hazardous – rejoins management track about third of way down slope.</p> <p>Footpad detours east off eroded management track near base of slope.</p> <p>Informal track to lookout on cliff edge near base of slope, sheer drop - hazard.</p> <p>Informal track, with notched footholds down scrap, into mouth of Grandfathers Gully Ck.</p>	<p>No track-specific infrastructure.</p> 	<p>Local-scale lookout on crest.</p> <p>Trample tracks and footpads run close to cliff edge in places – hazardous.</p> <p>Steep trample track to beach just above flat on northside of Grandfathers Gully Ck.</p> <p>Former management/vehicle access tracks inappropriately sited directly up and down slope and continuing to erode, rollover drains and other management treatments old and/or failed.</p> <p>Connects to wider management/vehicle access track network providing access to/from George Bass Dr.</p> <p>Grandfathers Gully Ck and beach is a scenically, scientifically and culturally interesting area.</p> <p>“Walk-in” destination only, no vehicle access.</p> 


Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Grandfathers Gully Creek to Denise Drive	<p>Clearings on southside of incised section of Grandfathers Gully Ck and rear/west of low rise to south (with scattered Spotted Gums).</p> <p>Informal track, eroded ramp up south side of Grandfathers Gully Ck (also old vehicle access/ramp just to west leading up to main clearing).</p> <p>Track through open understory Spotted Gum bushland, wide former management/vehicle access track, eroding in places with protruding tree roots – multiple tracks/routes around gully.</p> <p>Informal track on foreshore along top of scarp to beach, eroded and braided to multiple tracks where crosses gully in south at base of slope up to Denise Dr.</p> <p>Informal track up slope to Denise Dr through Spotted Gum bushland grading into coastal Casuarina heath, well defined 4-600mm wide and regularly used, sidetrack to lookout with gavel clearing on lower slope, mostly 2-3m or more back from edge of slope but runs close to cliff edge in places, sidetrack to lookout on upper slope.</p>	<p>Community-built backed timber seat near cliff/slope edge south of Grandfathers Gully Ck.</p>  	<p>Informal track up to Denise Dr and sidetracks to lookouts close to cliff edge in many places – hazardous.</p> <p>Management/vehicle access tracks (fire trail) joins informal track up to Denise Dr about halfway up slope and heads south/southwest, below PP, to George Bass Dr at junction with Denise Dr</p> <p>Extent of clearings and old tracks reduces appeal of Grandfathers Gully Ck and beach.</p> <p>“Walk-in” destination only, no vehicle access.</p> <p>Local-scale lookouts with views back to Grandfathers Gully Ck and beach, Divers Point and distant coastline.</p>

Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Denise Drive to Denise Lane	<p>Informal track through coastal Casuarina heath and open bushland, well defined 4-600mm wide and regularly used track set 2-3m back from cliff edge, but closer in some sections with hazard compounded by slope and loose surfaces. Sidetracks to lookouts off centre of Denise Dr, a major lookout point close to road, and 2 lookouts off main track on eastern point. Occasional link tracks up to Denise Dr off northwest section, where track runs 6-10m off and below road.</p>	<p>Community-built backed timber seats at central lookout off Denise Dr and southeastern lookout on point (engraved "Neil"). Small sealed carpark at end of Denise Ln (approx. 6 spaces).</p> 	<p>Regional-scale views from central lookout - north to Clyde River mouth and Divers Point, east to Tollgate Islands, and south along coastline - but hazardous, with sloping loose gravel surface to sheer cliff edge. Similar regional-scale views from northernmost lookout on eastern point. Local-scale views from south-western lookout on eastern point - over Circuit Beach and Lilli Pilli Point. Very steep trample tracks down to rock platforms from lookout point and off sidetrack access. On-street parking (limited) on central section of Denise Dr</p>
Denise Lane to Circuit Beach access	<p>Unsealed path with timber edging, concave surface with drainage capture off carpark and continuing erosion. In-ground timber-retained (risers and edging) and fill steps, then timber stairs, both with handrail on lower side then concrete steps onto beach (appears to meet BCA standards). Unmarked beach walk along northern half of Circuit Beach. Footpad over sand/grass at rear of Circuit Beach, leading west up to SPS and gravel service access from George Bass Dr.</p>	<p>Small sealed sloping turning area and carpark at end of Denise Ln (approx. 6 spaces).</p> 	<p>Area at end of Denise Ln signposted as "Public Recreation Reserve – Department of Lands", and recent native plantings. Lawn encroachments from PP south of Denise Ln turning/parking area. Trample track running along northside of creek back from beach, providing beach access from PP along south side of Denise Dr. Access from George Bass Dr via gravel service track to SPS.</p>



Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Circuit Beach access to Lilli Pilli Point	<p>Footpad over slashed grass bench at rear of Circuit Beach.</p> <p>Track with sections of improved track, very well defined and heavily used, average 800mm wide and some sections up to 1-1.4m wide, with in-situ gravel surface, some waterbars (timber planks) and other basic drainage control treatments but track regularly concave from drainage capture and minor erosion. On gentle to gentle/moderate slope up to east, through very open understory Spotted Gum bushland. Well back from cliff edge, but several trample tracks to cliff edge/slope and up to PP to south.</p>	<p>3 community-built seats – 1 garden seat and 2 backed timber seats (same style) (one engraved “Ron” and the other “Ted”) on edge of cliff/slope with views north.</p> 	<p>Track down wide drainage gully to foreshore boatshed at east end of Circuit Beach - steep with rough timber-retained fill steps with star-picket and rope handrail.</p> <p>Filtered local-scale views north along coastline, from much of track and seat lookout points.</p> <p>Regional-scale views from east end - north over reef to Clyde River mouth, Divers Point, distant coastline and Pigeonhouse on horizon.</p> <p>Access from George Bass Dr via gravel service track to SPS at west end, walk-in access only with no direct vehicle access.</p>
Lilli Pilli Point	<p>Informal track 6-800mm wide, runs along contour around north side of point, well back from cliff edge.</p> <p>Informal track 600mm wide through thicker understory and emergent trees, just back from cliff edge around east end of point with several trample tracks to cliff edge and lookout points - hazardous.</p> <p>Informal track 600mm wide back from cliff edge along undulating southside of point to Lilli Pilli Rd carpark.</p> <p>Entire section on in-situ compacted clay (minor gravels in northeast), mostly concave with occasional protruding tree roots.</p> <p>Entire section well used.</p>	<p>Community-built seat (north) and brick/timber picnic table (south) off track on northeastern edge of point.</p> <p>Unsealed sloping gravel carpark at end of Lilli Pilli Rd (approx. 8-10 spaces, poor layout).</p> 	<p>Trample tracks up to PP from northside of point.</p> <p>Short-cut informal track across southwest of point, passing close to easternmost PP some encroaching development (garden sheds and glasshouse) onto headland reserve.</p> <p>Sidetracks to lookouts off east end of point.</p> <p>Northern lookout (survey mark) has regional-scale views north over reef to Clyde River mouth, Divers Point, distant coastline and Pigeonhouse on horizon – but hazardous sloping gravel area above sheer drop.</p> <p>Southern lookout accessed by trample track down narrow point, hazardous rock scramble off end, local-scale views into Lilli Pilli Beach.</p>






Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Lilli Pilli Beach	<p>Unsealed path and gravel-sheeted vehicle access track south from Lilli Pilli Rd carpark down gentle slope along rear of foreshore.</p> <p>Timber stairs off end of vehicle access, 1250mm wide with timber handrails both sides and concrete landings top and bottom, onto sand and grass at rear of Lilli Pilli Beach.</p> <p>Undefined section over sand and grass at rear of Lilli Pilli Beach.</p> <p>Unmarked beach walk across mouth of Lilli Pilli Ck and along Lilli Pilli Beach to south end.</p> <p>Footpad of sand and worn grass, up from south end of beach.</p>	<p>Unsealed parking area at rear of Lilli Pilli Beach (approx. 16-18 spaces), toilets behind parking area.</p> <p>Small mown park at junction of Lilli Pilli Beach access road and Fairview Dr – play equipment, 2 picnic table/seat settings, and 1 electric barbeque with views over Lilli Pilli Beach/Bay.</p> 	<p>Path from Lilli Pilli Rd carpark signposted as “No Through Road – No Parking Service Entry Only”. Informal steps/track down to rear of Lilli Pilli Beach from PP above to northwest.</p> <p>Lilli Pilli Ck often flowing/connected to sea, requiring “wet” crossing along beach/mouth.</p> <p>Lilli Pilli Beach impassable at high tide/swell, but vegetated bench at rear of beach above HWM allows access – also a second vegetated terrace/dip behind.</p> <p>Alternative route south from Lilli Pilli Beach via unsealed parking area at rear of beach, along unsealed access road from carpark upslope south to park off Fairview Dr, then down bitumen path to behind south end of beach.</p> <p>Large SPS at rear of Lilli Pilli Beach, with gravel service access southwest directly to George Bass Dr.</p> <p>Clearings under scattered trees up gentle slope at rear of Lilli Pilli Beach, and several regenerating vehicle tracks through bushland between Lilli Pilli Beach and George Bass Dr.</p>




Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Fairview Drive Headland	<p>Footpad 4-600mm wide up moderate slope from south end of Lilli Pilli Beach, eroded with numerous protruding routes. Informal track along entire headland edge, 4-600mm wide in north and centre increasing to 6-800mm wide at southern end, mostly through open understory and Casuarina with depauperate Spotted Gums set back 2+m from cliff edge (but some sections closer and hazardous). Concave track in compacted clay, several sections running directly up/down slopes with drainage capture and continuing erosion, protruding tree roots common. Several sidetracks to lookouts and cliff edge, as well as linking to Fairview Dr.</p> 	<p>Community-provided seats at lookout on south end of southern point, 2 plastic chairs on timber frame chained to tree, labeled “Lilli Pill residents whale watch chair”.</p>  	<p>2 link tracks, close together and to informal track standard, off Fairview Dr at north end leading to vantage points on sloping cliff edge with local-scale views over Lilli Pilli Beach/Bay. Short sidetrack to 2 bare gravel lookout areas on cliff edge at north-eastern point, with local-scale views to north-east, loose surface and sheer drop – hazardous (2 closed brush-matted lookouts adjacent). Informal track, linking back to Fairview Dr, with numerous faint “exploratory” trample tracks. Track runs close to cliff edge near dip/drainage in centre of headland – hazardous. Very steep rock scramble down to rock platforms below. Local-scale views to sea cave under in headland’s cliffs, and views to north-east, from central dip/drainage. Informal track, linking back to Fairview Dr, connects on climb south from central dip/drainage. Sidetrack to cliff edge lookout on north side of southern point, local-scale views to northeast. Clearing inland from track and lookout, with old vehicle access track linking back to “farm gate” on Fairview Dr. Track splits for 15m on southern point, outside route along loose gravel cliff edge then short trample track to sheer edges lookout – both hazardous. Major lookout area just off track at south end of southern point, 2 main vantage points (one with plastic chairs), regional-scale views from northeast to southeast. On-street parking on Fairview Dr.</p>






Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Fairview Drive (south end) and Baringa Crescent	<p>Nature strip gravel, grass then mixed grass/earth along southside of Fairview Dr.</p> <p>Road shoulder of grass with driveways along eastside of Baringa Cr.</p> <p>Road shoulder of worn grass with footpads along eastside of George Bass Dr, pas in front of Mosquito Bay shops.</p>	<p>Bakery/café in Mosquito Bay shops, and small off-street parking area (approx. 4 spaces).</p> 	<p>Deep incised stormwater drain outlet beside Fairview Dr on foreshore, opposite Endeavour Ave.</p> <p>Well-used trample track off Fairview Dr accessing foreshore/rock platform at rear of PP on northern end of Baringa Cr.</p> <p>Laneway accessing foreshore reserve between nos 20 and 22 Baringa Cr totally closed off by encroachment and impassable/illegible on-the-ground (possible access to foreshore and then south to Mosquito Bay boat ramp area).</p> <p>On-street parking on Fairview Dr.</p>
Mosquito Bay boat ramp	<p>Undefined section across top of boat ramp access and parking area.</p> <p>Trample track down grassy slope to south of boat ramp accesses small beach and creekline.</p>	<p>Boat ramp, fish cleaning tables and sealed parking area (mainly for boat ramp users, approx 12 spaces).</p> <p>Bakery/café in Mosquito Bay shops and small off-street parking area (approx. 4 spaces).</p> <p>Male and female toilets, with disabled access.</p> <p>2 picnic table/seat settings on concrete bases, rubbish bins and public telephone.</p>	<p>No existing (marked or easy) access from Mosquito Bay to headland reserve along north side of Iluka Ave Headland – blocked by concrete block seawall in intertidal zone (private stair access signposted “Keep Out Private Property”) and steep grassy slope.</p>
George Bass Drive and Iluka Avenue	<p>Road shoulder on eastside of George Bass Dr, with gravel path on outside of guard rail over creekline south from Mosquito Bay boat ramp.</p> <p>Road shoulder of grass and footpad on eastside of George Bass Dr.</p> <p>Nature strip of mown grass on northside of Iluka Ave to laneway access to headland reserve.</p>	<p>No track-specific infrastructure.</p>	<p>Laneway access to headland reserve off northern curve of Iluka Ave (allows access both south and north, deadend, on Iluka Ave Headland).</p> <p>On-street parking on Iluka Ave.</p>



Section/Location	Existing Trails	Track/Support Infrastructure	Comments
(Deadend Route - Iluka Ave Headland, northside)	<p>Footpad through encroaching garden plantings immediately north from laneway access off Iluka Ave.</p> <p>Informal track south from point, beside encroaching shade cloth fencing right along cliff edge for approx. 20m – hazardous.</p> <p>Short sidetrack to cleared and planted lookout area on point.</p> <p>Informal track west from point beside encroaching garden beds along steep slope/cliff edge – hazardous.</p> <p>Undefined section over sloping encroaching lawns and garden beds 2-4m wide along northside of Iluka Ave Headland, west to paved area and concrete block seawall in intertidal zone preventing link to Mosquito Bay.</p>	<p>Single post-and-rail timber barrier at end of access lane off Iluka Ave, at edge of cliff above narrow rocky inlet.</p> <p>Resident-built bench seat and low fence on northside of point.</p> <div data-bbox="954 485 1420 836" data-label="Image"> </div> <div data-bbox="954 842 1420 1197" data-label="Image"> </div>	<p>Very hazardous section south of point where encroaching shade cloth fencing pushed track hard along cliff edge for approx. 20m – risks exacerbated by cliff edge being hidden by vegetation in places.</p> <p>Lookout on point offers local-scale views north and east.</p> <p>Scenic narrow rocky inlet cuts into southside of point.</p> <p>No existing (marked or easy) access from northside of headland back to Mosquito Bay boat ramp and reserve – blocked by steep grassy slope and concrete block seawall in intertidal zone (private stair access from intertidal zone signposted “Keep Out Private Property”).</p> <div data-bbox="1599 746 1935 1197" data-label="Image"> </div>




Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Iluka Ave Headland to Garden Bay Reserve	<p>Footpad through overgrown grass and low/shrub native vegetation along narrow public reserve (2-8 metres wide to cliff edge) immediately south from laneway access off Iluka Ave.</p> <p>Undefined sections over sloping lawns and garden plantings 5-10m wide along eastside of Iluka Ave and north-west side of Garden Bay.</p> <p>Footpad, 3-400mm wide and deeply concave in places, through open shrubs/trees and plantings towards Garden Bay.</p> <p>Timber stairs on steep slope at northside of Garden Bay Reserve, 1000mm wide with timber handrails – timber corduroy in-ground at top and concrete pad at bottom with in-ground timber and old asphalt steps off to beach.</p>	<p>Resident-built picnic table with seats, and bench seat, on mown grass at cliff edge.</p> <p>Resident installed temporary signs at north end, to prevent short-cutting across open PP to Iluka Ave (also star picket and rope temporary fencing).</p> 	<p>Laneway access to headland reserve off northern curve of Iluka Ave (allows access both south and north, deadend, on Iluka Ave Headland).</p> <p>On-street parking on Iluka Ave.</p> <p>Steel reinforcing mesh used as PP rear fence on part of narrow northern section with footpad located adjacent, presenting a hazard for users.</p> <p>Hazardous sections in north, reserve narrows to 2-4m sloping towards vegetated/hidden cliff edge in places and walkers pushed to within 1-2m of cliff edge by encroaching clay/landscaping mound.</p> <p>Footpad/route adjacent to PP rear fences for much of this section, unattractive fencing (star pickets and wire) in many places.</p> <p>Considerable wind-pruning of trees/shrubs in this section.</p> <p>Local-scale enclosed views east/south-east over Garden Bay only.</p>
Garden Bay Reserve	<p>Undefined section over small mown/maintained reserve each side of reedy creekline, and unmarked beach walk across creek mouth.</p> 	<p>Carpark in north-west of reserve, off Garagarang St, part unsealed/gravel and part old asphalt, with timber post-and-rail fence (approx. 10 spaces, but undefined).</p> <p>Double swing, 2 sheltered picnic table/seat settings, rubbish bin and sign.</p>	<p>Alternative route to creek/beach crossing is through carpark and on road over creek, log fence over crossing and no shoulder, minor traffic hazard (but low speed area and good visibility).</p> <p>SPS at west end of carpark.</p> <p>Eroding scarp between beach and grass on south side.</p> <p>Drainage reserve (cleared/grassed vacant block with central stormwater pipe outlet and vegetation) accesses Yugura St off south-eastern side of reserve, with in-ground timber and gravel-fill steps on grassy slope along eastside of block.</p>





Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Yugura Street Headland (northside)	<p>Timber steps, in-ground with single timber handrail, on unmown grassy slope at south-east corner of Garden Bay Reserve (possibly community built).</p> <p>Undefined section in west over sloping mown grass to vegetated/planted cliff edge.</p> <p>Footpad and trample track through unmown grass and open trees/shrubs, narrow and sloping to vegetated cliff edge in places, in east.</p> <p>Undefined section across open grass clearing on point with low vegetation along cliff edge.</p> <p>Trample track through open bushland/trees from point to cul-de-sac at end of Yugura St.</p>	<p>Resident-built bench seat.</p>  	<p>Upper end of timber steps may be on PP (with brick BBQ nearby at top), although in regular public use, requires boundary check.</p> <p>Sheer cliff edges, disguised by vegetation in places, present a hazard at eastern point and off end of Yugura St cul-de-sac.</p> <p>On-street parking (2-3 spaces) in cul-de-sac end of Yugura St, with guard rail and timber posts.</p> <p>Regional-scale views from gently sloping cleared grassy area on point - views north to Pigeonhouse, Tollgate Islands and northern shoreline.</p> 
Yugura Street Headland to Karoo Crescent access lane	<p>Undefined section over sloping mown grass and garden extensions, varying from 5 to 20+ metres, out to cliff edge of remnant vegetation or planted/gardens.</p> <p>Minor sections of footpad.</p> 	<p>No track-specific infrastructure.</p> <p>Numerous private garden seats, picnic settings, clothes lines and play equipment (but presented as private facilities in garden settings/extensions).</p> 	<p>Unattractive besser block boundary wall adjacent to route in north.</p> <p>Lawn to steep slope/cliff edge in places.</p> <p>Local-scale views north along coast and south to South Head, small pebbly beach below in south.</p> <p>PP rear boundaries are mostly unfenced, with reserve to cliff edge presenting and used as extension of PP. Little recreational traffic/use at present – intimidating setting for public access.</p> <p>On-street parking (2-3 spaces) in cul-de-sac end of Yugura St.</p> <p>Grassed access lane from Karoo Cr, sign-posted as "Public Reserve - No Vehicular Access", on-street parking only in Karoo Cr.</p>




Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Karoo Crescent access lane to Tallawang Avenue access lane	<p>Undefined section over wide area of mown grass and scattered trees at rear of PP (on upper slope of rounded valley/dip sloping down to beach), with minor sections of footpads.</p> <p>Informal tracks of mown grass and footpads through native grasses in north, short-cutting across valley/dip or leading down to beach access.</p> <p>Informal track through open remnant bushland on southern side of valley/dip.</p>	<p>Resident-built picnic table and seats.</p> 	<p>Well used network of track and beach access in scenic bowl/valley of open trees and grass with bush flanks, dipping down to beach accesses. Section of informal track through southern open bushland runs beside cliff edge, local-scale views but hazardous.</p> <p>Steep well-used trample track, with star picket and rope handrail, follows drainage line/gutter down to pebbly beach from low point in valley. Numerous informal trample tracks in open bushland area to south.</p> <p>Steep trample track down to alcove at south end of pebbly beach.</p> <p>Grassed access lanes from Karoo Cr and Tallawang Ave, on-street parking only. Evidence of ring-barking of some remnant trees.</p>
Tallawang Avenue access lane to South Head track junction	<p>Undefined section over wide mown grass and garden plantings to cliff edge at rear of PP.</p> <p>Trample track through areas of overgrown kikuyu, native grasses and modified remnant bushland - with some undefined sections along narrow mown grass strips at rear of PP and around SPS.</p> 	<p>No track-specific infrastructure.</p> 	<p>Tracks set back from cliff edge.</p> <p>Narrow and steeply sloping section at rear of PP mesh fence in north, passable with care but likely to need boardwalk/bridge for approximately 12-15m to be easily passable.</p> <p>Very steep trample track/clamber down slope to beach on north side of South Head.</p> <p>Old rear boundary fence of star pickets and rope, partly collapsed, PP boundary requires clarification.</p> <p>SPS in dip.</p> <p>Track junction at/to South Head indistinct.</p> <p>Grassed access lane off Tallawang Ave in north, on-street parking only, no direct access at South Head end.</p>






Section/Location	Existing Trails	Track/Support Infrastructure	Comments
(South Head tracks)	<p>Informal track along spine of headland to eastern point, very narrow neck at west end and lookout off south-east point.</p> <p>Trample track off eastern point to rock platform below, very steep with anchored “assistance rope” on upper section.</p> <p>Trample track to narrow point and lookout south from main headland.</p> 	<p>No track-specific infrastructure.</p>  	<p>Narrow neck at west is challenging, with steep slopes off both sides and informal steps at western end.</p> <p>Eastern lookout in open Casuarina grove offers regional-scale views - south to Pretty Point and south-west into Malua Bay, plus north along coastline with Pigeonhouse on horizon, also interesting rock platform/outcrop below – but hazardous cliff edge.</p> <p>Narrow point and lookout south from main headland is very hazardous with steep loose slopes both sides to cliff, local-scale views south to Pretty Point and south-west into Malua Bay. Rock platform off eastern end with striking rock outcrop interesting for exploration at low tide or low swell. Pebbly beach off north side.</p> <p>No direct access to South Head from adjacent streets.</p>
South Head track junction to Tallawang Ave reserve	<p>Trample track though overgrown kikuyu and remnant/modified native vegetation beside PP (unfenced and fenced).</p> <p>Informal track remnant/modified native vegetation in Tallawang Ave reserve linking back to road.</p> 	<p>No track-specific infrastructure.</p> 	<p>Trample track though overgrown kikuyu to southern point, track splits to 2 individual lookouts under open Casuarinas on hazardous cliff edge (especially eastern lookout), local-scale views south to Pretty Point and south-west into Malua Bay.</p> <p>Reserve off southside of Tallawang Ave is remnant bushland in north (roadside) but cleared mown grass in south with scattered trees (maintained by adjacent PP owners). Not signposted as public reserve or access. On-street parking only on Tallawang Ave, but limited by curve.</p>




Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Cliff margin along southside of Tallawang Ave to Reedy Creek	<p>Undefined section over mown grass and garden extensions, narrow strip 1.5 to 10 m wide between PP boundaries and cliff edge.</p> <p>Informal steps of in-ground concrete pavers/blocks down steep grassy/weedy slope to Malua Beach near western end.</p> <p>Timber and concrete stairs and timber boardwalk/ramp to Reedy Creek and Malua Beach, off end of laneway access and concrete path upslope to Tallawang Ave.</p> <p>No cliff edge track immediately east of stairs, native shrubs right to unfenced PP boundary.</p>	<p>No track-specific infrastructure.</p> 	<p>Two very hazardous sections in east where navigable route narrows to 1.5m, or <4 m with slope to edge, between PP boundary and cliff edge partly disguised by plantings and remnant vegetation (walkers also possibly distracted by views).</p> <p>Some PP boundaries fenced, several unfenced. Regional-scale views south-east to Pretty Point, south over Malua Bay and south-west to forested hinterland.</p> <p>Two points extending to south, mown grass with vegetated cliff edge, view but hazardous. Concrete pathway, with steps at top, from stairs to Tallawang Ave. On-street parking only.</p>
(Reedy Creek northside)	<p>Trample track and informal mown path through overgrown kikuyu west from stairs off Tallawang Ave laneway.</p> <p>Undefined section over mown grass and garden extensions from PP along Tallawang Ave down to margins of Reedy Creek and small lagoon.</p> <p>Service access track west along northside of Reedy Creek, ends at fenced PP boundary (just short of road and pedestrian footbridge).</p>	<p>No track-specific infrastructure.</p> 	<p>Large mown area beside east end of Reedy Creek/Lagoon is effectively private space, with garden plantings, no PP fences and limited public access – although PP boundary has been pegged along entire northern edge of Reedy Creek.</p> <p>Access lane from Tallawang Ave to north-west corner of main mown area, undifferentiated from adjoining PP and only marked by “To Beach” fingerboard sign on Tallawang Ave.</p> <p>On-street parking on Tallawang Ave only.</p>
Reddy Creek mouth	<p>Unmarked beach walk from Tallawang Ave stairs to Kuppa Ave.</p> <p>Trample track over spinifex and sand at end of Kuppa Ave.</p>	<p>No track-specific infrastructure.</p>	<p>Impassable in high swells or after rain when Reedy Creek flowing. Alternative route along Tallawang Ave to George Bass Dr then south to Kuppa Ave and Albert Bamman Park (Malua Beach).</p>

Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Albert Bamman Park (Malua Beach)	<p>Undefined section over reserve to join main concrete pathway, or alternative link via footpath along northside of Kuppa Ave past shops.</p> <p>Sealed path, concrete, north-south through reserve – along western edge of reserve in north, veering to eastern side and closer to beach in south past Surf Club – crossing creekline in south before becoming a shared path/driveway linking up to Wimbin Ave.</p> <p>Undefined section over mown grass at southern end of reserve (south of creekline) east to base of Wimbin Ave headland.</p>	<p>Major facilities node (developed reserve with facilities) – large sealed carpark (approx. 55+ spaces, including disabled parking spaces), 5 covered picnic table settings, electric barbeques, play equipment, toilets, shower, drinking water, and rubbish bins. Bus stop.</p> 	<p>Patrolled surf beach in summer. Direct/unfenced access from reserve to beach.</p> <p>On-street parking in Kuppa Ave (nose-in), approx. 45 spaces.</p> <p>Fenced beach access points over foredune.</p> <p>Neighbourhood shopping centre on north side of Kuppa Ave, and take-away food shops and supermarket.</p> 
Wimbin Ave headland to Pyang Ave reserve/block	<p>Resident-built steps, of retained timber and in-situ gravels, up north-west slope of headland – with gal. pipe and timber handrail in places,</p> <p>Informal track along cliff edge though remnant bushland (trees and open understory).</p> <p>Footpad over mown grass to reserve/block on Pyang Ave.</p>	<p>No track-specific infrastructure.</p> 	<p>Hazardous sections of loose/eroded track surface adjacent to cliff edge.</p> <p>Track surface eroded/concave in many places, with drainage capture.</p> <p>Local-scale views north along Malua Beach and south over white rock platform/boulders to Pretty Point.</p>

Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Pyang Ave reserve/block to Illabunda Dr access lane	<p>Informal track along cliff edge though low remnant bushland and plantings, weed mat under in places to vegetated cliff edge.</p> <p>Undefined section over mown grass and garden extensions – to just south of Pyang Ave Point – approx 5 to 20 m wide to vegetated cliff edge, slopes down to cliff edge in places.</p> <p>Footpad on slope south from Pyang Ave Point – narrow on upper section and up to 1.5m wide on hardened soil/clay on mid and lower slope, through slashed native grass clearings and native grasses/understory with scattered trees closer to cliff edge.</p>	<p>Two resident-built bench seats. Sections of steel reinforcing and star picket fencing, and old wire mesh fencing (in poor condition), along cliff edge– resident-installed.</p>  	<p>Local-scale views from north end of section, over white rock platform/boulders to South Head. Brick building right on eastern property boundary in north end, unattractive.</p> <p>Side-track, footpads, to lookout on Pyang Ave Point, mown grass with scattered trees and hazardous vegetated cliff edge, local-scale views to Pretty Point.</p> <p>Illabunda Dr access lane of gravel wheel tracks and mown grass, PP gardens both sides, not signposted on road.</p> <p>On-street parking only on Pyang and Ave and Illabunda Dr.</p> 
Pretty Point Bay (North) - Illabunda Dr access lane to Millamurra St SPS	<p>Undefined section over mown grass approx 5 to 15 m wide to vegetated/bushland cliff edge.</p> <p>Footpad through open grass and scattered trees and small areas of modified remnant bushland, mostly back from vegetated cliff but along edge in several places.</p> <p>Undefined section over mown grass and scattered trees sloping down to vegetated cliff edge.</p> <p>Grass road shoulder beside Illabunda Dr over small drainage and beside/through post-and-rail enclosed SPS.</p>	<p>Two resident-built backed seats (one damaged).</p> 	<p>Sections of hazardous track along cliff edge, sticks/branches piled along edge as barriers. Well-used trample track access north end of Pretty Point Bay Beach off slope opposite Millamurra St.</p> <p>Trample track access through bushy vacant block on Illabunda Dr.</p> <p>On-street parking on Illabunda Dr.</p>

Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Pretty Point Bay Beach	Grass road shoulder beside Illabunda Dr, 10-20m wide sloping off to steep vegetated slope at rear of beach.	Backed seat on concrete base. 	Grassed ramp down to beach at north end. Most of beach is below HWM, no access up to Illabunda Dr and Pretty Point form south end of beach. On-street parking on Illabunda Dr, but considerable capacity.
Pretty Point (Illabunda Dr and western end)	Grass road shoulder beside Illabunda Dr, 4-6 m wide with gutter/dip. Trample track alongside (wire fence) of PP from Illabunda Dr to grassed cliff edge. Track from Illabunda Dr, west through native grass and regeneration area in dip (possibly following line former road/service access) to earth mound and narrow neck/saddle. Informal track around south-western cliff edge - linking larger track (north) to trample track off Illabunda Dr (south-west) - through Acacia regeneration, and close to or side tracks to cliff edge in places.	No track-specific infrastructure.  	Four timber posts along edge of Illabunda Dr shoulder, at start of main track to Pretty Point. Main track onto Pretty point is very heavily used. Sections of informal track are close/along cliff edge and hazardous, and informal tracks to two lookouts on southern cliff edge with hazardous sheer drops (sticks/branches piled along edge as barriers). Local-scale views south-west to McKenzies Beach and islands/coastline to south. Extremely steep and faint trample track/clamber down rocky slope to small beach south of Illabunda Dr curve.

Section/Location	Existing Trails	Track/Support Infrastructure	Comments
(Pretty Point tracks)	<p>Track (from Illabunda Dr) continues east over narrow neck/saddle – of open gravel surfaced 5-6m wide – and along undulating spine of point to knoll/high point at eastern end – a well used concave track through a mix of bushland types (closed low forest, dense shrubs/heath, and open understorey with scattered trees).</p> <p>Trample track down steep slope and drainage gully to enclosed pebbly beach below/south of narrow neck.</p> <p>Footpad north to open pebbly beach and rock platforms, on northside of narrow section of point.</p> <p>Trample track down very steep and slippery rock slope to small rocky beach on south-east side of narrow section of point.</p> <p>Network of trample tracks, some very faint, around eastern end of point – accessing/exploring cliff edge, coves and rock platforms plus fishing spot accesses. Many hazardous due to loose gravel cliff edges or slopes.</p> <p>Trample track down stepped/angled rock terraces at eastern end of point, fishing spot access.</p> <p>Footpad along far north-eastern cliff edge at end of point, hazardous.</p>	<p>No track-specific infrastructure.</p>   	<p>Regional-scale views from open narrow neck/saddle, both north and south – north along coastline to South Head and Tollgate Islands, south to islands/coastline, south-west to McKenzies Beach.</p> <p>Several lookout points over knoll/high point at eastern end of point – regional-scale views south to islands/coastline, south-west to McKenzies Beach, and sweeping ocean views to east.</p> <p>Local-scale views from north-east end of point (but difficult access at present) - north along coastline to South Head and Tollgate Islands, plus ocean views to east.</p> <p>Majority of cliff edge track sections and lookout points are hazardous – with loose gravels/surface and steep/sheer margins.</p> <p>Several sheltered secluded beaches and coves and rock platforms, on both sides and end (rock platforms only) of point.</p>  

Section/Location	Existing Trails	Track/Support Infrastructure	Comments
Pretty Point to McKenzies Beach	<p>Footpad over native grasses along narrow upslope, varying from 3-4 to 15 m wide, with vegetated cliff edge adjacent.</p> <p>Undefined section over mown grass and garden extensions, 10-15m wide between PP boundaries and vegetated cliff edge.</p> <p>Informal track along cliff edge, side track to lookout on south-eastern point.</p> <p>Informal track contouring down/across bushy slope towards north end of McKenzies Beach, exposed roots and minor benching.</p> <p>Informal track and in-ground timber steps (individual planks) on moderate slope down to north end of McKenzies Beach.</p>	<p>No track-specific infrastructure.</p> 	<p>Hazardous vegetated/disguised cliff edges along upper/eastern section at rear of PP (walkers also possibly distracted by views). Local-scale views south-west to McKenzies Beach and islands/coastline to south.</p> <p>Well-used trample track leads 8m to south-eastern point and open Casuarina grove with local-scale views south-west to McKenzies Beach, south to islands/coastline and east along Pretty Point cliff lines. Hazardous edge.</p> <p>Sections of informal track down/across slope to McKenzies Beach may intrude onto PP (large bush block with residence), warrants on-ground clarification. Side track up to house signposted "Private Property → Beach Access Track ←".</p>
McKenzies Beach	<p>Undefined section over grass on sand beach/terrace at rear of beach – from track to Pretty Point in north to sealed carpark in south, bounded in west by older post-and-rail timber fence (in poor repair) along bushland edge at rear of beach.</p>	<p>Backed seat on concrete pad at north end of grass bench.</p> <p>Off-street sealed carpark (approx. 22-25 spaces), signs and 2 rubbish bins.</p> 	<p>Deeply eroded trample track up steep slope from north end of beach/grass bench to George Bass Dr above.</p> <p>Trample track through bushland from rear of beach to George Bass Dr.</p> <p>Unpatrolled beach.</p> 

and difficulties in usefully applying the Australian Standards, the national parks agencies around Australia are at present collaborating to develop a track classification system that is better reflective of the visitor experiences and character of a track – rather than solely physical/technical descriptions.

If the Australian Standards are applied, the greater majority of the existing tracks and trails within the project area are Class 3 Tracks. The overview description for this class of tracks is those that provide an “opportunity for visitors to walk in slightly modified natural environments requiring a moderate level of fitness and where the provision of interpretation and facilities is not common ... users can expect opportunities to observe and appreciate the natural environment with limited provision of interpretive signage ... users can expect occasional encounters with others.”

Some of the existing tracks and trails have the physical characteristic - in terms of track conditions and gradients – that are equivalent to a Class 4 Track. However they do not provide the more remote, challenging and isolated setting that the Standards identify for this class of track. The more developed existing tracks and trail sections fit the Standards’ criteria for Class 2 Tracks – providing the “opportunity for large numbers of visitors to walk easily in natural environments which are provided with a moderate to high level of interpretation and facilities ... users can expect to learn about the natural environment with moderate to abundant opportunities to learn through interpretive signs or brochures ... users can expect frequent encounters with others.”. However there are few tracks that met the higher standard physical characteristics required by this class at present.

Natural area managers, notably national parks agencies, have made numerous attempts to modify or elaborate the Australian Standards to provide a track classification system more suited to natural and semi-natural environments – such as those found within the project area. The Department of Environment, Climate Change and Water has recently updated its *Park Facilities Manual* which includes design guidelines for “walking tracks and related structures”. These have been based on, and evolved from, the Australian Standards and still apply six track classes but more attuned to natural settings as follows:

- ❑ Class 1 “All Access Tracks” - hard surfaced tracks suitable for wheelchair access (such as concrete, asphalt, paved tracks or boardwalks), 1.5m wide with a constant width, no steps and accessible grades;
- ❑ Class 2 “Graded Tracks” – usually a hardened surface depending on usage levels (such as concrete, asphalt, paved tracks or boardwalks), 1.2m minimum width and a generally constant width, 1:10 maximum gradients with minimal steps, typically very high use tracks serving main attractions or visitor activity sites;
- ❑ Class 3 “Walking Tracks” – usually a modified surface (bitumen, stone, gravel, compacted fill or mulch), 1.2m preferred width but variable, 1:10 preferred gradient but may be exceeded for short distances (if stable), high-use tracks in areas receiving higher visitor numbers; and
- ❑ Class 4 “Hiking Tracks” – a clearly defined track surface but not usually with major modifications and usually natural surfaced, variable width up to 600mm, gradients limited by environmental and maintenance considerations, medium-use tracks in high visitor use areas or high-use tracks in low visitor load areas.

In more urban contexts the Austroads Standards *Traffic Engineering Practice* guidelines include design specifications for pathways, cycleways and shared or multi-use routes. Many local councils have their own engineering standards and designs, devolved from or based on these and other standards.

The intended track/path function and intended users experience, likely user characteristics, shared paths versus single use tracks, the frequency and volume of likely use, terrain and the surrounding environment, and management agency resources and expertise all need to be considered when identifying an appropriate path or track standard.

A possible track classification and descriptive system, evolved from the current Australian Standards and other relevant classification systems and tailored to be more applicable to the Coastal Headlands Walking Trail, is presented in section 7.4.

5. A VISION FOR THE BATEMANS BAY COASTAL HEADLANDS WALKING TRAIL

5.1 Vision

The Batemans Bay Coastal Headlands Walking Trail is ultimately envisaged as a continuous, clearly legible, signposted and readily navigable walking track linking the coastal headlands and beaches of Batemans Bay's southern shoreline that will appeal both to residents and visitors.

The Trail will be very user-friendly and constructed, ultimately, to a moderate to high standard throughout – but always in keeping with the Trail's natural setting and striking landscape, as well as the need to achieve a sustainable and manageable facility (in terms of its development, use and maintenance). It will be designed to cater for and be safely used by a cross-section of residents and visitors – from family groups to the elderly or less mobile visitors – and require limited, if any, bushwalking experience to enjoy.

The route may include sections of shared trail or pathway, as well as accessible “all abilities” sections, where appropriate – but will be designed and managed for non-motorised access and use throughout.

Facilities and supporting infrastructure – such as lookouts, seating and rest stops, picnic areas, and others – will be provided at appropriate locations and in keeping with the environment and sensitivities of a site and the intended character of the Trail section where they are located. Route marking and information will ultimately be provided at a high standard, but with site-sensitive information delivery to guide, reassure and inform walkers. Both on-site and pre-visit or promotional information will be important to the Trail's success.

The Trail is intended to present the striking coastal landscapes of the southern Batemans Bay area – from secluded coves to sweeping ocean views, typically framed by the trunks of Spotted Gums or backed by seaside residences. Lookouts will be numerous, allowing for everything from quiet contemplation to groups of excited whale-watchers. The Trail will also showcase the area's natural and cultural heritage values, and play an important educational and environmental awareness function.

