



NSW NATIONAL PARKS & WILDLIFE SERVICE

Light to Light Walk

Review of environmental factors for walk upgrade



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1. Brief description of the proposed activity

Proposal name	Light to Light Walk Upgrade
Description of proposed activity	To upgrade the Light to Light walking track (including maintaining, realigning, reinstating tracks); construct hut accommodation at Mowarry Point and Hegartys Bay; formalise the camping area at Mowarry Point; upgrade works to precinct parking, and small vehicle access trails as well as maintenance of vehicle and site access to support the walk and revegetation.
Lands within proposal	Beowa National Park (formerly Ben Boyd National Park)
NPWS area	Sapphire Coast Area
Location of activity	Beowa National Park (the park) covers an area of 10,486 ha and is located south of Eden on the NSW Far South Coast. The Light to Light Walk is located in the southern section of the park, stretching between Boyds Tower in the north and Green Cape Lightstation in the south.
Council area	Bega Valley Shire Council
NSW State electorate	Bega
Estimate capital cost of project	\$7.9 million
Proposed commencement date	February 2023
Proposed completion date	December 2024
Estimated duration of proposal	22 months for construction phase; perpetual operational phase.

This review of environmental factors (REF) has been prepared to assess the environmental impacts of the proposed Light to Light Walk Upgrade in Beowa National Park (formerly Ben Boyd National Park, and referred to in this REF as Ben Boyd in some situations) on the Far South Coast of New South Wales.

This determined REF reflects stakeholder comments provided by the community and agencies during the public exhibition of the draft REF between 15 September 2021 and 15 October 2021. Source documents relevant to this REF include:

- Appendix A – Aboriginal cultural heritage assessment (Lantern Heritage 2021a)
- Appendix B – Biodiversity assessment report (NGH Pty Ltd 2022)
- Appendix C – Preliminary walking track scoping report (TTMS 2019)
- Appendix D – Plan of management amendment: Light to Light Walk improvements (NPWS 2021b)
- Appendix E – Light to Light Walk: public exhibition report (NPWS 2021c, referred to as the plan of management amendment submissions report)
- Appendix F – Database searches

- Appendix G – Proposed architect design drawings of hut accommodation and camping areas; Pulpit Rock car park design; extracts from NPWS *Park facilities manual* and *Road maintenance manual*
- Appendix H – Examples of proposed track construction methods (NPWS n.d.)
- Appendix I – Submissions report: Light to Light Walk Upgrade draft REF (NPWS January 2022)

For the purposes of the proposal, NSW National Parks and Wildlife Service (NPWS) is the proponent while the Environment and Heritage Group (within the Department of Planning and Environment, ‘the department’), is the determining authority under Part 5, Division 5.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

In 2018, NPWS was awarded \$7.9 million from the NSW Government’s Regional Growth – Environment and Tourism Fund to upgrade and realign the existing Light to Light Walk and construct purpose-built accommodation to create a signature nature-based walking experience. The funding program commenced in July 2018, and subject to planning and construction timeframes, the project is expected to be completed in December 2024.

The Regional Growth – Environment and Tourism Fund was designed to support the creation of regional environmental infrastructure projects on publicly owned and private land where there is a clear public benefit, and regional tourism benefits. To be eligible, projects had to be able to demonstrate that the new or enhanced regional infrastructure will drive growth in the visitor economy, in particular growing regional visitation and increasing overnight visitor expenditure.

The proposal involves track realignment and reinstatement of tracks damaged by bushfire; creation of hut accommodation and formalisation of camping areas; and upgrade works to precinct parking and small vehicle access trails. Additional works include maintenance of existing tracks and vehicle trails and rehabilitation and revegetation. The location of the proposal is shown in Figure 1. The proposed works have been split into the following 3 activities:

- **Activity 1 – Walking track**
 - realign the existing Light to Light Walk from Boyds Tower to Green Cape lightstation (identified as ‘Activity 1 – Walking Track’ in Figures 2, 3 and 4)
 - reinstate bushfire-impacted sections of track that are not identified for realignment (identified as ‘Existing Walking Tracks’ in Figures 2, 3 and 4)
 - maintain existing sections of track that were not bushfire-impacted or are not identified for realignment (identified as ‘Existing Walking Tracks’ in Figures 2, 3 and 4)
 - rehabilitate and revegetate redundant sections of the track that would be closed (identified as ‘Redundant Tracks’ in Figures 2, 3 and 4)
 - install wayfinding, directional and interpretative signs.
- **Activity 2 – Accommodation and facilities**, refer to Figures 5 and 6 and Appendix G
 - construct new hut accommodation and facilities at Mowarry Point
 - formalise the existing camping area at Mowarry Point
 - construct new hut accommodation and facilities at Hegartys Bay.
- **Activity 3 – Vehicle and site access**, refer to Figures 7, 8 and 9 and Appendix G
 - maintain Hegartys Bay Vehicle Access Trail (called Hegartys Management Trail in the park plan of management) and establish a small compound at the eastern end of the trail capable of helicopter sling operations
 - upgrade Hegartys Bay Access Track to a boardwalk and/or gravel path from the aforementioned compound to the Hegartys Bay hut accommodation area to enable ATV (all-terrain vehicle), e-bike, or trolley access to the hut area

- upgrade the Pulpit Rock car park precinct, including adjusting the turning circle and parking, and retaining the existing amenity block.

The proposed activities would result in a 3-day hut-to-hut walking experience that combines walking and eco-accommodation in one of the most remote and dramatic settings in Australia.

Mowarry Point Trail will be upgraded as part of the regional fire management trail program for 4-wheel drive (4WD) and small truck access, and as such, it will not be assessed in this REF. Likewise, a permanent bridge will be installed over a small creek east of the public car park as part of regional fire management trail program for 4WD and small truck access, and will not be assessed in this REF.

Within Ben Boyd National Park, NPWS is also proposing:

- upgrades at Boyds Tower, Saltwater Creek campground and Bittangabee campground precincts
- upgrades to car parks and services at Green Cape and Disaster Bay.

Although not currently being proposed, a project to reconfigure the building at Green Cape Lightstation to provide a third night's accommodation for Light to Light walkers may commence.

These activities have not been considered as part of this REF for determination. Proposal-specific surveys, environmental assessments and design plans would be required to complete a thorough assessment for REF determination of these proposals. However, these activities have been considered in the cumulative impacts of this REF (Section 6.9). Refer to Figure 10, which shows other proposed activities within Ben Boyd / Beowa National Park.

Throughout December 2019 and January 2020, the 'Border Fire' burnt much of the walking track infrastructure and surrounding landscape within Ben Boyd National Park. The walking track was closed for several months in 2020 while NPWS made the area safe.

The initial proposal included extending the Light to Light walking track from Green Cape to Disaster Bay to create a fourth day. This has been removed from the proposal's scope due to concerns that Aboriginal cultural heritage sites would be impacted. Other changes have been made to avoid sensitive areas, areas of landslide hazard and other sensitive or dangerous locations identified following the Border Fire.

The study area for the activities has been subject to detailed environmental investigation and delineates the maximum area within which the works will be located. This provides as much clarity and certainty as possible during the proposal's early design and assessment while retaining much-needed construction flexibility, to avoid and minimise potential direct and indirect environmental and social impacts.

For the purposes of this REF, the study area for Activity 1 (the walking track) was a 30 m corridor along the proposed walking track alignment and was surveyed during detailed environmental investigations. This approach has been taken to allow the walking track to be micro-sited before being constructed. Although the walking track would be no wider than 1.5 m at any point once operational, the micro-siting method will be used to minimise environmental and Aboriginal cultural heritage impacts by allowing the track alignment to be altered within this corridor if required. The micro-siting method is described in further detail in Section 4.2.2.

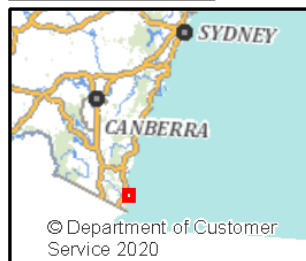
Any variation in design and construction would be in accordance with the maximum parameters assessed in this REF, to ensure that impacts to biodiversity (terrestrial ecology, flora, fauna) and Aboriginal and historic heritage sites are minimised. Several specialist studies have been undertaken as part of this assessment and are included as appendices. The work may be staged based on funding. The location of the proposal is shown in Figure 1.



Light to Light Walk Upgrade REF - Location of Proposal within Regional Context

- Points of Interest
- Activity 1 - Walking Track
- Activity 2 - Accommodation and Facilities
- Activity 3 - Vehicle and Site Access

0 0.5 1 2 3 Kms

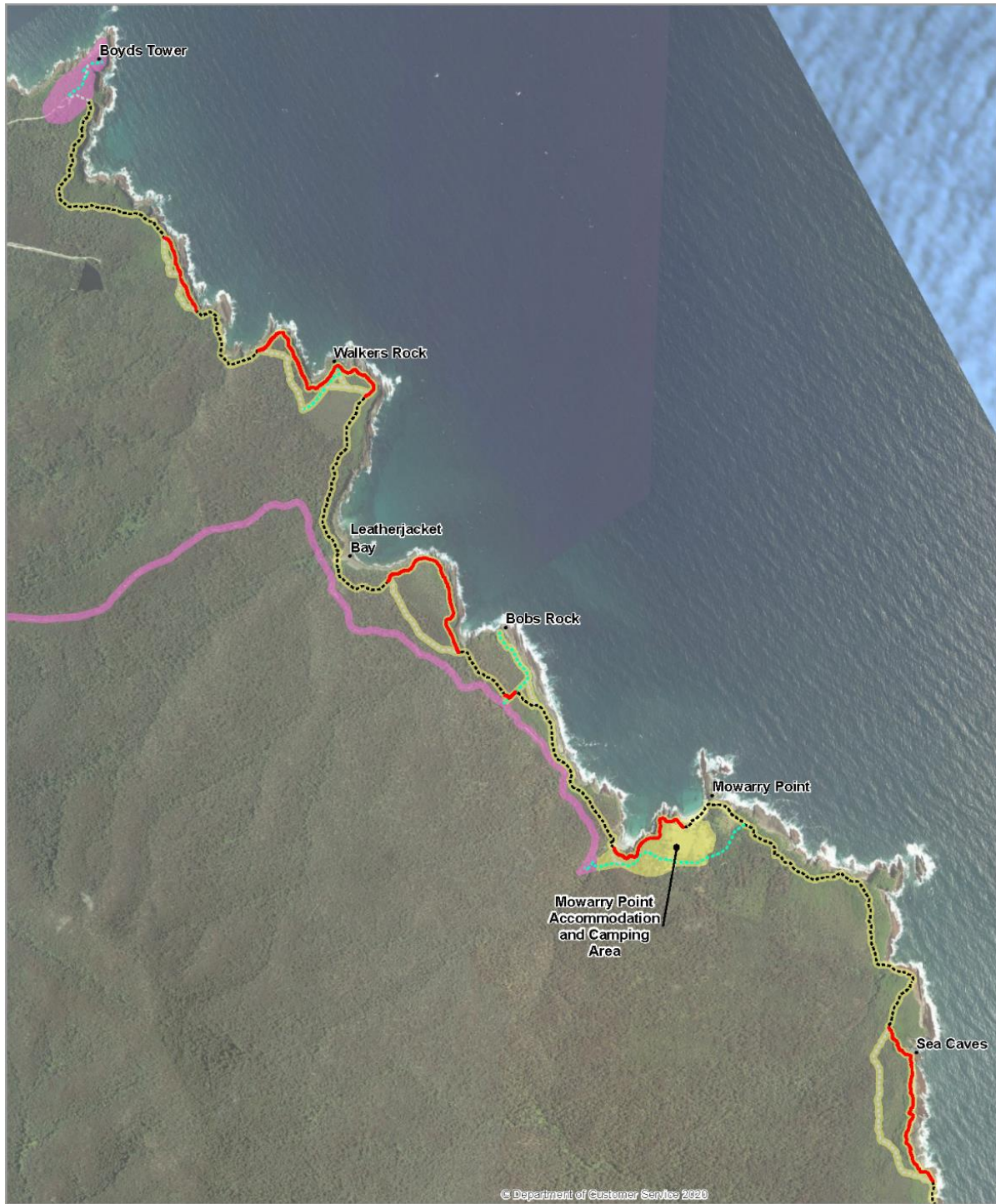


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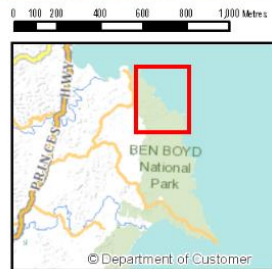


Figure 1 Location of proposal within regional context (Fig 1-1)



Light to Light Walk Upgrade REF - Activity 1 (Northern Sections)

- Points of Interest
- Activity 1 - Walking Track
- Existing Walking Tracks
- Existing Subsidiary Tracks
- Redundant Tracks
- Light to Light Walk Upgrade Study Area (30m corridor and precincts)
- Other REF Precincts

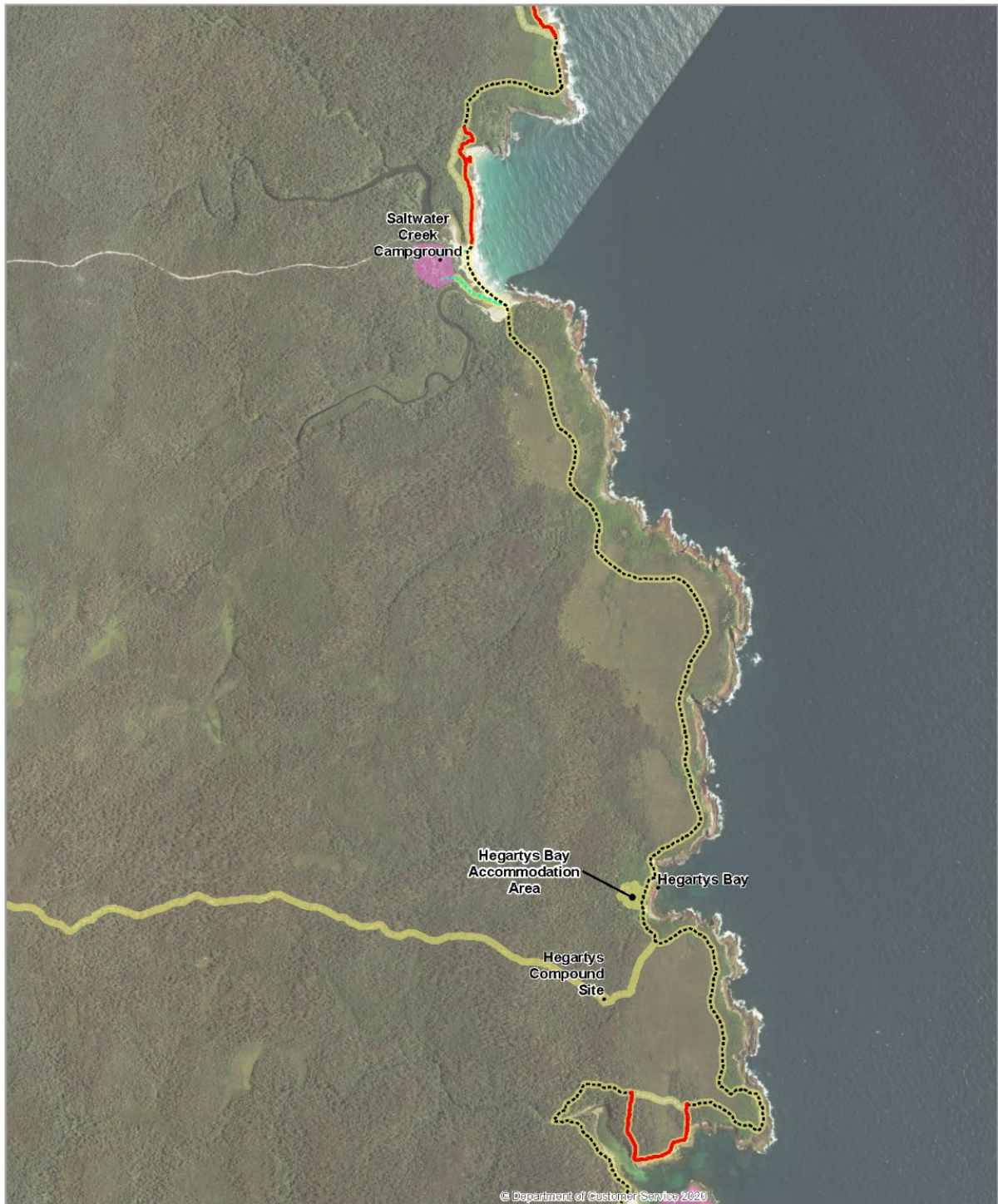


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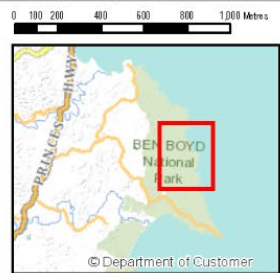


Figure 2 Activity 1: Walking track works (northern sections) (Fig 1-2)



Light to Light Walk Upgrade REF - Activity 1 (Middle Sections)

- Points of Interest
- Activity 1 - Walking Track
- Existing Walking Tracks
- Existing Subsidiary Tracks
- Redundant Tracks
- Light to Light Walk Upgrade Study Area (30m corridor and precincts)
- Other REF Precincts

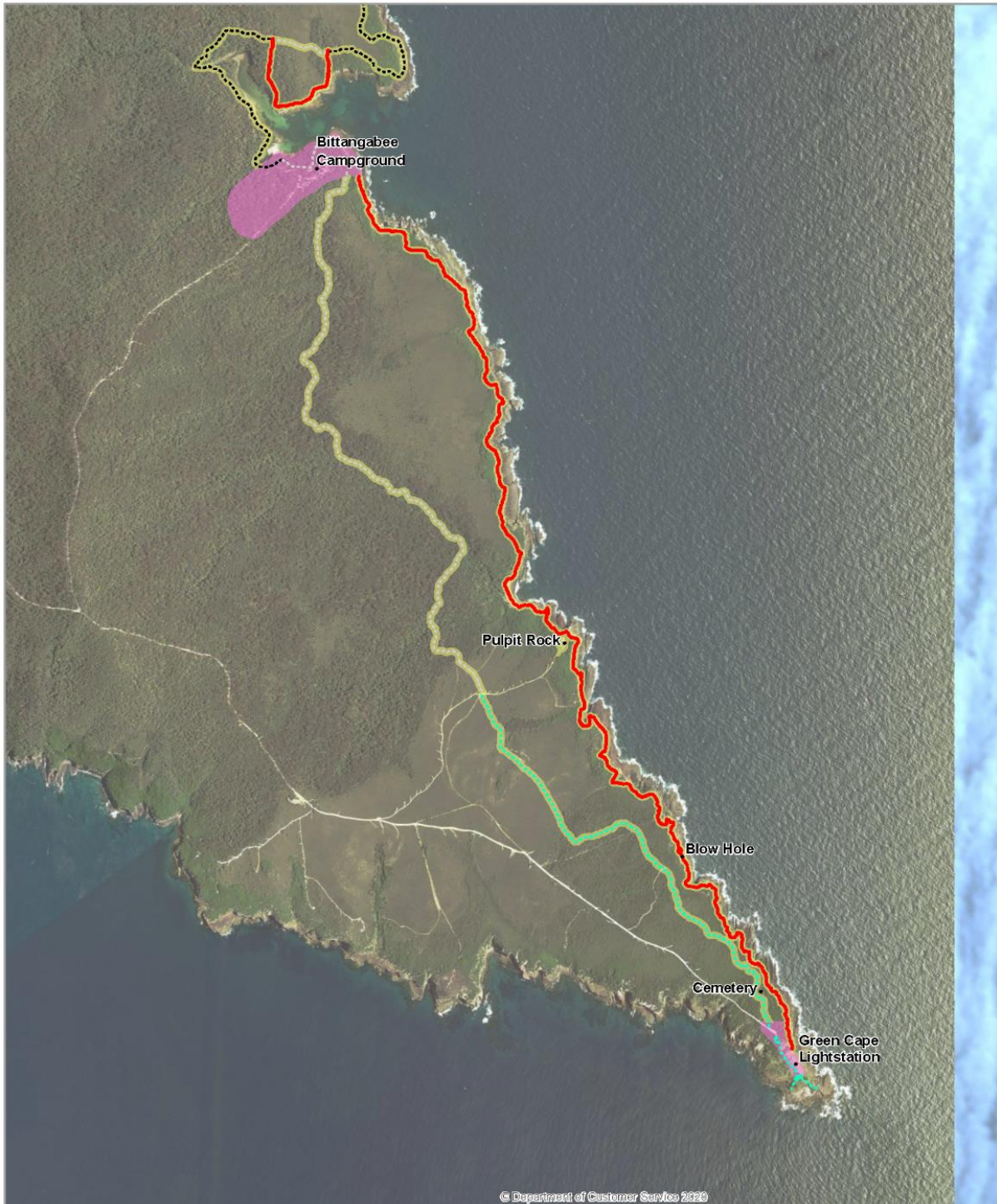


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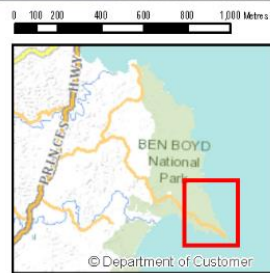


Figure 3 Activity 1: Walking track works (middle sections) (Fig 1-3)



Light to Light Walk Upgrade REF - Activity 1 (Southern Sections)

- Points of Interest
- Activity 1 - Walking Track
- Existing Walking Tracks
- Existing Subsidiary Tracks
- Redundant Tracks
- Light to Light Walk Upgrade Study Area (30m corridor and precincts)
- Other REF Precincts



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Figure 4 Activity 1 – Walking track works (southern sections) (Fig 1-4)



Light to Light Walk Upgrade REF -
Mowarry Point Accommodation
Activity 2

- Proposed New Tracks
- Existing Walking Tracks
- Existing Subsidiary Tracks
- Redundant Tracks
- Mowarry Accommodation Structures (Activity 2 (Clearing Area))
- Activity 2 (Clearing Area)
- Activity 2 (Thinning Area)
- Activity 2 (Revegetation Area)
- Light to Light Walk Upgrade Study Area (30m corridor and precincts)



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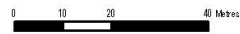
Figure 5 Activity 2 – Mowarry Point hut accommodation and camping area works (Fig 1-5)



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Light to Light Walk Upgrade REF - Hegarty's Bay Accommodation Activity 2

- Proposed New Tracks
- Existing Walking Tracks
- Existing Subsidiary Tracks
- Redundant Tracks
- Hegarty's Accommodation Structures (Activity 2 (Clearing Area))
- Activity 2 (Clearing Area)
- Activity 2 (Thinning Area)
- Light to Light Walk Upgrade Study Area (30m corridor and precincts)



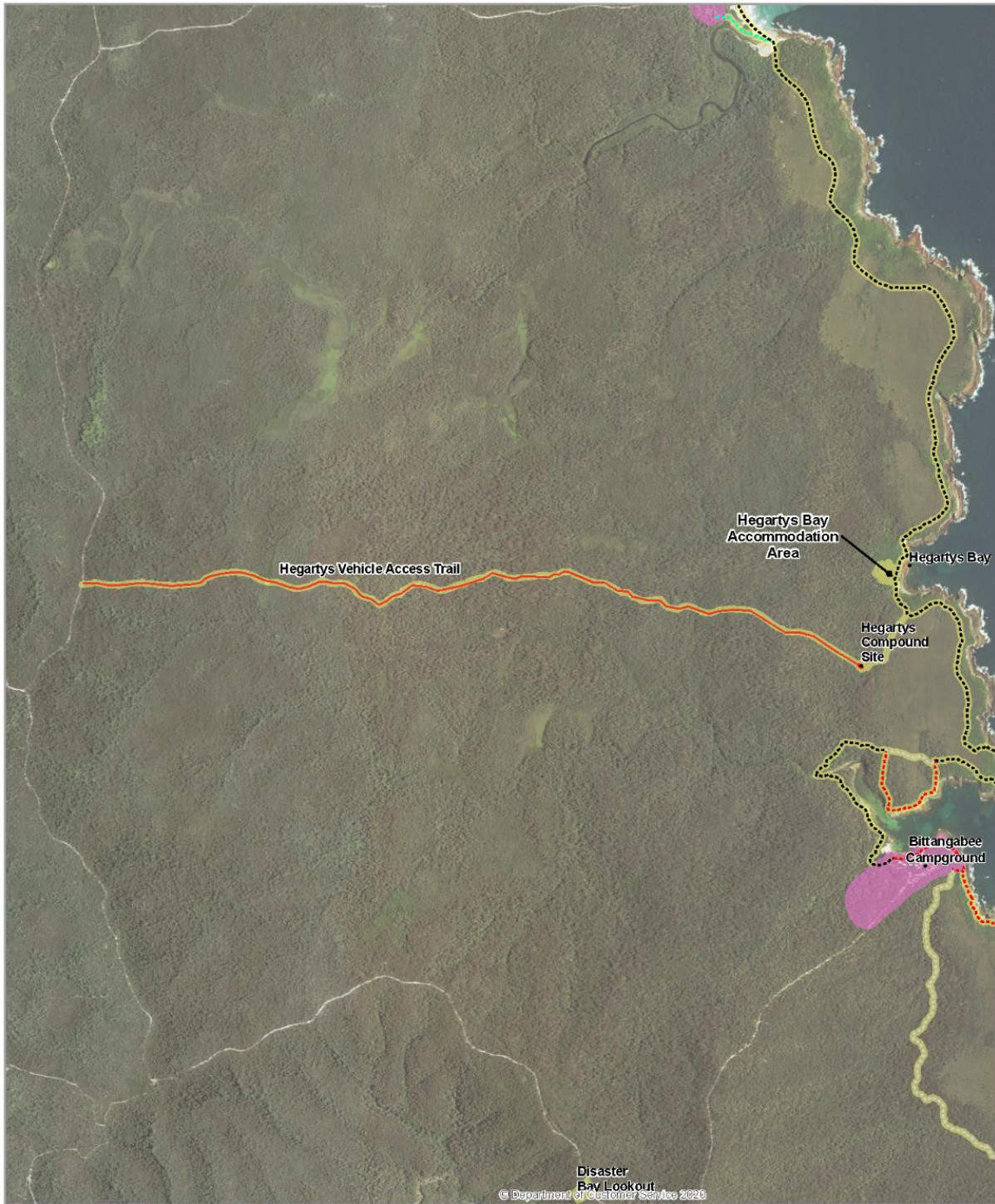
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Figure 6 Activity 2 – Hegarty's Bay hut accommodation works (Fig 1-6)



Light to Light Walk Upgrade REF -
Hegarty's Trail Vehicle Access Works
Activity 3

- Points of Interest
- - Proposed New Tracks
- - Existing Walking Tracks
- - Existing Subsidiary Tracks
- - Redundant Tracks
- - Activity 3 (Hegarty's Trail Vehicle Access Maintenance)
- - Activity 3 (Hegarty's Carpark Compound Clearing)
- - Light to Light Walk Upgrade Study Area (30m corridor and precincts)
- - Other REF Precincts

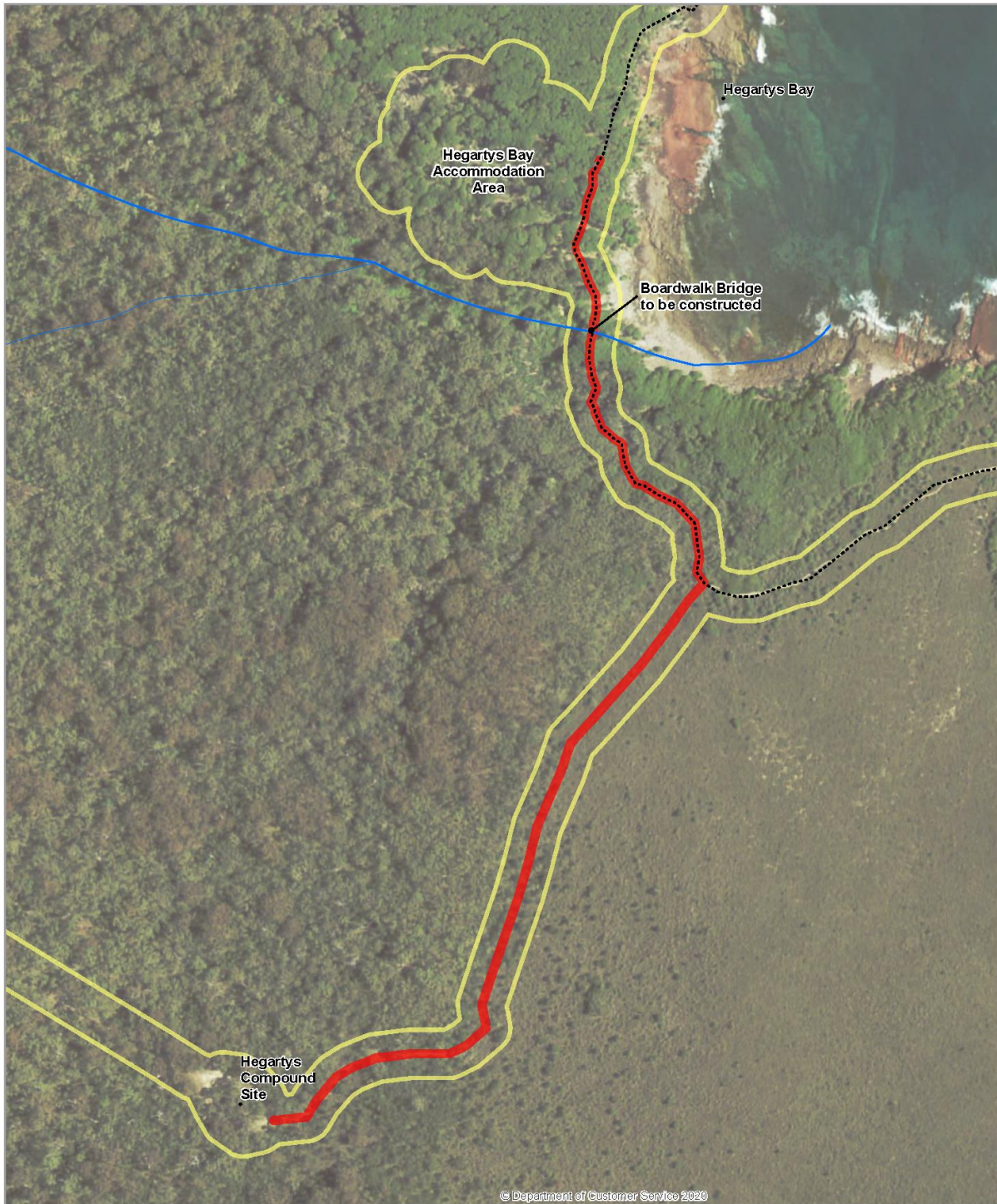


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Figure 7 Activity 3 – Hegarty's Vehicle Access Trail works (Fig 1-7)



Light to Light Walk Upgrade REF -
Hegarty's Bay Boardwalk Works
Activity 3

- Points of Interest
 - Proposed New Tracks
 - Existing Walking Tracks
 - Existing Subsidiary Tracks
 - Redundant Tracks
- Strahler Stream Order**
- 1
 - 2
- Activity 3 (Hegarty's Bay Boardwalk Works)
 - Light to Light Walk Upgrade Study Area (30m corridor and precincts)

0 25 50 100 Metres



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Figure 8 Activity 3 – Hegarty's Bay Access Track works (Fig 1-8)



Light to Light Walk Upgrade REF -
Pulpit Rock Precinct
Activity 3

- Proposed New Tracks
- Existing Walking Tracks
- Existing Subsidiary Tracks
- Redundant Tracks
- Existing Road
- Activity 3 (Pulpit Rock Carpark Clearing)
- Activity 3 (Revegetation Area)
- Light to Light Walk Upgrade Study Area (30m corridor and precincts)

0 10 20 40 Metres



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Figure 9 Activity 3 – Pulpit Rock car park precinct works (Fig 1-9)



Light to Light Walk Upgrade REF - Other Ben Boyd NP Proposals

- Points of Interest
- Light to Light Walk Upgrade Study Area (30m corridor and precincts)
- Other REF Precincts



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Figure 10 Other proposed activity in Boyd National Park

2. Permissibility

2.1 Legal permissibility

2.1.1 National Parks and Wildlife Act 1974

Objects of the National Parks and Wildlife Act (s 2A)

The *National Parks and Wildlife Act 1974* (NPW Act) establishes the NPWS, which is responsible for the control and management of all national parks, historic sites, nature reserves and Aboriginal areas (among others) in New South Wales. The main aim of the Act is to conserve the natural and cultural heritage of New South Wales.

The objects of this Act (section [s] 2A.1) are as follows:

- a. the conservation of nature, including, but not limited to, the conservation of:
 - i. habitat, ecosystems and ecosystem processes
 - ii. biological diversity at the community, species and genetic levels
 - iii. landforms of significance, including geological features and processes
 - iv. landscapes and natural features of significance, including wilderness and wild rivers
- b. the conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including, but not limited to:
 - i. places, objects and features of significance to Aboriginal people
 - ii. places of social value to the people of New South Wales
 - iii. places of historic, architectural or scientific significance
- c. fostering public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation
- d. providing for the management of land reserved under this Act in accordance with the management principles applicable for each type of reservation.

Impacts of the proposed activities have been considered and shown to comply with the objects of the Act. The principal aim of the realignment of the walking track and construction of hut accommodation areas is to encourage a greater diversity of people to visit the national park and undertake the Light to Light Walk. Additional objects of the proposed activities are to allow for the delivery of best practice conservation and management of the park by realigning the walking track to reduce impact. Specifically:

- The proposal will not significantly impact on biodiversity and ecosystem or processes, with measures to conserve and protect potential impacts.
- The proposed works will improve the condition of the existing walks and vehicle access, therefore reducing erosion and ongoing impacts to the national park.
- The proposed activities will benefit the park by:
 - clearly defining the track alignment to improve conservation outcomes and protect ecosystems and cultural values
 - improving the quality of the walking track experience for park visitors by upgrading safety features, facilities and delivery of information in a range of formats to foster the appreciation and opportunity for enjoyment of nature, cultural heritage and the environment.

- The proposal respects the cultural significance of the national park, both Aboriginal and historic heritage. Although the works are not within a declared Aboriginal Place, an Aboriginal Heritage Information Management System (AHIMS) search revealed over 100 previously recorded Aboriginal sites. An Aboriginal cultural heritage assessment report has been prepared (Lantern Heritage 2021a at Appendix A) and is summarised in this REF. The report will not be published and will only be made available to registered Aboriginal parties. The works will provide a level of protection and reduce ongoing harm and damage to these values by formalising tracks, and undertaking protection measures such as fencing and interpretation of these values into the future.
- Potential impacts to flora and fauna have been considered in Section 6.3 of this REF, and mitigation measures have been identified as required in Section 8.
- Potential impacts to cultural values have been considered in Section 6.6 and Section 6.7 of this REF, and mitigation measures have been identified as required in Section 8.

The proposal will encourage a greater diversity of visitors to undertake the Light to Light Walk. The current walking track already allows for a fostering of appreciation, understanding and enjoyment of nature and cultural heritage and their conservation. The proposed activities would enhance this and would be consistent with the management principles applicable to the national park and items of heritage significance and the relevant plan of management (PoM) (NPWS 2021a) (see further discussion below on compliance with the principles and plan of management).

Ecologically sustainable development

References to ecologically sustainable development are included in New South Wales and Commonwealth legislation, and specifically the NPW Act. The principles of ecologically sustainable development include:

- the precautionary principle – minimise impacts and environmental damage
- intergenerational equity – ensuring the health, diversity and productivity of the environment are maintained or enhanced for future generations
- conservation of biological diversity and ecological integrity – biodiversity surveys and assessments have guided the development of the project to minimise environmental impacts
- improved valuation, pricing and incentive mechanisms – the proposal has taken into consideration valuation of assets and services to ensure the proposal is developed in a cost-effective way.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) adopted the above definition of ecologically sustainable development and added a fifth principle:

- decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.

This REF has been guided by these principles when assessing the potential impact of the proposal. Where uncertainty exists, a precautionary approach has been taken to mitigate potential impacts. Environmental factors are valued in this assessment. The proposal is considered to be ecologically sustainable within the meaning of the above principles.

Reserve management principles (s 30E)

The proposed activities are located within Ben Boyd National Park. The activities proposed are consistent with the purpose of management of the reserved land as described within this REF and in Table 1. Sections 30E of the NPW Act is therefore applicable to the activities and has been addressed below.

Table 1 Consistency with reserve management principles

Section 30E national parks	Relevance to project
<p>a. The conservation of biodiversity, the maintenance of ecosystem function, the protection of geological and geomorphological features and natural phenomena and the maintenance of natural landscapes</p>	<p>The plan of management (NPWS 2021a) outlines the reasons for conservation, maintenance and protection of the park. This REF is in accordance with the plan of management and considers the existing environment and reviews the potential impacts and how these relate to the reasons for conservation, maintenance and protection of the park, and recommends mitigation measures to avoid or minimise impacts to the park.</p>
<p>b. The conservation of places, objects, features and landscapes of cultural value</p>	<p>The NPW Act specifically mandates protection for any physical/material evidence of Aboriginal occupation of New South Wales and places of cultural significance to the Aboriginal community. The Act provides for the reservation (Aboriginal Areas and Aboriginal Land) or declaration (Aboriginal Place) of areas for the protection of Aboriginal cultural values, and for these areas to be managed accordingly by NPWS. The implementation of the Aboriginal heritage provisions of the NPW Act is the responsibility of Heritage NSW (now Department of Planning and Environment). It is an offence to knowingly disturb Aboriginal places, sites and objects, irrespective of their nature or significance.</p> <p>The plan of management outlines the reasons for places, objects, features and landscapes of cultural value of the park. This REF is in accordance with the plan of management and considers the existing environment and reviews the potential impacts and how this relates to the reasons for conservation, maintenance and protection of the park, and recommends mitigation measures to avoid or minimise impacts to the park.</p> <p>Impacts to Aboriginal heritage and sites have been considered in Section 6.6. Mitigation measures have been identified as required in this section and summarised in Section 8. An Aboriginal cultural heritage assessment report has been prepared and is summarised in this REF. The report will not be published and will only be made available to registered Aboriginal parties.</p> <p>The report identified a rich suite of Aboriginal objects and sites within Ben Boyd National Park. Protection of historic heritage sites also forms part of the conservation function of the park. This is addressed below, in section 81.</p>
<p>c. The protection of the ecological integrity of one or more ecosystems for present and future generations</p>	<p>The plan of management outlines the reasons for protection of the park, including the ecological integrity of ecosystems. This REF is in accordance with the plan of management and considers the existing environment. The REF</p>

Section 30E national parks	Relevance to project
	reviews the potential impacts and how this relates to the reasons for biodiversity within the park and recommends mitigation measures to avoid or minimise impacts to the park.
d. The promotion of public appreciation and understanding of the national park's natural and cultural values	The plan of management outlines the reasons and methods for promotion of public appreciation and understanding of the national park's natural and cultural values. The proposed activities are in accordance with the plan of management and are to upgrade and improve the promotion of public appreciation and understanding of the park. The REF recommends mitigation measures to avoid or minimise impacts to the park.
e. Provision for sustainable visitor or tourist use and enjoyment that is compatible with the conservation of the national park's natural and cultural values	The plan of management provides for sustainable visitor or tourist use and enjoyment that is compatible with the conservation of the national park's natural and cultural values. The proposed activities are in accordance with the plan of management and are to ensure ongoing use and enjoyment of the park. The REF recommends mitigation measures to avoid or minimise impacts to the park.
f. Provision for the sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to the conservation of the national park's natural and cultural values	The plan of management provides for sustainable use of buildings and structures that is compatible with the conservation of the national park's natural and cultural values. The proposed activities are in accordance with the plan of management and are to ensure ongoing use and enjoyment of the park. The REF recommends mitigation measures to avoid or minimise impacts to the park.
f. (a) Provision for the carrying out of development in any part of a special area (within the meaning of the <i>Hunter Water Act 1991</i>) in the national park that is permitted under s 185A having regard to the conservation of the national park's natural and cultural values	Not applicable.
g. Provision for appropriate research and monitoring	The plan of management provides for appropriate research and monitoring of the park. The proposed activities are in accordance with the plan of management and would not remove or reduce opportunities for research and monitoring. The REF recommends specific monitoring measures to avoid or minimise impacts to the park.

Section 81 operations under plan of management

NPW Act s 81 states where the Minister has adopted a plan of management (PoM) for a national park, historic site, nature reserve, karst conservation reserve, Aboriginal area or wildlife refuge, it shall, be carried out and given effect to by the Chief Executive. No operations shall be undertaken in relation to the lands to which the plan relates unless the operations are in accordance with that plan of management.

The proposal is consistent with the aims and management principles of the *Ben Boyd National Park and Bell Bird Creek Nature Reserve plan of management* as amended in 2021 (NPWS 2021a) and accompanying *Light to Light Walk strategy* (NPWS 2021d).

2021 Plan of management amendment

A plan of management amendment process was commenced in 2019 to provide for improvements to the Light to Light Walk to cater for increasing visitation and to provide for a broader range of visitors to engage in the nature-based experience it offers. The proposed improvements along the Light to Light Walk are detailed in the *Ben Boyd National Park and Bell Bird Creek Nature Reserve plan of management amendment: Light to Light Walk improvements* (NPWS 2021b at Appendix D, referred to in the REF as 'the plan of management amendment') and are more fully described in the *Light to Light Walk strategy* (NPWS 2021c).

Extensive public consultation, summarised in Section 3.5, was undertaken in July and August 2019 as part of the plan of management amendment process.

The previous 2010 plan of management, enabled construction of tented or hard-roofed accommodation at Mowarry Point, Bittangabee Bay and at Green Cape outside the lightstation complex. This hard-roofed or tented accommodation has not been constructed since the adoption of the previous plan of management. NPWS no longer proposes to construct accommodation at Bittangabee Bay but does intend to construct hard-roofed and/or tented accommodation at Mowarry Point and Hegartys Bay. In the future, and subject to further assessment, similar accommodation could also be built at Green Cape, or the lightstation buildings could be adapted for this purpose.

Five amendments to the plan of management were provided for under the adopted plan of management amendment:

1. Amendment 1: Light to Light Walk improvements
2. Amendment 2: Cultural camp
3. Amendment 3: Other management and visitor facility improvements
4. Amendment 4: Updates to park values
5. Amendment 5: New map.

The following briefly describes the 2021 amendments that are relevant to the activities described in this REF (amendments 1 and 5).

Amendment 1. Light to Light Walk improvements

This amendment is relevant to the following activities described in this REF:

- Activity 1 – Walking track
- Activity 2 – Accommodation and facilities.

This part of the 2021 amendment enables NPWS to construct new accommodation at Green Cape within the lightstation complex, new accommodation and supporting facilities at Hegartys Bay (or Bittangabee Bay and surrounds). Supporting facilities at Mowarry Point and Green Cape outside the lightstation complex were also included. Accommodation at Mowarry Point was already permissible in the previous plan of management (NPWS 2010).

The amendment also enables NPWS to reroute sections of the walk, construct new tracks to connect to nearby points of interest, and provide certainty to the proposal so that a hut-to-hut style walk model can be developed and operated by NPWS.

Amendment 5. New map

The previous plan of management (NPWS 2010) included 2 black and white maps at the centre pages. One map showed the northern section of Ben Boyd National Park and Bell Bird Creek Nature Reserve. The other map showed the southern section of Ben Boyd National Park.

A new colour map was prepared that includes icons for the 2021 amendment to illustrate the proposed accommodation facilities at Mowarry Point and Hegartys Bay (or Bittangabee Bay) and the proposed camping area at Mowarry Point. The accompanying *Light to Light Walk strategy* (NPWS 2021d) outlines proposed realignments of the Light to Light walking track and the revised plan of management map illustrates the more significant reroutes proposed for the Light to Light walking track.

The plan of management, as amended in 2021, includes the management trail that extends from the car park at the end of Mowarry Point Trail to Mowarry Point.

Amendment adoption

After consideration of the submissions received during public exhibition of the plan of management amendment, which led to some changes (see Section 3.5), the plan of management amendment was adopted in January 2021. The plan of management was updated and reprinted in March 2021 to include the amendments.

NPWS management powers and responsibilities (s 8 and s 12)

Under s 8 (7b) of the NPW Act, the Chief Executive may arrange for the carrying out of such works as the Chief Executive considers necessary for, or in connection with, the management and maintenance of national parks and reserves. As the proposal would be consistent with the plan of management as amended in 2021 and would meet the conservation outcomes under the NPW Act (including provision of sustainable facilities and promotion of historical and cultural heritage values), the Chief Executive is the appropriate authority to authorise the activity. The proposal is considered to be relevant to the management and maintenance practices used to protect identified natural and cultural values and to provide a durable, low-maintenance facilities for visitor use.

Under s 12, the NPWS is to carry out such works and activities as the Minister directs, either generally or in a particular case, in relation to conservation and protection of wildlife, Aboriginal objects and places, facilities and opportunities for sustainable visitor or tourist use.

As such, the proposed activity is consistent with the powers and responsibilities of NPWS under s 8 and s 12 of the NPW Act.

Leasing, licensing and easement provisions (Part 12)

Not applicable. NPWS is the proponent, and the proposed activity is not subject to a lease or licence.

2.1.2 Wilderness Act 1987

The *Wilderness Act 1987* is designed to provide the permanent protection and proper management of wilderness areas and to promote the education of the public in the appreciation, protection and management of wilderness.

Not relevant. The proposal site is not located in a nominated or declared wilderness area.

2.1.3 Environmental Planning and Assessment Act 1979

The proposal is on land reserved under the NPW Act. NPWS, as the proponent, is a public authority for the purposes of the EP&A Act.

The proposal does not require approval under Part 4 of the Act and is classed as 'development permitted without consent' (refer to further discussion under state environmental planning policies below). This type of development is subject to Part 5 of the EP&A Act.

Under Part 5, s 5.5 of the EP&A Act, a determining authority (in this instance Environment and Heritage Group), has a duty to consider the environmental impact of a proposal. Under the EP&A Act, Environment and Heritage Group of the Department of Planning and Environment is required to examine and take into account to the fullest extent possible all matters affecting the environment by reasons of a proposed activity. This includes taking into consideration conservation agreements under the NPW Act and any plans of management adopted under that Act. Further, consideration is required for any agreement entered into under the BC Act. It also requires that the Department of Planning and Environment adequately assess the effect of the activity on any wilderness areas within the meaning of the Wilderness Act, and the impact of the proposal upon critical habitat, threatened species, populations, communities and their habitats.

The activity may be undertaken without development consent under the provisions of s 2.73(1)(a) of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP) because:

- it is on land reserved under the NPW Act or acquired under Part 11 of the NPW Act
- it is for a purpose authorised under the NPW Act.

The activity is not 'designated development' under Schedule 3 of the Environmental Planning and Assessment Regulation 2001.

The activity is not 'state significant infrastructure' under Schedule 3(7) of the Planning Systems SEPP.

The activity is not 'designated development' under s 2.7(2) of the Resilience and Hazards SEPP.

State Environmental Planning Policy (Transport and Infrastructure) 2021

Under s 2.74(1)(a) of the Transport and Infrastructure SEPP, construction or maintenance of 'walking tracks, raised walking paths (including boardwalks), ramps, stairways or gates' is exempt development within parks and other reserves, and therefore consent is not required for the proposal for these works. As such, most of the proposal would be exempt development for the purpose of the SEPP. However, some works, such as the construction of the accommodation do not meet all provisions of s 2.74(1)(a). Therefore, NPWS will process the proposal as an activity for the purpose of Division 5.1 of the EP&A Act.

2.1.4 Heritage Act 1977

The *Heritage Act 1997* is the main statutory tool designed to conserve the cultural heritage of New South Wales and used to regulate development impacts on the state's heritage assets. The Heritage Act defines 'environmental heritage' as those places, buildings, works, relics, moveable objects and precincts of state or local heritage significance. A property is a heritage item if it is:

- listed on the State Heritage Register – a register of heritage places of particular importance to the people of New South Wales

- listed on the State Heritage Inventory (SHI) – an electronic database of statutory listed heritage items (including items on the State Heritage Register, s 170 heritage registers of some state government agencies, and heritage places listed on local council local environment plans [LEPs])
- an item listed on the National Parks Heritage and Conservation Register (contained in the Historic Heritage Information Management System) – NPWS’s s 170 heritage register
- a place, building landscape feature or moveable heritage item older than 25 years.

Several items listed under the NSW Heritage Act are recorded within Ben Boyd National Park, including the southern sector where the proposal is located. Heritage listings are detailed in Section 5.19, and impacts are assessed in Section 6.7 of this REF.

2.1.5 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) seeks to:

- conserve biological diversity at bioregional and state scales
- maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations
- assess the extinction risk of species and ecological communities and identify key threatening processes through an independent and rigorous scientific process
- establish a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity.

The Act is administered by Department of Planning and Environment with the purpose of maintaining a healthy, productive and resilient environment for the greatest wellbeing of the community, now and into the future, consistent with the principles of ecologically sustainable development. The Act aims to conserve biodiversity at bioregional and state scales.

Schedule 1 of the BC Act lists threatened species in NSW, Schedule 2 lists threatened ecological communities in New South Wales, and Schedule 3 lists key threatening processes in New South Wales.

As the activities are being considered under Part 5 of the EP&A Act, s 7.8 of the BC Act has been considered. A biodiversity assessment report has been completed for the proposed activities and considers whether a significant impact for listed entities could result from the works. The biodiversity assessment report (NGH 2022) is summarised in Section 5 of this REF and provided in full at Appendix B. No significant impact to threatened species (populations), or ecological communities will occur as a result of this proposal as justified by this REF and the attached biodiversity assessment report. Therefore, no species impact statement under the BC Act will be required.

2.1.6 Rural Fires Act 1997

The objectives of the *Rural Fires Act 1997* are to provide for:

- a. the prevention, mitigation and suppression of bush and other fires in local government areas (or parts of areas) and other parts of the state constituted as rural fire districts
- b. the coordination of bush firefighting and bushfire prevention throughout the state
- c. the protection of persons from injury or death, and property from damage, arising from fires

- d. the protection of the environment by requiring certain activities referred to in paragraphs (a) – (c) to be carried out having regard to the principles of ecologically sustainable development described in section 2 (2) of the *Protection of the Environment Administration Act 1991*.

Under this Act, NPWS is a prescribed fire authority and is responsible for the control and suppression of all fires on lands that it manages. This management is subject to fire management strategies prepared for national parks and other reserved lands. Part 4 of this Act deals with the prevention and minimisation of the spread of bushfires throughout the state. The potential for the proposal to be a bushfire risk is considered in Section 6.4 of this REF.

The 2019–20 bushfire season has decimated many areas of native vegetation across the east coast of Australia and caused significant impacts to wildlife, including threatened species. An extent of 5.3 million ha of land representing 6.7% of New South Wales has been impacted by bushfires affecting over 60 threatened fauna species (DPIE 2020a). Scientists and government agencies have been working to understand how the fires have affected the environment and to determine where management intervention is needed.

2.1.7 Biosecurity Act 2015

The *Biosecurity Act 2015* is administered by NSW Department of Primary Industries (DPI). The Biosecurity Act repeals the *Noxious Weeds Act 1993*. It streamlines and modernises the way all biosecurity risks (feral animals, plant and animal diseases, and weeds) are managed in New South Wales. In relation to weeds, the Act:

- embeds the principle of shared responsibility for weed risk across government, community and industry
- applies equally to all land and waterways in the state, regardless of whether ownership is public or private
- is premised on the concept of risk, so that weed management investment and response is commensurate with the risk posed
- supports regional planning and management for weeds.

The Biosecurity Act includes a number of mechanisms (regulatory tools) that can be used to manage weed risks. The Act and Regulations provide specific legal requirements for high-risk activities and state-level priority weeds. The Biosecurity Act introduces a general biosecurity duty: that all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as reasonably practicable.

Whilst not a regulatory document, the *South east regional strategic weed management plan 2017–2022* (South East LLS 2017), uses the regulatory tools available in the Biosecurity Act to manage weed risks.

The regional weed management plan details the specific legal requirements for state-level priority weeds and high-risk activities (see Appendix 1.1 of the plan). For each state-level priority weed, the management objective and specific requirements for its management (as stated in the Biosecurity Act and regulations) is included. The specific requirements include prohibited matter, biosecurity zones, control orders and mandatory measures. The regional weed management plan also identifies regionally prioritised weeds and outcomes to demonstrate compliance with the general biosecurity duty (see Appendix 1.2 of the plan).

The biodiversity assessment undertaken for this REF (see Appendix B and Section 6.4 of the REF) notes the works areas are relatively free of weed ingress, although some weeds have been identified following the Border Fire of 2019–20.

2.1.8 Fisheries Management Act 1994

The *Fisheries Management Act 1994* (FM Act) sets out to conserve fish stocks and key fish habitats, threatened species, populations and ecological communities of fish and marine vegetation and biological diversity. Further, it aims to promote viable commercial fishing, aquaculture industries and recreational fishing opportunities.

Certain works carried out on 'water land', as defined under the FM Act, require approval under the Act. The proposed Activity 3 works at the Hegartys Bay Access Track would be undertaken partly on land that meets the definition of 'water land'.

This REF addresses potential impacts to native fauna, including fish, in Section 6.3. This includes reference to *Guidelines for watercourse crossings on waterfront land* (DPI 2012). There is no proposed dredging, reclamation, harming of marine vegetation or use of explosives and other dangerous substances, as such a permit from NSW Department of Primary Industries (DPI Fisheries) is not permitted.

Consultation for the proposed activities with relevant agencies is addressed in Section 3.1. As the upgrade to the Hegartys Bay Access Track passes through 'water land', DPI Fisheries have been notified as per s 199 of the FM Act.