The Trail will be highly accessible from the surrounding urban area, as well as from major existing and future recreation and activity centres where it will reinforce these nodes providing an additional or alternative recreational or tourism activity. It will be able to be enjoyed in a series of shorter walks, including loop tracks from existing activity or facility areas, or as a single end-to-end route. The trail will be integrated with the location of car parking areas and public transport access points, as well as essential drinking water and toilet facilities, so that it can be presented and enjoyed as a series of shorter walks. This will allow visitors to select a route to suit their interests, time or abilities and locals to progressively “do” the entire route or adopt their local or

favourite Trail section. Either way the Trail will be the primary route for visitors to enjoy the coastal headlands and foreshores at the personal scale, and will become a “must-do” experience for residents and visitors.

While there are already numerous informal foreshore tracks and walking routes across, and to a lesser degree between, the headlands south from Batemans Bay, the Coastal Headlands Walking Trail will link, rationalize and progressively improve and make safe these existing tracks and trails to provide a continuous quality walk that is strongly focused on the foreshore and its diverse attractions.

Differing sections of the Trail will be designed with, or evolve, their own distinctive character and walker experiences – in settings ranging from seemingly remote bushland headlands to urban parklands and surfing beaches. However once in place the Coastal Headlands Walking Trail will, as a whole, become recognised as a single attraction and walking experience.

The Trail will complement the existing array of short, half-day and day walks in the Eurobodalla region but offer an experience not yet provided in the region – a stunning coastal walk in an alternating landscape of bushland and striking ocean views but with the accessibility, convenience and levels of comfort or security afforded by its suburban and residential setting.

The Trail will be suitable for, and targeted to, a wide range of visitors and experiences – from short evening strolls, through walks of a few hours, to full-day or multiple day walks to experience the entire route. Local residents can be expected to be the principal users – for casual walks, fitness training, relaxation, walking the dog, socialising, fitness training, adventure play or to access their favourite beach, fishing sport or lookout. They will take pleasure in using the Trail to “show off” the coast and the area’s environment to their visitors. Armed with tourist information visitors from elsewhere in NSW or interstate, as well as international visitors, will enjoy the Coastal Headlands Walking Trail and the many attractions it will access.

As well as being an attraction itself, the Trail will provide a platform for other experiences or activities. It will reinforce existing attractions and potentially generate additional tourism and visitor opportunities built around the bushy headlands, beaches and coastal scenery and the range of attractions and experiences they offer.

The trail will take many years to be fully developed, or redeveloped, and to realise its full recreation, amenity and tourism potential. Design of the Trail will allow for this staged development. The Trail, and Batemans Bay’s wider walking track and shared pathway system, would benefit enormously from linking the Trail into this larger non-motorised movement network.

As the Trail passes along a sometimes narrow coastal reserve, the privacy and amenity of local residents will be addressed in the route selection, facility provision, screening and landscaping and in encouraging appropriate visitor behaviours. The improved on-site delineation of private property boundaries, to both reassure walkers and property owners of the extent of public and private areas as well as for closer management of existing encroachments into the public reserve, will be required. Management of the Trail will benefit from its siting largely within a single land tenure, under the management of a single agency in Eurobodalla Shire Council.

The result will be an exciting recreation and tourism experience of the coastal environment and attractions both for the residents and visitors to Batemans Bay.

5.2 Benefits of a Coastal Headlands Walking Trail

The Coastal Headlands Walking Trail can be expected to deliver a range of both direct and indirect environmental, community and economic benefits.

The Trail's environmental, heritage and landscape benefits will potentially include:

- ❑ greater resident and visitor exposure to, and awareness of, natural and cultural heritage values;
- ❑ enhanced understanding, appreciation, and support for the protection and management of natural and cultural heritage values and places;
- ❑ greater awareness of the Aboriginal history, and continuing cultural significance of the bushland, foreshore, coastline and ocean and the resources they offer;
- ❑ further impetus for continued active management of the natural areas lining the coastline as well as on-going protection of the area's bushland setting and scenic landscapes;
- ❑ the potential to engage tourism providers using the Trail in delivering heritage interpretation and education, as well as providing in-kind conservation management services;
- ❑ additional volunteer opportunities to assist in local conservation or bushland and foreshore management efforts; and
- ❑ greater potential to attract community or corporate support, voluntary contributions or programmes, partnerships, donations or bequests for heritage management needs.

Possible community benefits arising from the Trail may include:

- ❑ enhanced recreation and leisure access and opportunities;
- ❑ improved community health and well-being outcomes, including for the retired or elderly;
- ❑ greater access to foreshore reserves and open space, beaches and natural areas;
- ❑ access to a broader range and wider number of settings and landscapes, offering greater choice and diversity in recreational activities and experiences;
- ❑ enjoyment of spectacular and inspirational scenery, and a fuller appreciation of the value of, the bushland headlands, beaches and foreshore found south from Batemans Bay;
- ❑ experience and connection with natural landscapes and cultural heritage places;
- ❑ opportunities for continued "connection to country" and significant places for members of the region's Aboriginal community;
- ❑ greater equity of access to coastal assets and attractions – for the community generally, as well as across cultural backgrounds and physical abilities;
- ❑ improved connectivity and access/movement options within the urban environment;
- ❑ enhanced local amenity and the perceived "softening" of the urban landscape, through the retention of "green" backdrops and open space as well as a nearby recreation/relaxation asset;
- ❑ increased access and passive surveillance of foreshore public land, mitigating against private encroachment/uses and anti-social activities;
- ❑ additional and strengthened social or local community "places" – encouraging a greater sense of 'belonging', custodianship and civic pride; and
- ❑ a new shared asset and attraction for all Batemans Bay residents, and a legacy for future residents and generations.

In terms of economic benefits the Trail will potentially:

- ❑ provide an additional supporting attraction and experience to complement and broaden the region's present tourism focus on beach and waterway attractions/activities;
- ❑ add to the critical mass of the region's tourism attractions and appeal;
- ❑ reinforce the Eurobodalla region's "Nature Coast" and "clean green" tourism identity, and contribute to growing the region's tourism market share;
- ❑ encourage local businesses, employers and service providers to become involved in supporting visitors using the route – potentially creating new business and employment

- opportunities across possible ventures ranging from local cafes, through recreation equipment hire and tour services, to transport and accommodation packaging; and
- ❑ encourage appropriate “venture” projects and new tourism or recreation product development; and
 - ❑ create employment opportunities in the Trail’s development and maintenance.

6. ROUTE SELECTION AND PLANNING

6.1 Planning Principles

The Coastal Headlands Walking Trail has been conceived more as a “walking experience” than simply as a walking track – with concept planning guided by the following principles.

The Trail will be a single continuous route, from Observation Head to McKenzies Beach just south of Pretty Point, that follows the foreshore as closely as possible. As such this concept plan focuses on a “backbone route” that builds on, links and “flows through” the numerous existing informal tracks and trails already in use within the project area – as identified in the Inventory in section 4. The Trail has also been planned to access existing attractions and key entry points, as well as established activity and facility/services nodes.

Concept planning for the Trail has endeavoured to realise both a single discrete point-to-point trail as well as a linked series of shorter walks – day, half-day and one to two hour walks, half-day or full day walks – that together form the longer “backbone” walk. Given the range of existing and anticipated users – in terms of both their interests and abilities – as well as the multiplicity of access points available to the backbone route, the Trail has not been planned around rigid recommended walking times and distance formulae. However the Trail – both existing and proposed – does lend itself to being divided or described in terms of the segments of the overall route that share similar characteristics, values and attractions or that are centred on particular locations offering access, services and facilities or that are existing activity hubs. These are further described in section 7.5 below.

Significant cultural and natural heritage sites that are sensitive to adverse impacts, or potentially threatened by development or increased visitor access/use and associated impacts, have been avoided in route selection. Elsewhere planning has endeavoured to strike a balance between accessing significant sites and features to promote visitor awareness, appreciation and support for conservation efforts and the need to avoid and so protect specific areas. Similarly care has been taken, at the concept planning level, to avoid impacting areas of high landscape or scenic quality – both internally and externally. These precautions will need to be carried through, checked and reinforced in the Trail’s detailed planning, design and development. Sustainability and future maintenance demands have also figured in route selection and planning.

6.2 Route Selection and Planning Considerations

The following issues were considered during concept planning for the Coastal Headlands Walking Trail.

- ❑ Identifying a continuous “backbone” route running as closely as practicable to the foreshore.
- ❑ Identifying key strategic links or additional connections, and establishing improved continuity between existing tracks and trails, both formal and informal.

- ❑ Identifying a route, or routes, that can be established relatively quickly and for minimal cost, as well as allowing for the staged improvement and modifications to this initial route.
- ❑ Identifying preferred minimum track standards, and level of presentation, to apply to the Trail during its stages of development.
- ❑ Identifying a route that is passable at high tide and in high swells, and takes account of sea level rise and other impacts that might be associated with climate change.
- ❑ Providing consistency of track standards and conditions across major identifiable segments of the Trail – for walker reassurance, comfort and security.
- ❑ Identifying a route that sits “legibly and logically” in the landscape, without an overly circuitous alignment and requiring little (preferably no) backtracking.
- ❑ Ultimately locating the backbone route entirely off road carriageways (even low-speed local roads), and avoiding route selection beside busy roads (unless unavoidable).
- ❑ Ensuring a multiplicity of access points, to offer maximum flexibility of use.
- ❑ Avoiding confusion at major Trail junctions and entry/exit points.
- ❑ Considering legibility of the Trail through residential areas and existing activity zones, where there may already be a clutter of signage, information and built elements.
- ❑ Acknowledging the legitimate concerns of foreshore residents around privacy, amenity and security while better realising the recreational, tourism, educational and inspirational value of the public foreshore reserve.
- ❑ Avoiding any route selection on/across private property, and recognizing the need to clarify unclear private property boundaries where necessary.
- ❑ Acknowledging the past efforts of foreshore residents in establishing and maintaining access and furniture/facilities on public lands along the coastal edge, that have encouraged and supported public use of these areas to-date.
- ❑ Accessing and reinforcing existing recreation infrastructure provided by Council, as well as retail centres and tourism accommodation precincts.
- ❑ Linking and reinforcing existing focal points – where access, services and facilities are available.
- ❑ Providing regular access to the key walkers requirements of toilets, drinking water, shade/shelter and public transport.
- ❑ Providing a variety of experiences founded on and reflecting the values, attributes and character of differing parts of the coastline.
- ❑ Accessing locations/features of interpretive or educational potential.
- ❑ Avoiding the excessive replication or repetition of recreation opportunities and visitor facilities along the route – such as lookouts and picnic areas – but acknowledging that most walkers will only undertake parts of the Trail during any one visit (and so will only encounter a limited number of attractions).
- ❑ Acknowledging future urban growth zones and areas of increasing residential populations.

- ❑ Enabling connections to other walking tracks, bicycle paths, footpaths and shared pathways.
- ❑ Avoiding, screening or remediating inappropriate urban intrusions into the route “envelope” and the experience of walkers – such as en-route sewer access pits, residential infrastructure (and encroachments) and unattractive foreshore developments.
- ❑ Providing walkers with alternative routes around beaches, where practical in the short-term (or for investigation in the longer-term) – enabling visitors to avoid the more difficult sand-walking sections, if they so chose.
- ❑ Minimising adverse environmental impacts – from both development and use – and balancing the access and avoidance of key natural and cultural heritage sites/values.
- ❑ Considering track surface stability, sustainability and maintenance demands in relation to the alignment and development of new trail sections and upgrading of existing trails.
- ❑ Ensuring that equitable opportunities are provided for all people to enjoy the Trail, or sections of it and its major attractions, regardless of ability/disability, cultural and linguistic backgrounds, age and wealth.
- ❑ Retaining settings and opportunities for “unstructured” low-key activities and “quiet enjoyment” of largely undeveloped foreshore locations.
- ❑ Retaining the possibility of “chance discovery” along the route, and not accessing all potential attractions or special places with a developed or signposted track – in both the natural and urban environment.
- ❑ Considering existing and potential risk exposures for walkers (and management staff), and avoiding high risk or hazardous locations as well as remediating locations currently presenting unacceptable risks to users.
- ❑ Considering the need for maintenance and emergency vehicle access to, or along, parts of the route.
- ❑ Selecting or aligning routes to encourage passive surveillance and help deter anti-social behaviours in certain locations.
- ❑ Identifying route options for investigation in the longer-term, such links along the rear of beaches and more direct routes away from roads.

7. COASTAL HEADLAND WALKING TRAIL CONCEPT PLANS – ROUTES, STANDARDS AND STAGED DEVELOPMENT

At the concept planning level three distinct routes have been identified for the Coastal Headland Walking Trail – an initial route, a medium term route and a long term route – as follows:

- ❑ the initial concept plan and route allows for the almost immediate establishment of the Trail as a continuous trafficable route from Observation Head to McKenzies Beach;
- ❑ the medium term concept plan and route aims for the targeted upgrading of the initial Trail to provide for enhanced walker/user experiences, more direct foreshore routes and more fully realised recreation and tourism attractions; and
- ❑ the long term concept plan and route provides for the full development and realisation of the Trail as an important regional recreation and tourism asset.

7.1 Initial Concept Plan and Route

The Initial Concept Plan and Route for the Coastal Headlands Walking Trail is shown in Figures 7 to 11.

This initial route has been selected to allow for the almost immediate establishment of the Trail as a continuous trafficable route from Observation Head to McKenzies Beach.

It has been based almost entirely on the existing track, trail and path network with an accompanying set of recommended works/actions at specific locations – as shown in Figures 7 to 11 – to define the route as a legible, safe and passable trail.

The Trail, as shown, extends just over 23.1 kilometres from Observation Head to McKenzies Beach as a direct route. The proposed alternative “inland” or high tide/high swell route sections comprise a further 5.9 kilometres. Ideally the Initial Route, as shown, could be achieved in a 1 to 2 year timeframe.

The initial route includes several sections of beach walks or other locations that may be vulnerable to high tides and/or large swells, that may render them impassable. In these instances alternative “inland” routes have been identified to enable the Trail’s rapid initial establishment and on-ground marking. Such alternative routes – as shown in Figures 7 to 11 – have been identified at Sunshine Bay, the northern end of Denhams Beach (requiring a substantial inland detour), between the south end of Surf Beach and Wimbie Beach, around the southern two-thirds of Lilli Pilli Beach (although the northern end of Lilli Pilli Beach will remain a transit problem in high tides/swells in the short term), Garden Bay, and Reedy Creek at the north end of Malua Bay (also requiring a substantial inland detour).



Figure 7 Initial Concept Plan and Route: Observation Head to Pleasurelea Park

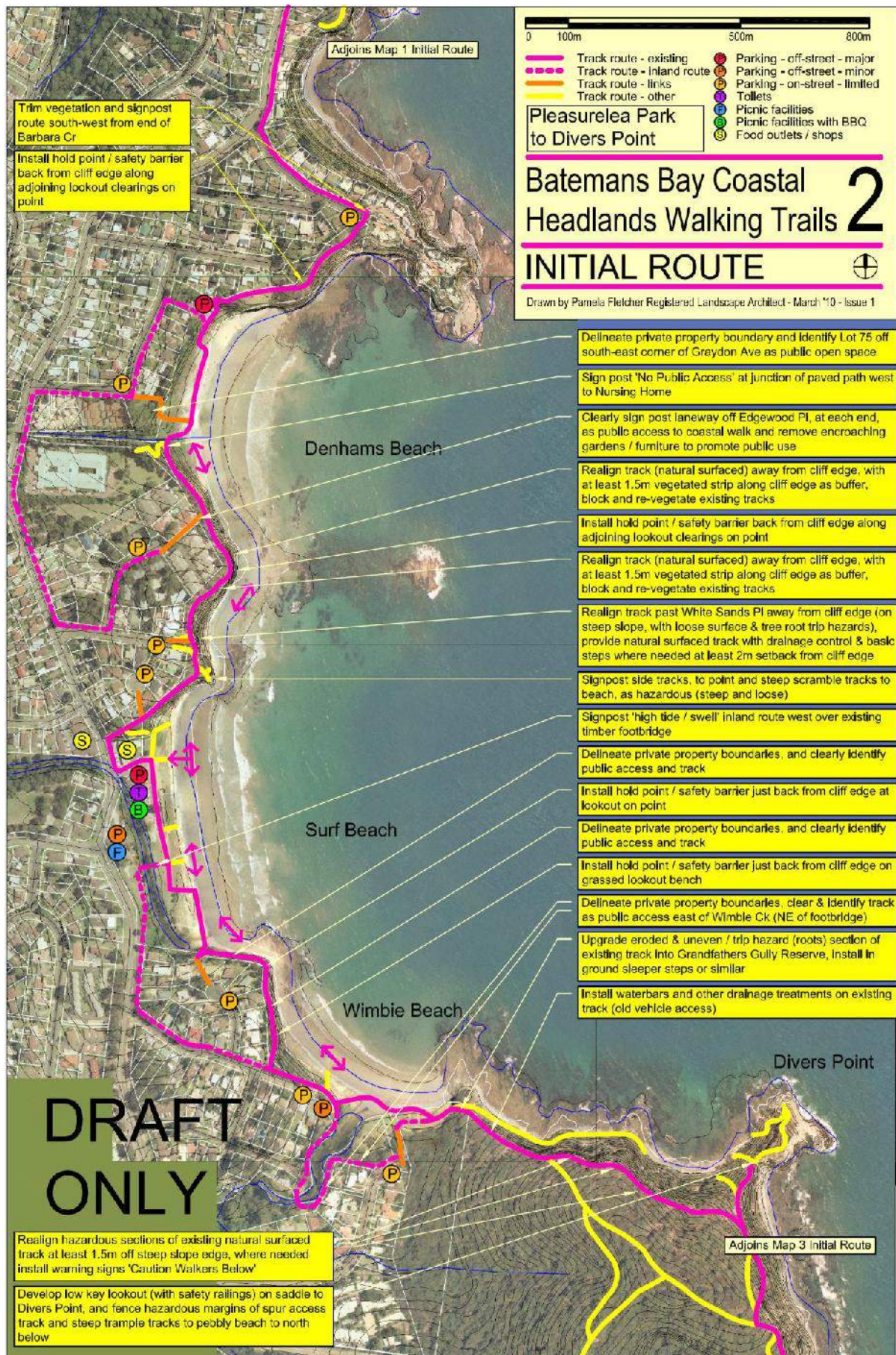


Figure 8 Initial Concept Plan and Route: Pleasurelea Park to Divers Point



Figure 9 Initial Concept Plan and Route: Divers Point to Lilli Pilli Beach

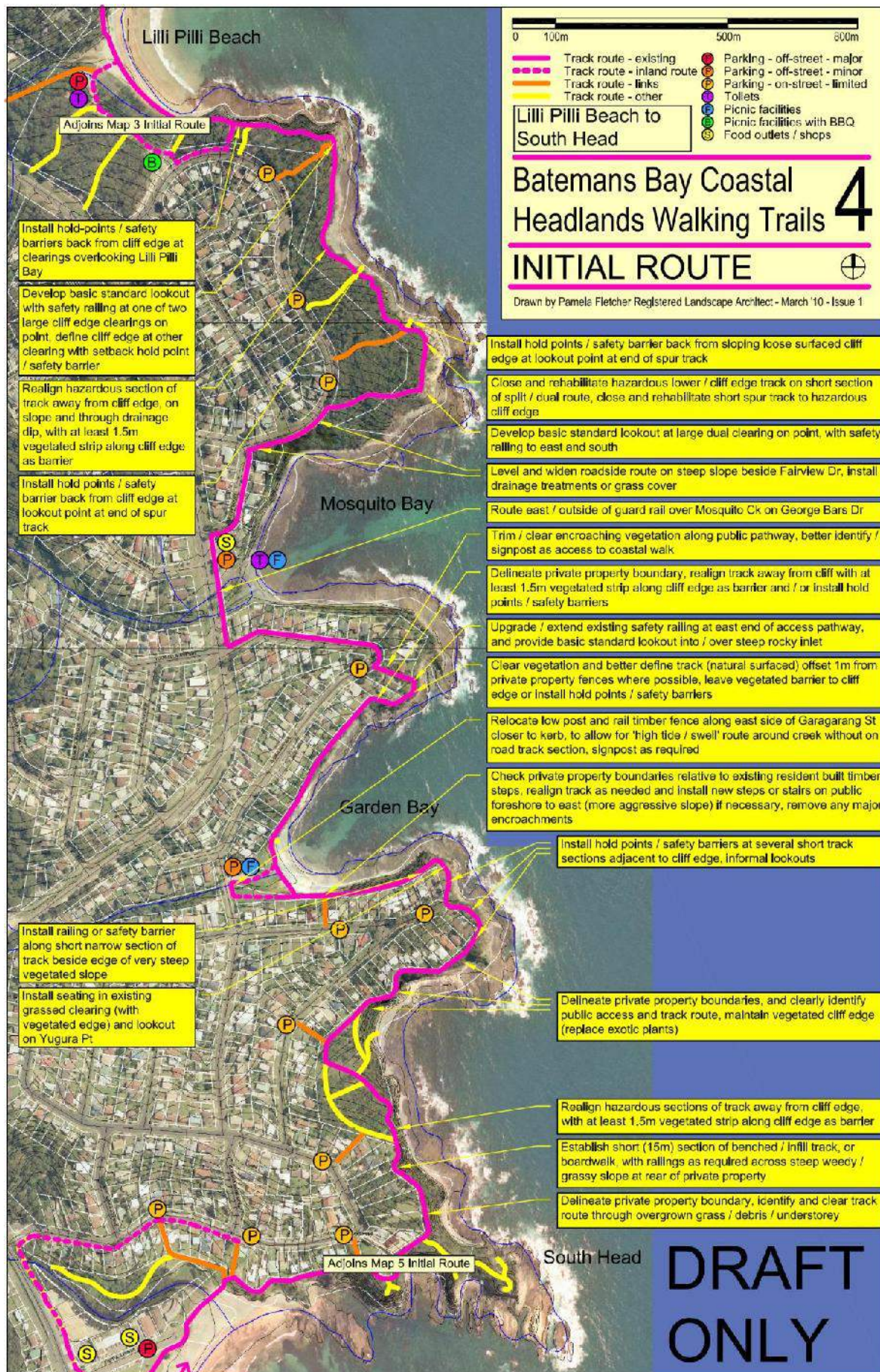


Figure 10 Initial Concept Plan and Route: Lilli Pilli Beach to South Head



Figure 11 Initial Concept Plan and Route: Lilli Pilli Beach to McKenzies Beach

The recommended works and actions to establish the Trail and realise the initial route, as shown on the accompanying Concept Plans (in more detail and located to site), can be broadly grouped as follows.