2.1.9 Aboriginal Land Rights Act 1983

Native title rights (as discussed in Section 2.1.11 below) are different to and separate from the statutory right of Aboriginal land councils to make claims for land under the NSW *Aboriginal Land Rights Act 1983*.

The local Aboriginal land councils (LALCs) must comply with the Aboriginal Land Rights Act and the Aboriginal Land Rights Regulation 2014 when they want to 'deal with land' that is 'vested' in them. This includes the requirements for the LALC to apply to/notify dealings with the New South Wales Aboriginal Land Council.

As the proposed activities do not require a dealing to be entered into with a LALC, there is no legislated requirement for application or notification with the NSW Aboriginal Land Council under the Act.

Consultation with the relevant LALCs has occurred as part of the requirements for the Aboriginal cultural heritage assessment process for the activity (refer to Section 5.18 and 6.6).

2.1.10 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) provides for an assessment and approvals system for actions that impact on matters of national environmental significance and actions that have a significant impact on Commonwealth land. The approval of the Australian Government Environment Minister is required if an action is likely to have a significant impact on or involve World Heritage properties, wetlands of international importance, Commonwealth listed threatened species and ecological communities, Commonwealth listed migratory species, nuclear action, Commonwealth marine areas or Commonwealth land.

An EPBC Act Protected Matters Search Tool report was obtained on 7 July 2021 for the area within a 10-km buffer around the proposal site. The results of the search are summarised in Section 5.25 (Table 18), and have been incorporated into the threatened species evaluations. Potential impacts on matters of national environmental significance are evaluated in Section 6.8 of this REF.

No significant impacts are predicted for Commonwealth listed matters. A referral is not considered warranted.

2.1.11 Native Title Act 1993 (Cth)

Compliance with the Commonwealth *Native Title Act 1993* would also require compliance with the Native Title (New South Wales) Act 1994, as such, it is considered to not require separate consideration in this REF as the 2 Acts are inextricably linked, and the following provides justification for the actions taken with this REF.

The Native Title Act (Cth) provides a legislative framework for the recognition and protection of common law native title rights. Native title is the recognition by Australian law that Indigenous people had a system of law and ownership of their lands before European settlement. Where that traditional connection to land and waters has been maintained and where government acts have not removed it, the law recognises the persistence of native title.

People who hold native title have a right to continue to practice their law and customs over traditional lands and waters while respecting other Australian laws. This could include visiting to protect important places, making decisions about the future use of the land or waters, and hunting, gathering and collecting bush medicines. Further, when a native title claimant application is registered by the National Native Title Tribunal, the people seeking native title recognition gain a right to consult or negotiate with anyone who wants to undertake a proposal on the area claimed.

Native title may exist in areas such as:

- vacant Crown land
- some national parks, forests and public reserves
- some types of pastoral leases
- some land held for Aboriginal communities
- beaches, oceans, seas, reefs, lakes, rivers, creeks, swamps and other waters that are not privately owned.

A search of the National Native Title Tribunal Registers on 7 December 2020 found an active application within the Bega Valley Shire Council local government area. The land described in the application of the South Coast People follows the high-water mark along the coastline between the Towamba River and Ben Boyd National Park at Boyd Tower (incorporating the ocean surrounding the subject land).

The proposed activities would be located adjacent to land included in the South Coast Peoples Native Title Claim Application: NSD1331/2017, South Coast People, NC2017/003. NPWS has an agreement with NTSCORP, who represent the native title claimants, that they will be consulted on project work on the NSW South Coast proposed by NPWS. As such, and in accordance with subsection 24JB(6) of the Native Title Act (to the extent that this subsection applies), NTSCORP will be consulted during the REF process.

2.2 Consistency with National Parks and Wildlife Service policy and procedure

The Light to Light Walk upgrades would be constructed in accordance with the policies and procedures as described in Table 2.

Table 2 Consistency with NPWS policies

Policy name	How proposal is consistent
Landslides and rockfalls policy	<p>The NPWS priority in managing landslides and rockfalls in parks is to protect life and property, consistent as far as possible with conserving the natural and cultural values of parks.</p> <p>NPWS follows accepted risk management and safety practices; conforms with international and Australian standards; and follows corporate risk management procedures and the work, health and safety system in its management of risk from landslides and rockfalls.</p> <p>Implementation of the landslides and rockfalls policy is supported by NPWS <i>Landslides and rockfalls procedures</i> (DPIE 2020b) that provide more detailed guidance on how to record and respond to landslide and rockfall incidents and hazards in parks.</p> <p>A detailed geological assessment and quantitative risk assessment have been undertaken and the activities proposed would be in accordance with the <i>Landslides and rockfalls procedures</i>.</p>
Visitor accommodation	<p>The NPW Act permits accommodation in parks for some purposes. Activity 2 includes the construction of accommodation and facilities including:</p> <ul style="list-style-type: none"> • new hut accommodation and facilities at Mowarry Point • new hut accommodation and facilities at Hegartys Bay. <p>The visitor accommodation policy guides accommodation development within parks. Visitor accommodation is permissible in parks where it is consistent with the objects and management principles of the NPW Act and the relevant park plan of management. The proposed activities would be consistent with the plan of management as amended in 2021.</p> <p>Site and precinct plans have been prepared for both new visitor accommodation sites that address the planning, design and construction of the accommodation and associated park facilities in each location.</p>
Visitor safety	<p>The visitor safety policy outlines NPWS's legal duty of care towards people in parks. It also provides guidance about how NPWS can address safety issues and reduce risk to park visitors while maintaining park values.</p> <p>Prior to finalisation of trail location and commencement of works, visitor safety risks would be assessed through the NPWS's risk management system.</p>
Walking tracks policy	<p>The <i>Walking tracks policy</i> works in conjunction with the <i>Park facilities manual</i> (NPWS 2016a), <i>Park signage manual</i> (NPWS 2016b) and plan of management to determine how walking tracks need to be constructed and maintained. The policy states that tracks must be appropriately located and designed to minimise environmental impacts, and be appropriate to the setting as per the <i>Sustainability assessment criteria for visitor use and tourism</i> (OEH 2011). The planning, development and management of walking tracks also considers the following:</p> <ul style="list-style-type: none"> • public safety issues • how the track fits within other walking opportunities, such as off-park tracks • opportunities to provide access for people with disabilities • resources needed to keep the track maintained.

2.3 Type of approval sought

2.3.1 NPWS approval

Internal NPWS approval or authorisation, including expenditure, is required. There are no existing approvals, such as permits, leases, licences or easements, which apply to part or all of the proposed activity.

2.3.2 Other proponents

Table 3 Other proponents

Instrument	Requirement	Timing
<i>Heritage Act 1977</i> (s 140)	Permit to disturb or excavate any land in New South Wales that is likely to contain archaeological relics	Prior to start of the activity
<i>Heritage Act 1977</i> (s 57)	Exemptions for excavation apply for walking track works within the Green Cape Maritime Precinct curtilage	Prior to start of the activity
<i>National Parks and Wildlife Act 1974</i> (s 90)	Aboriginal heritage impact permit from Heritage NSW (now part of Department of Planning and Environment)	Prior to start of the activity

3. Consultation

3.1 Consultation required under Transport and Infrastructure SEPP

3.1.1 Local council – s 2.10, 2.11, 2.12 and 2.14

The activity is on land that contains:

- heritage items listed under the local environmental plan (LEP).

Activity 1 would partly impact the curtilage of the Green Cape Lighthouse and residences group listed in the *Bega Valley Local Environmental Plan 2013* (referred to as the Bega Valley LEP).

3.1.2 National park or other C1-zoned land – s 2.15(2)(a) and 2.15(2)(b)

The activity is on land zoned C1 (formerly E1) or on/adjacent to land reserved or acquired under the NPW Act. As NPWS is the proponent, consultation is not required.

3.1.3 Roads or maritime – s 2.15(2)(c) or Schedule 3

Not applicable. The proposal has been assessed against the SEPP and the *Guide to traffic generating developments* guideline (RTA 2002). The assessment found that the proposal is not considered to be a traffic-generating development.

The activity is not:

- a fixed or floating structure in navigable waters
- traffic generating development on main roads.

3.1.4 Secretary of the Commonwealth Department of Defence – s 2.15(2)(e)

Not applicable. The proposal would not involve development on Defence communications facility buffer land within the meaning of clause 5.15 of the Standard Instrument.

3.1.5 Siding Spring Observatory – s 2.15(2)(d)

Not applicable. The activity will not increase the amount of artificial light in the dark night sky within 200 km of the Siding Spring Observatory. No lighting proposed.

3.1.6 Mine subsidence area – s 2.15(2)(f)

Not applicable. The proposal does not involve development in a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017*.

3.2 Consultation requirements under National Parks and Wildlife Act for leases and licences

Not applicable. No leases or licences under the NPW Act are required as part of the proposed activity.

3.3 Statutory notifications and agency consultation

A summary of consultation carried out with government agencies during the proposal development process is provided in Table 4. For a detailed outline of the consultation undertaken for this proposal see also the *Submissions report: Light to Light Walk Upgrade draft review of environmental factors* (NPWS 2022 at Appendix I, referred to as the draft REF submissions report).

Table 4 Summary of consultation with agencies during REF preparation process (including REF public exhibition) (was Tab 3-1)

Consultation	Consultation reference	Outcome	Comments and recommendations	Ongoing communication
Native Title Services Corp	24JB(6) <i>Native Title Act 1993</i>	No response	NA	Yes
Environment and Heritage Group	BC Act <i>Biodiversity assessment methodology guideline</i>	No objection to proposal	<p>General environmental constraints and specific biodiversity constraints, with a particular emphasis on previously proposed Day 4 (Green Cape to Disaster Bay), were discussed to assist in informing the design of the development.</p> <p>The REF should accurately describe the maximum footprint, provide all the necessary info on asset protection zones, stormwater and sewage management, any associated utilities etc. (i.e. everything that has the potential to affect vegetation, biodiversity, Aboriginal cultural heritage or water).</p> <p>The REF must also describe all relevant construction info that might affect these environmental factors including site access and stockpiling.</p> <p>Consideration of 2019–20 bushfire impact on the ecological condition of the site should be included. In accordance with the <i>Guideline for applying the Biodiversity Assessment Method at severely burnt sites</i> (DPIE 2020a), consultation with the consent authority is recommended in relation to this impact.</p>	Yes

Consultation	Consultation reference	Outcome	Comments and recommendations	Ongoing communication
			Ongoing consultation with Environment and Heritage Group (Biodiversity Conservation Division) has informed the assessment and mitigation of impacts. It has provided the project the opportunity to avoid key biodiversity values identified in the site inspection and biodiversity surveys.	
Registered Aboriginal parties	NPW Act	Proposal has been refined	Extensive cultural heritage consultation with Eden LALC and other registered Aboriginal parties has been undertaken including 4 stages of consultation in accordance with the <i>Aboriginal cultural heritage consultation requirements for proponents</i> (DECCW 2010). The Aboriginal community has also been included in site and investigation work throughout the development and refinement of the proposal.	Yes
DPI Fisheries	FM Act (s 199)	No objection to proposal	Works should conform to all proposed safeguards and mitigation measures to minimise environment impacts. Detailed designs and a scope of works were requested for comment and endorsement for works that are to be undertaken within or adjacent to third order or above waterways The need to ensure the REF recognises the potential impact the project may have on the marine environment and the commercial fisheries operating in the area.	Yes
Heritage NSW	NPW Act Heritage Act	Advice for Aboriginal heritage impact permit (AHIP) application provided and suggested conditions of consent for the REF	Advice provided to NPWS regarding technical requirements for the following components of the AHIP application: <ul style="list-style-type: none"> • mapping • Aboriginal community consultation • impact assessment • monitoring. For historic heritage, Heritage NSW noted the need to seek approval under s 140 and s 57 of the Heritage Act. Heritage NSW also noted:	Yes

Consultation	Consultation reference	Outcome	Comments and recommendations	Ongoing communication
			<ul style="list-style-type: none"> a map should be included of heritage items and historical archaeology sites an error relating to the search of the Australian Heritage Database updates to the REF to better describe heritage items and potential impacts. 	
Bega Valley Shire Council	Transport and Infrastructure SEPP	Supportive	<p>Council noted that they:</p> <ul style="list-style-type: none"> welcomed the creation of the proposal were comfortable with the draft REF's assessment and the proposed mitigation measures supported the exclusion of the previously proposed Day 4 (Green Cape to Disaster Bay) section of the walk, to protect Aboriginal cultural sites wanted to ensure that Green Cape was available to walkers staying in the hut accommodation and campgrounds along the walk supported the proposed walking track route on the basis that it would not impact significant fabric or relics of Green Cape Lighthouse and provided that the project archaeologist is successful in obtaining a s 57 exemption under the Heritage Act for the track work within this precinct. 	Yes
Transport for NSW	Transport and Infrastructure SEPP	No objection to proposal	<p>Transport for NSW provided a submission which requested NPWS consider the project proposal in the context of the SEPP and the <i>Guide to traffic generating developments</i> (RTA 2002).</p> <p>NPWS has assessed the project proposal against this policy and guide and the proposal would not generate an appreciable increase in traffic that would impact the state road network.</p>	No

3.4 Targeted consultation

Targeted consultation with the community has been undertaken via information on the NPWS website, including a project-specific webpage, with the option of subscribing to a mailing list for ongoing updates to the proposal. Additionally, a stakeholder reference group has been established to provide advice on the finalisation of the *Light to Light Walk strategy* (NPWS 2021d), with membership reflecting a broad range of stakeholders.

Feedback was sought directly from stakeholders on the draft plan of management amendment and the draft REF, which were placed on public exhibition in 2021.

3.5 Plan of management amendment consultation

3.5.1 Consultation undertaken

The management of NSW national parks and reserves is guided by publicly available plans of management. Management activities and other operations in the park must be consistent with the plan of management. Where proposed activities are inconsistent with the plan of management, a new plan must be developed, or the current plan must be amended.

Community consultation was conducted in 2019 in relation to proposed amendments to the plan of management during which feedback was gathered from local organisations, businesses, residents and members of the community. The *Draft amendment to the Ben Boyd National Park and Bell Bird Creek Nature Reserve plan of management* (draft plan of management amendment) and the *Draft Light to Light Walk strategy* were both exhibited between 12 July 2019 and 26 August 2019.

Open-house public information sessions were held at Pambula, Eden and Bega during the exhibition period.

3.5.2 Submissions received

A total of 205 submissions were received, which raised more than 1,700 individual points. All points were analysed and grouped into themes and then considered against set criteria to assess if changes to the amendment were required.

The major themes raised in the submissions were:

1. new accommodation
2. Green Cape accommodation (not discussed further within this REF)
3. camping on the Light to Light Walk
4. walking tracks
5. commercialisation
6. public vehicle access (not discussed further within this REF).

A summary of the consultation, issues raised and NPWS response is provided in the *Light to Light Walk: public exhibition report* (NPWS 2021c at Appendix E, referred to as the plan of management amendment submissions report).

While most submissions were from private individuals, submissions were also received from 12 community groups, 4 conservation groups, 3 schools and outdoor education facilities, 5 tourism businesses, 2 Aboriginal organisations and 3 government organisations. A summary of the submissions is provided below in Tables 5 and 6.

Table 5 Number and type of submissions received (Tab 3-2)

Type of submission	Number received
Unique ¹ submissions from a person(s) or organisation	184
Identical or near-identical submissions (form letters)	21 copies of 2 identical or near-identical submissions

1. Unique refers to the total material submitted by one author – persons or organisation.

Most submissions were received via email or through the department's 'Have your say' webpage. Only a small number of submissions were received in hard copy form.

Table 6 Number of submissions that raised each theme (Tab 3-3)

Themes listed in order of treatment in submissions report	Number of unique submissions that raised this theme
1. New accommodation	86
2. Green Cape accommodation	59
3. Camping on the Light to Light Walk	107
4. Walking track improvements	71
5. Commercialisation	83
6. Public vehicle access	22

In addition, a submission was received that claimed to represent a diverse collection of people based on an online petition. All issues raised were consistent with the key themes.

3.5.3 Response to the plan of management amendment consultation process

In response to submissions, NPWS and its statutory advisory bodies considered where changes could be made to revise the amendment, improving outcomes for visitors and for the park's natural and cultural heritage values. Not every theme led to changes.

The community's desire to continue to camp away from vehicles along the Light to Light Walk, particularly at Mowarry Point, was recognised. This site will be formalised for walk-in only public camping to cater for independent pack-campers, boat users, school groups and other general walk-in campers. This is now included in the proposal as part of Activity 2.

A range of existing accommodation options were noted in submissions, including off-park accommodation and commercial tour operator-supported camping on-park. However, NPWS is confident there will be additional demand from hut-to-hut walkers and anticipates that providing huts will complement existing accommodation options and this activity remains in the scope as part of Activity 2.

The previous plan of management enabled commercial operation of the proposed accommodation and the exhibited amendment did not propose to change this. Concerns with commercial managers operating on-park accommodation were recognised and references to commercial operators managing or leasing accommodation were removed. NPWS will manage all accommodation within the park. Commercial operators will be able to support walkers on the Light to Light Walk by providing, for example, guiding, transport, food, cleaning or maintenance services.

There was a range of views about the track alignment and points of interest along the walk. Following extensive research and investigation, NPWS found the proposed alignment to be well balanced to provide a better visitor experience and protect the environment. This has been considered in detailing the final track alignment and is included as Activity 1 in this REF.

Respondents noted that Green Cape Lightstation, being located at the southern end of the walk, is not an essential overnight stay for Light to Light walkers. Nevertheless, the iconic nature of the site means that accommodation within the lightstation complex is considered an important component of the hut-to-hut model. NPWS will prioritise accommodation in the lightstation buildings for Light to Light walkers. Initially this would be under the current arrangement. A subsequent proposal may be developed that establishes similar accommodation arrangements to Mowarry Point and Hegartys Bay. Green Cape will be made available for accommodation for casual short stays for some time each year in recognition of the concerns of existing users.

NPWS routinely manages the environmental impacts of popular visitor facilities in environmentally sensitive locations. In Ben Boyd National Park, NPWS will limit environmental impacts by setting back car parks from increasingly popular coastal destinations and providing short walk-in access for visitors. This approach is included in this proposal for Pulpit Rock as Activity 3.

The draft plan of management amendment was adopted by the Minister for Energy and Environment on 11 January 2021. The previous plan of management was updated to reflect changes enabled by the adopted amendment (see NPWS 2021a). The draft *Light to Light Walk strategy*, which accompanied the draft plan of management amendment was prepared and published on 30 of August 2021 (see NPWS 2021d).

3.6 Review of environmental factors consultation

3.6.1 Review of environmental factors consultation process

The *Light to Light Walk draft review of environmental factors* (NGH 2021) was placed on public exhibition from 15 September 2021 to 15 October 2021. The results of this exhibition period were documented in the *Submissions report: Light to Light to Light Walk Upgrade draft review of environmental factors* (referred to in the REF as the draft REF submissions report) (NPWS 2022 at Appendix I).

Due to the application of COVID-safe protocols and general NSW restrictions in place during the public exhibition period, online engagement and promotions were preferred. The exhibition was conducted via the NPWS website, which included project information, a summary of the draft REF, a link to the draft REF and a consultation survey. Respondents were also invited to provide their submission in an email or as an attachment. Additionally, the exhibition was also promoted on the NSW Government 'Have your say' website.

Notification of the commencement of exhibition was made via email to parties who had registered an interest in the project, along with a range of commercial and non-commercial organisations with a vested or known interest in the national park. A media release promoting the REF exhibition was issued on the first day of exhibition to promote the exhibition process and invite feedback. Several local news outlets provided coverage of the project exhibition as well as public notices advising of the exhibition period.

3.6.2 Submissions received

A total of 142 submissions were received during the REF exhibition period. Of these, 131 submissions were received from individuals (inclusive of 11 form letters), and 8 submissions were received from organisations, community groups and government agencies.

While included in Table 7, full details of government agency submissions are given in Table 4. As summarised in Table 7, a significant proportion of both individual submissions and commercial and non-commercial organisations raised objections to the proposal. (See also Table 3 in the draft REF submissions report at Appendix I).

Table 7 Summary of submission positions on the proposal (Tab 3-4)

Source	Support	Further consideration	Objection	Total
Individual	5	24	101	131
Commercial and non-commercial	1	1	4	6
Government agencies	2	1	0	2
Total	8	26	105	139

Note: many submissions indicated general support for upgrading the walking track while also detailing objections to some parts of the proposal.

Similar to the plan of management amendment process, submissions were reviewed with key themes identified, each containing a range of subthemes. Key themes identified from the submissions received were:

1. economics
2. environmental impact
3. change of park's character
4. Aboriginal and historical cultural heritage
5. visitor experience
6. Green Cap Maritime Precinct.

3.6.3 Response to the consultation process

Specific changes have been made to the proposal, reflected in this determined REF, on account of the submissions received. These include clarifications around specific issues raised in the submissions as well as changes to the mitigation strategies and scope of the proposal.

An outline of each key theme, the number of submissions associated with it and where the associated topic is addressed in the REF is provided in Table 8. Submissions of general support with no specific reference to project elements are identified in Table 7 but are not considered further. Refer also to Table 9.

Table 8 Key themes and subthemes identified and addressed in the REF (Tab 3-5)

Topic	Number of submissions*	Overall summary of the theme	NPWS response to topic (section numbers refer to this REF)
General support	8	These submissions indicated general support for the proposal.	NA
Key theme 1 – Economics			
Commercialisation	40	These submissions suggested that the proposal involves a commercial operation, which is not NPWS's core business. Some submissions suggested the proposal was purely about revenue raising. Other submissions were concerned that NPWS would compete with existing providers. Many submissions were opposed to commercial operators managing on-park accommodation.	References to commercial operators managing or leasing accommodation were previously removed from the amended plan of management and the <i>Light to Light Walk strategy</i> . NPWS will manage all accommodation. Commercial operators would be able to support walkers on the Light to Light Walk (for example by providing guiding, transport or food) and/or support the Light to Light operation (for example by providing cleaning and maintenance services) (see Section 3.5.3).
Investment choice	8	These submissions considered the proposal an inappropriate investment, and that upgrading existing facilities within the national park should be funded instead.	Funding for the project is provided by the Regional Growth – Environment and Tourism Fund, which is managed by the NSW Government. Other funding has recently been committed to upgrading other precincts and access trails in the region (see Section 1 and Section 4.5.2).
Key theme 2 – Environmental impact			
Impact on the environment (including marine), special features of the park	64	These submissions suggested that the sustainability claims were misleading, and that the proposal would have an impact on the environment and special features of the park.	Through the design and operation principles for the proposed infrastructure, as well as detailed environmental scoping studies, flora and fauna surveys and route selection, the impacts on natural values would be kept to a minimum (see Section 6). Environmental and cultural heritage assessments have contributed to determining the final routes of the walking track to have minimal impact and in the proposed layouts of the accommodation and camping

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Topic	Number of submissions*	Overall summary of the theme	NPWS response to topic (section numbers refer to this REF)
			areas (Aboriginal cultural assessment report at Appendix A and the biodiversity assessment report at Appendix B).
Against core objects of NPW Act	8	These submissions suggested that the proposal contradicts the core objectives of the NPW Act and the principles of ecologically sustainable development (ESD).	NPWS believe that the proposal is consistent with the core objects of the NPW Act and principles of ESD (see Section 2.1.1).
Flora and fauna (including aquatic freshwater and marine)	14	Concerns were raised about the impact the project would have on the flora and fauna in Ben Boyd National Park and the surrounding area.	Measures would be put in place to mitigate the risks to soils, water, native vegetation and flora, fauna. Tests of significance have been completed for all listed species likely to be adversely impacted. With specific mitigation strategies now adopted, no significant impact due to the proposal is considered likely for any listed entity (see Section 6).
Water quality	2	It was identified that measures need to be put in place during construction to ensure water quality is not impacted. Another submission raised concern about the impact that sewage would have on water quality.	Measures, including a soil and water management plan, would be put in place to mitigate the risks to water quality (see Section 8). Wastewater at the accommodation areas would be managed utilising best sustainable and best practice engineered designs.
Draft REF fails to address environmental impacts	17	Some believe that the draft REF does not adequately assess the potential environmental impacts.	The REF details the existing environment, nature and extent of impacts and proposes mitigation strategies in accordance with a risk management framework. Construction and management of the proposed infrastructure would have some impact on the environment and special features of the park. With the implementation of mitigation measures, however, significant impacts are not anticipated (see Section 8).
Bushfire impact	26	These submissions raised concerns that the biodiversity surveys were not undertaken after the 2019–20 bushfire, and therefore the impact had not been taken into consideration in the REF. Other submissions suggested that the proposal would increase pressure on an already fragile and	The REF and biodiversity assessment report (Appendix B) have been updated post-fire to ensure current site conditions and implications for species recovery are accounted for in the assessment's conclusions regarding significance and mitigation recommendations. Since the conclusion of the REF

Topic	Number of submissions*	Overall summary of the theme	NPWS response to topic (section numbers refer to this REF)
		impacted environment, potentially past the point from which the landscape could recover.	exhibition, NPWS has obtained survey results indicating the recovery of certain marsupial species since the 2019–20 fire in Ben Boyd National Park (see Section 5.14.2 of this REF, and the biodiversity assessment report [Appendix B]).
Bushfire management	5	Some submissions raised concern that the prescribed burning proposed to establish strategic fire advantage zones (SFAZs) could have an undesirable effect on certain species in the immediate vicinity and surrounding area.	After careful consideration of the potential impacts of SFAZs on biodiversity, NPWS concluded that the risks outweigh the benefits, and have removed this activity from the proposed operation methodology in Section 4.2.3.
Key theme 3 – Change of park’s character			
Character of Ben Boyd National Park	25	Some submissions identified that the lack of development in Ben Boyd National Park is part of what makes it so beautiful and that the proposal would have an impact on the visual amenity and character of the park. Some of these submissions raised the potential loss of the sense of remoteness and solitude as a concern.	The design of the huts would minimise the visual impact on the landscape. Plantings of endemic species would also be carried out to provide natural screening (see Section 4.1.2).
Key theme 4 – Aboriginal and historic cultural heritage			
Impacts to Aboriginal and historic cultural heritage	12	Some submissions raised concerns about the impact the proposal would have on the Aboriginal and historic heritage of the area. Others raised concern about whether NPWS consulted with the Aboriginal community about the proposal.	An Aboriginal cultural heritage assessment report (Appendix A) has informed the finalisation of the REF and the decision whether an Aboriginal heritage impact permit is required. Ongoing engagement with the Aboriginal community has been undertaken during the preparation of this REF (see Section 3.9). The assessment process has led to many scope changes, including the removal of a potential fourth day, changes to proposed track alignments and the final layouts of the accommodation areas (see Section 1 and Section 5.18.4). Impacts to historic heritage items are described in this report and provided in detail in the historic assessment report (Lantern Heritage 2021b at Appendix J).