- ❑ Walker/user safety works – principally along cliff edges and steeper slopes, but also in relation to roads and wayfinding. Including realigning existing tracks back from cliff edges and establishing or maintaining a vegetated buffer strip between the track and top of the slope or cliff, low profile barriers and “hold-points”, railings, warning or advisory signage, surface upgrading (to reduce slip hazards near edges), closing hazardous trample tracks, installing pedestrian crossings and road safety barriers or guard rails.
- ❑ Defining private property boundaries, and hence the extent of available/passable public reserve, and addressing encroachment issues that deter walker/user access as well as signposting public access points and travel routes where necessary.
- ❑ Establishing critical “missing link” sections of Trail.
- ❑ Clearing and better delineating those existing track and trails to be part of the “backbone” route, where these might be obscured by vegetation or there is a risk of walker/user confusion.
- ❑ Installing orientation and route marking/identification information at critical points – such as start and end points, major access points, delineate public access/transit routes, to identify alternative routes for high tide or high swell conditions, or to make the “backbone” route clear at points of possible confusion.
- ❑ Defining and upgrading existing informal lookout points, most often to reduce hazards and improve public safety. Basic standard or low-key lookouts are proposed at – at the northern point above “Barbara Crescent Beach” (at the southern end of the dead-end track section south from Pleasurelea Park), on the southwestern saddle approach to Divers Point, on the northeastern end of Lilli Pilli Point, on the northern and southern points of Fairview Drive Headland, on the southern side of South Head overlooking Malua Bay, on the narrow neck/saddle at the western end of Pretty Point and on the eastern end of Pretty Point.



View south from the proposed low-key (short term) lookout on the Divers Point saddle.

- ❑ Track/trail improvements – limited to those essential to reduce hazards and improve public safety, for trafficability, and to reduce or manage existing adverse environmental impacts.
- ❑ Track closure and rehabilitation – again chiefly were required to reduce hazards and improve public safety or to reduce/manage existing adverse environmental impacts.

In addition to these works, initial establishment of the Trail will require a simple track identification and direction marker system to be installed at least at all junction points as well as possible points of confusion. Trail identification and waymarking should also be provided at regular intervals, to reassure walkers/users that they are still “on the right track”.

7.1.1 Establishing a Trail Identity

It will be important that a distinctive “identity” for the Trail, including a descriptive or evocative name, be established very early in development of the Coastal Headlands Walking Trail.

As well as being critical for orientation, route marking and wayfinding an appropriate name will be valuable means of encouraging resident and visitor awareness, in pre-visit information as well as for promotional and marketing purposes. A Trail logo might also be useful as “short-hand”, or a symbol, for the project that can be applied across a range of situations and media – as well as having potential souvenir and retail spin-off advantages.

Route marking and sign-posting the Trail on-the-ground will require careful attention. Directional and other wayfinding signs can be expensive, to both produce and maintain. Signs are also prone to vandalism, typically graffiti, and interference – with directional “fingerboards” and larger welcome or orientation panels especially vulnerable – and they can be a high cost item for Councils.

7.2 Medium Term Concept Plan and Route

The Medium Term Concept Plan and Route for the Coastal Headlands Walking Trail is shown in Figures 12 to 16.

The Medium Term Concept Plan and Route is intended to upgrade both the Trail and its facilities, and consequently to enhance the quality of the experiences it provides for walkers and users. The medium term route and associated works have been selected to “straighten” the Trail and remove many of the inland detours so that it more closely follows the foreshore (including during high tides/swells), to establish additional and higher standard lookouts and other vantage points, to provide additional sites offering park/picnic furniture along the Trail and including diversifying the type of picnic settings to choose from, sections of track upgrading and minor realignment including new or improved steps and stairs in many places, some new track sections, and further walker/user safety improvements.

The medium term route and associated improvements provide direction for the Trail’s gradual but planned upgrading over 2 to 5 year timeframe, and represent the Trail’s continuing development as a recreation and tourism attraction.

Although the Trail’s continuing development is proposed, track standards and hence the Trail’s character and the experiences it offers walkers/users will still be consistent with the target track standard described in section 7.4 below. Again the medium term works are focused on improving the route’s directness, safety, trafficability, presentation and environmental performance – rather than simply “hardening” or upgrading the track to accommodate or attract continually increasing levels of use.

The Trail’s standard, or individual segment standards, will be driven by the experiences it is intended to offer walkers/users – and not by unplanned incremental development leading to progressively higher track standards and a more “urban” or developed user experience. It will be therefore important that the Trail continues to respond to, and complement, its largely natural and spectacular coastal environment.



Figure 12 Medium Term Concept Plan and Route: Observation Head to Pleasurelea Park

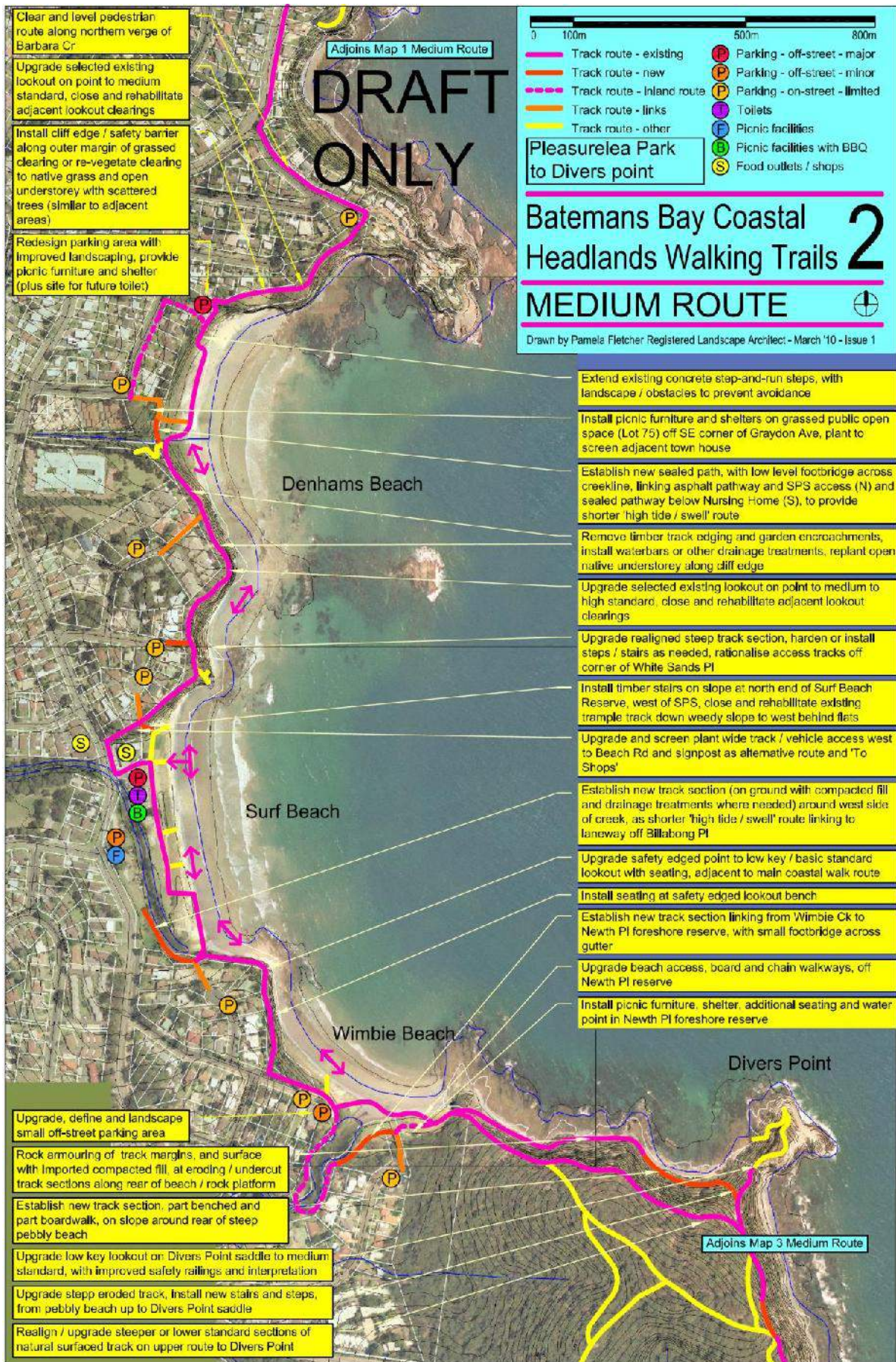


Figure 13 Medium Term Concept Plan and Route: Pleasurelea Park to Divers Point

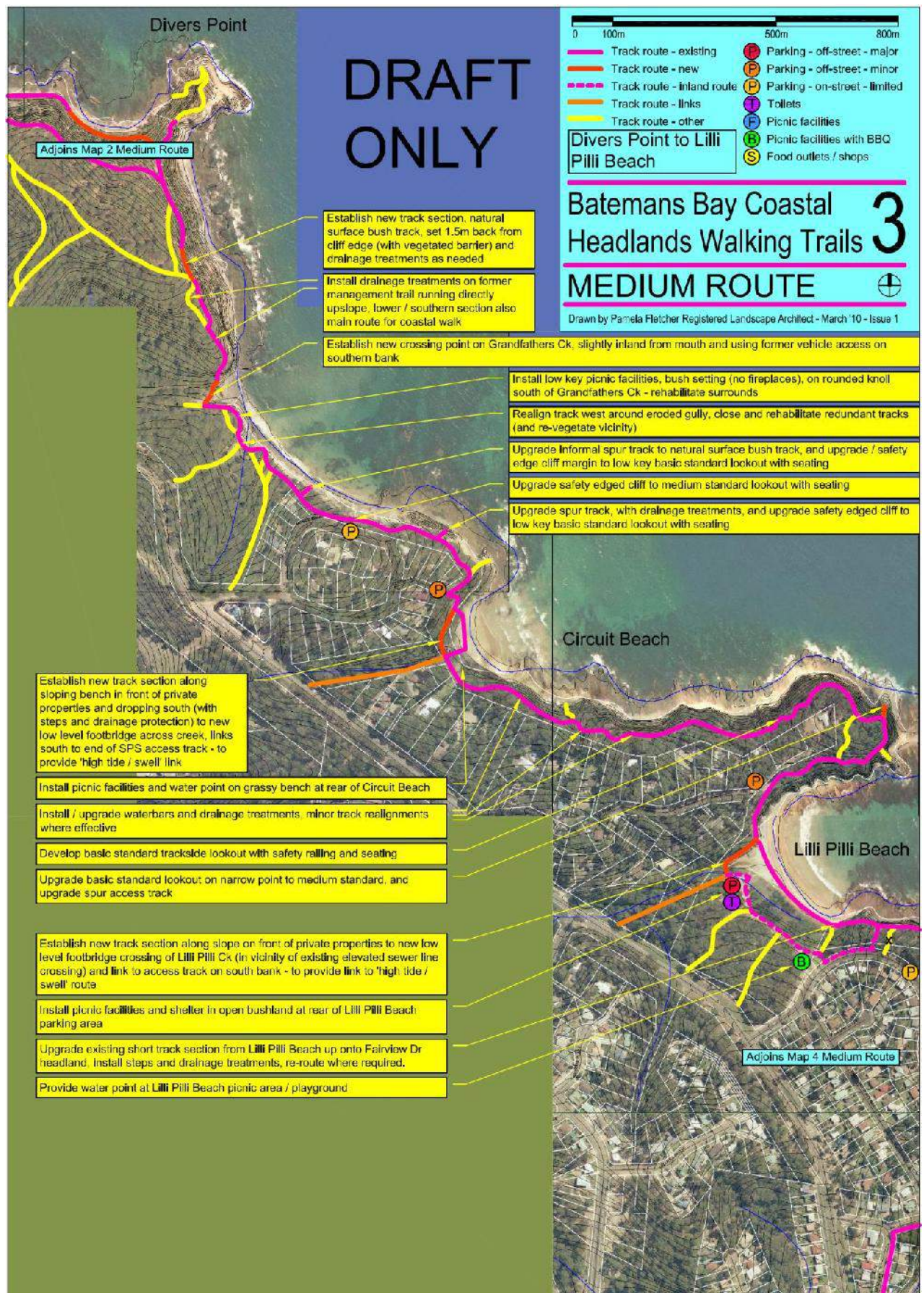


Figure 14 Medium Term Concept Plan and Route: Divers Point to Lilli Pilli Beach

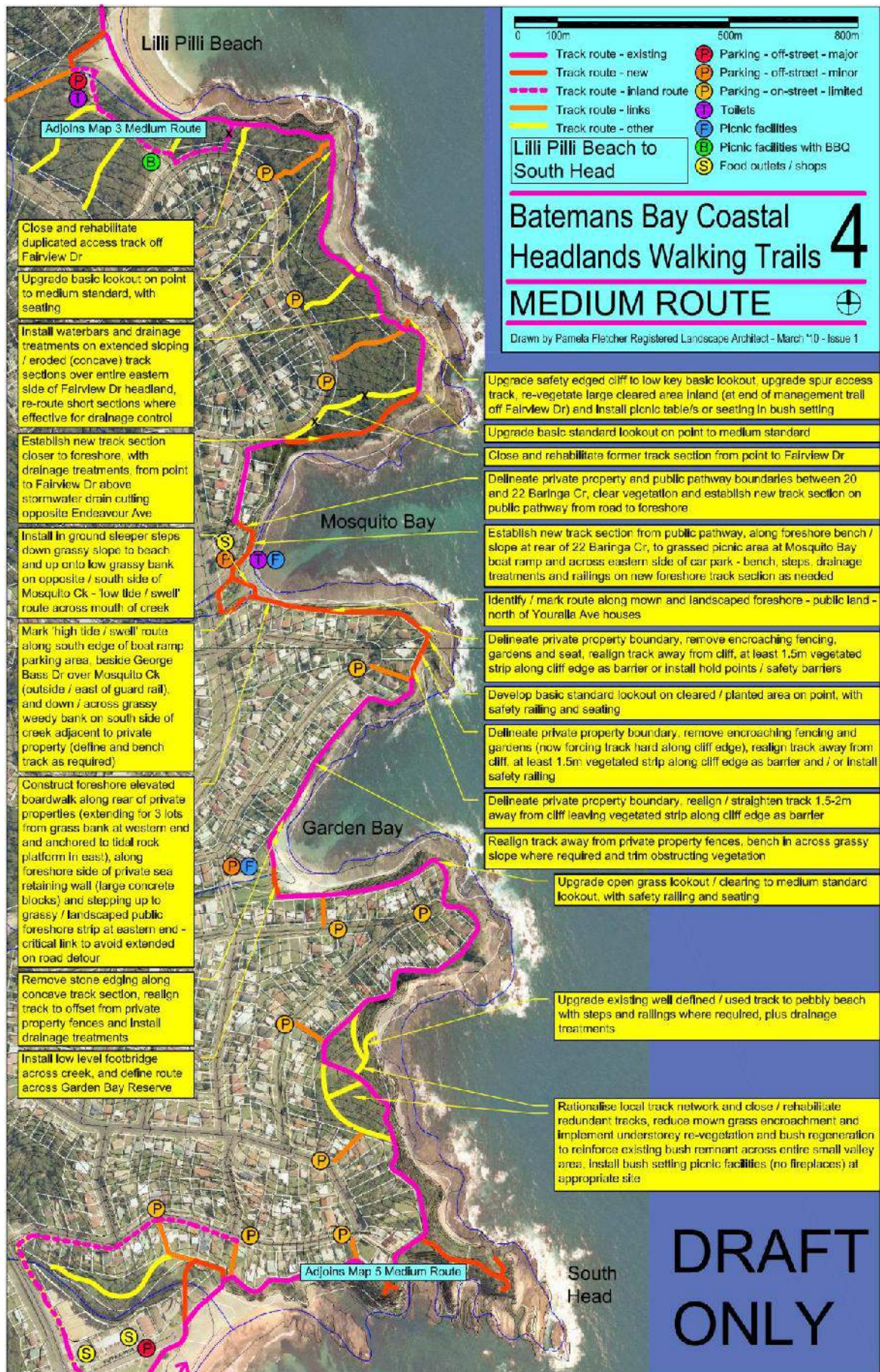


Figure 15 Medium Term Concept Plan and Route: Lilli Pilli Beach to South Head



Figure 16 Medium Term Concept Plan and Route: Lilli Pilli Beach to McKenzies Beach

The Medium Term Concept Plan and Route proposes some major works, as described in more detail and located to site on the accompanying Concept Plans, that will need careful planning and design. These initiatives also represent significant investments in the project. These include:

- ❑ the construction of an elevated foreshore boardwalk below the private property lots at the southwestern end of Mosquito Bay, anchored to the tidal rock platform and along the seaward edge of a privately built retaining wall of large concrete blocks, to provide foreshore access from Mosquito Bay to the headland reserve along the northside of Iluka Avenue (including a new section of track in this area) and complete a critical link in the Trail's foreshore alignment;
- ❑ rationalising the informal track network on Pretty Point, upgrading the spine walk along this prominent feature as well as providing an access track to at least one the sheltered beaches on the point, the upgrading of stage 1 lookouts (to a high and medium/high standard) and the provision of additional vantage points (basic standard), the provision of parking bays along Illabunda Drive, and investigating the possibility of providing disabled access to the high standard lookout on the point's western saddle;
- ❑ preparing, and progressively implementing, a landscape masterplan for Observation Head, including developing a high standard lookout on the point of the headland;
- ❑ developing an elevated footbridge over the lagoon at the mouth of Reedy Creek, at Malua Bay, and associated new track sections; and
- ❑ investigating possibly linking the Trail's northern end to the Corrigan's Beach shared path, and so to the town's wider pathway network.



Construction of a short section of elevated foreshore walkway around an extended private landholding at the south-western end of Mosquito Bay will be a high cost item, but critical for track continuity.

In addition to these major works, the medium term concept plan and route also proposes other works and actions, as shown on the accompanying Concept Plans (in more detail and located to site), which can be broadly grouped as follows.

- ❑ Walker/user safety works – upgraded or new/additional cliff edge barriers, hold-points, track realignment and vegetation buffers, trample track closures, railings and signage.
- ❑ Upgrading, realigning or rationalising selected track sections to reduce hazards and improve safety, improve trafficability, reduce environmental impacts, or to improve the Trail's presentation – including works at creek or drainage crossings, sections of track now poorly aligned up/down slopes, addressing erosion/undercutting or drainage problems, to improve stormwater and drainage management, to access new/upgraded lookouts, and to close redundant or multiple routes (and reduce bushland fragmentation).
- ❑ New track segments on the “backbone route” – notably a direct link to/from the northern end of Surf Beach, the western low-level approach to Divers Point, along the southern side of Fairview Drive Headland, reinstating the foreshore access laneway off Baringa Crescent (between numbers 20 and 22) and the associated new track section south along the foreshore reserve to Mosquito Bay, and new tracks across the sand mouth and around the west (via the road shoulder on George Bass Drive and southern grassy slope) of the minor creekline at Mosquito Bay.
- ❑ New low-level footbridge and associated new track sections across minor creeklines, to remove inland detours and/or provide shorter links during high tide/swell conditions –

including at the creekline in the centre of Denhams Beach, Circuit Beach, Lilli Pilli Beach and Garden Bay.

- ❑ New track sections to shorten inland high tide/swell routes – including at the south end of Surf Beach (west of the creekline) and on the northeastern side of Wimbie Creek.

- ❑ New, upgraded or extended steps and stairs – to reduce hazards and improve public safety as well as for ease of use (especially the prioritised replacement of sub-standard community-built steps/stairs and railings), to reduce or manage adverse environmental impacts, or to improve the Trail's presentation.



A low-level crossing of Lilli Pilli Creek will be required in the medium term to provide track continuity in high tide/swell or creek flow conditions and avoid a major detour.

- ❑ New or upgraded facility and activity nodes – principally seats, picnic tables and similar low-key park furniture as well as modified or upgraded carparking in some cases – at Caseys Beach South, Sunshine Bay, Pleasurelea Park, Denhams Beach (at both the existing Graydon Avenue carpark and the undeveloped reserve on the southern curve of Graydon Avenue), the northeastern side of Wimbie Creek (at the end of Wimbie Street), Wimbie Beach foreshore reserve, Circuit Beach, Lilli Pilli Beach, inland from the southern point of Fairview Drive Headland (in a bush setting), the Karoo Crescent foreshore (also in a bush setting), and two sites off Tallawang Avenue overlooking Malua Bay.
- ❑ Providing drinking water at Lilli Pilli Beach.
- ❑ New, and in some instances upgraded (from Stage 1 developments), lookouts as follows:
 - basic standard lookouts at – the headland north of Wimbie Creek (Billabong Street), off both the northern and eastern ends of Denise Drive, Lilli Pilli Point, the northern side of the south point on Fairview Drive Headland, and on the point east of Pyang Avenue;
 - a basic to medium standard lookout on the point east of Bronte Crescent;
 - medium standard lookouts at – the southside of Denhams Point, on the southwestern saddle approach to Divers Point, the central lookout off Denise Drive, the northside of Lilli Pilli Point, the northern point on Fairview Drive Headland, the southern side of the south point on Fairview Drive Headland, and the point east of Yugura Street;
 - medium to high standard lookouts at – the southern point of Sunshine Bay and the point north of White Sands Place.
- ❑ Installing additional orientation information at access points, and upgrading route marking/identification and direction/distance signage.

7.3 Longer Term Directions

Nominating a definitive set of Trail development and management actions in the long term is problematical and will be influenced by such factors as the Trail's rate of development, usage levels on differing sectors, walker/user preferences, and Council's available resources.

The Longer Term Concept Plan, to be achieved over 10 to 12 years, would represent the full realisation and ultimate development of the Trail, including measures to provide hard-surfaced alternatives to beach walks wherever possible – to cater for an aging population and less mobile users – and the final realignments to remove inland detours and roadside sections of the route and access previously unavailable attractions/destinations.

Although most appropriately identified during and after the Trail's medium term development, potential actions for longer term consideration could include the following.

- ❑ Investigating a potential one-way road system along the foreshore of Caseys Beach – as a response to climate change induced sea level rise and this area's existing vulnerability to large tides and swells – and the development of a foreshore reserve through which the Trail could be routed.
- ❑ Realigning the Trail, and barrier fencing, along the southern side of Bronte Crescent to set the route back from the road edge (with appropriate cliff edge protection).
- ❑ Delineating the rear (eastern) private property boundaries along Sunshine Bay, and investigating the possibility of routing the Trail along the vegetated bench immediately behind the beach or along the bench above at the rear of the private residences, or a combination of these – as an easier alternative to the beach walking route.
- ❑ Establishing a lookout on the narrow point off the north end of Burrawang Crescent.
- ❑ Development of a sealed footpath along the eastern side of Beach Road and northside of Barbara Crescent, between Pleasurelea Park and the eastern end of Barbara Crescent.
- ❑ Investigating the feasibility, including the cost-benefit, of constructing access stairs (on public land) at the northern end of "Barbara Crescent Beach".
- ❑ Providing access to "Barbara Crescent Beach" via the undeveloped access lane between numbers 227 and 229 Beach Road.
- ❑ Upgrading the existing concrete steps and ramp north of the Denhams Beach (Graydon Avenue) carpark.
- ❑ Providing a toilet as part of the Denhams Beach (Graydon Avenue) carpark.
- ❑ Delineating the rear (eastern) private property boundaries along Graydon Avenue in the north of Denhams Beach, and investigating the possibility of routing the Trail along the bench at the rear of the private residences (now occupied by mown grass encroachments), from the carpark in the north to the SPS access track in the south.
- ❑ Investigating the feasibility, including the cost-benefit, of constructing access stairs between the rear of the beach and headland at the point just south of the White Sands Place access – to allow beach walking options at high tide (when beach-level access around this point, at the north end of Surf Beach, may be blocked).



Clarifying private property boundaries along Graydon Ave above Denham Beach may allow for the long-term development of an alternative route to the present soft-sand beach-walk.

- ❑ Investigating the feasibility, including the cost-benefit and sea level rise considerations, of constructing a low-level footbridge just back from the mouth of Wimbie Creek to provide more direct walker/user access.
- ❑ Investigating the feasibility, including the cost-benefit, of constructing a “safe and secured” walkway and extended stairs along the spine of Divers Point to a new lookout on the eastern end of the point – most likely requiring detailed consideration of geotechnical, engineering, safety and risk management, Aboriginal cultural heritage and visual impact issues but returning a stunning visitor experience and a potential Trail highlight. If developed, this attraction would warrant the provision of off-street parking at the end of Newth Place to support this zone’s increased visitor loads and activity (and as an access point for longer walks in the Grandfathers Gully area).
- ❑ Developing an unsealed off-street parking area at the corner of George Bass Drive and Denise Drive as an access point for greater use of the Grandfathers Gully area.
- ❑ Upgrading – including layout rationalisation, improved edge delineation, sealing and the provision of seating – of the carpark at the end of Lilli Pilli Road.
- ❑ Delineating rear (eastern) private property boundaries along Baringa Crescent, and investigating the possibility of routing the Trail along a narrow bench of public land at the rear of these private residences – to link south with the Trail section developed in the Medium Term through the access laneway between numbers 20 and 22 Baringa Crescent.
- ❑ The provision of an additional lookout on Pretty Point.
- ❑ Investigating sustainable, and financially feasible, options for providing a toilet at McKenzies Beach.

While these initiatives or requirements have been suggested as longer term considerations, individual issues (or other as yet unforeseen issues) may require attention sooner than this as dictated by the Trail’s development, patronage and emerging management issues.

7.4 Trail Standards and Treatment/Improvement Types

7.4.1 Trail Standards

As discussed above, in section 4.3, the relevant Australian Standards (AS 2156.1-2001 and AS 2156.2-2001) are not a particularly useful tool in classifying track standards – for design, construction, management and visitor information purposes – at the scale of the Coastal Headlands Walking Trail.

Table 5 shows an applicable set of track standards, or descriptors, that have been evolved from AS 2156.1-2001, as well as the track classification systems used by national parks agencies and local government bodies elsewhere, that may be more useful for application to the Coastal Headlands Walking Trail.

Table 5 Applicable Track Standards or Descriptors for the Coastal Headlands Walking Trail,

Parameters	<i>Class 1</i> Accessible Pathway or All- abilities Path	<i>Class 2</i> Walkway or Graded Path	<i>Class 3</i> Walking Track or Modified Track	<i>Class 4</i> Bushwalk or Minor Track
Key track condition parameters	High standard, well-maintained and well-cleared pathway or track. 1,200mm wide or greater. Grades of less than 1:14 (4°) with no steps – unless alternative ramp access provided. Hard-surfaced improved track – suitable for wheelchairs, and preferably slip-resistant. Thoroughly signposted – at all intersections and reassurance direction marking en-route. Often with regular high-standard facilities – seating, shelters, barriers, lookouts/attractions, and interpretation.	Well-maintained and well-cleared pathway or track. 900mm wide or greater. Grades of less than 1:10 (6°), limited use of steps. Modified or hardened track surfaced, usually using imported materials. Well signposted – at all intersections as a minimum. Regular facilities – seating, shelters, barriers, lookouts, attractions, and interpretation.	Well-delineated and mostly well-cleared track, occasional intrusion or obstacle. Variable width, usually less than 1,200mm wide. Grades generally less than 1:10 (6°), but may be steeper than this over short distances, steps as/where required. Generally a modified track surface using in-situ material, sections may be hardened and use imported materials. Signposted – at intersections and decision-points. Limited facilities – seating, barriers, interpretation and low-key improvements.	Distinct track but with limited modification to ground surface and largely of in-situ material, cleared track but regular intrusions and obstacles. Variable width, generally a narrow but distinct track or footpad. Grades variable, may be steep in sections (up to set environmental and management constraints), steps may be common and informal or natural. Generally an unmodified track surface of in-situ material. Minimal signposting. Usually no facilities – except for safety and environmental protection.
Visitor experience requirements and hazards	No experience required. Minimal hazards, regularly maintained as safe for use.	No experience required, all fitness levels. Few hazards, maintained as safe for use.	No bushwalking experience required. Moderate fitness levels needed. Occasional natural hazards – steep slopes, unstable surfaces, minor water crossings. Users need to be aware of potential hazards or risks, and use route responsibly and with due care.	Bushwalking experience advisable, as well as some level of special skills (such as navigation ability). Regular natural hazards. Users responsible for their own safety.
Colloquial description	Wheelchair or disabled access path - “a path for everyone”.	A thongs or sandals standard track, footpath - “no experience necessary”.	A joggers or sandshoes standard track - “an easy bushwalk”.	A boot standard track - “a harder bushwalk”.

Although the identification of track standards to a particular section of the Trail is more appropriately addressed at the detailed planning and design stage, the following general approach to track standards for the Trail's development and management – both in the short to medium term and longer – can be identified.

- ❑ Class 1 tracks (accessible pathway or “all-abilities” paths) will be limited to high use zones such as Observation Head (once developed), Surf Beach, Malua Bay and the western neck/saddle lookout on Pretty Point (once developed) as well as shared pathway links if/when developed.
- ❑ Class 2 tracks (walkway, footpaths or graded paths) will be applied principally in the urban, residential and streetscape sections of the Trail – as well as in and around higher use nodes and facility sites.
- ❑ Class 3 tracks (walking track, modified tracks or jogger/sandshoe standard “easy bushwalks”) will apply to the majority of the semi-natural foreshore reserves and bushland headlands – and will be the dominant track standard used on the Trail.
- ❑ Class 4 tracks (bushwalk or minor track to boot standard) may be used in the Grandfathers Gully area, in keeping with the natural setting and seemingly more “remote” character of this section of the Trail.

7.4.2 Trail Treatment, Improvement and Facility Types

In addition to the standard of a track or trail – in terms of its surface, gradients and other physical characteristics – overall trail standards, the “feel” or character of a track and the type of experiences provided to users are strongly influenced by the type and standard of the track treatments and other improvements or facilities provided along a route.

These include elements such as drainage features, steps and stairs, boardwalks, bridges, barriers, lookouts, furniture and signage. As well as playing a major role in the presentation of a track and shaping the experiences of visitors, the standards of these features can have significant construction and maintenance cost implications.

The following trail treatments, improvements and facilities will figure prominently or be regular elements employed along the Coastal Headlands Walking Trail.

7.4.2.1 Safety Barriers, Fencing or Railings

Track routing, design, infrastructure and management for user safety along the very many cliff margins and steeper slope edges encountered along the route will be a pivotal consideration for Council.

The simplest and most effective means of addressing these safety issues is to avoid cliff margins or re-route the track away from hazardous cliff edges. However this means not fully capitalising on the route's spectacular headland setting, and fails to address the issue of the trample tracks and “off-trail” routes that will inevitably result as walkers seek out vantage points or forge their own more scenic alignments.

An effective, natural and low-key approach to cliff edge safety is already in evidence on many sections of the existing tracks and trails proposed for inclusion in the short and medium term routes. This is where a band of vegetation, typically 1-2 metres wide, has been maintained along the cliff edge beside these trails - typically along that section of cliff edge that starts to

slope away to the main face/drop. Given its limited depth this vegetated buffer does not excessively obstruct walkers' views but is sufficient to provide a visual, physical and psychological barrier to the higher risk section of cliff edge. To be effective such a vegetated barrier should be at least 1.5 metres wide, to ensure that the track is far enough back from the actual (hazardous) cliff edge to accommodate any user trips and falls along the track. As it is not a "true" physical barrier this approach is not recommended for precipitous cliff edges and abrupt or disguised/screened cliff faces.



Examples of effective vegetated barriers along cliff margins already found along the track.

A variation of the vegetated edge buffer approach is the branch or stick barrier, already in place at a number of different locations on the route (often in association with nearby bush regeneration works). This innovative, low cost and very effective approach has also been effectively employed to contain track widening, both bay walkers and mountain bikers, in urban bushland areas of Sydney.

Known colloquially as "branch bundle barricading" this treatment entails a bundle of branches, up to 1 metre across (initially), tied together and anchored in place (using the bundle ties) typically with metal pegs. The intermeshing of the branches and their usually spiky/twiggy nature, the flex in the bundles (meaning they are difficult to walk, or ride, over), and anchoring the bundle in position all contribute to a very effective access barrier.

The bundles only fail when they have been in place for extended periods, by which time the branches have broken and the bundle compressed or flattened, or when the bundles have not been tied (or adequately tied) allowing their deliberate moving or dismantling. This treatment has the added advantages of allowing light to penetrate to the soil below and natural regeneration to

occur, and although clearly a management feature they have a more “natural” appearance than a constructed barrier.



“Branch bundle barriers” have been used effectively at Manly Dam, in northern Sydney, to contain mountain bikers and walkers to approved tracks and control track widening.

Councils and other natural area managers, such as national park agencies, have employed a variety of more direct or interventionist management measures to address the issue of cliff/slope safety for track walking users. These include warning or advisory signage, “hold-points”, low profile barriers, and a variety of railing and fencing approaches of differing types and standards. In selecting the type of barrier appropriate to any particular point along the coastal walk will require assessing the degree of risk and the level of security/safety warranted as well as considering the character of the track section and environmental/experience setting in question, costs and maintenance demands.

Warning or advisory signs are a “first response” measure for cliff edge management, both as a treatment on their own or in conjunction with other measures.



Examples of typical cliff edge warning signs used in natural or semi-natural settings.

Hold-points are intended to delineate the “limits of safety”, they are not a physical barrier but act more as a warning and advisory tool. If employed in a bushland setting they need to be more clearly visible than would typically be used in a more managed open space. Hold points may become a trip hazard in themselves if not readily apparent, and for this reason should be set an adequate distance back from the actual risk zone - but not so far as to invite people to ignore them, or to deny walkers the views or experiences they are seeking on the track. The risk in question, in this case the cliff edge, should also be clearly visible in relation to the position of a hold-point.

The distinction between hold-points and low-profile barriers is somewhat arbitrary – as neither provide a physical restraint between walkers and a hazard. However low-profile barriers are generally a more continuous feature, with a stronger footprint or presence in the landscape and greater visibility, and require a deliberate act on the part of walkers to breach or ignore. Low post-and-rail timber barriers or “open” single-rail fencing are two of the more common types of

low-profile barriers. Again visibility in bushland settings and avoiding trip hazards will be considerations when selecting appropriate types of, and locations for, low profile barriers.



Hold-points delineate the "limits of safety", but are not a physical barrier.



Low-profile barriers are usually a more continuous feature, but are also not a deterring or effective physical barrier.



An effective low-profile barrier ultimately overgrown by surrounding native vegetation (left), and a low-profile barrier combined with warning/advisory signage (right).

Railings, balustrades and fences along hazardous track edges can take many forms, however again it is important to match the barrier style to the degree of risk as well as the intended walker experience and trail character and setting. Railings and fences can range from lower cost post with multiple rail structures in timber or metal, though rigid wire mesh barriers or pool-style fences, heavier combination timber and steel bar or tensioned wire fences, to expensive heavy-duty stainless steel railings or stone walls. Trackside railings and fences also often serve as, or become, informal lookouts or "pause points" along a route.



A selection of railing/barrier types – from the simple low-cost structures (top line) to expensive heavy-duty stainless steel fences (left).

7.4.2.2 Steps and Stairs

Steps and stairs will be regularly required along the Trail, ranging from steeper slopes warranting extended/continued runs of steps/stairs to gentle slopes needing “step-and run” treatments.

The local stone along the route is not well suited to step construction and the importation and use of “foreign stone” is unlikely to be in keeping with the surrounding environment. Concrete or high-standard steel and timber steps would be appropriate in the Trail’s more urban or developed sections. In semi-natural and bushland settings timber steps and stairs would be more in keeping with the Trail’s setting, and cost-effective in terms of construction and maintenance. Stone steps could be used as an entry “statement” and design feature at key Trail access points.

A number of well-constructed timber stairs are already located along the Trail, mainly at beach access points, as well as several resident-built stairs of varying standard. Steps and stairs on the Trail’s urban/developed or higher use sections should be compliant with the Building Code of Australia (BCA) 2005, while in semi-natural and bushland settings the Australian Standard AS2156.2–2001 *Walking Tracks: Part 2 - Infrastructure Design* provides guidance.

Stairs may range from simple near-ground flights with no handrails constructed of timber on metal stringers and risers, to more elaborate structures on timber or metal superstructures with timber or expanded fiberglass or metal treads and handrails as required.