Topic	Number of submissions*	Overall summary of the theme	NPWS response to topic (section numbers refer to this REF)
Key theme 5 – Visitor experience			
Cost	23	These submissions raised concerns that the cost of staying in the huts may be too expensive for some park visitors.	The multi-day walk would be managed by NPWS, and the price point would be determined based on the quality of the available services. These different experiences would range in price and aim to cater for all budgets (see Section 2.1.1).
Camping access	16	Many submissions welcomed the change to the proposal to allow pack-camping at Mowarry Point. However, some of these submissions raised concerns about formalising the camping space, and resulting limitations during peak use. Some submissions opposed the proposal to prohibit camping at Hegartys Bay.	Independent pack-camping would not be co-located with hut accommodation at Hegartys Bay due to the area being constrained by vegetation and topography. Independent pack-camping would be relocated from Hegartys Bay to purpose-built, walk-in-only sites at Bittangabee Bay.
Increased visitor numbers	28	Some submissions raised concerns that the proposal would cause an increase in visitors, detracting from the intended experience. It was also suggested that visitors to the huts may not value and respect the natural environment as much as pack-campers. Others suggested that an increase in visitors would exceed the carrying capacity of the park. Concerns were also raised about the camping facilities and amenities in Ben Boyd National Park and ability to adequately cater for an increased number of visitors.	The impacts of visitation will be monitored, and control measures established as required under an operational management plan to minimise the impact on the environment, and Aboriginal and historic heritage (see Section 4.2.3). Multi-day walkers represent a very small portion of overall park users and are best aligned with NPWS values. Generally, multi-day walkers hold interest and respect for the natural and cultural heritage that national parks protect. The people of the targeted visitor audience for this project are looking for opportunities to spend time in nature, interested in places that provide stories and are looking for a deeper connection with nature and culture that contrasts with normal life.
Kayaking	1	One submission emphasised the importance of safe landings with camping for sea kayakers along the NSW coast, and therefore the importance of maintaining access to Mowarry.	The proposal would continue to allow access to Mowarry Point for camping by sea kayakers. Proposed accommodation is covered in Section 4.1.2.

Light to Light Walk: Review of environmental factors for walk upgrade

Topic	Number of submissions*	Overall summary of the theme	NPWS response to topic (section numbers refer to this REF)
Vehicle access tracks	3	<p>A submission queried why NPWS is investing in accommodation but not upgrading the vehicle access tracks to Hegartys Bay and Mowarry Point.</p> <p>Another raised the concern that by upgrading the vehicle access tracks, areas would become more accessible to a greater number of people.</p>	<p>Additional funding has been committed to upgrading precincts and fire trails in the region, including Mowarry Point Trail and Hegartys Vehicle Access Trail (see Section 1 and Section 4.5.2).</p> <p>The impacts of visitation will be closely monitored, and control measures will be put in place, if necessary, to minimise the impact on the environment, and Aboriginal and historic heritage (see Section 8).</p>
Noise pollution	4	<p>These submissions raised concerns about construction noise impacts on-park users. They also raised concerns about the operational noise from vehicles and helicopters used to service the hut accommodation.</p>	<p>There would be some noise associated with the construction of the hut accommodation and walking track, however, this noise would be temporary for the duration of the works (assessed in Section 6.4).</p> <p>The hut accommodation and amenities have been designed to require minimal maintenance. Therefore, traffic movement and noise generated to and from and around the precincts is expected to be low. NPWS may employ a helicopter to lift wastewater pods from Mowarry Point and Hegartys Bay approximately 8 times per year (outlined in Section 4.2.3).</p>
Walking track alignment	6	<p>These submissions strongly believed that the realignment of the walking track is unnecessary, that construction would outweigh benefits and that the existing track offers a different experience already appreciated by walkers.</p>	<p>Following extensive research and investigation by internal experts and external advisers, including landscape architects and track designers, the proposed alignment is considered to be well balanced to provide an enhanced visitor experience whilst minimising the impact on the environment.</p> <p>The final design of the walking track is subject to environmental and cultural heritage approvals (see Section 4.1.1).</p>
Key theme 6 – Green Cape Maritime Precinct			
Accessibility/ Availability of Green Cape accommodation	6	<p>These submissions raised concerns about the need to ensure Green Cape is accessible to all rather than users of the hut accommodation.</p>	<p>While current funding allows for some minor upgrades to water and wastewater services within the precinct (not addressed under this REF), a separate proposal would be required to consider proposal-specific</p>

Light to Light Walk: Review of environmental factors for walk upgrade

Topic	Number of submissions*	Overall summary of the theme	NPWS response to topic (section numbers refer to this REF)
			surveys, environmental assessments, design plans and considerations.

* Totals in the 'Number' column are greater than the number of submissions received because many submissions raised matters that cut across multiple themes.

Table 9 Changes made to the proposal as a result of submissions received (Tab 3-6)

Changes to proposal scope	Changes to the REF
The establishment of SFAZs around the hut accommodation areas at Mowarry Point and Hegartys Bay has been removed from scope.	Removed from scope of proposed works (see Section 4.2.3).
<p>In consultation with DPI – Fisheries, mitigation measures will be put in place to manage the potential impacts of the project on fisheries, such as:</p> <ul style="list-style-type: none"> • targeted signage including multilingual signs • online content about fisheries on the NPWS Light to Light Walk webpage. 	<p>Proposed signage specifications have been updated in Sections 4.2.3, 4.2.5 and 4.2.9.</p> <p>Additional mitigation measures have been added to Section 6.3.</p>
A change to maintenance regime of the existing Hegartys Vehicle Access Trail to avoid impact on the leafless tongue orchid (<i>Cryptostylis hunteriana</i>).	<p>Additional pre-clearing survey requirements have been added to account for plant community types where this species may be present (see Section 5.14.1).</p> <p>Maintenance of Hegartys Vehicle Access Trail to be restricted to the existing road formation and to times of year when leafless tongue orchids are dormant.</p>

3.7 Ongoing community engagement

NPWS will continue to inform the public throughout the proposal via regular updates of the website, and email updates to interested and registered stakeholders.

Details of the proposed works will be posted in the immediate vicinity of works as well as contact details of the project manager for further information on the proposed works.

3.8 Light to Light reference group

A reference group of external stakeholders has been formed following the plan of management amendment consultation process to ensure the views and issues from a broad section of the community are considered. The group will include representatives from a broad range of local and regional stakeholder groups and organisations. Participation in the group is voluntary.

The group will be a key consultative body for the project and will support the project by providing input and advice to NPWS based on sound information about social, cultural, economic and environmental values.

3.9 Consultation – Aboriginal communities

3.9.1 Native title consultation requirements

The land is not subject to an Indigenous land use agreement.

No determination of Native Title under the Commonwealth Register of Native Title has occurred within the subject site, however, there are 3 outstanding state land claims.

Native title has not been extinguished or it is unclear if it has been extinguished.

The activity does have a high risk of adversely affecting native title (e.g. major infrastructure works, new buildings or granting of leases). The proposed activities would be located adjacent to land included in the South Coast Peoples Native Title Claim Application: NSD1331/2017, South Coast People, NC2017/003. NPWS has an agreement with NTSCORP, who represent the native title claimants, that they will be consulted on project work proposed by NPWS on the NSW South Coast. As such, and in accordance with subsection 24JB(6) of the *Native Title Act 1993* (to the extent that this subsection applies), NTSCORP will be consulted during the REF process.

3.9.2 Other consultation

In accordance with the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010), the Aboriginal community were consulted as part of the Aboriginal cultural heritage assessment for the proposed activity. Consultation included: notification to interested parties, provision of proposed activity information, site meetings and surveys, and seeking feedback and advice on cultural heritage-related matters.

4. Proposed activities

Lands within proposal	Ben Boyd/Beowa National Park
Description of location	The Light to Light Walk is located in the southern section of Beowa/Ben Boyd National Park, stretching between Boyds Tower in the north and Green Cape Lightstation in the south
Site commonly known as	Light to Light Walk
Lot/DP	N/A
Street address	N/A
Site reference	Easting: N/A Northing: N/A AMG zone: N/A Reference system: N/A

4.1 Description of the proposed activity

The proposal presented in this REF has been developed iteratively, in tandem with the environmental assessments and consultation with relevant government agencies, the community and other stakeholders. This process aims to avoid or minimise potential impacts wherever practicable and results in a proposal that responds appropriately to the site constraints for the Light to Light Walk Upgrade project.

The proposal is comprised of 3 separate activities. Locations of the proposed activities are provided in Figure 1. An overview of the disturbance footprint of each of these proposed activities is included in Table 11.

This determined REF incorporates all changes to the proposal that have resulted from the consultation with the community and agency stakeholders, including the public exhibition of the draft REF. A summary of proposal changes between the publicly exhibited draft REF and this final REF is provided in Section 4.3.

4.1.1 Activity 1: Walking track

Track scope

The proposal is to establish a new 3-day, Class 4 walking track from Boyds Tower to Green Cape Lightstation, incorporating new track sections and some sections of the existing Light to Light Walk comprising of:

- Realignment of some sections of the existing Light to Light Walk, including:
 - Day 1 – South of Boyds Tower, Walkers Rock, Leatherjacket Bay and Mowarry Point
 - Day 2 – Sea Caves and Saltwater Creek
 - Day 3 – Bittangabee Bay to Green Cape

- The track will mostly be a natural surface track between 1 m and 1.5 m wide and includes drains and rollovers.
- Stairs will be timber or stone sleepers. Basic drainage, such as crossdrains and water bars, will be installed as required.
- Small duck board/floating grate/boardwalk segments will be required for difficult rock platforms or sensitive environmental or culturally significant sections.
- Small viewing locations or platforms on natural surface (for example bedrock) or using boardwalk, will be provided at key locations.
- Reinstatement of bushfire-impacted sections of track that are not identified for realignment (see Section 2.1.6). The track surface, stairs and drains will be reinstated, and gravel, mulch and woodchip will be applied where needed to stabilise the tread.
- Maintenance of existing sections of track that were not bushfire-impacted or are not identified for realignment. This would include repair of stairs and drains, vegetation trimming and rectification of ongoing erosion issues.
- Revegetation of redundant sections of the track will be in accordance with Section 8 and the Biodiversity Management Plan (to be prepared prior to the activity commencing). This would generally involve removing track infrastructure and placing weed-free straw, mulch and woody debris to stabilise disturbed areas.
- Sections of redundant track that are close to other tracks or precincts may require logs and planting to discourage ongoing visitor access.
- Installation of wayfinding, directional and interpretative signs.

Design principles

The design and construction of the walking track will be undertaken in accordance with *Australian Standard 2156: Walking tracks classification and signage*, where possible. The survey area and evaluation of the impact assessment in this REF has considered a 30-m wide corridor to enable micro-siting of the activities during detailed set-out and construction.

The following sections of the NPWS *Park facilities manual* (NPWS 2016a) would also be used to guide the design:

- 5.1 Tracks and related structures planning – Class 4 Hiking Track
- 5.3.3 Natural surface track
- 5.5.4 Stone tread steps
- 5.5.5 Sleeper steps
- 5.4.3 Cross drains
- 5.4.4 Water bars
- 5.8 Viewing platforms
- 5.9.2 Duck board
- 5.9.3 Floating grate
- 5.9.5 Elevated boardwalk
- 5.9.6 Footbridge.

An initial scoping report was prepared by Track and Trail Management Services in 2019 (TTMS 2019 at Appendic C) for proposed new track sections. This report provided detailed information on vegetation, slope, soil types and construction methods. The alignment proposed in this report has since been modified in places to take into account environmental constraints, bushfire impacts and landslide risks.

Precedent images and designs of the proposed works for Activity 1 are shown in Appendix H for the following:

- track and boardwalk construction
- revegetation and rehabilitation
- boardwalk – pier construction, e-bike and ride-on mower.

4.1.2 Activity 2: Accommodation and facilities

The proposal includes work at 2 accommodation areas: Mowarry Point hut accommodation and camping area, and Hegartys Bay hut accommodation area. Indicative facilities at both precincts are shown in Appendix G (architect design drawings).

Mowarry Point

New hut accommodation and facilities at Mowarry Point are shown in Figure 5 and are comprised of:

- 6 x twin-share huts
- 3 x 8-share huts
- 1 x communal hut, with basic kitchen and dining area, treated water and solar power
- 1 x amenity hut comprising 4 stalls, remote composting toilets and non-potable water
- 1 x staff hut, with amenity and cooking facilities, solar power, workshop and battery store
- a new boardwalk or gravel path would be constructed from the existing 4WD management trail (Mowarry Point Trail) to the amenity hut within the accommodation area, for servicing using ATV, e-bike or electric trailer
- other footpaths would be natural surface, gravel or floating boardwalk
- 2 x rainwater tanks would be installed on gravel beds
- small gas tank and generator stores would be built at the rear of the area on concrete pad footings and would include screening.

The accommodation would be of timber structure on ground screw piers, built to meet BAL-29 with small asset protection zones (APZs). An alternative design may be required where geotechnical conditions restrict the use of ground screws. The area's design uses existing disturbed areas as much as possible. Where vegetation clearing would be required, this would be restricted to the minimum area required to establish the site and small APZs. Revegetation is proposed to screen accommodation from the beach and other park users. A bushfire refuge located at the beach and rock shelf would be signposted.

Filtration trenches would be installed in the north-east corner of the site to dispose of all non-toilet wastewater and would be left to revegetate (excluding large trees). Toilet waste would be captured in compost units beneath each pan. Electrical conduits, gas pipes, water pipes and wastewater pipes would be hung off the boardwalk where possible to reduce trenching.

The proposal also includes the formalisation of the existing camping area at Mowarry Point which would comprise:

- 10 x tent sites – these would be marked with bollards or fences, and some may require imported material to create a level pad or a tent platform
- formalised footpaths – natural surface or as floating boardwalk
- a double stall standard NPWS skillion toilet with pump-out tank
- a small service area for truck turnaround during pump-out.

The area would utilise existing disturbed areas as much as possible, however, minor clearing would still be required. The existing service track would be retained and used to access the toilet for pump-out. No water would be provided.

Hegartys Bay

The new hut accommodation at Hegartys Bay is shown in Figure 6 and is comprised of:

- 6 x twin-share huts
- 3 x 8-share huts
- 1 x communal hut, with basic kitchen and dining area, treated water and solar power
- 1 x amenity hut comprising 4 stalls, remote composting toilets and non-potable water
- 1 x staff hut, with amenity and cooking facilities and solar power sand constructed to meet BAL-FZ and sized as a bushfire refuge
- 1 x storage module with a small workshop and battery store
- a new boardwalk or gravel path would be constructed from the Light to Light Walk to the amenity hut for servicing using ATV, e-bike or electric trailer
- other footpaths would be natural surface, gravel or floating boardwalk
- 2 x large rainwater tanks would be installed on gravel beds
- small gas tank and generator stores would be built at rear of the area on concrete pad footings and would include screening.

The accommodation would be of timber structure on ground screw piers, built to meet BAL-29 with small APZs. The area's design uses existing disturbed areas as much as possible. Where vegetation clearing would be required, this would be restricted to the minimum area required to establish the site and APZs to ensure the accommodation area is screened from other park users. Some bushfire regrowth establishing species that have a short life would be managed to encourage the end state of the ecological community.

The staff module would be constructed to BAL-FZ rating and used as a bushfire refuge and would be sized to accommodate all people at the area in the event of a catastrophic bushfire.

Filtration trenches would be installed in the northern corner of the site to dispose of all non-toilet wastewater and would be left to revegetate (excluding large trees). Toilet waste would be captured in compost units beneath each pan. Electrical conduits, gas pipes, water pipes and wastewater pipes would be hung off the boardwalk where possible to reduce trenching.

Design principles

The following guiding design principles have been considered in developing the accommodation areas for the Light to Light Upgrade:

- Designs consider pre-fabrication and fly-in for efficient construction on site.
- Designs minimise footprints with a focus on respecting environmental, cultural and heritage sensitivities.
- Designs enhance key visitor nodes and experience to best practice sustainable development, including lifecycle considerations.
- Designs maximise operating efficiency with innovative approaches to heating and energy efficiency to minimise cost and carbon footprints.
- Solar and battery energy will be installed and used to minimise the use of fossil fuels.
- Layout will conceal the overnight sites as much as possible. Infrastructure should be clearly visible once the overnight accommodation area is revealed.

- Where possible, infrastructure is placed on disturbed areas or areas where environmental impacts are minimised.
- Infrastructure is a submissive form within the landscape, to integrate with the environment and enhance the aesthetic experience of visitors.
- Style, form and materials of structures are integrated with a consistent design theme that reflect and are sympathetic to the local environment along the Light to Light Walk and responds to each area's site conditions.
- Dispersal of infrastructure within overnight areas is confined to as small an area as practical, consistent with site constraints with appropriate separation of elements.
- Layout of infrastructure within the nodes provides some separation from different user groups (for example, twin-share huts vs bunk huts, and huts vs camp sites) and from service infrastructure including staff huts and sheds.
- Huts are oriented for views and sunlight where possible.
- Staff huts are located to provide privacy for NPWS staff and include separate areas for sleeping and tool/equipment storage.
- Toilets are located for access by all users and to be inconspicuous within the site, particularly from approaches.
- Toilet siting also considers the requirements for sunlight, air movement and helicopter long-line access.
- Support services such as gas bottles, water tanks, and grease traps/absorption trenches are hidden.
- Structures are designed to be removable, relocatable, and reusable (where possible), and renewable/recycled resources would be utilised where possible.

Operation principles

- Primary access during operation will be:
 - Mowarry Point – limited vehicle access using the existing management trail (Mowarry Point Trail) and then walking, ATV, trolley or e-bike throughout the area
 - Hegarty Bay – limited vehicle access using the existing management trail (Hegartys Vehicle Access Trail), and then walking, ATV, trolley or e-bike along the proposed Hegartys Bay Access Track (see Activity 3) to and throughout the area.
- Existing management trails will continue to be for used by management vehicles only and maintained for 4WD and small truck access. Vehicle movements will be minimised.
- Larger items will be transferred to and from accommodation areas by helicopter approximately 8 times per year.
- The accommodation areas will be shut down for 2–3 weeks annually for maintenance.

4.1.3 Activity 3: Vehicle and site access

Vehicle and site access upgrades include 3 parts as described below.

Hegartys Vehicle Access Trail

The access work proposed at Hegartys Vehicle Access Trail (called Hegartys Management Trail in the plan of management) is:

- basic maintenance of the existing trail to allow continuing 4WD and small truck access
- creation of Hegartys compound (see Figure 11) by upgrading the turning circle at end of trail – a small bushfire-impacted 'tree island' to be cleared to allow helicopter slinging,

vehicle/ATV/e-bike parking, material storage and construction of a small shed (refer to Figure 11)

- vegetation waste to be mulched and used on site.

Once these works are completed, Hegartys compound would remain for use by management vehicles only, and would be maintained for 4WD and small truck access for operational activities and emergency evacuation.

Hegartys Bay Access Track

The upgrade of Hegartys Bay Access Track from the end of the vehicle track to the Hegartys Bay accommodation area is comprised of:

- upgrade the existing footpath to a boardwalk or gravel path – if a boardwalk, then:
 - mesh boardwalk would be installed using the existing alignment
 - footings would be positioned to minimise disturbance of heathland community
 - boardwalk width would be about 2–2.4 m to suit ATV, trolley or e-bike wheelbase
- installation of bridge over the small drainage south of Hegartys Bay accommodation area to the same width as the boardwalk and of similar design
- the boardwalk or gravel path would continue into the Hegartys Bay accommodation area.

The boardwalk or gravel path would be used for construction access to Hegartys Bay and remain in operation to provide small vehicle access to the site. The access track would also be used to evacuate injured or ill people from the accommodation area to Hegartys Vehicle Access Trail. Boardwalks would be constructed in preference to gravel tracks in areas with wetter vegetation communities to minimise impacts on local hydrology where practical

Precedent images and designs of the proposed boardwalk are provided Appendix H.

Pulpit Rock car park

The upgrade of the Pulpit Rock car park would provide a safer and formalised precinct for all park users. The proposal includes (refer to Figure 12):

- moving the existing vehicle loop to the south of the existing toilet which would be retained
- establishing road and car parks by grading and gravelling using road machinery
- minor tree clearing
- revegetation and site stabilisation as shown in Figure 1-9.

Design principles

- NPWS *Park facilities manual* (NPWS 2016a):
 - 5.9.5 Elevated boardwalk (with structural engineering design for ATV load)
 - 5.9.6 Footbridge (with structural engineering design for ATV load)
- NPWS *Roads manual* (NPWS 2011):
 - Activity specification – light maintenance grade
 - Activity specification – road formation mowing, tree and vegetation control



Figure 11 Helicopter slinging operations area / Hegarty's compound (Fig 4-1)

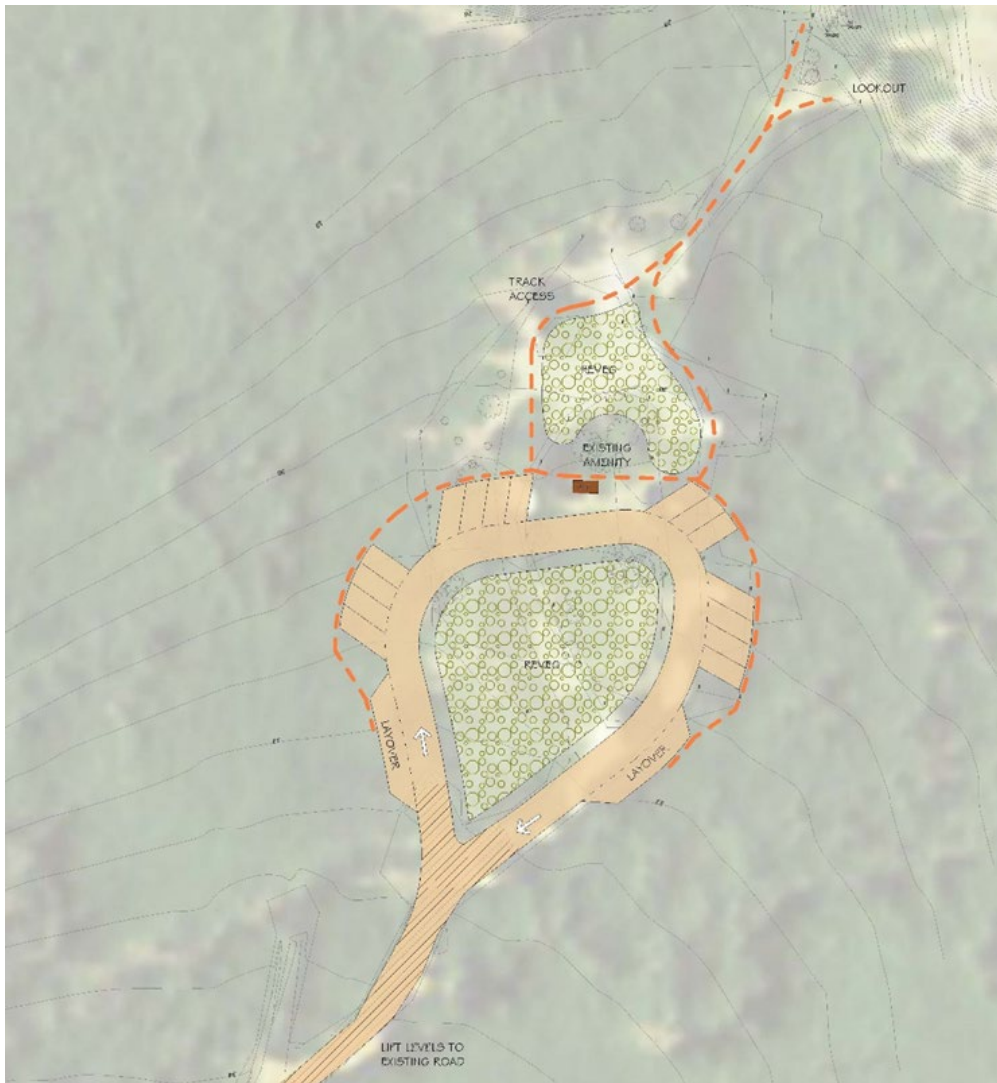


Figure 12 Pulpit Rock concept design (source: Shannon Architects, see Appendix G) (Fig 4-2)

4.2 Construction methodology

4.2.1 Pre-construction

The following work will be undertaken prior to construction activities commencing:

- planning and approvals, including cultural heritage and historic heritage site surveys
- qualitative and quantitative geological risk assessment, including landslip and rockfall
- detailed design and specification for track users, including specialist studies such as civil, structural and geotechnical assessments (where required)
- compliance with the department’s *Construction assessment procedures* (OEH 2011a) – new works application
- preparation of environmental work management plans, safe work management plans etc.
- pre-clearing surveys along designated sections within each activity
- site inductions
- site establishment and construct compound set-up, including all construction signs and safety information (as outlined in this section)
- installation of temporary traffic management signage
- installation of temporary signs for visitors using the walking tracks
- installation of site erosion and sediment controls
- survey, flagging and pegging of proposed work site and limit of works.

4.2.2 Construction

The proposed construction methods will vary depending on the nature of the activity (walking track, accommodation or access). Construction methods and materials have been selected to minimise the impact on biodiversity, heritage and the natural landscape, whilst ensuring safety requirements are met and the work can be undertaken efficiently to minimise visitor impacts.

Construction work will be undertaken in accordance with the NPWS *Landslides and rockfalls procedures*, the NPWS *Park facilities manual*, environmental work management plans, safe work management plans and relevant Australian Standards and sections of the *Australian building code*.

The proposed works for each activity are outlined in Table 10.

Table 10 Construction activities (Tab 4-1)

Location	Proposed construction activities
Activity 1: Walking track	
Boyd Tower to Green Cape	<p>Construction of the new walking track alignment would require:</p> <ul style="list-style-type: none"> • Micro-siting the walking track location within the REF corridor (30 m) with NPWS, the track contractor, project ecologists and project archaeologist where required. • Existing tracks identified for upgrading to be inspected and methods developed to fix stairs, solve existing drainage issues and reduce track widths. • Vegetation clearing to be restricted to the immediate track corridor by trimming vegetation along the confirmed track alignment.

Location	Proposed construction activities
	<ul style="list-style-type: none"> • Erosion and sediment controls and site security to be incrementally established related to the current work zone. • Trimmed vegetation and topsoil sods to be kept for ground stabilisation and revegetation. • Trail sections will be completed progressively to ensure that no uncompleted sections are exposed to wet weather conditions. • The track will be fully benched using either small machinery or hand tools. Some sections may require timber edge restraints to retain the side of the tread. • Tracks to be built with a 5% outslope to encourage water to sheet across and off the track in a gentle manner instead of funnelling down the track centre line. • Where the grade exceeds 10%, climbing turns will be installed to reduce the grade. Where this is not possible or not desirable, stairs or grade dips may be installed. • Sections where the route follows rock platforms and changes in level, small drop-offs, uneven and/or rough surfaces occur may require a jackhammer to create foot holds, steps and even tread. If this is not possible small sections of boardwalk would be constructed. • Some sections may require complex technical stone structures, such as dry stone stairways using imported rock. • Some sections of new track will require timber or steel steps. • Stepping stones or boardwalks to be installed at a number of gully and stream crossings or to traverse sensitive locations with minimal direct impacts. • Some sections of track will require imported gravel to stabilise the tread. For the remainder of the alignment the natural mineral soils are suitable for the track surface. • Old sections of track that become redundant after the new walk is constructed to be closed and revegetated. • Bushfire-impacted sections of the walk that will remain will be reinstated to Class 4 standard including reinstatement of the track tread, stairs and drainage structures. • Other sections of the track that will remain will undergo basic maintenance activities such as fixing stairs and drainage to reduce erosion and importing gravel to ensure good track surface. • Signs and interpretive features to be installed using small footings, either with compacted backfill or concrete. • Disturbed areas to be progressively stabilised using a combination of weed-free straw, mulch, jute mesh, woody debris and topsoil sods.

Activity 2: Hut accommodation and camping facilities

Mowarry Point and Hegartys Bay

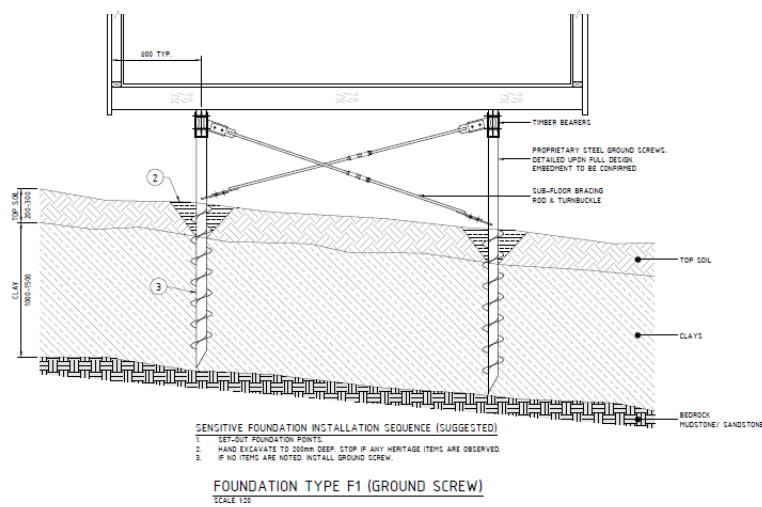
The NPWS *Construction assessment procedures* (OEH 2011a) to be used to help guide the processes and documentation (including certification process) associated with new visitor infrastructure construction. Construction activities include:

- Vegetation trimming and clearing to allow for construction of buildings, tent sites and facilities at Mowarry Point and establishment of APZs. Some short-lived post-bushfire establishing species that pose a risk to visitors through falling limbs will also be removed.
- Erosion and sediment controls to be established and sites secured.
- Removal of topsoil, excavation for footings and establishment of concrete pads to allow installation of the accommodation structures.
- Depending on ground conditions, piers would be directly (Type 1) augured on site or be steel reinforcement installed and then concreted, as shown below (Type 2 & 3).
- The toilet at the Mowarry Point camping area will be constructed on a concrete slab as per the standard drawings from the NPWS *Park facilities manual*.

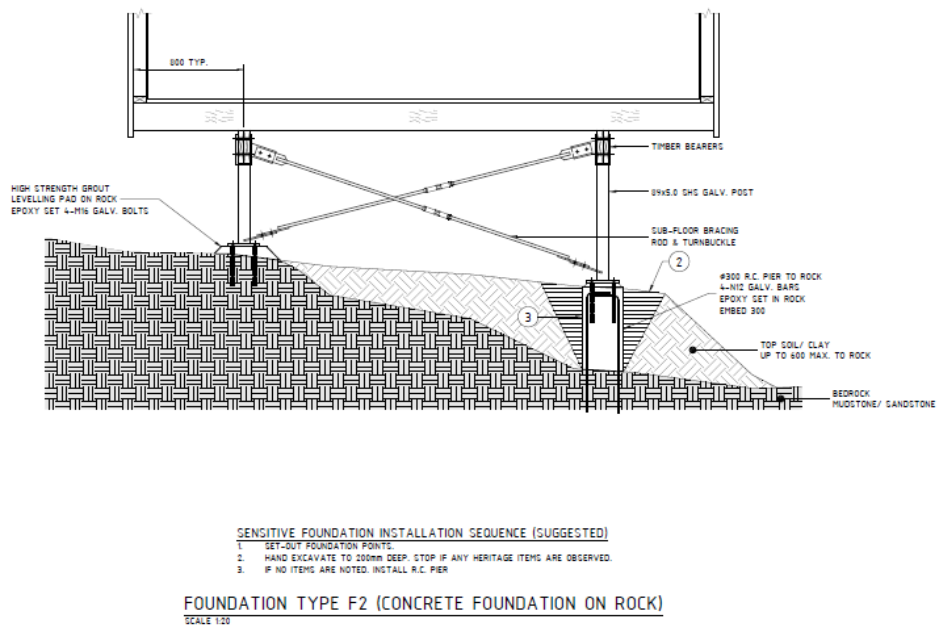
Location Proposed construction activities

- Buildings to be constructed off site and helicoptered into place directly onto the piers.
- Once installed, the final fit out and commissioning would be undertaken in situ.
- Footpaths would be established using either natural surface, gravel or mesh boardwalk and signs and interpretive elements installed.
- Site services would be installed, either be hanging off boardwalks or by trenching.
- The precincts would be progressively stabilised, landscaped and revegetated using a combination of weed-free straw, mulch, jute mesh, woody debris and local native species.

J



Foundation type 1



Location Proposed construction activities

Foundation type 2



Example of foundation type 1 ground screw

Activity 3 Vehicle and site access

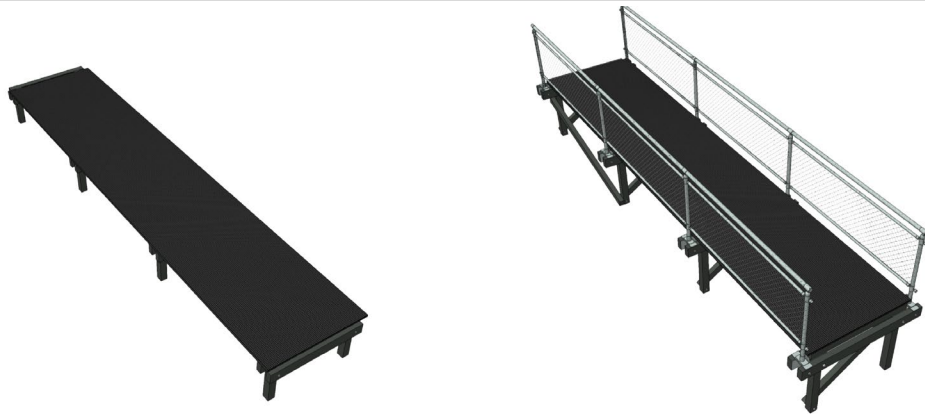
Hegartys Vehicle Access Trail

- Hegartys Vehicle Access Trail to undergo basic maintenance, including:
 - slashing or mowing of grassed areas within the road corridor
 - trimming of growth on trees and shrubs
 - trimming long grass or vegetation obscuring sight distance for road users, obstructing road guide signs, obstructing effective cross drainage, not providing a neat appearance to the road users or that may be a source for bushfires
 - trim low or overhanging branches to provide clearance for vehicle movements
 - light grading and repair of drain and rollovers.
- The turning circle at the end of the vehicle track would be cleared of vegetation, compacted and graded to form an ancillary facility, Hegartys compound.
- A small shed would be installed on a concrete pad footing in the compound.
- Disturbed areas would be stabilised using a combination of weed-free straw, mulch, jute mesh, woody debris and local native species.

Hegartys Bay Access Track

- Vegetation to be trimmed along the existing footpath.
- Footing locations to be augured by hand or small machine.
- Footings and boardwalk substructure to be installed.
- Mesh running surface to be installed to a width of 2–2.4 m to suit ATV or other small vehicle wheelbase.
- The boardwalk to be incrementally installed and continue to the Hegartys Bay accommodation area.
- As it is installed, the boardwalk will form the work base for each incremental section to minimise ground disturbance.
- Footings for the proposed boardwalk bridge south of Hegartys Bay to be excavated from the bank or pinned directly to existing bedrock.
- The supports and substructure to be installed and then the mesh running surface and handrails.
- Gravel may also be used for some sections.
- Disturbed areas to be progressively stabilised using a combination of weed-free straw, mulch, jute mesh, woody debris and local native species.

Location	Proposed construction activities
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Example boardwalk configurations

Pulpit Rock car park precinct

- Pulpit Rock Road to be closed to the public, site fencing installed and erosion and sediment controls installed.
- Vegetation to be trimmed to establish the new turning circle.
- The new road surface to be compacted and graded with imported road base incorporating drains and crowning to aid surface water runoff.
- Car parking bays to be delineated and wheel stops and signs installed.
- Remaining areas, and the existing turning circle, would be stabilised using a combination of weed-free straw, mulch, jute mesh, woody debris and local native species.

4.2.3 Operation

The Light to Light Walk

Ongoing maintenance of the Light to Light Walk would be required. The proposal has been developed to minimise maintenance requirements and will involve vegetation pruning, weed control and repairs. Stairs, drains, signs and other track features will require periodic maintenance. This would generally be done by hand, with some support from helicopters or small vehicles if required.

Accommodation areas

Primary access to the Mowarry Point accommodation area during operation would be walking, ATV, ride-on mower or e-bike from the public car park. Mowarry Point Trail (the management trail section) would continue to provide management vehicle-only access to the area and be maintained for 4WDs and small trucks. Vehicle movements would be minimised where possible. A separate proposal is being prepared to install a bridge on this road which would aid operational access, provide for access in the event of a bushfire and reduce impacts to the creek.

Hegartys Vehicle Access Trail would continue to provide management vehicle-only access and be maintained for 4WDs and small trucks. Primary access to transport small items up to 100 kg from Hegartys compound (at the end of the trail) to Hegartys Bay accommodation area would be by ATV/mower/e-bike along the proposed Hegartys Bay Access Track. The compound would be maintained and be used for emergency evacuation by helicopter or ambulance.

Larger items would be transported to both Hegartys Bay and Mowarry Point accommodation by helicopter.

The accommodation areas would be shut down each year for a period of 2–3 weeks for maintenance. This would involve painting, timber oiling and thorough cleaning of the buildings. Vegetation maintenance and other work would also be undertaken at this time.

The accommodation areas will be staffed at all times by a NPWS hut officer. These people will undertake general maintenance and operational activities on a day-to-day basis.

Once the accommodation areas are established, the vegetation immediately around each building will be maintained as small APZs to provide bushfire resilience as follows:

- tree canopies will be separated by 2 m (small clumps of trees may be accepted as one large tree canopy) and where possible lower limbs carrying fine fuel will be removed within 2 m of the ground
- no tree canopy will be within 2 m of the buildings
- shrubs will not occupy more than 10% of the APZ and will not be retained in small isolated pockets that provide a pathway from the hazard to the building
- ground fuels will be equivalent to mown grass or <1 cm of leaf litter.

Rehabilitation

Rehabilitation and revegetation will be undertaken across all 3 activities. During the operational phase of the proposal, redundant walking track sections and disturbed areas associated with the construction will continue to be inspected and managed to encourage revegetation.

Some areas may benefit from targeted effort to ensure revegetation is advancing or to prevent park visitors from using redundant areas.

The overall intent of rehabilitation will be to revegetate or employ assisted regeneration techniques to the site, consistent with the surrounding plant community type and in line with the recommendations made in the biodiversity assessment report (Appendix B).

Weed control

A weed and pathogen management procedure is to be developed for the proposal and incorporated into the biodiversity management plan, as outlined in section 7.2 of the biodiversity assessment report (Appendix B). The procedure would cover:

- management of priority weeds under the Biosecurity Act during and after construction
- weed hygiene protocol in relation to plant, machinery and fill
- monitoring treatment and reporting of pathogens such as myrtle rust and phytophthora
- avoiding foreign soil matter for landscaping/mulching
- installing disinfecting facilities – wash-down bays, footbaths and/or scrubbing stations at primary entrance/exit points for both vehicles/machinery and foot traffic
- installing signage (e.g. ‘Stay on marked tracks’) in priority locations (heath habitat), to reduce off-track disturbance and elevate or divert walking tracks to minimise contact with soil, particularly in locations that have the potential to become muddy. This signage to be multilingual.

Ongoing monitoring

Pest management

Ongoing pest management and monitoring would be undertaken within the accommodation areas as part of this project. Specific mitigation strategies outlined in the biodiversity

assessment report (Appendix B) include camera traps to detect feral predator densities, baiting, monitoring and evaluation of results. This will address the increased risk of predation activity arising from the proposal. (See Appendix B, Section 7.2, for further details on the assessed impacts to threatened species.)

Threatened species monitoring

The biodiversity assessment report recommends that the results of the targeted small mammal surveys completed as part of this assessment should be used to plan monitoring and management activities, to maintain and, where possible, enhance this biodiversity value. The results obtained from the assessment of impact are a valuable and useful baseline study that should be used to guide future decision-making regarding these conservation issues. (See Appendix B, Section 8.3, for full details of monitoring recommendations.)

4.2.4 Size of the proposed activity footprint

The proposal would have a direct impact of 2.9 ha and an indirect impact of 2.83 ha. The approximate proposed activity footprint is summarised in Table 11. Impacts to each plant community type are provided in the biodiversity assessment report (Appendix B).

For Activity 1, a 30-m buffer, 15 m either side of the track centre line, was assumed and assessed as part of this REF. This approach has been taken to allow the walking track to be micro-sited within the corridor before being constructed. Direct impacts for walking track construction would be restricted to the tread width of 1 m. Indirect impact areas have been assumed at 5 m wide in treed corridors and 3 m wide in heathland. Once complete, the operational impact would be the 1–1.5-m wide footprint of the track.

For Activity 2, precinct boundaries have been established, with the construction and operational impact including the APZ around the footprint of the accommodation structures.

Activity 3 includes road and access upgrades. Work associated with Hegartys Vehicle Access Trail would be restricted to the existing road formation. Some maintenance trimming of vegetation would be undertaken and a small section of bushfire-impacted vegetation at the end of the trail would be cleared to create a compound. No road realignments are proposed. Although wider than the existing informal footpath, the Hegartys Bay Access Track would be restricted to the existing alignment, and the direct impact of this activity would be a maximum width of 2.4 m for the length of the track and associated with the footings only. Impacts associated with the Pulpit Rock car park work would be restricted to the minimum necessary to establish the proposal.

Table 11 Approximate study area and impact areas for proposed works (Tab 4-2)

Proposed works	Construction impact	Operational impact	Revegetation
Activity 1: Walking track – Boyds Tower to Green Cape (43.35 ha study area)			
Realignment of the existing Light to Light Walk from Boyds Tower to Green Cape Lightstation (including installation of wayfinding, directional and interpretative signs)	Direct impact: 1.31 ha Indirect impact: 2.9 ha	1.31 ha (included within the construction impact)	No revegetation
Reinstate bushfire-impacted sections of track that are not identified for realignment	Reinstate track features including steps, edging, signs and drains. Some minor earthworks to the track within the existing disturbed area may also be required to reinstate the tread and prevent further soil erosion		

Proposed works	Construction impact	Operational impact	Revegetation
			Operational long-term impact part of the maintenance requirements and objectives
Maintenance of existing sections of track that were not bushfire-impacted or are not identified for realignment		Maintain existing track features including steps, edging, signs and drains. Some minor earthworks or additional drains within the existing disturbed area may be required to fix existing soil erosion issues	
			Operational long-term impact part of the maintenance requirements and objectives
Rehabilitation and revegetation of redundant sections of the track that would be closed	No construction impacts		Positive long-term impact 0.88 ha of revegetated areas
Activity 2: Accommodation and camping facilities (12.27 ha study area)			
New hut accommodation and facilities at Mowarry Point	0.22 ha	Standard maintenance, not an operational impact	0.74 ha
Formalisation of the existing camping area at Mowarry Point	0.15 ha		
New hut accommodation and facilities at Hegartys Bay	0.85 ha		NA
Activity 3: Vehicle and site access (32.30 ha study area)			
Maintenance of Hegartys Vehicle Access Trail and establishment of ancillary compound	0.07 ha	Standard maintenance, not an operational impact	NA
Mesh boardwalk to be installed from end of Hegartys Vehicle Access Trail to accommodation area (i.e. Hegartys Bay Access Track)	0.08 ha (assume clearing impact for footing installation only)		NA
Upgrade of the Pulpit Rock car park precinct	0.15 ha		0.08 ha

4.2.5 Ancillary activities, e.g. roads, infrastructure, bush fire hazard reduction

Activity 1 (walking track) and Activity 3 (vehicle and site access)

Ancillary activities would include the maintenance of temporary road closure barriers and signage on roads and walking tracks that provide access to the site during construction.

The track will include directional signs and interpretative elements, at regular intervals to guide walkers.

Activity 2 (hut accommodation and camping areas)

Ancillary activities would include the maintenance of signage on tracks that provide access to the site during construction works and temporary barriers around construction areas.

The APZ will be maintained during the operation of the accommodation areas.

The accommodation areas will include directional signs and interpretative elements for users of the accommodation areas.

4.2.6 Reveal, storage and on-site management of construction materials

General

The primary storage area and compound site for all activities would be the Green Cape Quarry, under an agreement with NSW Forestry Corporation. It would be used as the base for helicopter sling operations and refuelling (refer to Figure 13 and Figure 14). This quarry area is cleared and large enough (approx. 10,600 m²) to incrementally store all building and track construction material.

All material that needs to be transported by helicopter will be lifted directly from the quarry to sites. This will include prefabricated buildings and building materials and track materials such as timber, stone, fibreglass reinforced plastic (FRP) mesh and gravel. Roads may need to close under traffic control conditions if flight paths cross over. NPWS may also choose to close sections of the Ben Boyd National Park for these operations.

Existing roads to be used to transport large items to the primary compound site. Existing roads will also be used to transport work crews and smaller lighter materials by light vehicle or small truck.

Some material and equipment to be brought to work locations via vehicle, to as close to the required location as possible, and then carried by hand, small machinery or small vehicles.

Stockpiled materials to be stored on existing hardstand and disturbed grounds within works areas. The sites will include erosion and sediment controls.



Figure 13 Main compound and helicopter lift area (Fig 4-3)

Alternative ancillary facilities, either compounds, stockpile sites or sling-load locations, would satisfy the following requirements:

- existing disturbed areas with no vegetation clearing required
- at least 40 m away from the nearest waterway
- of low ecological and heritage conservation significance
- at least 100 m away from residential dwellings and other land uses that may be sensitive to noise
- of relatively level ground
- outside the 1-in-10-year average recurrence interval (ARI) floodplain
- have appropriate erosion, sediment, pollution and waste controls installed and be secure.

Activity 1 (walking track)

The primary storage area and compound site at Green Cape Quarry would be used to store and sling-load via helicopter track materials such as stone, FRP mesh, timber, stone and gravel. Waste material from track works would be transported from work locations back to this site by helicopter. The general location of this compound is shown in Figure 14 and is labelled 'Main Compound'.

Smaller, lighter material and equipment required for track construction would be brought into the park via road vehicle to as close to the required location as possible using existing roads and then carried by hand, small machinery or small vehicles to work locations. If this material needs to be stored, secured areas within existing car parks and disturbed areas within the park that comply with the alternative ancillary provisions (as detailed in the previous section) would be used.

Activity 2 (hut accommodation and camping areas)

The primary storage area and compound site at Green Cape Quarry would be used to store and sling-load via helicopter building modules and building materials such as sand, concrete, steel, FRP mesh, timber, stone and gravel. Waste material from accommodation works would be transported from work locations back to this site by helicopter.

Small compounds and stockpile sites will also be required for both accommodation areas. These will be secured and include erosion and sediment controls. For Mowarry Point, a section of the public car park on Mowarry Point Trail would be utilised with a second ancillary facility established on the existing 4WD service track at the rear of the accommodation area. This is shown on Figure 14 with the location labelled 'Mowery Compound'. At Hegartys Bay, the new compound is proposed at the end of the vehicle access trail (Activity 3) to be used as a small compound and stockpile site (shown as 'Hegartys compound' in Figure 14). Additional walk-in and small vehicle-only ancillary sites would be established at the Hegartys Bay accommodation area and would be accessed using the proposed new boardwalk / Hegartys Bay Access Track (Activity 3).

Existing roads would be used to transport large items to the primary ancillary site. Existing roads will also be used to transport work crews and smaller lighter materials to Mowarry Point and Hegartys Bay work locations by light vehicle or small truck.

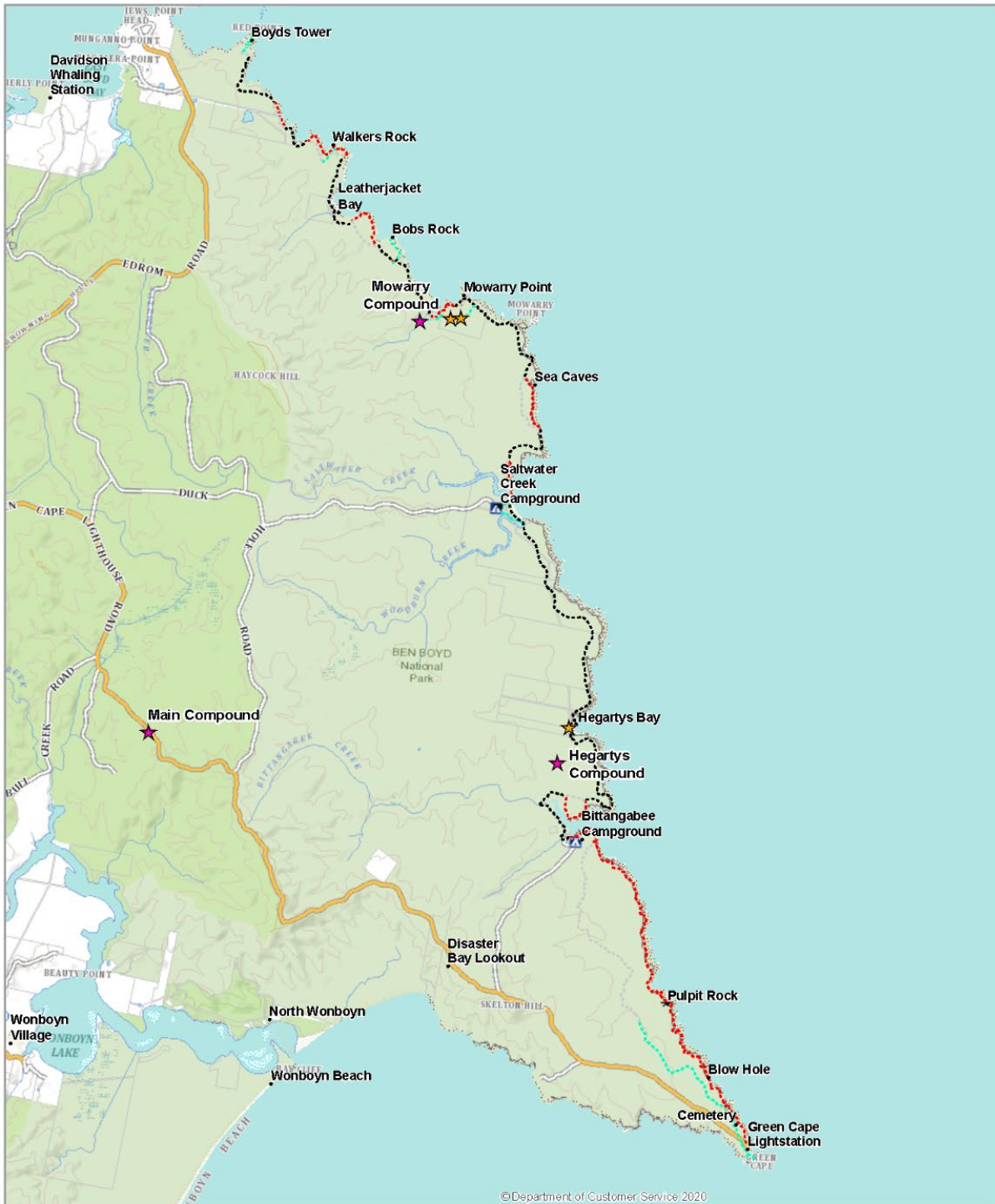
Vehicle movements to accommodation areas would be a maximum of around 3 or 4 light vehicles and 1 or 2 small trucks per day. Some roads may be temporarily closed under traffic control if helicopter flight paths cross over.

Activity 3 Vehicle and site access

Materials associated with the maintenance work proposed for Hegartys Vehicle Access Trail would be delivered directly to work locations and no compound or stockpiling would be required.

A small compound will be established at the end of the Hegartys Bay Vehicle Access Trail by clearing the vegetation island in the middle of the existing turning circle. This is shown in detail in Figure 11 and its location is shown in Figure 14 with the label 'Hegartys Compound'. This will then be used as a compound and ancillary site for work across all 3 activities. Vegetation waste will also be stored at this location and will be used for stabilisation work.

For the Pulpit Rock car park works, a small secure compound will be established within existing cleared areas, as shown in Figure 9. For the most part, material would be delivered directly to work locations with little need to stockpile.



Light to Light Walk Upgrade REF - Compound Locations

- ★ Compound Locations
- ★ Stockpile Locations
- Points of Interest
- Proposed New Track
- Existing Walking Tracks
- Existing Subsidiary Tracks
- Redundant Tracks



A3 @ 1:65,000
 Ref: 18569 Light to Light REF
 Author: TH
 Date Created: 05/09/2021
 Datum: GDA94 \ MGA94 Zone 55

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Figure 14 Location of compound and stockpile sites (Fig 4-4)

4.2.7 Earthworks, site clearing and extent of vegetation removal

The proposed earthworks for the 3 activities consist of:

- vegetation clearing and establishment of new walking track sections
- bank stabilisation for construction of new boardwalk mesh bridge at Hegartys Bay
- excavation for:
 - footings for boardwalks
 - at locations where erosion control measures are required
 - levelling of walking tracks to establish the tread where natural surfaces are proposed
 - track sections where there is a steep cross-fall where benching may be required and where steps, retaining walls or stabilised batters are required
 - landscaping
 - building foundations
 - service trenches
 - grading of the existing Hegartys Vehicle Access Trail
 - earthwork to level sites, install drainage and grade imported road base for the compound at the end of Hegartys Bay Vehicle Access Trail and the upgraded car park at Pulpit Rock
 - cultural and historic heritage salvage activities
 - post holes for signs, interpretive elements and track furniture.

Excavation will be limited, where possible. For example, screw piles are preferred for all building elements which do not require excavation. Where possible, elevated boardwalks will be used in preference to gravel paths. Floating boardwalks, which do not require earthworks, will be used in places where small vehicles are not required. . Other boardwalks will be kept to less than 1 m wide to allow for smallest foundation type to be used. Replacement of existing signs will be undertaken with the aim to use the existing holes to install the new signs, to minimise/remove the need for excavation works.

Vegetation clearing would be minimised by carrying out a thorough micro-site during the set-out phase of the track with the contractor. This micro-siting activity would set out the track to ensure large or habitat trees and sensitive cultural sites are not impacted. The accommodation areas have been designed to minimise vegetation clearing and the need for large APZs.