Formally constructed steps (on-ground) are uncommon on the Trail’s tracks/routes at present. However there are several locations with resident-built steps – variously of timber and retained gavel, concrete pavers, logs, or cut earth treads. These vary from reasonable quality to failed or hazardous. Given the lack of suitable local rock for constructing stone steps, timber and imported gravels or compacted in-situ soils offer the most cost-effective step construction method in the Trail’s semi-natural and bushland areas. Timber elements are both embedded and fixed, typically using a galvanised steel pipe driven through a pre-cast hole (and levelled to be “walker safe”). All timbers used for ground contact applications should be Class 1-2 HW or preservative-treated softwoods.

On gentle slopes timber “sleepers” or thicker (rectangular-section) boards can be set into a slope at regular spacings to define the preferred route, reduce erosion potential, and provide fixed points to improve trafficability and walker convenience. Such staggered sleepers – the simplest form of step – are well-suited to open grassy slopes but also so work effectively on bushland track sections. Step-and-runs, using timber risers to define long tread steps (ideally with varied tread lengths and step combinations for easier walking, and to add variety), are useful for gentle to moderate slopes. Moderate to steep slopes require regularly spaced timber risers retaining compacted imported gravels/fill or compacted in-situ materials. Compacted

treads should be flat, with no cross fall, to minimise erosion. Steps should be boxed by timber edges or a “toe stone” to contain fill materials as necessary, and extend beyond the Trail’s normal width (or appropriate “obstacles” installed) to prevent detouring. Steeper steps should be provided with adequate drainage protection on their upper margins and midway on longer runs.



Examples of embedded sleepers on a gentle slope (top left), timber edged step-and-runs (top centre) and flat-set timber treads (top right). Examples of boxed timber steps and retaining toe stones (below), with compacted gravel backfill..

7.4.2.3 Boardwalks and Bridges

Boardwalks will be required to cross the few periodically boggy or wet areas along the Trail, as well as for any environmentally sensitive areas that may be encountered in the routes’ detailed design (such as to reduce surface drainage modifications, through significant flora locations, or over shell middens). Boardwalks will also be required at excessively steep side slopes for trafficability, or as a means of containing walkers in hazardous or sensitive areas.

Short bridges will be necessary, more particularly in the medium term, across minor drainage lines.



Low-key track bridge, with timber frame and expanded fibreglass decking.

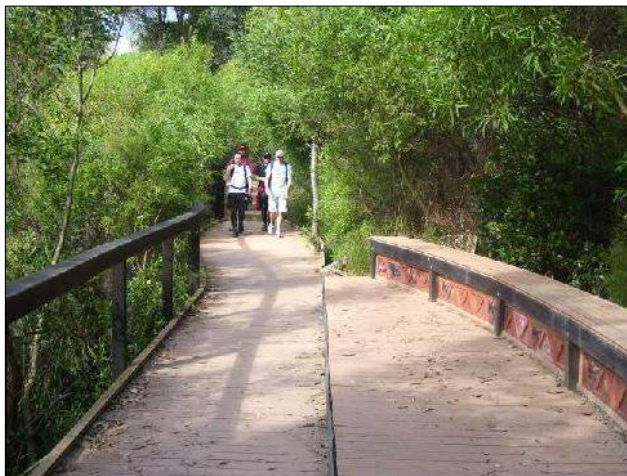
Again boardwalks and bridges can range from simple designs to more complex and expensive structures.



On-ground timber boardwalks, in simple and more sophisticated designs (left and right).



On-ground fiberglass mesh boardwalks, on timber or recycled plastic framework, in simple and more sophisticated designs (left and right).



Higher standard boardwalk designs for high use sites. Boardwalks can often double as vantage points, pause points and interpretation or activity places.

7.4.2.4 Lookouts

Lookouts and vantage points will be a highlight of the Trail.

The Initial Route proposes basic standard or low-key lookouts at 8 locations, both to capitalise on the stunning views from these sites as well as to reduce hazards and improve public safety. Often the provision of barrier rails, along with track surface widening and hardening, will be sufficient to define a low-key lookout in the short term.

However as the Trail's popularity and use increases, and the standards of some sections are improved the upgrading of some lookouts and the development of others will become necessary. The proposed Medium Term Route recommends the 19 new or upgraded vantage points across all standards – basic (7 sites), basic to medium standard (1 site), medium standard (7 sites), medium to high standard (3 sites) and a high standard lookout (1 site). The single high standard lookout area, on the narrow neck/saddle at Pretty Point, is intended as wheelchair accessible.

Medium to high standard lookouts will also typically be provided with seating, interpretation and related facilities for walkers.



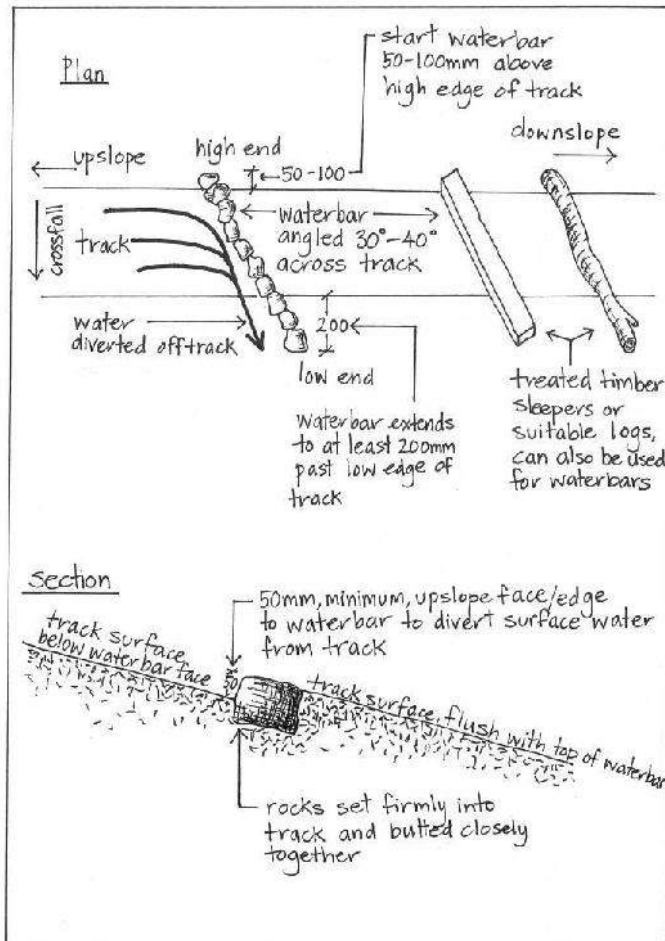
Possible lookout standards –low-key or basic (top row), medium (middle row), and high (bottom row).
(bottom right photograph – DECCW)

7.4.2.5 Track Drainage Features

Drainage is a critical element in any walking track routing, design, development and management exercise.

Both surface and sub-surface water can erode track surface or cause the destabilisation and failure of track substrates. New track construction surface crowning and slight crossfalls are the most effective design and construction measures for redirecting surface waters off a track alignment. Unfortunately the established track network being used for much of the Trail's route

has developed through use rather than planning, and as a consequence drainage capture and associated problems are “entrenched”. In this situation importing fill to crown of reprofile existing tracks is prohibitive, both in terms of cost and the likely degree of site disturbance/impact. Under this scenario retrofitting drainage features to existing trails and installing drainage features as part of any new works or track treatments is a more cost-effective approach along with targeted drainage improvements in hot spots or key problem areas (such as where walker safety is compromised or erosion/deposition is impacting other values).



Waterbars, drainage inverters and rollover drains are the most applicable drainage treatments under these conditions – along with side drains and upslope flow diversion in some cases.

Waterbars are raised and angled stone or timber (treated or natural) barriers used to divert water from sloping sections of track surface. Waterbar spacings will be dependent on the track gradient, but are not effective on very low grade or flat sections of track where water flows are slow or on extremely steep sections of track with high surface water velocities.

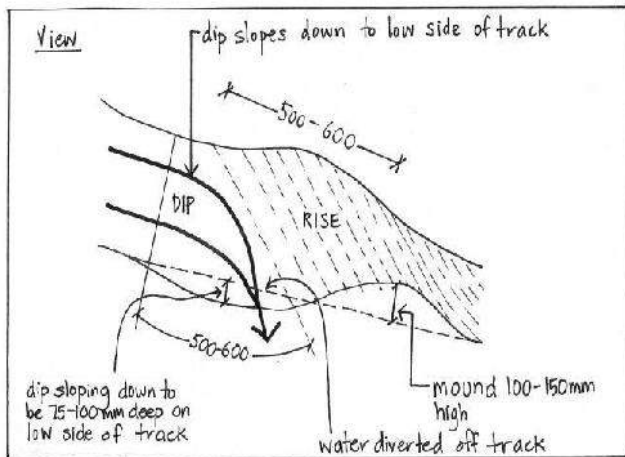


Waterbars, in treated timber (logs or sleepers) are the most commonly employed track drainage feature – but still require care and careful placement to work effectively and not present an obstacle for walkers.

Rollover drains feature a low mound, sometimes with a shallow dip on the upslope side, set at a slight angle to divert surface waters from sloping sections of track surface. They function in a similar manner to waterbars, but are less obvious blending into the track surface less obtrusively and present fewer maintenance demands. A disadvantage is that they usually require sourcing or importing material to a site for their construction.

Invert drains apply the opposite principle to rollover drains, using an invert or concave section of track to divert surface water away. Where necessary invert drains can be stone armoured or concrete lined to prevent ponding and aid water discharge.

Both rollover and invert drains require locations where there is an adequate “fall” away from the side of a track to allow the redirected water to discharge (rather than ponding).



Rollover drains (top) and invert drains (concrete example at right) both require an adequate discharge area downslope to spill diverted water flows, but are more “user friendly” than raised waterbars and require less leaning or routine maintenance if sited/angled correctly.



7.4.2.6 Route Marking and Wayfinding Signage

Route marking and directional signposting on-the-ground will require careful attention. Direction, distance and other wayfinding signs can be expensive, both to produce and maintain, and will be required in considerable numbers along the entire route. Signs are also prone to vandalism, typically graffiti, and interference – with directional “fingerboards” and larger welcome or orientation panels especially vulnerable.

In natural or semi-natural settings walking tracks are typically marked with orientation/location signs (maps, aerial photographs, or schematics), directional totems or guideposts, direction markers (arrows, triangles, logos and other symbols), and routed signs - or a combination of these and others.



Example low-key track marking methods.

In urban or streetscape settings fingerboards and directional totems are commonly used.

Possible more innovative approaches might also include coloured track surfaces, marker blocks inset into pavements at junctions and/or at regular intervals, Coastal Walk “sleeves” around power/light poles (which could also carry graphic or interpretive information) or smaller directional “collars”.

In the urban sections clarity of waymarking will be important, with cluttering parks and reserves or the streetscape with more signage to be avoided.



Finger-board route marking of the on-street sections of the Manly Scenic Walkway

7.4.2.7 Entry Information Shelters

Major access points along the Trail should be identified with distinctive entry and information shelters to provide appropriate route and track condition information (distance, difficulty, time, facilities, attractions, etc) as well as serving as meeting/waiting places and to assist in promoting the Trail to residents and visitors.



Typical trackhead and access point information shelters, the example on the left is on the recently completed Kiama Coastal Walk.

7.5 Experience Precincts

Sections of the Coastal Headlands Walking Trail - along with the associated facilities, attractions and environmental settings - can be identified as discrete “experience precincts” (or alternatively “visitor use zones” or “walk experience” segments).

These are areas having largely homogenous landscape or environmental settings, generally consistent standards and conditions along the Trail’s route, and their own recognisable character or unifying features. Each of these precincts has its own character or appeal, a “sense of place” founded on its natural and cultural environment and facilities, and each offers a particular set of visitor experiences. As such, each may be more attractive to particular visitor types.

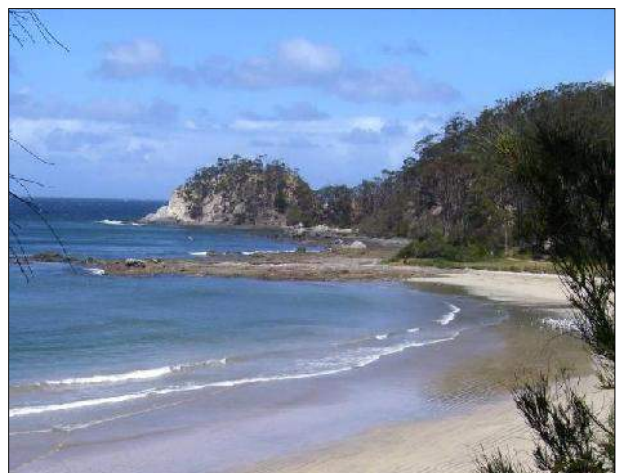
Such “experience precincts” will be valuable in promoting and marketing the Trail and matching visitor expectations, abilities, interests and available time with appropriate segments or activity centres along the route. They can also be employed in helping to make decisions about staging the Trail’s development, especially building on walking opportunities radiating from established visitor use areas/nodes (such as Surf Beach and Malua Bay) or developing track sections in support of attractions proposed for higher profiles and additional facility development (such as Pretty Point and Observation Head).

The following experience precincts can be identified at the concept planning level, although these may vary over time with the Trail’s development and emerging or changing usage patterns.

- ❑ Observation Head – a stand-alone sight-seeing destination, and location dominated by short-stay vehicle access. The Trail’s northern starting point.
- ❑ Casey Beach – an open urban setting, strongly influenced by through traffic and offering limited visitor appeal or potential (in the short to medium term). Caseys Beach would function principally as a “transit” section on the Trail for the foreseeable future.
- ❑ Bronte Crescent Headland to Pleasurelea Park – a chiefly headland experience zone, characterised by open/modified bushland but with nearby residences also a strong element in the experience.
- ❑ Pleasurelea Park to Denhams Point – an inland urban street zone for much of its length, with a short residences and open/modified bush headland experience leading into Denhams Beach (but also offering impressive views from this foreshore section).
- ❑ Denhams Beach to Surf Beach to Wimbie Beach – an expansive beach experience section, but also offering alternative routes over the two residential and open/modified bush headlands behind these beaches. Surf Beach is a major activity and services node on the Trail, but is screened to a degree and slightly offset from the main route. There is potential to “hub” shorter loop walks from Surf Beach, both to the north and south.
- ❑ Wimbie Beach to Divers Point – a potential high use zone offering natural settings and scenic lookouts, but in close proximity to vehicle access and urban services/security.
- ❑ Grandfathers Gully Reserve – the largest expanse of less modified bushland available on the Trail, and in an enclosed landscape that provides a seemingly remote or isolated setting. An area proposed for lower track standards and minimal facility development.
- ❑ Denise Drive to Mosquito Bay (including Circuit Beach, Lilli Pilli Point, Lilli Pilli Beach and Fairview Drive Headland) – a zone of bushland edged headlands interspersed with smaller beaches and coves, residences although present are minor elements. The



View south along Surf Beach to Wimbie Beach.



Divers Point, a strategic attraction along the Trail.

experience is strongly focused on the surrounding bushland, which is generally less modified and thicker (with a wider headland reserve for the most part) and the striking coastal scenery available from both the Trail and numerous vantage points.

- ❑ Mosquito Bay to South Head - a chiefly headland experience zone, based on smaller headlands characterised by open/modified bushland but with nearby residences also a strong part of the experience and scenery, separated by small deeply sheltered bays/coves. Mosquito Bay is a supporting facilities and services node on the Trail, and a vehicle and public transport access point.
- ❑ South Head to Malua Bay – a striking headland and cliff edge segment requiring considerable safety improvements but with significant potential for vantage points and visitor facility sites offering sweeping views over Malua Bay, Pretty Point and south along the coastline as well as inland. This zone has the potential to be developed as a “short walk” attraction from the nearby Malua Bay, an existing activity and facilities node.
- ❑ Malua Bay - an existing activity and facilities node offering a high standard urban/foreshore developed park experience. There is potential to “hub” shorter loop walks from Malua Bay, both to the north and south.
- ❑ Malua Bay to Pretty Point Bay - a chiefly headland experience zone characterised by open/modified bushland and with nearby residences also a strong part of the experience. Coastal views, and interesting local geology, draw walkers’ attention away from the nearby housing in many places.
- ❑ Pretty Point – a major attraction warranting upgrading to a stand-alone sight-seeing and coastal experience destination, with multiple viewing points, but developed as a walk-in destination only with a mix of facility standards (including the possibility of providing an “all-abilities” accessible lookout on the saddle at the Point’s western end).
- ❑ McKenzies Beach – a stand-alone largely vehicle accessed destination and activity area at the Trail’s southern end. This area could be more effectively linked to the attractions proposed to be developed on Pretty Point immediately to the northeast.



South Head and the cliffline west to Malua Bay is a Trail segment of enormous potential, but with a variety of safety issues to be addressed.



Pretty Point is a regional-scale attraction, but little realised as yet, at the Trail’s southern end.

8. COST ESTIMATES AND NEXT STEPS

This section provides approximate orders of costs to realise the Coastal Headlands Walking Trail in the short and medium terms, as well as other steps recommended to progress the project.

8.1 Orders of Cost

Table 6 shows the indicative order of cost to establish the Coastal Headlands Walking Trail in accordance with the Initial Route as described in Section 7.1.

The Initial Route allows for the almost immediate establishment of the Trail as a continuous legible, safe and trafficable route from Observation Head to McKenzies Beach as largely based on the existing track/path with the required trail establishment works minimised as far as possible.

It is estimated that establishment of the Initial Route would cost in the order of \$335,000, as well as other staff and resources inputs by Council.

Table 7 shows the indicative order of cost to upgrade the Trail to the described Medium Term alignment and trail/facility standards - as described in Section 7.2.

This medium term upgrading of the Trail would require a more substantial investment – in the order of \$2,090,000. Undertaking the bulk of the Trail upgrading works – for the trail standard, alignment efficiencies, and the number and standard of visitor facilities/attractions – will allow the success of the Trail to be gauged, and plans amended if necessary, prior to this more substantial expenditure.

Tables 6 and 7 provide cost estimates for the recommended works in sequence from north to south, and should be read in conjunction with the respective route plans (Figures 7 to 16).

The cost estimates used in Tables 6 and 7 are in 2010 values, and exclude Council staff time and vehicle operating costs and other routine overheads. The cost estimates do not include allowances for geotechnical investigations or risk audits (for specific developments or the Trail as a whole), other assessments, engineering details/specifications, or other preliminaries.

The orders of costs for lookouts and safety railings/barriers are also broad estimates only – as the cost of these features will be very dependent on the facility or infrastructure types and standards ultimately selected for these items and their case-by-case design. This however also allows considerable flexibility in the Medium Term cost estimates, as it is this stage where the majority of lookout development or upgrading is scheduled.

Recognising that external funding can come from many sources, and often be linked to specific issues or programme objectives, actions have not been prioritised beyond the Trail staging level.

Table 6 Approximate Orders of Cost - Initial Route

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
<i>Regular/Repeated Track Treatments</i>		
all	Realign track and install branch barrier bundles or vegetated buffer strip – Edgewood PI Point at Denhams Beach x 2, Wimbie Beach to Divers Point upper track, south from Divers Point up to Grandfathers Gully Reserve ridge/lookout, north of Grandfathers Gully Ck, between Grandfathers Gully Ck and Denise Dr, Denise Dr south-east end, Lilli Pill Point, dip on Fairview Dr Headland, Iluka Ave Point, Tallawang Ave north, Wimbin Ave Headland, Illabunda Dr/Pretty Point Bay north, and Pretty Point spine track.	ESC staff time/resources, or contractors @ \$50/hr/person
all	Install hold-point/safety barrier along cliff/slope edge - Observation Head x 3, Bronte Point, Bronte Cr, Beechwood Cr northern cliff and point, Denhams Beach north end, Edgewood PI Point at Denhams Beach, Billabong PI Point, Billabong PI eastern lookout, south from Divers Point, Grandfathers Gully Reserve ridge/lookout, north of Grandfathers Gully Ck x 2, Denise Dr north-west end, Denise Dr centre, Denise Dr south-east end, Denise Dr eastern point, Lilli Pilli west, southern cliffline of Lilli Pilli Bay, Fairview Dr Headland northern point, Fairview Dr Headland south centre x2, Iluka Ave Point, Yugura St Point x4, cliffline and points at north end of Malua Beach (off Tallawang Ave) x 4, Wimbin Ave Headland x 2, Illabunda Dr Point, Pretty Point, points and narrow cliff edge at south-western end of Pretty Point/Illabunda Dr x 3, and McKenzies Beach lookout point south of Illabunda Dr.	<p>\$24,500</p> <p>Approximately 1,600 lineal metres of low profile barriers (in total), costed on basis of low post-and-rail softwood log “fences” 150mm diameter and 1.8m lengths with 600mm posts at each joints, fixed with gal spikes – actual cost will vary depending on barrier type selected for different/specific sites</p>
all	Delineate and mark on-ground private property boundaries, and enforce removal of encroachments or limits/deterrents to public access – Observation Head, Sunshine Bay north end, Burrawang Cr bush block, Graydon Ave south-east corner, Edgewood PI lane, Billabong PI cliff edge x 2, eastside of Wimbie Ck mouth, Iluka Ave Point, Yugura St northern cliff side, Karoo Cr eastside, western end of South Head x 2, Tallawang Ave Reserve, Tallawang Ave eastern access lane (eastside private property), south end of Malua Beach, Wimbin Avenue Reserve, and slope at north end of McKenzies Beach.	ESC staff time/resources
all	Directional and track identification signposting, entire route and Pretty Point spine track (23km) and alternative inland routes (6km)	<p>\$18,125</p> <p>Allowing for 5 direction markers per km = 145 direction markers @ \$125 each</p>
<i>Location Specific Actions</i>		
1	Orientation/information shelter at Observation Head	<p>\$9,000</p> <p>Estimate for structure only , excludes development and production of information and orientation signage (in-house by ESC or consultant designer @ \$4,000 per large panel)</p>

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
1	New in-ground sleeper steps, or similar, from Observation Head to North Caseys Beach Reserve	\$600 15 sleepers and gal pipe fixing @ \$40 each, installation by ESC staff
1	New concrete pathway south from North Caseys Beach Reserve to proposed pedestrian crossing	\$29,250 250m of 1.8m wide reinforced concrete path, 450 sq m @ \$65/sq m
1	Raised threshold pedestrian crossing (wombat crossing) on Beach Road at north end of Caseys Beach	\$24,000 raised threshold, kerb extension, signs and linemarking
1	Raised threshold pedestrian crossing (wombat crossing) on Beach Road at south end of Caseys Beach	\$24,000 raised threshold, kerb extension, signs and linemarking
1	New concrete pathway at south end of Caseys Beach (eastside of Beach Rd) to link south to existing path into South Caseys Beach Reserve	\$11,375 175m of 1.8m wide reinforced concrete path (450 sq m @ \$65/sq m)
1	Replace resident built steps with new in-ground timber steps and gravel fill	\$2,500 25m of new compacted track, with timber/gravel-fill steps and single handrail plus drainage protection, @ \$100/m, installation by ESC staff
1	Upgrade Beach Rd verge at Sunshine Bay alternative inland route	Include in ESC routine works programme
1	"No Through Route" signposting south of Pleasurelea Park	\$400 1 @ \$400 each
1	Upgrade Beach Rd verge at "Barbara Crescent Beach" alternative inland route	Include in ESC routine works programme
1	Low-key/basic lookout on point north of "Barbara Crescent Beach" and landscape plantings	\$12,000 Estimate only
2	Signpost reserve at south-east corner of Graydon Ave as public open space	\$400 1 @ \$400 each
2	"No Public Access" signposting on pathway up to nursing home at Denhams Beach	\$400 1 @ \$400 each
2	Signpost each end of Edgewood Pl lane as public access	\$800 2 @ \$400 each, ESC staff install
2	Realign and construct new compacted surface track set back from hazardous sloped cliff edge at White Sands Pl, close and rehabilitate old tracks	\$6,400 80m of new compacted track, with timber steps and drainage protection, @ \$80/m
2	Signpost trample/scramble tracks off White Sands Point to beach as hazardous	\$800 2 @ \$400 each
2	Signpost alternative high tide/sell route take off point at rear of Surf Beach Reserve	\$400 1 @ \$400 each
2	Vegetation clearing to allow public access, eastside of Wimbie Ck mouth	ESC staff time/resources
2	Upgrade track surface and install water bars/drainage treatments on old vehicle track into Grandfathers Gully Reserve from Wimbie Beach	\$12,000 Approximately 400m allowing \$30/m, installation and other works by ESC staff
2	Install "Caution - Walkers Below" signs along Wimbie Beach to Divers Point upper track	\$1,600 4 @ \$400 each

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
2	Low-key lookout on Divers Point saddle with barrier fencing on approach track	\$21,000 Estimates only, \$15,000 for lookout and \$6,000 for safety fencing
3	Upgrade track surface and install water bars/drainage treatments on old vehicle track upslope south from Divers Point	\$7,500 Approximately 250m allowing \$30/m, installation and other works by ESC staff
3	Low-key/basic lookout on Lilli Pilli Point, with additional railings and seating	\$13,800 Lookout \$10,000 and safety railings \$2,000 (estimates only), 1 park seat on concrete footings @ \$1,800 each
3	Signpost trample tracks (spur) at Lilli Pilli Point as hazardous	\$400 1 @ \$400 each
3	Signpost alternative inland high tide/swell route around Lilli Pilli Beach, and link south onto Fairview Dr Headland	\$1,600 4 @ \$400 each
4	Basic lookout at Fairview Dr Headland northern point, with additional railings	\$10,000 Lookout \$8,000 and safety railings \$2,000 (estimates only)
4	Close and rehabilitate lower section of dual track and hazardous spur trample tracks at Fairview Dr Headland southern point	ESC staff time & in-house resources
4	Basic lookout at Fairview Dr Headland southern point, with additional railings	\$10,000 Lookout \$8,000 and safety railings \$2,000 (estimates only)
4	Level and upgrade road shoulder section on southern end of Fairview Dr, install drainage treatments where required	Include in ESC routine works programme
4	Signpost each end of Iluka Ave lane as public access	\$800 2 @ \$400 each
4	Basic lookout at Iluka Ave Point, view into rocky inlet, and new/with additional railings	\$10,000 Lookout \$8,000 and safety railings \$2,000 (estimates only)
4	Relocate eastern roadside timber post-and-rail barrier over drainage line, on Garagarang St at Garden Bay, to allow safe roadside high tide/swell route	Include in ESC routine works programme
4	<i>Install new steps/stairs on steep grassy slope at south-east corner of Garden Bay (up to Yugura St) if required due to private property survey</i>	<i>\$6,500 (if required, excluded from total below) 20 boxed sleeper and gravel fill steps with single handrail</i>
4	Install seating in existing grassy clearing on Yugura St Point	\$1,800 1 park seat on concrete footings @ \$1,800 each
4	Install 15m of boardwalk/bridge with lower side railings across short steeply sloped gap just north of South Head	\$25,000 20m of elevated boardwalk with single handrail @ \$1,250/m
5	Signpost spur track to South Head as hazardous	\$400 1 @ \$400 each
5	Signpost Tallawang Ave Reserve as public access (roadway side)	\$400 1 @ \$400 each
5	Basic lookout at point south-east of Tallawang Ave reserve, with extended railings and surface improvements	\$11,000 Lookout \$9,000 and safety railings \$2,000 (estimates only)

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
5	Define and harden track surface along section of cliffline at north end of Malua Beach (off Tallawang Ave) for stability/security on narrow reserve (in conjunction with safety railing), and install cliff edge warning signs	\$6,400 80m of new edged and compacted/hardened track, with drainage protection, @ \$60/m = \$4,800, installation and other works by ESC staff 4 warning signs @ \$400 each = \$1,600
5	Vegetation clearing to allow public access, rear of private property east of Tallawang Ave eastern access lane	ESC staff time/resources
5	Signpost Wimbin Ave Reserve as public access (roadway side)	\$400 1 @ \$400 each
5	Install barrier of guard rail at pinch point on roadside track at drainage crossing on Illabunda Dr (opposite Millamurra St at Pretty Point Bay)	\$3,500 Estimate only
5	Basic lookout at western narrow neck/saddle on Pretty Point - with extended railings, surface/drainage improvements and seating	\$11,000 Lookout \$9,000 and safety railings \$2,000 (estimates only)
5	Basic lookout at south-eastern point of Pretty Point - with extended railings and surface/drainage improvements	\$18,000 Estimates only, \$15,000 for lookout and \$3,000 for safety fencing
5	Signpost spur tracks and unprotected accessible cliff edges on Pretty Point as hazardous	\$3,200 8 @ \$400 each
	Initial Route - Total Order of Cost (Approx Only)	\$334,750 rounded to \$335,000

Table 7 Approximate Orders of Cost – Medium Term Route

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
<i>Regular/Repeated Track Treatments</i>		
all	Additional directional and track identification signposting, entire route and Pretty Point spine track	\$2,500 Allowing for remarking 4km of Trail at 5 markers per km = 20 direction markers @ \$125 each
<i>Location Specific Actions</i>		
1	Prepare Landscape Masterplan for Observation Head precinct	\$25,000 Consultant fees
1	Upgrade safety-edged vantage point on point of Observation Head (from initial stage) to high standard lookout (consistent with Landscape Masterplan)	\$80,000 Estimate only, final cost will be dependent on Masterplan recommendations
1	Investigate link from Observation Head to Corrigans Beach shared path	ESC staff time & specialist in-house resources
1	Upgrade Caseys Beach South Reserve – picnic furniture, shelter, define parking area	\$24,600 1 sheltered picnic setting @ \$9,500 each, 1 platform table @ \$4,500 each, 1 picnic setting @ \$5,500 each, 2 park seats @ \$1,800 each = \$3,600, bollard/definition of parking area = \$1,500
1	Upgrade safety edged vantage point at Bronte Point (from initial stage) to basic/medium standard lookout	\$30,000 Estimate only
1	Upgrade Sunshine Bay Reserve – picnic furniture, shelter, define parking area	\$14,900 1 platform table @ \$4,500 each, 1 picnic setting @ \$5,500, 2 park seats @ \$1,800 each = \$3,600, bollard/definition of parking area = \$1,300
1	Upgrade safety-edged vantage point at southern point of Sunshine Bay (Beechwood Ct) (from initial stage) to medium/high standard lookout and upgrade spur access track lookout	\$64,800 Lookout upgrading \$60,000 estimate only, 80m of new edged and compacted track, with drainage protection, @ \$60/m = \$4,800
1	Replace hazardous resident-built steps from end of Beechwood Ct laneway down steep slope to foreshore	\$7,000 70m of new compacted track - with timber steps and handrails plus drainage protection, @ \$100/m
1	Replace resident-built cliff edge cable barrier at Burrawang Cr with new high standard fencing/railing	\$12,000 Estimate only
1	Upgrade resident- built but good standard timber stairs and steps down steep slope to pebbly cove off south end of Burrawang Cr	\$15,000 Estimate only, actual works will be dependent on BCA compliance and safety/risk assessment
1	Upgrade Pleasurelea Park – landscaping/presentation, cliff edge barriers and investigate off-street parking options	\$16,000 Estimate only, actual scope of works and costs will depend on carparking options and park upgrade designs

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
2	Level, clear and upgrade pedestrian route along northern verge of Barbara Cr	Include in ESC routine works programme
2	Upgrade safety-edged vantage point at northern end of Denhams Beach (from initial stage) to medium standard lookout and close and rehabilitate adjacent informal vantage points	\$45,000 Estimate only
2	Install cliff-edge safety barrier and low barrier plantings on margin of large grassed clearing above north end of Denhams Beach	\$5,900 \$2,500 for edge barrier, 200 sq m of mass plantings @ \$17/sq m (including follow-up maintenance) = \$3,400
2	Redesign existing Graydon Ave parking area at Denhams Beach - additional landscaping plus additional picnic furniture and shelter (and future toilet site),	\$35,000 Estimate only, actual scope of works and costs will depend on upgrade designs
2	Extend existing concrete step-and-run path from Graydon Ave carpark down to Denhams Beach, plus landscaping walker direction/limits	\$3,025 35 sq m of reinforced concrete path @ \$65/sq m = \$2,275 Allowance for landscaping or barriers = \$750
2	Install picnic furniture in public reserve at south-east corner of Graydon Ave and screen planting to adjacent townhouses	\$41,100 2 sheltered picnic settings @ \$9,500 each = \$19,000, 1 platform table @ \$4,500 each, 1 picnic setting @ \$5,500 each, 2 park seats @ \$1,800 each = \$3,600, 500 sq m of mass plantings @ \$17/sq m (including follow-up maintenance) = \$8,500
2	Construct sealed pathway and low-level timber bridge across grassed flat and creekline in centre of Denhams Beach, as high tide/swell Trail link	\$45,530 low-level timber bridge with handrails both sides, 20m @ \$1,750/m = 35,000, 90 m of 1.8m wide sealed pathway, 162 sq m @ \$65/sq = \$10,530
2	Upgrade eroded track along Edgewood PI cliff edge – remove timber edging, install waterbars or other drainage protection and reinforcement native planting along cliff margin	\$2,100 200m of track drainage improvements, 15 x 2.1m hardwood timber sleepers @ \$25 each = \$375, with installation and other works by ESC staff, 100 sq m of mass plantings @ \$17/sq m (including follow-up maintenance) = \$1,700
2	Upgrade safety-edged vantage point on Edgewood PI Point at Denhams Beach (from initial stage) to medium/high standard lookout and close and rehabilitate adjacent informal vantage points	\$60,000 Estimate only
2	Upgrade realigned track set back from hazardous sloped cliff edge at White Sands PI (from initial stage), install additional steps and drainage if needed and rationalise/rehabilitate access from road	\$8,000 Estimate only, actual scope of works will depend on effectiveness of initial stage works

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
2	Install timber stairs on slope at north end of Surf Beach, close and rehabilitate trample track to west	\$32,000 40-48 stairs (4 runs with 3 landings), on concrete footings with galvanised stingers/framing, hardwood treads, handrails both sides
2	Upgrade wide access/service track west from end of lane off White Sands PI to Beach Road footpath – install waterbars or other drainage protection, reinforcement/screening planting, and signpost as “alternative route - to shops”	\$2,250 100m of track drainage improvements, 6 x 2.1m hardwood timber sleepers @ \$25 each = \$150, installation and other works by ESC staff 100 sq m of mass plantings @ \$17/sq m (including follow-up maintenance) = \$1,700 1 sign @ \$400 each = \$400
2	Construct new compacted surface track from south end of western Surf Beach Reserve along west side of creek to end of laneway off Billabong St, and signpost as alternative high tide/swell route	\$17,200 200m of new compacted track, with timber steps and drainage protection, @ \$80/m = \$16,000 3 signs @ \$400 each = \$1,200
2	Upgrade safety-edged vantage point on Billabong PI Point (from initial stage) to basic standard lookout with seating	\$16,800 \$15,000 estimate for lookout, 1 seat @ \$1,800 each
2	Install seating at safety-edged vantage point on Billabong PI eastern lookout (from initial stage)	\$1,800 1 seat @ \$1,800 each
2	Improvements to small carparking area off bottom of Newth PI – define and landscape	\$4,000 Estimate only
	Construct new compacted surface track from western footbridge on Wimbie Cr along eastern side of creek to Newth PI Reserve, including short section of boardwalk over drainage gutter	\$21,250 250m of new compacted track, with drainage protection, @ \$60/m = \$15,000 5m boardwalk @ \$1,250/m = \$6,250
2	Upgrade beach access points off Newth PI Reserve	Include in ESC routine works programme
2	Install picnic furniture, shelter, seating and water point in Newth PI Reserve	\$40,100 2 sheltered picnic settings @ \$9,500 each = \$19,000, 1 platform table @ \$4,500 each, 2 picnic settings @ \$5,500 = \$11,000, 2 park seats @ \$1,800 each = \$3,600, bubbler/tap @ \$2,000 each
2	Rock armouring and surface repairs to undercut/eroding sections of lower track to Divers Point	\$15,000 Estimate only, actual scope of works and costs will depend on extent or repairs/protection required at time of works

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
2	Construct new track around rear of small beach below/east of Divers Point, part compacted surface track benched into slope and part boardwalk	<p>\$99,500</p> <p>130m of new compacted track – benched into slope, with retaining as needed and drainage protection, @ \$150/m = \$19,500</p> <p>80m of timber or fibreglass deck boardwalk @ \$1,000/m = \$80,000</p> <p>(Note: this section would suit packaging as an external construction contract)</p>
2	Install steps and timber stairs up eroded slope from small beach below/east of Divers Point to saddle leading to point and lookout (from initial stage)	<p>\$22,500</p> <p>20 boxed sleeper/gravel fill steps with single handrail = \$6,500</p> <p>18-22 timber stairs (2 runs with 1 landing), on concrete footings with galvanised stingers/framing, hardwood treads, handrails both sides = \$16,000</p>
2	Upgrade low-key lookout on Divers Point saddle (from initial stage) to medium standard lookout	<p>\$55,000</p> <p>Estimate only</p>
2	Realign steeper/eroded sections of upper track to Divers Point, as natural surface bush track, and install drainage protection	<p>\$1,000</p> <p>250m of track drainage improvements, 40 x 2.1m hardwood timber sleepers @ \$25 each, installation and other works by ESC staff</p>
3	Realign steeper/eroded upper sections of track south from Divers Point upslope to Grandfathers Gully Reserve ridge/lookout, as natural surface bush track and install drainage protection	<p>\$750</p> <p>150m of track drainage improvements, 30 x 2.1m hardwood timber sleepers @ \$25 each, installation and other works by ESC staff</p>
3	Install drainage protection on former vehicle access track/fire trail on both sides of Grandfathers Gully Reserve ridge/lookout	<p>\$1,000</p> <p>250m of track drainage improvements, 40 x 2.1m hardwood timber sleepers @ \$25 each, installation and other works by ESC staff</p>
3	Realign Trail crossing point on Grandfathers Gully Ck to more inland route, “natural” crossing with no infrastructure	<p>minimal cost</p> <p>ESC staff time & in-house resources</p>
3	Install low key picnic furniture - platform tables (no fireplaces) - on knoll south of Grandfathers Gully Ck, rehabilitate site and reinforcement plantings	<p>\$14,200</p> <p>2 platform tables @ \$4,500 = \$9,000, 1 park seat @ \$1,800 each, 200 sq m of mass plantings @ \$17/sq m (including follow-up maintenance) = \$3,400</p>
3	Realign Trail around west side of eroding foreshore gully south of Grandfathers Gully Ck, close and rehabilitate redundant routes	<p>minimal cost</p> <p>ESC staff time & in-house resources</p>