4.2.8 Environmental safeguards and mitigation measures

Specific environmental safeguards and mitigation measures for the proposal are detailed in Section 6 and are summarised in Section 8.

4.2.9 Sustainability measures (materials and resource efficiency)

Wherever possible, topsoil, woody debris and rock would be recovered for reuse. Where new track construction produces material, such as cut vegetation and spoil, this could be used to rehabilitate sections of decommissioned track. Suitability of material and locations will be determined via a detailed rehabilitation plan (guidance provided in Appendix B).

In areas where stonework is recommended, stone would be sourced from local quarries first. Local stone would be used for stepping stones at gully/stream crossings as well as rocky sections requiring low retaining walls.

Local timber will be sourced from a certified sustainable source, as per NPWS requirements, and used for stairs, boardwalks, seating and signage to meet the NPWS *Park facilities manual* (NPWS 2016a) requirements.

It is expected that few sections of track will require imported gravel to stabilise the tread, the remainder of the alignment will utilise the natural mineral soils as the track surface.

Once the new track is constructed, old sections of track that become redundant will be closed and rehabilitated.

Where native vegetation is removed, it will be mulched on site and used to rehabilitate redundant track sections and disturbed areas following construction. Non-native introduced plant species will be treated prior to construction and will not be included in mulch.

The accommodation areas have been designed to be self-sufficient, with roof-harvested rainwater, solar power and composting toilets. Highly efficient pellet heaters will be used to heat communal areas. Where possible building materials, furniture, fittings and other loose items will be sourced from sustainable suppliers and have been designed to minimise resource usage.

4.2.10 Proposed construction methods, materials and equipment

Proposed construction methods have been described above. Proposed construction equipment and materials include:

Activity 1: Walking track

Proposed equipment for this activity includes:

- small machinery – mini excavator, motorised wheelbarrow etc.
- jackhammer
- hand tools
- ATV and e-bike (on access trails only)
- helicopter.

Proposed materials for this activity include:

- gravel
- stepping stones and stone steps
- timber steps and track edging
- retaining wall/causeway rock
- galvanised steel pipe pegs
- chiselled tread
- FRP mesh and FRP beams for boardwalk
- weed-free straw, mulch and woody debris for stabilisation work.

Activity 2: Accommodation and facilities

Proposed equipment for this activity includes:

- small machinery – mini excavator, motorised wheelbarrow etc.
- light vehicles (road access only)
- hand tools
- cement mixer

- ATV and e-bike
- helicopter.

Proposed materials for this activity include:

- ground screw piers
- concrete with steel reinforcement
- timber, FC sheeting and other building materials
- modular buildings and associated infrastructure
- services including gas, water, electrical and solar panels
- FRP mesh FRP beams for boardwalk
- gravel
- weed-free straw, mulch, jute mesh, woody debris and local plants for stabilisation and revegetation work.

Activity 3: Vehicle and site access

Proposed equipment for this activity includes:

- road graders and compactors
- small machinery – mini excavator, motorised wheelbarrow etc.
- ATV, small 4WD and e-bike
- hand tools.

Proposed materials for this activity include:

- gravel
- timber
- mesh
- steel shed with concrete pad footing
- FRP mesh FRP beams for boardwalk
- galvanised steel handrails for boardwalk bridge
- wheel stops, fencing and signs at Pulpit Rock car park
- weed-free straw, mulch and woody debris for stabilisation work.

Examples of similar construction methods used for the 3 activities is provided in Appendix H.

4.2.11 Construction timetable; staging and hours of operation

The works are expected commence in early 2023 and take approximately 24 months to complete.

The proposal would be undertaken during standard works hours. These hours include:

- Monday to Friday: 7 am to 6 pm
- Saturday: 8 am to 1 pm
- Sunday and public holidays: no work.

Should works be required outside of the standard working hours, consultation would be undertaken with NPWS regarding the alternate construction hours.

4.3 Summary of changes to the proposal

This final determined REF incorporates all changes to the proposal that have resulted from the consultation with the community and agency stakeholders, including the public exhibition of the draft REF in 2021. A summary of proposal changes between the publicly exhibited draft REF and this final REF is provided in Table 12.

Table 12 Summary of changes to the proposal (Tab 4-3)

Parameter	Publicly exhibited draft REF	Final REF	Comment
Track material	Two sections gravel, rest as boardwalk.	Number of gravel sections increased to allow additional sections ('few' replaces '2').	To contain the impacts of this change and address risks to soil, water and vegetation, an additional mitigation has been included in Section 6.5: <ul style="list-style-type: none"> boardwalks will be installed in preference to gravel tracks in areas with wetter vegetation communities to minimise impacts on local hydrology where practical.
Strategic fire advantage zones (SFAZ)	SFAZs would be established in the maintenance program for the accommodation included in Activity 2 by undertaking prescribed burns in the APZ at 5–10 year intervals.	Removed from the proposed operation methodology due to risks outweighing the benefits.	SFAZ not required to meet <i>Bushfire code of practice</i> . Bushfire safety to be provided at evacuation points or purpose-built refuge.
Impacts to fisheries	Mitigation measure as given in Section 6.	Additional mitigation measures added, consisting of targeted signage including multilingual signs, and online content about fisheries on the NPWS Light to Light Walk webpage.	Mitigation measures added as a result of consultation with DPI Fisheries.
Predator pest monitoring	Pest fauna included in mitigation measures related to the biodiversity management plan (BMP).	Updates to the BMP mitigation measure requirements include specific measures regarding vermin control in campsites and pest monitoring pre- and post-construction.	Additional mitigation measures have been added in Section 6.3: <ul style="list-style-type: none"> develop pre- and post-predator monitoring program analyse existing Saving Our Species monitoring and funding scheme opportunities for fox/cat control.

Parameter	Publicly exhibited draft REF	Final REF	Comment
Monitoring of threatened species	No specific mitigation measure for threatened species monitoring.	Additional mitigation measures for monitoring long-nosed potoroo (<i>Potorous tridactylus</i>) and southern brown bandicoot (<i>Isoodon obesulus obesulus</i>) populations included.	Additional mitigation measures have been added in Section 6.3. Develop an ongoing monitoring program for various threatened species including long-nosed potoroo and southern brown bandicoot to monitor their populations.
Operational maintenance	No specific mitigation measure for operational maintenance timing.	A change to maintenance regime of the existing Hegartys Vehicle Access Trail to avoid impact on a threatened plant species (leafless tongue orchid, <i>Cryptostylis hunteriana</i>), see Section 5.14.1.	Maintenance of this vehicle track to be restricted to the existing road formation and to times of year when the species is dormant.
Threatened fauna	No species-specific mitigation measure.	Updated to mitigate against clearing plant community types (PCTs) 721, 1141 and 891 which are related to eastern ground parrot habitat during the breeding season (September to December).	Avoid clearing or disturbance to PCTs 721, 1141 and 891 which form eastern ground parrot habitat. If survey is not possible, clearing must not occur during the breeding season, which is from September to December.
Justification of non-significant impact	Additional justification of a non-significant impact to fauna as a result of the 2019–20 fires was not included.	Further justification of non-significant impacts to threatened fauna has been added due to burnt areas being found to be regenerating and providing habitat.	See Appendix B of the biodiversity assessment report (included in Appendix B of this REF).
Additional surveys of leafless tongue orchid (<i>Cryptostylis hunteriana</i>)	Leafless tongue orchid was not detected within the proposal area.	Updated to note the detection of leafless tongue orchid within suitable habitat within the Activity 3 study area.	Additional pre-clearing survey requirements have been added to account for PCTs where this species may be present. Maintenance of Hegartys Vehicle Access Trail to be restricted to the existing road formation and to times of year when the species is dormant.

4.4 Objectives of the proposal

The Light to Light Walk Upgrade aims to promote the rich culture and heritage of the area, encourage sustainable practices, improve access to natural features of the park, and thereby invite and introduce a new audience to experience the unique Ben Boyd National Park environment. The architecture of the Light to Light Walk will champion these aspects, keeping with park values for sustainability, visual amenity and environmental and conservation values. Specifically, the objectives of the proposal are to:

- create a new sustainable walking experience of internationally competitive calibre
- create nature-based experiences which encourage visitors to value their national parks
- create nature-based experiences which support the sustainable growth of the regional economy
- provide a culturally sensitive, environmentally sustainable, nature-based experience which delivers enhanced visitor management and environmental outcomes
- contribute to the financial sustainability of NPWS
- support sustainable increase in overall visitation to Ben Boyd National Park in non-peak periods
- contribute to a sustainable increase in overall visitor volumes in the region throughout the year
- contribute to an increase in non-peak visitor volumes in the region
- create employment opportunities for host communities
- build strong partnerships with industry, government and host communities
- provide new opportunities for the Aboriginal community to appropriately share their culture, participate in and benefit from the regional tourism industry.

New huts at Mowarry Point and Hegartys Bay will accommodate walkers on the first 2 nights of the walk and will include twin-share and 4-share huts, a communal kitchen, dining area, toilets, staff accommodation and storage. Green Cape Lightstation may be used to accommodate walkers to add a third night to the experience. Initially, walkers would stay at the lightstation under the current arrangement. In the future, the lightkeeper's cottages and other buildings may be adaptively reused where viable to better accommodate walkers (this would form part of a subsequent assessment). Carrying capacity across each hut accommodation area is proposed to be 36 walkers per night.

The proposed itinerary for the hut-to-hut walk is as follows:

- Day 1 – Walk from historic Boyds Tower in the north, along the coastline, trekking through *Melaleuca* woodlands past Red Sands Bay and Leatherjacket Bay. Stay overnight at Mowarry Point in new hut accommodation.
- Day 2 – Walk from Mowarry Point, travel across rocky coastlines, over rock platforms, and past secluded beaches. Stay overnight at Hegartys Bay in new hut accommodation.
- Day 3 – Walk from Hegartys Bay to Green Cape Lighthouse, experiencing Bittangabee Bay, Pulpit Rock, a blow hole and historic ruins. Stay overnight at the historic Green Cape Lightstation using the existing accommodation, or exit Ben Boyd National Park.

The completion of works described in Section 4.2 will achieve the itinerary.

A secondary 2-night camping itinerary will also be created using the formalised Mowarry Point camping area and the existing Bittangabee campground.

The upgraded walk will also be available for general park visitors to enjoy as day activities or to facilitate connectivity to other precincts in the park such as Saltwater and Bittangabee Bay. Further possible itineraries are given in the *Light to Light Walk strategy*.

The upgrade of the Pulpit Rock car park precinct is required to improve pedestrian safety and vehicle parking and turning. The vehicle track loop in its current shape and length is inadequate for parking and turning, and the toilet is in the centre of the loop and access is dangerous for pedestrians. Also, the end of the vehicle track is not clearly shown and vehicles have impacted the walking track as, over time, people have parked closer to the Pulpit Rock stairs. The new loop and parking will be located south of the toilet to minimise the risk to pedestrians and prevent ongoing damage to the park.

4.5 Reasons for the activity and consideration of alternatives

4.5.1 Reasons for the activity

Ben Boyd National Park is a popular tourist destination and receives around 150,000 visitors annually. The key reasons for activities are as follows:

- provide an extension and/or an upgrade of the existing Light to Light Walk for users of Ben Boyd National Park
- provide additional accommodation facilities for users of Ben Boyd National Park
- provide additional access to new accommodation areas for users of Ben Boyd National Park
- provide safe access to Pulpit Rock from the existing vehicle access and toilet area.

4.5.2 Consideration of alternatives

Activity 1 – Walking track

Do nothing

The do-nothing approach would involve no construction of new walking track sections. This would not meet the objectives of the proposal to deliver an 'immersive nature-based multi-day walk experience' within the Ben Boyd National Park. Areas of track poorly located would continue to damage the environment through erosion and disturbance to sensitive areas.

Alternative 1

Alternative 1 involves a 4-day walk. The proposed itinerary would be:

- Day 1 – Walk from historic Boyds Tower in the north, along the eastern coastline, trekking through *Melaleuca* woodlands past Red Sands Bay and Leatherjacket Bay. Stay overnight at Mowarry Point in new hut accommodation.
- Day 2 – Walk from Mowarry Point, travel across rocky coastlines, over rock platforms, and past secluded beaches. Stay overnight at Hegartys Bay in new hut accommodation.
- Day 3 – Walk from Hegartys Bay to Green Cape lighthouse, experiencing Bittangabee Bay, Pulpit Rock, a blow hole and historic ruins. Overnight at the historic Green Cape Lightstation in existing accommodation or exit Ben Boyd National Park.
- Day 4 – Walk from Green Cape Lightstation to Disaster Bay along the new cliff-top walk, ending at the Disaster Bay Lookout.

Alternative 2 (preferred)

Alternative 2 involves a 3-day walk for users of Ben Boyd National Park. The proposed itinerary is:

- Day 1 – Walk from historic Boyds Tower in the north, along the eastern coastline, trekking through *Melaleuca* woodlands past Red Sands Bay and Leatherjacket Bay. Stay overnight at Mowarry Point in hut new accommodation.
- Day 2 – Walk from Mowarry Point, travel across rocky coastlines, over rock platforms, and past secluded beaches. Stay overnight Hegartys Bay in hut new accommodation.
- Day 3 – Walk from Hegartys Bay to Green Cape lighthouse, experiencing Bittangabee Bay, Pulpit Rock, a blow hole and historic ruins. Overnight at the historic Green Cape Lightstation in existing accommodation or exit Ben Boyd National Park.
- Day 4 – Cultural and historic heritage tours, morning birdsong or heathland experiences.

Activity 2 – Accommodation and facilities

Do nothing

The do-nothing approach would involve no construction of hut accommodation facilities. This would not meet the objectives of the proposal to deliver an 'immersive nature-based multi-day walk experience' within the Ben Boyd National Park. Informal camping without toilet facilities would continue.

Alternative 1

Alternative 1 involves new hut accommodation at Mowarry Point and Hegartys Bay for users of Ben Boyd National Park. The proposed accommodation includes:

- accommodation at Mowarry Point – hut accommodation, communal kitchen and toilet facilities
- accommodation at Hegartys Bay – hut accommodation, communal kitchen and toilet facilities
- closure of informal camping areas at Mowarry Point and Hegartys Bay.

Alternative 2 (preferred)

Alternative 2 involves new hut accommodation at Mowarry Point, formalisation of the existing camping area at Mowarry Point and new hut accommodation at Hegartys Bay for users of Ben Boyd National Park. The proposed accommodation includes:

- accommodation at Mowarry Point – hut and camping accommodation, communal kitchen and toilet facilities
- accommodation at Hegartys Bay – hut accommodation, communal kitchen and toilet facilities (camping available at Bittangabee Bay)
- formalisation of the camping area at Mowarry Point – tent pads, footpaths and a toilet
- closure of informal camping area at Hegartys Bay (noting the area has been closed since the 2019–20 bushfires)
- provision of additional walk-in camp sites at Bittangabee campground (alternative assessment).

Activity 3 – Vehicle and site access

Do nothing

The do-nothing approach would involve no construction of additional vehicle and site access tracks or trails to accommodation facilities, or rectification of existing safety issues at Pulpit Rock. This would not meet the objectives of the proposal to deliver an ‘immersive nature-based multi-day walk experience’ within the Ben Boyd National Park.

Alternative 1

Alternative 1 involves upgrade and realignment of tracks to allow for 4WD and small truck access and car parking upgrades including:

- upgrade and realign Mowarry Point Trail vehicle access
- upgrade and realign Hegartys Vehicle Access Trail, including a compound site at the end of the trail; and a new boardwalk from the compound to the accommodation area
- additional car parking facilities at Disaster Bay
- upgrade of the Pulpit Rock car park precinct including adjusting turning circle and parking.

Alternative 2 (preferred)

Alternative 2 reduces the access and safety work to the minimum required to undertake the broader proposal and involves maintenance of existing vehicle tracks, construction of a new boardwalk at Hegartys Bay for small vehicle access, and improved car parking at Pulpit Rock:

- Hegartys Vehicle Access Trail
 - Hegartys Vehicle Access Trail to undergo basic maintenance for construction to allow safe access for 4WD and small trucks
 - creation of compound by upgrading the turning circle at the end of the trail – a small bushfire-impacted ‘tree island’ to be cleared to allow helicopter slinging, vehicle/ATV/e-bike parking, material storage and construction of a small shed
 - trail to remain for management vehicles only and maintained for 4WD and small truck access with minimal movements.
- Upgrade of Hegartys Bay Access Track for ATV access
 - mesh boardwalk to be installed from end of Hegartys Vehicle Access Trail to accommodation area on existing alignment
 - mesh bridge to be installed over drainage south of Hegartys Bay accommodation area.
- Upgrade of the Pulpit Rock car park precinct including adjusting turning circle and parking.

NPWS has secured some funding for other access and safety upgrades within the park. These proposals will be subject to subsequent planning and assessment processes.

4.5.3 Justification of the proposal

The Light to Light Walk Upgrade proposal was identified as part of the NPWS Visitor Infrastructure Program, a long-term strategy to deliver unique visitor experiences in regional NSW national parks.

The proposal meets the objectives of the NPWS Visitor Infrastructure Program to deliver nature-based tourism projects that:

- are iconic, imaginative, inspiring and innovative
- transform the way visitors interact with the location
- provide a cohesive and strategic vision for the project location
- provide commercial and other partnership opportunities
- have the capacity to deliver regional economic benefits.

The strategy for the Light to Light Walk Upgrade proposal is consistent with the NPWS Visitor Infrastructure Program outcomes to:

- meet demand for nature-based tourism and walking tracks, including visitation growth and greater regional dispersal of recreational activities
- increase participation in visitor activities and promotion of park stewardship with flow-on benefits to future revenue generation
- support national and state policies to increase international and domestic tourism in New South Wales
- align with the vision to inspire everyone to love their national parks.

5. Description of the existing environment

5.1 Description of the existing environment

The proposal site is located in Ben Boyd National Park on the NSW Far South Coast. Ben Boyd National Park spans 10,485 ha and is comprised of 3 main sectors; the largest sector located south of Eden, a central sector north of Eden and a smaller sector north of the Pambula River.

The statement of significance in the plan of management states key values associated with the park are:

- geological, geomorphological and landscape values
- biological values
- cultural values
- tourism, recreation and educational values.

A number of features within the park are highlighted as having national significance. These include:

- several sites of Devonian era fossil relics, believed to originate from the intermediate period as marine animals evolved into terrestrial animals – these are of high scientific value regarding both fish species development and landscape development
- the geologically spectacular Pinnacles erosional landform
- the Pambula Estuarine Wetland, which is listed on the Directory of Important Wetlands as determined by the Australian Government, as an ecologically important site
- several endangered and vulnerable flora and fauna species residing in the park.

Ben Boyd National Park is part of a system of parks that line the coast of New South Wales from Moruya to the Victorian border to protect sites of cultural and natural importance. The national park is also bordered on the west by East Boyd, Broadwater and Nullica state forests.

The existing Light to Light walking track is approximately 31 km long and traces along the coast from Boyds Tower southward to Green Cape Lighthouse. The walk is located in the southern sector of the national park south of Eden.

The proposed upgrade and associated works are described in detail in Section 4.1.

5.2 Meteorological data

Climatic conditions (BOM 2020) for Ben Boyd National Park (recorded at Green Cape AWS) indicate that the warmest month in terms of mean maximum temperatures is February; 23.8°C. The coldest month in terms of mean minimum temperatures is July; 9.2°C. See Figure 15.

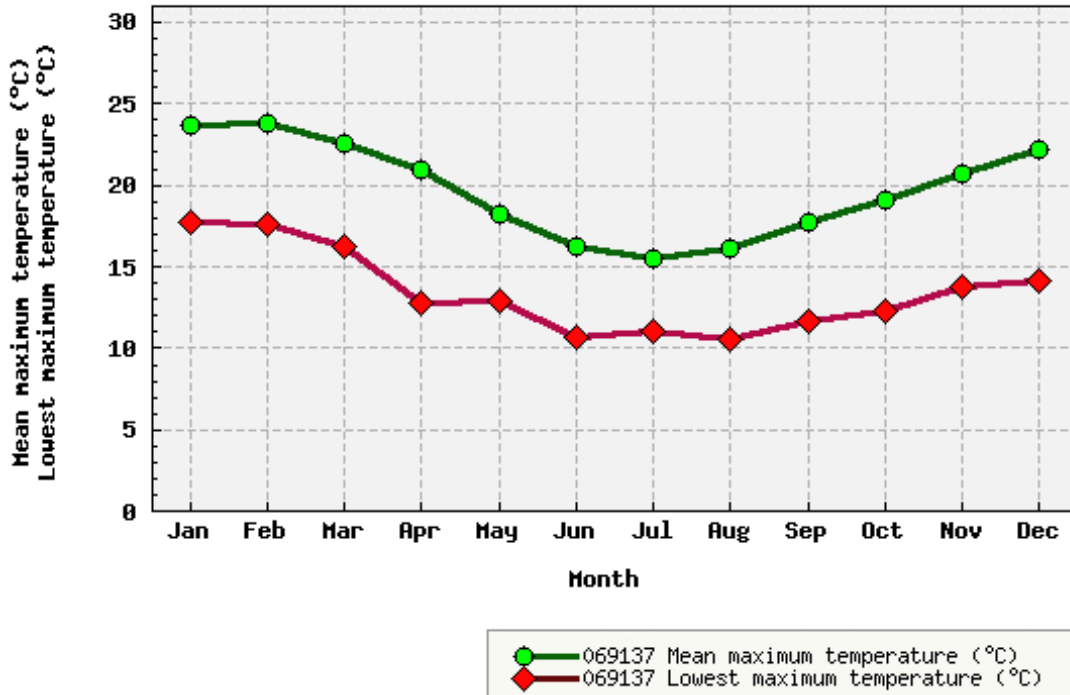


Figure 15 Mean historical temperature data from 2000 to 2019 (source: BOM 2020) (Fig 5-1)

Mean annual rainfall is 611.7 mm, with January recording the highest rainfall at 64.5 mm and August recording the lowest monthly mean in rainfall at 34.4 mm (BOM 2020). See Figure 16.

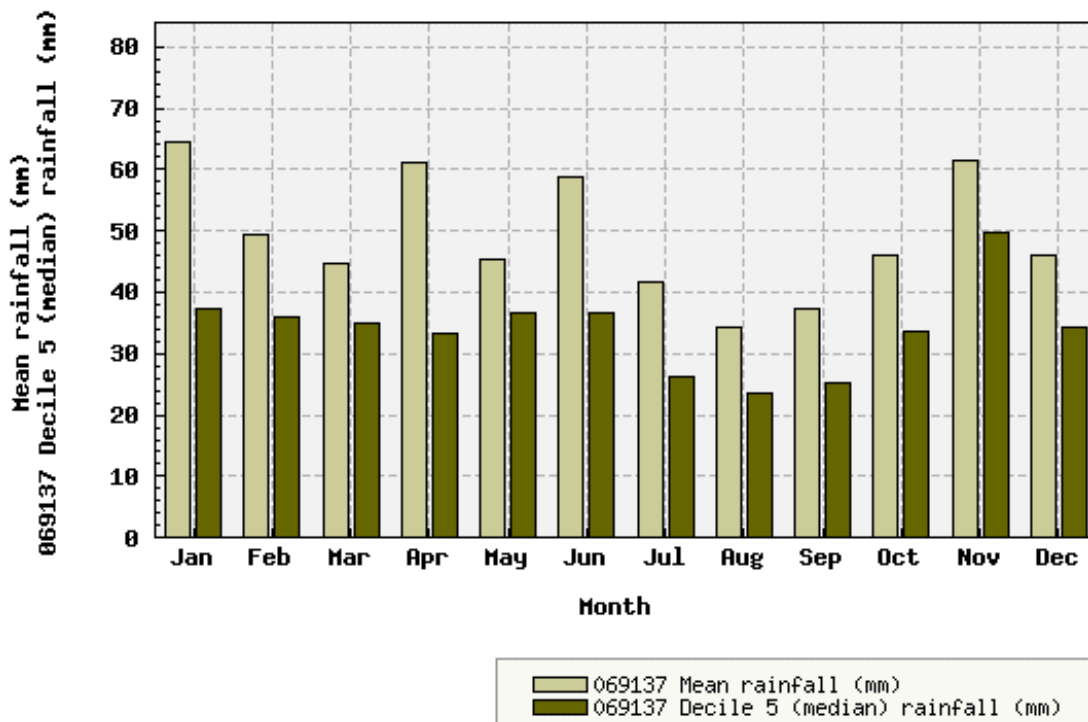


Figure 16 Mean historical rainfall data from 1994 to 2019 (source: BOM 2020) (Fig 5-2)

5.3 Topography

The Light to Light Walk Upgrade is located along the coastline of Ben Boyd National Park. The varying landform and topography are largely due to the western boundary ridgeline, the influence of coastal erosion and the termination of creeks upon reaching the ocean. The northern sector of the park is lower than the southern, at 100 m ASL (above sea level) and 160 m ASL respectively. At 252 m ASL the Mowarry Trig, also known as Haycock Hill, is the highest point in the park. The coastline consists of multiple long sandy beaches north of Terrace Beach. South of Terrace Beach, cliffs are the dominant feature with occasional small bays.

Along the proposal site in particular, there is topographical exposure to both cliff faces and vegetated slopes, with the slopes ranging from relatively flat surfaces to those of a steeper angle. The walking trail itself ranges from sea level to 120 m ASL, however, the trail is largely located along the coastal bedrock and up to 10–30 m above sea level.

5.4 Surrounding land uses

The park is primarily used as a recreational destination and has ecological, scientific, aesthetic, cultural and economic significance. The state forests that border the national park to the west are used for logging. Within the park, Haycock Point, Mowarry Point and, to an extent, Hegarty's Bay were formerly cleared for agricultural purposes. Although impacted by bushfire, these sites are currently in recovery, and native flora and fauna are progressively repopulating. At the southern extent of the park, Green Cape Lightstation is a state heritage listed complex. Boyds Tower and other historical items have local heritage significance.

The park is frequented by both locals and tourists for recreational purposes such as fishing, camping, walking and surfing. Associated with these activities has been the construction of roads and tracks which have extended on the pre-reservation network. Current usage of the park also encompasses the Aboriginal Culture Camp at Haycock Point and tourist visitation to Boyds Tower, the Bittangabee Bay building ruins and Green Cape Lightstation. The coastal towns of Eden and Pambula are both within close proximity of the park.

5.5 Geology/geomorphology

The geological significance of the park varies across a range of well displayed features present along the coastline. Largely composed of Upper Devonian rocks, the park contains some of the oldest rocks on the NSW coast. The folded, and often colourful, rock structures belong to the Devonian Merimbula Group and consist predominantly of sandstone, siltstone and shale. The northern sector of the park has the largest concentration of Tertiary deposits across the park, with quartzites, gravels, clays and sand commonly found deposited in the upper strata. The southern sector has small sections of these deposits.

Specific geological features of interest within the Ben Boyd National Park include:

- unique erosional features along the coastline – the Pinnacles is one such feature, formed of white sand and red clay on a steep gully side
- granite xenoliths present in basalt dyke rock forms
- rock sites with extensive quartz veins
- multiple sites containing remnants of Devonian fossils, largely consisting of an unknown extinct air-breathing, lobe-finned bony fish – these fossils are up to 1.5 m in length.

The Bega-Mallacoota 1:250,000 geological map indicates that the geology underlying the proposed works area consists of Late Devonian and Tertiary geological sequences. The

works area is within the Merimbula Group (Dm) with a small area within the Tertiary Sediments (Ts) unit (refer to Table 13 and Figure 17).

The Devonian Sedimentary Merimbula Group rocks are the bedrock geology of the area.

Quaternary maps indicate that the rock types along the coastal area in question are Holocene era geology. Within the estuarine plain system, Qhef Holocene tidal-delta flat geology dominates. Within the coastal barrier system, Qhbd Holocene dune and Qhbb Holocene sandy beach geological rock types. The sub-aqueous riverbed along the Light to Light Walk is dominated by Qhec Holocene estuarine channel geological types.

Table 13 Geology of proposed works area (Tab 5-1)

Geological group	Description	Location within works area
Ben Boyd Formation (Dmb)	Massive mudrock and coarse sandstone	<ul style="list-style-type: none"> • Walking track • Eastern portion of Mowarry Point Trail and Hegartys Vehicle Access Trail
Worange Point Formation (Dmw)	Massive sandstone with mudrock	<ul style="list-style-type: none"> • Central portion of Mowarry Point Trail • Western portion of Hegartys Vehicle Access Trail
Bellbird Creek Formation (Dmc)	Thin-bedded sandstone, siltstone and mudstone	<ul style="list-style-type: none"> • Western portion of Mowarry Vehicle Access Trail
Tertiary sediments (Ts)	Fluvial sands, grits, lacustrine clays	<ul style="list-style-type: none"> • Central portion of Hegartys Vehicle Access Trail



Figure 17 Geology of works area (Bega-Mallacoota 1:250 000) (Fig 5-3)

The area hosts one geologically significant area located at Red Point, just south of Boyds Tower. This outcrop displays folding and reverse faulting of bedrock and records an excellent example of the area's geologic history.

The massive and interbedded sandstone and mudrock rock types recorded and observed in the area exhibit low erosional potential where faults or discontinuities are absent – large boulders were observed at the bottom of steep cliffs and are likely attributed to coastal erosion.

Areas with Tertiary sediment cover are considered to have a high erosional potential due to being unconsolidated.

5.6 Soil types and properties

The park is composed of relatively erodible soils consisting of a large quantity of shallow sandy soil, often containing a large amount of humus. Soils originating from Tertiary deposits commonly contain gravel and sand, limiting the fertility of the soils. Vehicle tracks and recreation areas are the largest causes of surface erosion.

According to NSW Governmental records (NSW OEH 2018), the national park is largely composed of kurosols, with areas of natric kurosols, podosols and rudosols and tenosols (Figure 18).

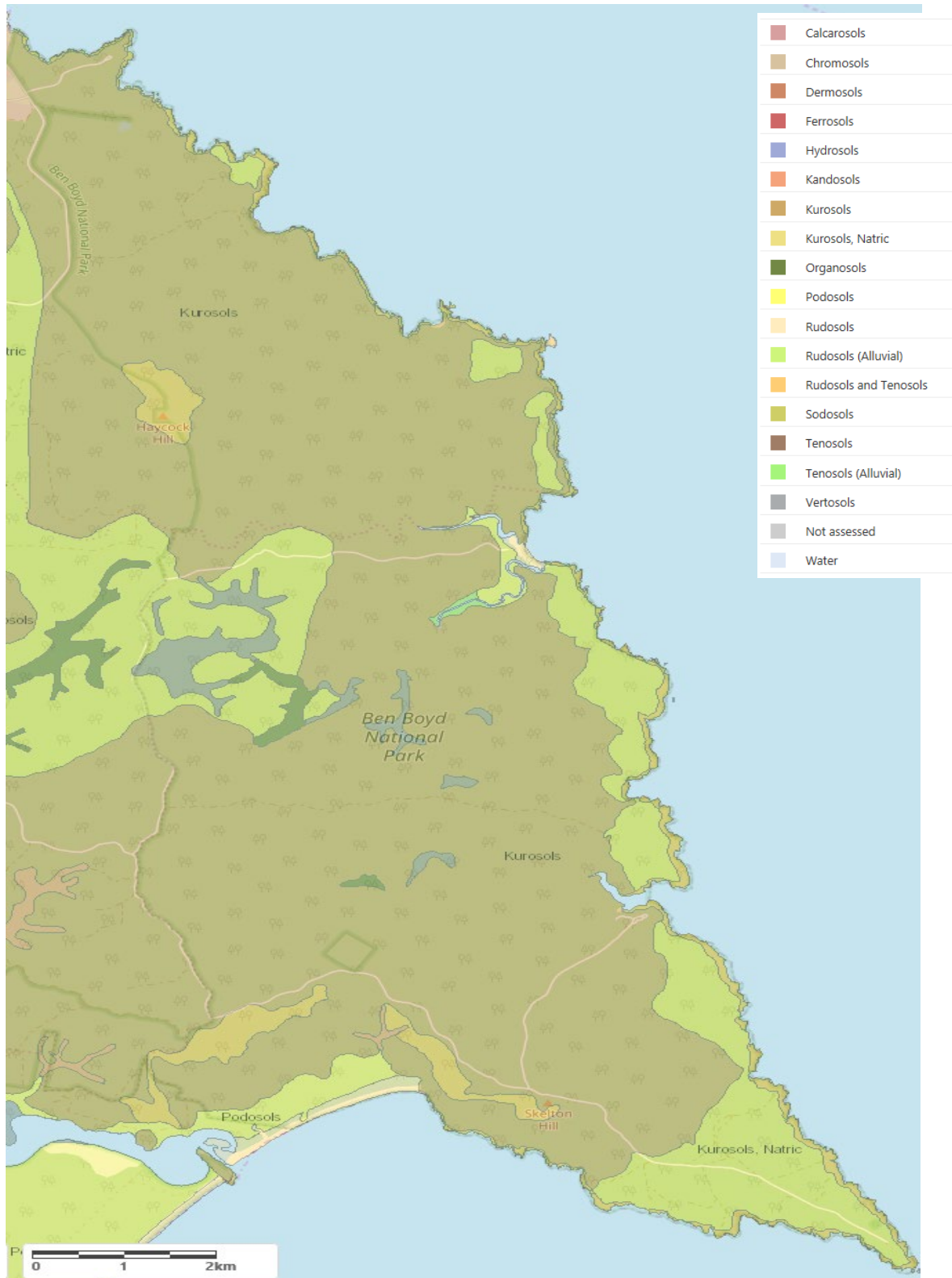


Figure 18 Australian soil classification soil type map of the Ben Boyd National Park (OEH 2018) (Fig 5-4)

Statewide land and soil mapping describes soil types and properties of the proposal site (OEH 2018) (refer to Table 14).

Table 14 Soil landscapes within the proposal site and their limitations (Tab 5-2)

Soil landscape	Description	Location
Merrica 8823me	<ul style="list-style-type: none"> Stony, infertile and erodible soils Mass movement and rockfall hazard Localised steep slopes and rocky outcrops Undulating hills on sandstone, siltstone and conglomerate Topsoils are non-cohesive and highly permeable Sheet erosion risk, gully erosion risk Imperfect drainage 	<ul style="list-style-type: none"> Boyds Tower Leather Jacket Bay South of Leather Jacket Bay West of Mowarry Point Mowarry Point (side track) Sea Caves Bittangabee Bay (North) City Rock to Disaster Bay Mowarry Point hut accommodation area Mowarry Point Trail Hegartys Trail
Merrica Variant A 8823mea	<ul style="list-style-type: none"> Erosional, deeper or less rocky soils on undulating low hills 	<ul style="list-style-type: none"> Hegartys Bay hut accommodation area Hegartys Vehicle Access Trail and compound
Merrica Variant C 8823mec	<ul style="list-style-type: none"> Colluvial, very rocky sites on steep slopes 	<ul style="list-style-type: none"> Disaster Bay to Disaster Bay Lookout Disaster Bay toilet
Merrica Variant E 8823mee	<ul style="list-style-type: none"> Coastal headlands with <i>Melaleuca armillaris</i> 	<ul style="list-style-type: none"> South of Red Sands Bay Bittangabee Bay to Pulpit Rock Green Cape to City Rock Pulpit Rock toilet
Merrica Variant F 8823mef	<ul style="list-style-type: none"> On sites with resistant rock strata; undulating to rolling low hills to hills Limitations include stony, infertile, erodible soils on steep slopes 	<ul style="list-style-type: none"> Bittangabee Bay (North)
Kangarutha Point 8823kp	<ul style="list-style-type: none"> Coastal cliffs and rock platforms Limitations include shallow soil on very steep slopes, rockfall hazards, low fertility, minimal use for grazing or cultivation Coupled with the contribution of water, sheet erosion poses a risk Wave erosion Stony non-cohesive shallow soils with poor moisture availability 	<ul style="list-style-type: none"> South of Red Sands Bay Leather Jacket Bay Mowarry Point (side track) Sea Caves South of Saltwater Creek Bittangabee Bay to Pulpit Rock Pulpit Rock to Green Cape Green Cape to City Rock
Nadgee Moor 8823nm	<ul style="list-style-type: none"> Tertiary sediments 	<ul style="list-style-type: none"> Sea Caves South of Saltwater Creek Bittangabee Bay (North)

Soil landscape	Description	Location
	<ul style="list-style-type: none"> • The windswept plains are infertile and imperfectly drained • Very high limitations for grazing and cultivation • Gully erosion risk, wind erosion risk • Poor water availability, non-cohesive and acidic soils • Prone to seasonal waterlogging 	<ul style="list-style-type: none"> • Green Cape to City Rock

5.7 Waterways (including wild and scenic rivers)

The park is within the area of the Southern Rivers Local Land Services. Numerous watercourses drain from the coastal ridge within the park (see Figure 19). Most are intermittent. The catchment systems of Ben Boyd National Park are generally in good condition as almost all the contributing watercourses are located within the national park or surrounding state forests. As such, the catchment systems are not exposed to a high level of pollution. The largest source of pollutant material originates from the adjacent forestry operations, roads and tracks throughout the park, which lead to sediment runoff.

Four major watercourses are located within the vicinity of the proposal site:

- Mowarry Creek
- Saltwater Creek
- Woodburn Creek
- Bittangabee Creek.

At both Saltwater and Woodburn creeks, small estuarine lagoons have developed, and several wetlands have formed along Woodburn and Bittangabee creeks in areas of poor drainage. The ecosystems of these sites are highly valued.

During site surveys conducted in December 2018 and January 2019, and noted during additional surveys in 2020, 39 smaller unnamed watercourses were identified. Three of these watercourses contained running water and 11 contained pooling water. Waterways with running water are considered to provide higher value habitat (riparian and aquatic) and are more sensitive to impacts (including nutrient input/pollution that may disperse into larger areas of habitat).

The groundwater systems are considered relatively stable.

There are no declared wild or scenic rivers located within Ben Boyd National Park or within the vicinity of the proposal site.



Light Walk Upgrade REF -
 yses of the Ben Boyd NP Locality



A3 @ 1:65,000
 Ref: 18569 Light to Light REF
 Author: TH
 Date Created: 06/09/2021
 Datum: GDA94 \ MGA94 Zone 5
 Data Attribution
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Figure 19 Watercourses (Fig 5-5)

5.8 Catchment values

The watercourses within the vicinity of the proposal site are part of the larger Southern Rivers catchment spanning 29,000 km² bounded by the Great Dividing Range and the coastline. According to DPI Fisheries' Freshwater Fish Community Status mapping of the major rivers in the catchment, rivers range from very poor to fair. It is only as the major rivers approach the bays that the status improves to good. Refer to Figure 20.

5.9 Coastal risk areas

5.9.1 Risk of sea level rise

Considering the close proximity of the proposal site to the ocean, multiple areas are at risk of inundation from sea level rise associated with climate change. This is particularly evident for the beach and the low-lying bay areas, including Hegartys Bay, Leather Jacket Bay and the beach at Saltwater Creek campground. The *Bega Valley LEP 2013* does not include mapping of areas at risk of sea level rise due to climate change. Mapping under the Resilience and Hazards SEPP shows the coastline of the Ben Boyd National Park to be listed as coastal use area and coastal environment area.

It is unlikely that there will be any potential of acid sulfate soil occurring along the Light to Light Walk as it occurs outside areas with a high probability of occurrence (Figure 21 and Appendix F). A small risk area is located at the entrance of Saltwater Creek within the area proposed for additional camp sites (not part of this assessment). According to NSW OEH (2018) this estuarine site is deemed to have a high probability of acid sulfate soils.

5.9.2 Risk to fisheries stock

Fishing activities occur both within the national park and the locality of the proposal area. Recreational fishing activities occur within the national park, including areas covered under the proposal outlined in this REF. These activities include line fishing, spearfishing, intertidal harvesting and hand gathering. Commercial fishing activities occur within the offshore vicinity of the proposal, including the immediate foreshore and beach areas. These activities target abalone, sea urchin and turban shells, ocean haul, trap and line and rock lobster fisheries, along with historical ocean hauling at Mowarry Beach.

There is potential for the proposal to provide greater access for recreational fishing activities to areas that would not have previously been accessible.

5.10 Wetlands of international importance

The EPBC Act Protected Matters Search Tool report was generated on 15 January 2020. This report indicated that no wetlands of international importance are located within 10 km of the national park.

5.11 Littoral rainforest

The proposed works are not within land mapped as littoral rainforest or their proximity zones under the Resilience and Hazards SEPP.

5.12 Coastal wetland

The proposed works are not within land mapped as coastal wetlands or their proximity zones under the Resilience and Hazards SEPP.

Wetlands within the national park are located around Woodburn and Bittangabee creeks. These wetlands form in areas of poor drainage, and the ecosystems of these sites have high value. These wetlands are mapped as coastal wetlands under the Resilience and Hazards SEPP, however, they are not of significant proximity to the works associated with this proposal to be at risk.

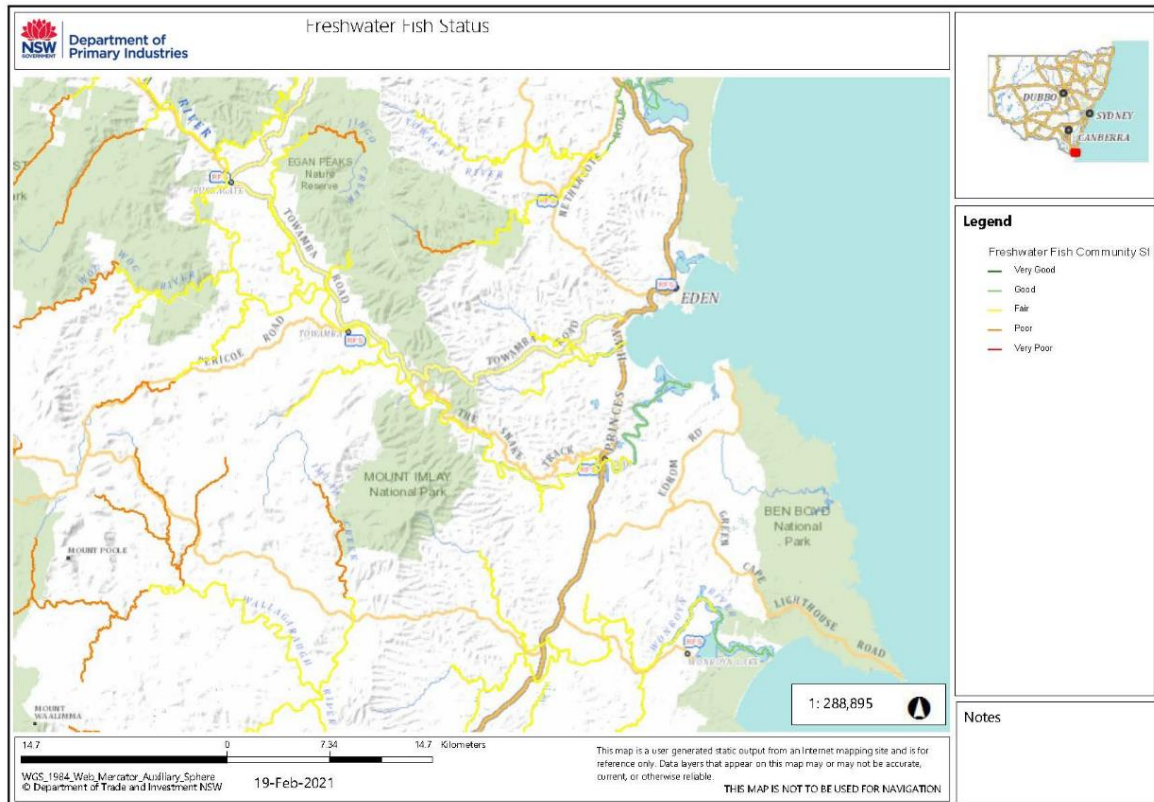


Figure 20 Freshwater fish community status (source: DPI Fisheries) (Fig 5-6)

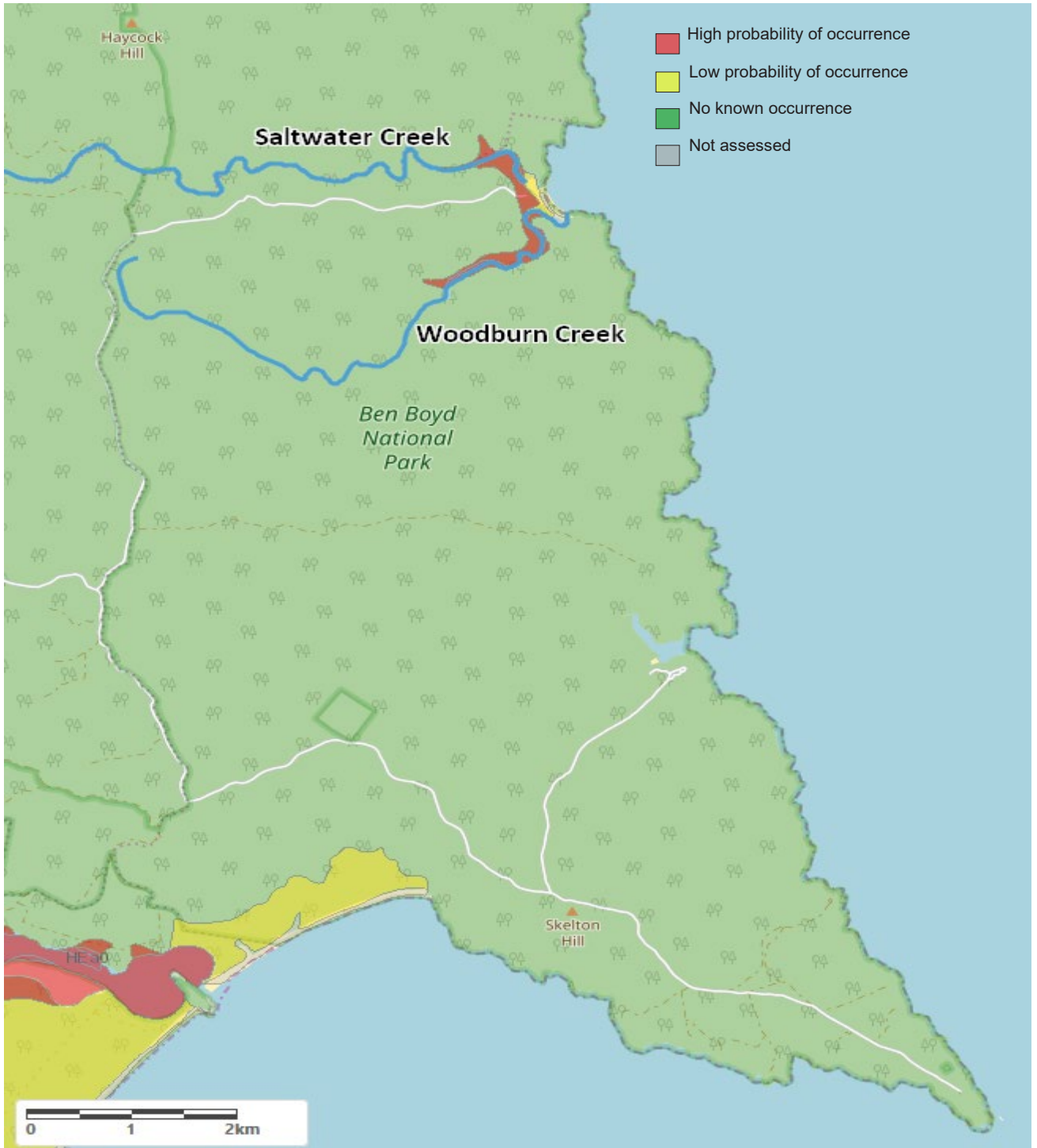


Figure 21 Probability of acid sulfate soil occurrence within the vicinity of the proposal site (source: OEH 2018) (Fig 5-7)

5.13 Ecological communities (threatened ecological and regionally significant communities)

5.13.1 Database searches

The NSW BioNet Atlas database search conducted on 19 July 2021 indicated 11 threatened communities listed under the BC Act for the coordinates north: –36.99, west: 149.74, east: 150.26, south: –37.38. The EPBC Act Protected Matters Search Tool search conducted on 19 July 2021 indicated 3 threatened ecological communities for the study area within a 10 km buffer.

5.13.2 Site inspection

Field surveys were undertaken on 17, 18, 20 and 21 December 2018; 23, 24 and 26 January 2019; 28 and 29 August 2019; and 24 and 25 November 2020 (the post 2019–20 bushfire surveys). All surveys were undertaken by a senior ecologist and an assistant from NGH consulting. This included senior botanists and zoologists.

The main aims of the field surveys were to gather enough floristic data to determine with confidence the plant communities occurring within the study area, and to assess the condition and habitat quality of the native vegetation. Secondly, the survey aimed to identify areas of potential habitat for threatened fauna and flora species. Targeted field surveys were also undertaken for particular species.

The following areas were assessed in the field surveys:

- the entire length of the proposed Light to Light walking track, including the area within 15 m either side of the flagged proposed track (Activity 1)
- the footprint of the proposed hut accommodation and camping areas at Mowarry Point (Activity 2)
- the footprint of the proposed hut accommodation area at Hegartys Bay (Activity 2)
- the Hegartys Vehicle Access Trail (vehicle-based survey) (Activity 3)
- the Pulpit Rock car park precinct (Activity 3).

It is noted that a wider area was searched (including the Mowarry Point Trail) as per the project's original scope. Sightings made in areas outside the current development footprint were retained as they are useful in providing species occurrence information in the wider area, however, data collected outside the development footprint was not attributed to the quantification of the development impact.

The proposed works areas had previously been marked with flagging tape by NPWS in most areas. The NGH team followed the flagged track for most of the route. Where the flagging tape was missing, the centreline of the 30 m study area corridor was followed, using GIS layers loaded onto an iPad. In some places, the survey involved navigation through thick vegetation, rugged terrain and on steep coastal cliffs.

No threatened ecological communities were identified on the proposal site.

Two areas within the proposal site are mapped as having high biodiversity value according to the department's *Biodiversity values map* (searched in 2018):

1. west of Leather Jacket Bay incorporating sections of the proposed walking track and proposed Mowarry Point Trail upgrade
2. west of Bittangabee Bay incorporating a small section of the proposed walking trail.

5.14 Flora and fauna

NGH prepared a biodiversity assessment report (NGH 2022 at Appendix B) to characterise the existing biodiversity values of the site and develop mitigation strategies to ensure impacts were acceptable and non-significant. The report has been updated to reflect comments received during the public exhibition of the REF.

There are a number of nationally significant features within the national park, and several endangered and vulnerable flora and fauna species are known exist in the park.

5.14.1 Flora

Desktop assessment

The following database searches were undertaken on 12 December 2018, and repeated on 27 February 2020 and 19 July 2021 to obtain lists of threatened and migratory flora and fauna that have the potential to occur at the site:

- NSW BioNet Atlas database for species of flora and populations listed as threatened under the BC Act recorded for the coordinates north: –36.99, west: 149.74, east: 150.26, south: –37.38. The search identified 11 endangered ecological communities (EEC), 10 threatened flora species and 52 threatened fauna species, comprising 2 amphibians, 31 bird species and 18 mammal species.
- Commonwealth EPBC Act Protected Matters Search Tool found species and populations listed as threatened under the EPBC Act within a 10 km radius of the proposal site. The search identified 3 EECs, 50 migratory species and 69 threatened species that have the potential to occur at the site.

The results of the database searches are provided in full in Appendix F.

Existing environment

Plant community types (PCT) recorded within the proposal site include:

- **PCT 721** Bracelet honey-myrtle – coast tea-tree tall shrubland on headlands, South East Corner Bioregion
- **PCT 772** Coast banksia – coast wattle dune scrub of the Sydney Basin Bioregion and South East Corner Bioregion
- **PCT 777** Coast grey box – mountain grey gum – stringybark moist shrubby forest in coastal gullies, southern South East Corner Bioregion
- **PCT 891** Ironbark – woollybutt – white stringybark open forest on coastal hills, South East Corner Bioregion
- **PCT 1084** Red bloodwood – silvertop ash – white stringybark heathy open forest on costal foothills, southern South East Corner Bioregion
- **PCT 1141** Scrub she-oak – swamp banksia coastal lowland heath, southern South East Corner Bioregion
- **PCT 1157** Silvertop ash – rough-barked apple shrubby open forest on the hinterland hills, far southern South East Corner Bioregion.

No PCTs were identified as meeting the criteria of threatened ecological communities under the EPBC Act or BC Act.

In most areas, the mapped PCTs were found to be in very good condition (undisturbed and weed free), including excellent examples of intact, species-rich South Coast heath with

varied fire histories (PCT 1141). This PCT has a restricted distribution in New South Wales along a narrow coastal strip south from Bournda to the Victorian border.

The lack of disturbance to the native vegetation was notable along the walking route, with some exceptions:

- evidence of human disturbance (removal of undergrowth and some canopy trees) around the campsites at Hegartys Bay, Mowarry Point, Saltwater Creek, Bittangabee Bay; and at the Disaster Bay, City Rock, Green Cape, Boyd Tower and Pulpit Rock car parks
- evidence of historical logging along the Hegartys Bay and Mowarry Point vehicle access trails
- severe post-fire weed infestation in the northernmost survey area (south of Boyds Tower)
- scat records of the European rabbit (*Oryctolagus cuniculus*), listed as a key threatening process (BC Act and EPBC Act), were common on the walking track corridor
- one scat record of the European fox (*Vulpes vulpes*), listed as a key threatening process (BC Act and EPBC Act) was recorded
- many areas burnt in the 2019–20 fires had also been burnt in 2014 and 1999. For these areas, there may be areas that were re-burnt before they had time to recover from the previous fires and this is likely to lead to population declines and reduced recovery. High fire frequency is listed as a key threatening process. The severity and extent of the 2019–20 fires were verified within the development footprint as part of the biodiversity assessment and considered in terms of potential to impact threatened flora and fauna (Appendix B).