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
3	Upgrade safety-edged vantage point at Denise Dr north-west end (from initial stage) to basic standard lookout with seating , upgrade spur access track to natural surface bush track and install drainage protection	\$18,300 \$15,000 estimate for lookout, 1 seat @ \$1,800 each, allow \$1,500 for drainage protection
3	Upgrade safety-edged vantage point at Denise Dr centre (from initial stage) to medium standard lookout with seating	\$48,600 \$45,000 estimate for lookout, 2 seats @ \$1,800 each = \$3,600
3	Upgrade safety-edged vantage point at Denise Dr south-east end (from initial stage) to basic standard lookout with seating , upgrade spur access track to natural surface bush track and install drainage protection	\$18,300 \$15,000 estimate for lookout, 1 seat @ \$1,800 each, allow \$1,500 for drainage protection
3	Construct new compacted surface track from Denise La stairs across slope to low-level timber bridge over drainage line to SPS access track in south, and signpost as alternative high tide/swell route	\$39,600 110m of new compacted track, with timber steps and drainage protection, @ \$80/m = \$8,800 low-level timber bridge with handrail one side, 20m @ \$1,500/m = \$30,000 2 signs @ \$400 each = \$800
3	Install picnic furniture and water point on grassy foreshore at Circuit Beach	\$12,800 2 platform tables @ \$4,500 = \$9,000, 1 park seat @ \$1,800 each, bubbler/tap @ \$2,000 each
3	Install drainage protection, and minor track realignments where necessary, east from Circuit Beach towards Lilli Pilli Point	\$1,500 As required along 500m of track, 60 x 2.1m hardwood timber sleepers @ \$25 each, installation and other works by ESC staff
3	Basic standard lookout east of Lilli Pilli Point, with additional railings and seating	\$18,800 \$15,000 estimate for lookout, 1 seat @ \$1,800 each, allow \$2,000 for railings
3	Upgrade basic lookout at Lilli Pilli Point (from initial stage) to medium standard lookout, upgrade spur access track	\$46,800 \$45,000 estimate for lookout, 30m of compacted track, with drainage protection, @ \$60/m = \$1,800
3	Construct new compacted surface track from end of service track off Lilli Pilli Rd carpark across slope to low-level timber bridge over Lilli Pilli Ck (near sewer crossing) to clearing in south, and signpost as alternative high tide/swell route	\$61,300 100m of new compacted track, with timber steps and drainage protection, @ \$80/m = \$8,000 low-level timber bridge with handrails both sides, 30m @ \$1,750/m = \$52,500, 2 signs @ \$400 each = \$800
3	Install sheltered picnic facilities in open bushland at rear of Lilli Pilli Beach carpark	\$28,500 3 sheltered picnic settings @ \$9,500 each
3	Provide water point in existing Lilli Pilli picnic/playground area	Include in ESC routine works programme
3	Upgrade short track section from south-east end of Lilli Pilli Beach up to Fairview Dr Hedland, install timber/gravel -fill steps and drainage protection	\$3,200 40m of upgraded compacted track, with timber steps and drainage protection, @ \$80/m

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
4	Close and rehabilitate redundant access track off north-west end of Fairview Dr	minimal cost ESC staff time & in-house resources
4	Upgrade basic lookout at Fairview Dr Headland northern point (from initial stage) to medium standard, with seating	\$43,600 \$40,000 estimate for lookout, 2 seats @ \$1,800 each = \$3,600
4	Install drainage protection, and minor track realignments where necessary, on sloping and concave/eroded track sections on northern two-thirds of Fairview Dr Headland	\$1,750 As required along 500m of track, 70 x 2.1m hardwood timber sleepers @ \$25 each, installation and other works by ESC staff
4	Upgrade safety-edged vantage point on north side of Fairview Dr Headland south point (from initial stage) to basic standard lookout, upgrade spur access track, revegetate/rehabilitate adjacent/inland clearing and install picnic furniture in bush setting (no fireplaces)	\$34,100 \$15,000 estimate for lookout, 25m of compacted track with drainage protection @ \$60/m (ESC staff install) = \$1,500 400 sq m of mass plantings @ \$17/sq m (including follow-up maintenance) = \$6,800, 2 platform tables @ \$4,500 = \$9,000, 1 park seat @ \$1,800 each
4	Upgrade basic lookout at Fairview Dr Headland southern point (from initial stage) to medium standard lookout	\$40,000 Estimate only
4	Construct new compacted surface track, lower on slope and closer to foreshore, from Fairview Dr Headland southern point west to Fairview Dr. Close and rehabilitate existing track.	\$22,800 380m of compacted track with drainage protection @ \$60/m Track closure and rehabilitation by ESC staff.
4	Delineate and mark on-ground private property boundaries at 20 & 22 Baringa Cr, enforce removal of encroachments or limits/deterrents to public access, clear vegetation and construct new compacted surface track down lane to foreshore reserve	\$2,400 40m of compacted track with drainage protection @ \$60/m
4	Construct new compacted surface track along foreshore reserve from Baringa Cr lane to Mosquito Bay picnic area - with benching, drainage and safety railings as needed	\$6,200 70m of compacted track with drainage protection @ \$60/m = \$4,200 Allowance for railings and other treatments = \$2,000
4	Install in-ground sleeper "steps" on grassy slopes each side of Mosquito Ck mouth, as low tide/swell route	\$500 20 x 2.1m hardwood timber sleepers @ \$25 each, installation by ESC staff
4	Signpost and define high tide/swell route at Mosquito Bay - around edge of boat ramp carpark, east of guard rail on George Bass Dr crossing of Mosquito Ck, and down southside grassy slope to foreshore	\$800 2 signs @ \$400 each Other works, if required, by ESC staff
4	Design and construct 70-90 m section of elevated foreshore walkway (steps and boardwalk, with railings, on superstructure anchored to tidal rock platform) around an extended private landholding and concrete block sea/retaining wall at the south-western end of Mosquito Bay	high cost item (+ \$150,000) Actual costs will be dependent on engineering specifications and detailed designs (partial land acquisition, allowing for a less structural solution, may be a cheaper option)

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
4	Identify and signpost route along grassed foreshore/cliff edge on north side of Youralla Ave	minimal cost (track marker sign costs included above) ESC staff time & in-house resources
4	Delineate and mark on-ground private property boundaries around north and east sides of point at north end of Iluka Ave, enforce removal of fencing/gardens and other encroachments or limits/deterrents to public access, clear and construct new compacted surface track with drainage protection and install cliff edge hold points or safety railings where required	\$9,700 120m of compacted track with drainage protection @ \$60/m = \$7,200 Allowance for hold-points and safety railings = \$2,500
4	Basic standard lookout on point at north end of Iluka Ave, with seating and additional safety railings	\$18,300 \$15,000 estimate for lookout, 1 seat @ \$1,800 each, allow \$1,500 for safety barriers
	Realign track away from private property rear fences on grassy slope/bench along Iluka Ave foreshore north of Garden Bay, trim vegetation as needed	ESC staff time & in-house resources
4	Realign eroded/concave track away from private property rear fences, install drainage protection and remove edge stones – track section immediately north of Garden Bay	\$250 10 x 2.1m hardwood timber sleepers @ \$25 each, installation and other works by ESC staff
4	Install low-level footbridge/boardwalk over drainage line at Garden Bay, define track on grassy approaches each side	\$18,750 15m boardwalk @ \$1,250/m
4	Upgrade grassy clearing on Yugura St Point (from initial stage) to medium standard lookout, with seating and additional safety railings	\$45,100 \$40,000 estimate for lookout, 2 seats @ \$1,800 each = \$3,600, allow \$1,500 for safety barriers
4	Upgrade existing hazardous informal steps down to pebbly beach east of Karoo Ave	\$4,500 45m of new compacted track - with timber/gravel-fill steps and handrails plus drainage protection, @ \$100/m
4	Rationalise informal track network in open remnant bushland dip east of Karoo Ave, close and rehabilitate redundant tracks, instigate/expand bush regeneration efforts, and install picnic furniture in bush setting (no fireplaces)	\$10,800 2 platform tables @ \$4,500 = \$9,000, 1 park seat @ \$1,800 each, include in ESC bush regeneration programme and other works by ESC staff
5	Realign and upgrade spur track along spine of South Head to safe bush track standard with drainage protection and steps as needed. Install simple boardwalk and railings on western narrow neck, and safety railings elsewhere as required (including hold-point/barriers to narrow sloping point on south side of headland)	\$18,000 As required along 280m of track, 40 x 2.1m hardwood timber sleepers @ \$25 each = \$1,000, installation and other works by ESC staff Allowance for boardwalk and safety railings = \$17,000
5	Basic lookout at southern side of eastern point on South Head - with safety railings, surface/drainage improvements and seating	\$22,100 \$15,000 estimate for lookout, 2 seats @ \$1,800 each = \$3,600, allow \$3,500 for safety barriers and drainage/surfacing
5	Upgrade existing hazardous informal steps down to rock platforms from north-east end of South Head	\$3,500 35m of new compacted track - with timber/gravel-fill steps and handrails plus drainage protection, @ \$100/m

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
5	Upgrade basic lookout at point south-east of Tallawang Ave Reserve (from initial stage) to medium standard lookout with seating, upgrade spur access track	\$43,600 \$40,000 estimate for lookout, 60m of compacted track with drainage protection @ \$60/m = \$3,600
5	Realign track away from private property rear fences east of Tallawang Ave Reserve, trim vegetation as needed	ESC staff time & in-house resources
5	Install seating and picnic tables (platform tables) plus landscaping improvements in Tallawang Ave Reserve	\$12,300 2 platform tables @ \$4,500 = \$9,000, 1 park seat @ \$1,800 each, allow \$1,500 for landscape improvements
5	Install seating at safety-edged grassy lookout point (from initial stage) on cliffline at north end of Malua Beach (off Tallawang Ave)	\$1,800 1 park seat @ \$1,800 each
5	Elevated footbridge over lagoon at end of Reedy Creek and clear mark approach tracks north (grassy bench and privately landscaped/encroachments public open space) and south (sand dune/bench at eastern end of Kuppa Ave) – to create high tide/swell or creek flow route	high cost item (+ \$75,000) Actual costs will be dependent on engineering specifications and detailed designs of footbridge and consideration of flooding issues
5	Orientation/information shelter at north end of Albert Bamman Park (Kuppa Ave)	\$9,000 Estimate for structure only , excludes development and production of information and orientation signage (in-house by ESC or consultant designer @ \$4,000 per large panel)
5	Replace steep sub-standard resident-built steps at Wimbin Ave Point with new timber/gravel-fill steps and handrails plus drainage protection	\$7,200 60m of new compacted track - with timber/ gravel-fill steps and handrails plus drainage protection, @ \$120/m (ESC staff install)
5	Install drainage protection, and minor track realignments where necessary and/or safety railings, on sloping and concave/eroded track sections on Wimbin Ave Point	\$1,075 As required along 100m of track, 15 x 2.1m hardwood timber sleepers @ \$25 each = \$375, installation and other works by ESC staff Allowance for safety railings = \$700
5	Realign track and establish vegetated cliff edge buffer and/or safety railing, to replace resident-built cliff edge fencing north and south of Illabunda Dr Point	\$6,000 Estimate only, actual cost will depend on extent of track realignment vs new safety railing
5	Upgrade safety-edged vantage point on Illabunda Dr Point (from initial stage) to basic standard lookout with additional safety railings, install seating at rear of grassy point and upgrade drainage on spur access track to lookout	\$18,950 \$17,000 estimate for lookout and railings, 1 park seat @ \$1,800 each, allowance for drainage protection = \$150
5	Install drainage protection on slope south from Illabunda Dr Point	\$375 As required along 200m of track, 15 x 2.1m hardwood timber sleepers @ \$25 each, installation by ESC staff

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
5	Upgrade informal trample track off north end of Pretty Point Bay Beach	\$3,000 30m of new compacted track - with timber/ gravel-fill steps and drainage protection, @ \$100/m, installation and other works by ESC staff
5	New timber stairs off south end of Pretty Point Bay Beach and new link track south to join spine track on Pretty Point, to allow low tide/swell link and beach walking	\$34,800 \$32,000 for 40-48 stairs (4 runs with 3 landings, on concrete footings with galvanised stingers/framing, hardwood treads, handrails both sides), 35m of new compacted track - with drainage protection, @ \$80/m = \$2,800
5	Roadside nose-in parking bays on Illabunda Dr at west end of Pretty Point	\$15,000 Estimate only
5	Investigate feasibility of accessible standard pathway from new Illabunda Dr parking bays to upgraded lookout on Pretty Point narrow neck/saddle (as below)	ESC staff time & specialist in-house resources
5	Upgrade basic lookout on narrow neck/saddle at west end of Pretty Point to high standard lookout – with safety railings, seating, hard surface, interpretation and possibly “accessible” standard	\$75-85,000- Estimate only, major lookout will require detailed design
5	Upgrade spine track on Pretty Point (from Illabunda Dr to eastern point), install steps and drainage protection, minor track realignment as required	\$17,500 As required along 980m of track - 100 x 2.1m hardwood timber sleepers @ \$25 each = \$2,500, estimate of 150m of upgrading compacted track @ \$60/m = \$9,000, estimate of 60m of up-graded compacted track with timber/gravel-fill steps and drainage protection, @ \$100/m = \$6,000, installation and other works by ESC staff Allowance for safety railings = \$700
5	Upgrade basic lookout at south-eastern point of Pretty Point (from initial stage) to medium/high standard lookout – with safety railings, seating, hard surface and interpretation	\$65-75,000- Estimate only, major lookout will require detailed design
5	Realign and upgrade trample track down steep slope and drainage gully (to enclosed pebbly beach below/south of narrow neck) to natural surface bush track with steps and drainage protection	\$500 75m of track improvements (embedded timber steps and drainage), 20 x 2.1m hardwood timber sleepers @ \$25 each, installation and other works by ESC staff
5	Realign and upgrade rough trample track north from eastern point/knoll to north-eastern point on Pretty Point - to natural surface bush track with steps and drainage protection, and safety railings as required	\$2,500 180m of track improvements (embedded timber steps and drainage), 40 x 2.1m hardwood timber sleepers @ \$25 each = \$1,000, installation and other works by ESC staff Allowance for safety railings = \$1,500

Plan No.	ACTION	COST ESTIMATE (AND BASIS)
5	Basic standard lookout at north-eastern point on Pretty Point, with seating and additional safety railings	\$20,300 \$18,500 estimate for lookout and railings, 1 park seat @ \$1,800 each
5	Rationalise informal track network on Pretty Point, close and rehabilitate redundant or unsafe tracks, leave some beaches and vantage points as untracked "discovery" places	\$4,000 Allowance for track closure requirements and signage, works undertaken by ESC staff
5	Upgrade safety-edged vantage point on south-western end of Pretty Point/Illabunda Dr (from initial stage) to basic standard lookout with safety railings, seating and surface hardening/drainage, upgrade drainage on spur access track to lookout	\$21,600 \$19,500 estimate for lookout and railings and surfacing, 1 park seat @ \$1,800 each, Allowance for drainage protection = \$300
5	Install drainage protection, and timber/gravel-fill steps or minor track realignments where necessary, on track from the western end of Pretty Point/Illabunda Dr to north end of McKenzies Beach	\$3,125 As required along 280m of track, 25 x 2.1m hardwood timber sleepers @ \$25 each = \$625, estimate of 25m of up-graded compacted track with timber/gravel-fill steps and drainage protection, @ \$100/m = \$2,500, installation and other works by ESC staff
5	Embedded sleeper "steps" in moderate slope at north end of McKenzies Beach, with drainage protection	\$500 20 x 2.1m hardwood timber sleepers @ \$25, installation and other works by ESC staff
5	Orientation/information shelter at McKenzies Beach carpark	\$9,000 Estimate for structure only , excludes development and production of information and orientation signage (in-house by ESC or consultant designer @ \$4,000 per large panel)
	Medium Term Route - Total Order of Cost (Approx Only)	\$2,089,780 rounded to \$2,090,000

8.2 Further Investigations, Planning and Design

8.2.1 Safety and Geotechnical Investigations

The detailed consideration of safety/risk and geotechnical issues at the concept planning scale is not practical, beyond the more obvious Trail routing and development factors addressed in selecting the routes presented in section 7.

However these will be core issues in Trail's detailed planning, either in its entirety or as individual sections are developed and promoted for visitor enjoyment.

Geotechnical investigations - to assess the stability and safety of cliff margins, steeper slopes and sites proposed for lookouts or other facility sites and users congregation areas – should be undertaken as a priority in advance of detailed Track planning efforts or as part of the facility engineering/design process. Similarly an overall risk assessment should be conducted for the Trail, or Trail sections as a priority to recommended risk management policies and strategies to apply in the Trail's detailed planning, design, development and on-going management. Site specific assessments will be warranted for each for each risk location or typical situation identified, to input to planning and design decision such as barrier types, edge setbacks, trip/fall hazards or track surface improvements. Tree safety audits and built asset inspections, including drainage features, will need to be regular/routine management actions for the Trail as it is progressively developed.

8.2.2 Planning and Design

The “spine route” for the Coastal Headlands Walking Trail, as identified in section 7, has been refined to the “corridor” level only – that is, an approximately 10 metre wide strip of land within which the route could be realistically sited. This is less applicable on those numerous sections where the route is largely already determined and follows existing tracks and trails, however there is still the option and flexibility to realign the preferred route in these places within the “concept corridor” if required. Such refinement of the precise on-ground positioning of new or re-aligned sections of the Trail will be required in many places.

On-ground route selection, path/track treatment design, and construction methods will require the detailed planning and design efforts. This will include such factors as measures to avoid and mitigating adverse environmental impacts (including visual and aesthetic impacts), site stability and geotechnical investigations (as above), anticipated usage levels, risk and hazard assessments (as above), materials and sustainability issues, the specification of detailed track “treatments” or improvement works, facility location and design, and identifying orientation and wayfinding needs as well as interpretive opportunities.

Management and maintenance regimes and requirements for each section of the Trail, and the cost/resource implications of these, will need to be addressed up-front – to enable the Trail's on-going management to be realistically represented in Council's budget cycle.

Cost estimates for various components in the route's development, from planning and design to on-ground signposting, will require investigation. Potential funding sources should be explored, widely, in light of the Trail's long-term implementation timeline and the significant funding needs for the medium term and later stages. Consultation with, and the support of, relevant state government agencies – such as Tourism NSW, the Department of Environment, Climate Change and Water, NSW Land and Property Management Authority, NSW Fisheries, and NSW

Maritime – may also be beneficial. Such consultation, and possible concurrence, will be required in relation to specific aspects of the Trail's route and use – such as lands below the High Water Mark, drainage lines intersected by the route, and the landward margins of the Batemans Bay Marine Park.

New track sections, or segments recommended for substantial realignment and upgrading of existing tracks, will require feasibility assessments (both physical constraints and usage issues) as well as being subject to all relevant environmental assessment and approval requirements under the legislation applicable to the lands in question.

8.3 Endorsement and Commitment to Action

It is recommended that Eurobodalla Shire Council formally endorse the concept of a Coastal Headlands Walking Trail, including in-principle support for the identified route. This is essential to ensure that the project has “status” and should include a commitment to dedicating expertise, resources, funding and support to the planning, development and on-going promotion and management of the Trail.

Such endorsement will also assist in attracting both community and corporate, as well as other government agency, support for the project.

The Trail's planning, development and use should also be reflected in relevant Council strategies and planning documents – particularly Council park/reserve plans of management, foreshore access strategies, pathway strategies and others.

8.4 Name, Profile and Promotion

An appropriate name for the “Coastal Headlands Walking Trail” should be determined and agreed as a priority before any working title or ad hoc names become established. Early selection of a name for the Trail is essential to establish the project's identity, reflect an agreed concept between Council and the community, to “kick-start” promotion of the Trail, and help establish its recognition among resident and visitors.

A Trail logo or symbol should be developed, preferably in conjunction with resolution of the name as above. This image, and the Trail's name when/where appropriate, can then be progressively rolled-out in brochures, signage, websites and in other recreation and tourism information.

8.5 Priority Works and “Flagship” Achievements

Sections of the Trail can be identified as priority locations for track upgrading or development efforts.

These sections once completed, will act as ‘flagships’ for the project – providing exemplar sites and promotional benefits, as well as being heavily used locations where the improvements can be expected to generate majority community support for the project.

Possible priority sections for these early works, including the provision of facilities and interpretive signage where appropriate, include:

- ❑ South Head - Malua Bay;
- ❑ Pretty Point;
- ❑ Divers Point;
- ❑ Surf Beach - Wimbie Beach;
- ❑ Surf Beach - Denhams Beach;
- ❑ Circuit Beach - Lilli Pilli Point;
- ❑ Malua Bay - Pretty Point Bay.

Although the Trail will take many years to be fully developed, or redeveloped, the early realisation, promotion and enjoyment of “flagship” Trail sections will encourage both community and political support for the project – an important first-step and foundation from which the Coastal Headlands Walking Trail can achieve its full potential as a regional recreation, amenity and tourism asset.

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