Example of PCT 1141 condition type 1; South Coast heath burnt in 2016



Example of PCT 1141 condition type 2; north of Bittangabee Bay, South Coast heath burnt in 1990–96

Site survey

Field surveys were undertaken by NGH during December 2018 and January 2019 and again post-bushfire in November 2020. The following information was collected:

- plant species identification (top canopy, middle stratum, groundcover species) to enable the determination of plant community types
- an assessment of the condition/habitat quality of the native vegetation (groundcover density, human disturbance and evidence of recent fire)
- records of significant habitat features, including:
 - hollow-bearing trees
 - dead, fallen timber with hollows
 - waterways, soaks and pools

- scats, tracks and runways for wildlife
- feed trees of the glossy black-cockatoo (*Calyptorhynchus lathami*)
- feed trees and gliding trees for the yellow-bellied glider (*Petaurus australis*)
- potoroo/bandicoot diggings
- spotted-tail quoll (*Dasyurus maculatus*) scats/latrines
- owl roosts and nests (pellet/whitewash search)
- presence of invasive weeds and feral animals (foxes, rabbits).

Based on existing vegetation mapping and the initial site inspection, vegetation within the proposal site was assigned to plant community types (PCTs) in accordance with the Vegetation Information System (VIS) Classification Database, which is a central authoritative repository for native vegetation data managed by Environment and Heritage Group of the Department of Planning and Environment. PCTs were determined based on the presence of diagnostic species identified in the site survey.

The threatened plant species listed in Table 15 were searched for where suitable habitat was encountered.

Table 15 Targeted threatened species survey summary, survey effort and timing (Tab 5-3)

Target species	PCT	Survey effort	Timing
Hidden violet (<i>Viola cleistogamoides</i>)	1141	During PCT identification; 11 days	Dec 2018, Jan 2019, Nov 2020
Leafless tongue orchid (<i>Cryptostylis hunteriana</i>)	1141	During PCT identification; 11 days	Dec 2018, Jan 2019, Nov 2020
	777, 1084, 1157, 1141	3 days	Dec 2021
Mattes bush pea (<i>Pultenaea pedunculata</i>)	721	During PCT identification; 9 days	Dec 2018, Jan 2019

Threatened flora assessment

Initially, no threatened flora species were recorded within the study area, however, there are historical records and/or potential habitat within the study area for 3 species: leafless tongue orchid, hidden violet and matted bush pea.

With the assistance of a member of the public, a single flowering leafless tongue orchid was found close to the slip rail on Hegarty's Bay Vehicle Access Trail. Targeted surveys in adjacent PCTs that could support this species did not discover any additional individuals. Hidden violet was observed near Pulpit Rock in unburnt heathland by departmental staff undertaking ecological field work in January 2022 (Miles 2022).

Considering the availability of potential habitat, the cryptic nature of these threatened flora species, and the extent of field surveys undertaken, a cautionary approach has been taken and these species are assumed to be present in the study area. As such 5-part test of significance have been undertaken for the following species in accordance with the BC Act:

- leafless tongue orchid (*Cryptostylis hunteriana*)
- hidden violet (*Viola cleistogamoides*)
- matted bush pea (*Pultenaea pedunculata*).

An assessment of significance (EPBC Act) was also undertaken for leafless tongue orchid which is listed as vulnerable under the EPBC Act.

No flora species were found likely to face a significant impact due to the proposal (summarised in Section 6.3 and provided in full in Appendix B).

5.14.2 Fauna

Desktop assessment

The NSW BioNet Atlas database search conducted on 19 July 2021 listed under the BC Act for the coordinates north: -36.99, west: 149.74, east: 150.26, south: -37.38. The search identified 52 threatened fauna species, comprising 2 amphibians, 31 bird species and 18 mammal species. The EPBC Act Protected Matters Search Tool identified 50 migratory species and 69 threatened species that have the potential to occur at the site.

The results of the database searches are provided in full in Appendix F.

Site survey

Informed by the vegetation surveys, a targeted fauna survey program was undertaken, summarised in Table 16.

Table 16 Targeted threatened species survey summary, survey effort and timing (Tab 5-4)

Target species	PCT	Survey type	Survey effort	Timing
Long-footed potoroo (<i>Potorous longipes</i>)	Fungi habitat	Camera Signs	59 cameras/14 nights	11–28 March & 1–16 April 2019
Long-nosed potoroo (<i>Potorous tridactylus</i>)	1141, 777, 772, 721	Camera Signs	59 cameras/14 nights	11–28 March & 1–16 April 2019
Smoky mouse (<i>Pseudomys fumeus</i>)	1084	Camera	59 cameras/14 nights	11–28 March & 1–16 April 2019
Eastern chestnut mouse (<i>Pseudomys gracilicaudatus</i>)	772, 721	Camera	59 cameras/14 nights	11–28 March & 1–16 April 2019
White footed dunnart (<i>Sminthopsis leucopus</i>)	1157, 1141, 772, 721	Camera	59 cameras/14 nights	11–28 March & 1–16 April 2019
Southern brown bandicoot (<i>Isoodon obesulus obesulus</i>)	772, 721	Camera Signs	59 cameras/14 nights	11–28 March & 1–16 April 2019
Spotted-tail quoll (<i>Dasyurus maculatus</i>)	772, 777, 891, 1157, 1084, 1141	Camera Signs	59 cameras/14 nights	11–28 March & 1–16 April 2019

Target species	PCT	Survey type	Survey effort	Timing
Green and golden bell frog (<i>Litoria aurea</i>)	772,	Nocturnal spotlighting Call playback	4 nights: 3.3 person hours 1.3 person hours	11–13 & 26 March 2019
Eastern bristlebird (<i>Dasyornis brachypterus</i>)	721, 772, 1141	Diurnal bird survey	12 x 20-minute surveys (4 person hours)	11–14 March & 1–2 April 2019
Eastern ground parrot (<i>Pezoporus wallicus</i>)	721, 1141	Diurnal bird survey	12 x 20-minute surveys (4 person hours)	11–14 March & 1–2 April 2019

Assessment of the proposed works area

The threatened fauna listed in Table 17 were recorded within the study area (includes incidental observations).

Table 17 Targeted threatened species survey results summary (Tab 5-5)

Species	Number of individuals	Location	Notes
Dusky woodswallow (<i>Artamus cyanopterus</i>)	1	Heath west of the Pulpit Rock car park	
Glossy black-cockatoo (<i>Calyptorhynchus lathamii</i>)	3	Mowarry Point Trail	Adult pair and juvenile <i>Allocasuarina littoralis</i> , is common in this location
Powerful owl (<i>Ninox Strenua</i>)	1	Green Cape Lighthouse Road shortly after entering the woodland from the open heath near the Pulpit Rock turnoff	Juvenile
White-bellied sea-eagle (<i>Haliaeetus leucogaster</i>)	2	Flying overhead	Pair observed on all field survey days
Wedge-tailed eagle (<i>Aquila audax</i>)	1	Near the Sea Caves	
Spotted-tail quoll (<i>Dasyurus maculatus</i>)	1 scat	On the rocks near the Sea Caves	
Southern brown bandicoot (<i>Isodon obesulus obesulus</i>)	8 sightings	Between Pulpit Rock and Green Cape	8 images recorded, with 1 individual in each image
Long-nosed potoroo (<i>Potorous tridactylus</i>)	24 sightings at 9 locations	<ul style="list-style-type: none"> 300 m south of Bittangabee Bay between Pulpit Rock and Green Cape On the northern side of Bittangabee Bay 	24 images recorded, with 1 individual in each image

Species	Number of individuals	Location	Notes
Eastern ground parrot (<i>Pezoporus wallicus</i>)	1 sighting	Observed south of Pulpit Rock in unburnt heathland	Recorded by departmental staff undertaking ecological field work in January 2022 (Jenkins pers. comms. Jan 2022).

Threatened fauna assessment

A total of 31 threatened species were identified as likely to occur on site and with a potential to be impacted. Each species was addressed in a 5-part test of significance (BC Act listed species) or assessment of significance (EPBC Act listed species) and are discussed in detail in the biodiversity assessment report (see Section 9.3 of Appendix B). Each assessment concluded that a significant impact is not considered likely considering measures accounted for in the planning of the proposal, successful post-fire habitat regeneration, the recommended mitigation measures and the relatively small extent of clearing considering the vegetation present within the study area. No threatened fauna species are considered to be at risk of significant impacts due to the proposal.

Potential impacts to migratory species were also assessed. Significant impacts are deemed unlikely for any EPBC Act listed migratory species.

Taking into consideration the impacts of the 2019–20 bushfire, suitable breeding and foraging habitat in adjoining habitat remains in some areas, and the limited loss of foraging, nesting, roosting and denning resources caused by the proposal, the proposal is unlikely to place any of the threatened fauna or flora species at risk of extinction. More mobile species (e.g. birds and bats) are unlikely to rely on burnt areas of the site until vegetation exhibits substantial recovery. However, recovery within 10 months was evident, therefore by the time construction begins, habitat for flora and fauna species at the subject site and in adjacent areas of the national park are likely to be extensive.

5.15 Areas of outstanding biodiversity value

The proposal area is not located within an area of outstanding biodiversity value declared under Part 3 of the BC Act, and thus not listed in Part 3 of the Biodiversity Conservation Regulation 2017.

5.16 Koala habitat

The proposal site is located within the Bega Valley local government area (LGA). Although the Bega Valley LGA is listed in Schedule 1 of the (now repealed *) Koala Habitat Protection SEPP, it does not apply as the proposal site is on land reserved under the *National Parks and Wildlife Act 1974*.

*Please note in 2021 the *State Environmental Planning Policy (Koala Habitat Protection) 2021* was repealed and replaced with *State Environmental Planning Policy (Biodiversity and Conservation) 2021*.

5.17 Wilderness (nominated or declared)

The proposal site is not located within a nominated or declared wilderness area under the Wilderness Act.

5.18 Aboriginal cultural heritage

NPWS engaged consultant archaeologists Lantern Heritage to conduct an Aboriginal cultural heritage assessment (ACHA) in accordance with departmental guidelines and codes. The assessment commenced following the 2019–20 Border Fire but built on earlier work undertaken by OnSite Cultural Heritage Management and Sue Feary Conservation and Heritage Planning and Management throughout 2018 and 2020. The ACHA report (Lantern Heritage 2021 at Appendix A – noting that access to the report is restricted) is summarised below.

The purpose of the ACHA report is to:

- conduct the ACHA in consultation with the Aboriginal community
- prepare the assessment in accordance with relevant departmental codes and guidelines and to produce an ACHA report to accompany an Aboriginal heritage impact permit (AHIP) application should one be required.

5.18.1 Regional context

A review of the intangible cultural heritage study of Ben Boyd National Park (Donaldson 2018) found the general landscape and specific locations within south Ben Boyd National Park are of cultural significance to many local Aboriginal people.

The area that currently makes up Ben Boyd National Park, and the surrounding state forests, has been occupied by Aboriginal peoples for several thousands of years prior to European settlement in the area. Aboriginal populations used both marine and land resources for a variety of uses, including food, medicines and raw materials. It is also likely fire management techniques were used on local vegetation. The area also contained a significant number of networked travel routes connecting cultural meeting places, including Towamba and Twofold Bay which were recorded at European contact.

The area has an extensive contact period, beginning in the early 19th century. Official whaling occupations began in 1818 in Twofold Bay, although there is potential for more informal activities earlier than this. European whaling and pastoral development continued into the mid-1840s in a variety of locations, and Aboriginal communities were known to be involved in the workforce whilst maintaining aspects of traditional lifestyles, including initiation ceremonies. Major developments associated with European settlement of the study area include developments in the Bittangabee area by members of the Imlay family, whaling stations at Mowarry Point, and development of the Green Cape Lightstation and its associated Bittangabee facilities. However, some areas such as those west of Green Cape are relatively undisturbed from European development, both historical and modern. Several Aboriginal archaeological sites are recorded on or close to the existing walking track, new alignments and precincts and there is potential for unrecorded sites to be present.

5.18.2 Site searches and results

Extensive site searches were conducted via the Aboriginal Heritage Information Management System (AHIMS) on 21 January 2021 and on 15 February 2021. A total of 181 sites or objects were listed as being present within the south Ben Boyd National Park search area. Of the 181 sites listed within the search area, there were 93 previously recorded Aboriginal sites listed on AHIMS as being within 100 m of the Light to Light Walk upgrade

areas. Sites were recorded within each section of proposed upgrades with the exception of the Pulpit Rock access track and car park area, where no sites were recorded.

Previous investigations in 2019 and 2020 between Boyd Tower and Green Cape Lighthouse identified a suite of Aboriginal sites along the coastal fringe, including shell deposits, artefact scatters and at least one burial.

5.18.3 Consultation

Consultation with registered Aboriginal parties was undertaken in accordance with the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010). Consultation was initiated in 2018 by Sue Feary and OnSite Cultural Heritage Management and was started by Lantern Heritage in 2020. Three parties responded to the invitation to register an interest in being consulted about the project:

- Bega Local Aboriginal Land Council (LALC)
- Eden LALC
- Thaua Country Aboriginal Corporation (represented by Steven Holmes).

5.18.4 Field surveys and excavation

Pre-bushfire field surveys and excavation

Initial archaeological fieldwork was undertaken over 10 days in August 2018. Fieldwork involved surveying existing and new sections of track, the latter including substantial realignments of the track between Boyds Tower and Green Cape, and a new section of track between Green Cape and Wonboyn Beach.

The fourth day of the proposal, Green Cape to Wonboyn, was removed following this initial fieldwork. The change was in recognition of the need to conserve the rich suite and complex of previously unrecorded Aboriginal sites of high scientific and cultural integrity along the south-western coast of the national park.

In August 2019, OnSite Cultural Heritage Management conducted test excavations at Leatherjacket Bay along the access road to Mowarry Point and at the proposed accommodation area at Hegartys Bay. Test excavations revealed significant cultural deposits which remain otherwise largely obscured and confirmed the importance of these embayments as cultural foci points in this landscape.

Post-bushfire field surveys and excavation (Mowarry Point)

Lantern Heritage completed an assessment of bushfire impacts to known sites associated with the Light to Light walking track following the 2019–20 Border Fire. Lantern Heritage also surveyed the new track alignment proposed and conducted test excavation at Mowarry Point camping area in the location of proposed infrastructure upgrades.

Results

Lantern Heritage recorded a total of 107 sites that comprised of 79 previously recorded sites. Due to the high visibility encountered during the post-bushfire survey, the extent of previously recorded sites was clearly seen to be much larger than originally observed. Rather than record additional small sites, Lantern Heritage used a large-scale landform-based approach to combine previously recorded sites into larger sites where appropriate.

The field survey identified areas of potential archaeological deposit (PAD) across the proposed Mowarry Point hut accommodation and camping areas.

The test excavation at Mowarry Point camping area identified the presence of subsurface archaeological deposit within 4 locations. The artefact assemblage across the 4 sites comprised flakes, flake fragments, other debitage, as well as cores, retouched tools and manuports.

5.18.5 Assessment of impacts to Aboriginal sites

The proposed Light to Light Walk Upgrade project is the result of 3 years of considered assessment and design refinement to allow more people to appreciate the natural and cultural values of the park. This process of design and realignment has been undertaken in close consultation with the Aboriginal community.

The proposed works as part of the Light to Light Walk project will not result in total loss of values at any of the identified sites. While the proposed Light to Light Walk upgrade works will result in direct harm to 67 Aboriginal sites, these areas are largely restricted to the existing walking track that have already been disturbed through long-term visitor use.

The proposal may serve to protect the archaeological and natural resources in other areas of the park by concentrating visitor access to these formalised visitor areas. The sites to be impacted by Light to Light Walk Upgrade project works represent a very small proportion of sites in the entire Ben Boyd National Park.

5.19 National, state and local natural or cultural heritage values

NPWS engaged consultant archaeologists Lantern Heritage to prepare a historical cultural heritage assessment report (HCHAR) in accordance with the *NSW Heritage manual* (NSW Heritage Office 2001) and *The Burra Charter: the Australia ICOMOS charter for places of cultural significance* (Australia ICOMOS 2013). Lantern Heritage's investigations included provision of detailed archaeological assessments and statements of heritage impact for all historical sites within the project area. The full report is summarised below and included in full at Appendix J (Lantern Heritage 2021b). The Historic assessment report contains sensitive information and is restricted to NPWS (Appendix J).

5.19.6 Regional context

The post-contact history of the park dates back to 1797 when George Bass arrived on shore close to the mouth of the Pambula River in the northern sector of the park. This was then followed by Matthew Flinders who lost 8 of his men in 1802 when he moored at Disaster Bay and sent men ashore in search of water. Occupation by European settlers didn't occur until the 1840s when the Imlay family settled in the area to found agricultural grazing and commercial whaling stations.

During 1844, Benjamin Boyd established a whaling site at Bittangabee Bay and began competition with the Imlay whaling crews, which came to an end in 1848 when the Imlay family underwent a family tragedy. At this point, Boyd owned a commercial empire with establishments in the Riverina and Monaro. Boyd came to Australia in 1842 as a London stockbroker, however, he returned to London after the collapse of his empire in 1849 leaving behind Boyds Tower and the whaling station at East Boyd.

The sandstone Boyds Tower was originally built in the prospect of becoming a lighthouse, however, after a dispute with the government, Boyd used it as a lookout from which to spot whales. After the departure of Boyd, George Davidson also began to use the tower in this way. In 1988 a conservation management plan was implemented to protect the heritage of Boyds Tower.

Green Cape Lighthouse, located at the southernmost point of Ben Boyd National Park, began operation in 1883. The lightstation complex consists of the 29 m lighthouse, the residences of the head and the assistant keeper and multiple shed buildings. In 1997 the light system within the lighthouse was replaced by an automated system, and the light tower also came under the management of NPWS at this time. There is a gravesite in the vicinity of the lighthouse with the remains of some of the victims of a shipwreck off the coast. One of the largest shipwrecks was that of *Ly-ee-Moon* in 1886 with the loss of approximately 76 lives.

Further historic sites within the park include a concrete storehouse at Bittangabee Bay which delivered supplies to the lighthouse during its construction. A wooden tramway, which was used to transport the ship-delivered supplies to the lighthouse until 1920. The current state of the building is poor, however, remnants from the wharf and collapsed tramway bridges remain.

Although there are many remnants of other historical sites within the park, ranging from instances of whaling to residential and agricultural indications, there is very little known about their history. Historical sites in the southern sector of the park where the proposal is located include:

- multiple sites of building or hut remains including locations in the vicinity of Green Cape, Saltwater Creek and Hegartys Bay
- remnants of quarries and a previous kiln at the Bittangabee house
- building foundations, a stone well and a scattering of building blocks indicating prior agricultural use at Mowarry Point
- a well-preserved corrugated iron shelter located at Disaster Bay
- fences at Leather Jacket Bay and at Skelton Hill Trig, both post and rail
- telegraph line routes associated with the Green Cape Lighthouse
- evidence of previously used roads between Mowarry Point and Bittangabee, dating back to the 1840s.

5.19.7 Summary of historic heritage assessment

Database searches

A search of the Australian Heritage Database was undertaken on 14 December 2021. While no items of world, national or Commonwealth significance are present within or adjacent to the project area, there are 3 items listed on the database. These are:

- Ben Boyd National Park
- Bittangabee Bay Ruins
- the Bundian Way Area.

A search of the Maritime Heritage Database was undertaken on 29 February 2021. One item was found, Item 2346 – Bittangabee Bay.

A search of the State Heritage Register was undertaken on 6 December 2021 for Ben Boyd National Park. The Green Cape Maritime Precinct is listed on the State Heritage Register as item #01897. The curtilage for this listing comprises 2 geographic areas: the Green Cape Lighthouse precinct and the Bittangabee Bay precinct. The current study area of the proposal extends into the north-western portion of the lighthouse curtilage. The Green Cape Maritime Precinct includes the southernmost peninsula of Green Cape encompassing the lighthouse, lightstation cottages, *Ly-ee-Moon* shipwreck, shipwreck cemetery and associated built structures. Also included is the southern shoreline of Bittangabee Bay to capture the storehouse and the remnant jetty footings. Activity 1 would partly impact the curtilage of the

Green Cape Maritime Precinct (Figure 22) and an exemption under s 57 the NSW Heritage Act is required.

Three heritage items are listed on the Bega Valley LEP within Ben Boyd National Park. These are:

- Boyds Tower
- Bittangabee Bay Ruins
- Greencape Lighthouse and residences group.

A search of NPWS Historic Heritage Information Management System (HHIMS) was conducted on 12 March 2021. This search also included heritage items included on other registers such as the State Heritage Register and Bega Valley LEP. Of the 25 sites listed on HHIMS within the southern half of Ben Boyd National Park, 10 are listed on the State Heritage Register (Green Cape Precinct including Bittangabee Bay store house) and 3 are listed on the Bega Valley LEP (Green Cape Precinct, Boyds Tower and Bittangabee ruins). Of the 10 HHIMS items that are part of the State Heritage Register Green Cape Maritime Precinct (listing #01897), 2 are partially or wholly within the current study area. These are Bittangabee Bay store house (HHIMS #2734), and Green Cape Maritime Precinct (HHIMS #9162).

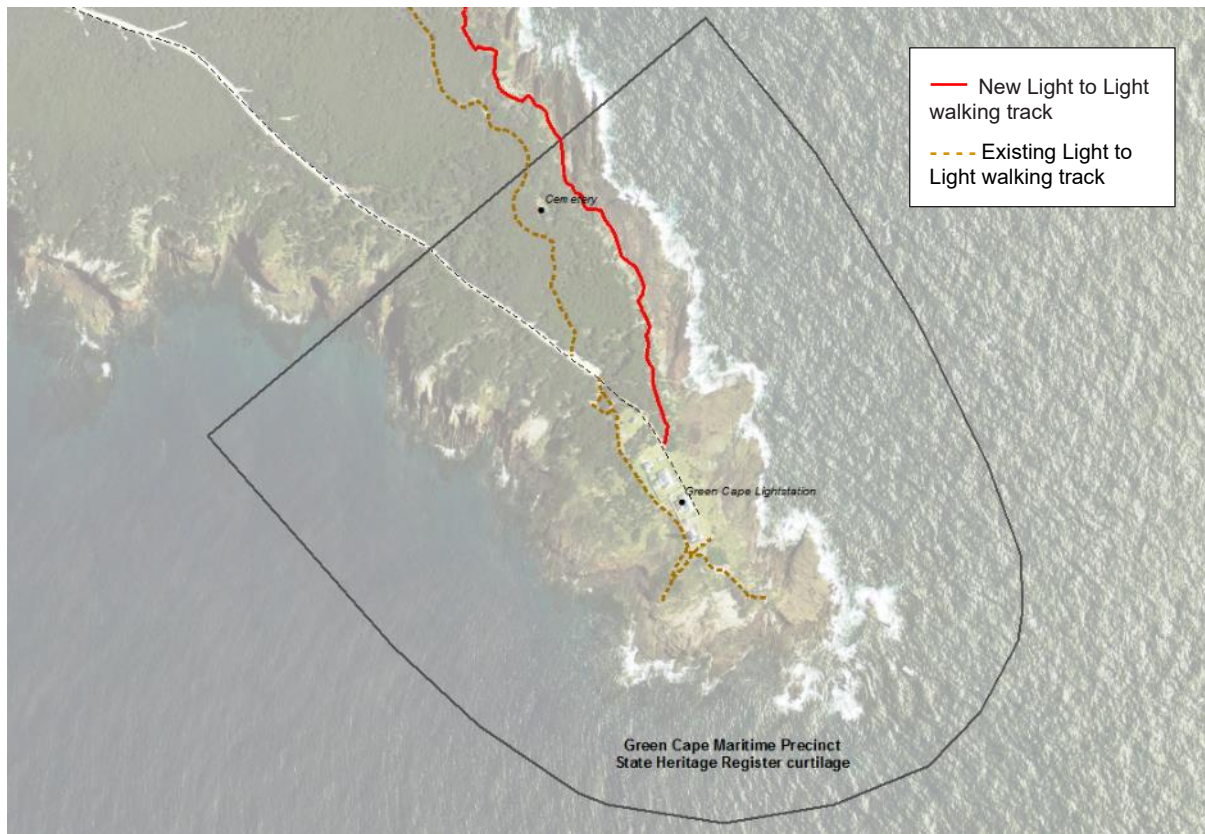


Figure 22 Extension of Activity 1 into Green Cape Maritime Precinct curtilage (Fig 5-10)

Field results

A comprehensive program of field survey for historic and Aboriginal cultural heritage sites was conducted over 2 weeks in August 2020 (see Section 7 of the historic assessment report at Appendix J). The survey was undertaken by Lantern Heritage archaeologists with representatives from Eden LALC and NPWS. In November 2021 further investigations of historic sites within the southern section of Ben Boyd National Park were undertaken by

Lantern Heritage archaeologists. This survey focused on the Light to Light walking track proposal area.

The following new sites were identified during the surveys undertaken in 2020 within the study area (full site descriptions for these items are included in the historic assessment report at Appendix J):

- Mowarry Dam, at Mowarry Point (L2L-20-H3)
- building remains within the Bittangabee Bay precinct (L2L-20-H11)
- road/track, on the Light to Light Walk (L2L-20-H13).

The following potential heritage items on HHIMS were confirmed as sites at or near the location recorded on HHIMS (site descriptions for these items are included in Appendix J):

- Hegartys Bay Hut, #1141
- Hut Site; Portion 46 #2772
- Saltwater Creek Camping Area #1140
- Site of Hut – Saltwater Creek #2770
- Site of Tramway #2751
- Stone Blocks #2762.

The following s 170 and State Heritage Register items on HHIMS were relocated and updated (site descriptions for these items are included in Appendix J):

- Bittangabee Quarries #2729
- Bittangabee Ruins #2728
- Bittangabee Ruins #6607
- Bittangabee Bay Store House; Green Cape #2734
- Boyds Tower #6598
- Mowarry Homestead Site #2775
- Mowarry Whaling Site #1144.

The following s 170 items on HHIMS were not relocated and/or have been revised as invalid sites:

- Brick Mound #2752
- Clearing #2748
- Te-miti Creek Bridge and sites #1133
- Te-miti Creek Bridge Ruins #2749
- Te-miti Log Cabin Ruin #2750.

Significance assessment

The heritage items and potential heritage items recorded within the current project area largely relate to pastoralism and include hut complexes at Mowarry Point and Hegartys Bay. In addition, there are remains of several substantial stone ruins at Bittangabee Bay. There are also linear features representing the tramway link from Bittangabee Store House and the Green Cape Lightstation. An assessment of the level of heritage significance for each site located within the proposed impact area for the proposal is included in the historic heritage report (Appendix J).

5.20 Vegetation of cultural landscape value

There is no known vegetation of cultural landscape value or plant of resource significance to the local Aboriginal people within or adjacent to the proposal area.

5.21 Recreation values

Ben Boyd National Park is used for recreation activities, including bushwalking, whale watching, birdwatching, camping, swimming, surfing, fishing and boating. The existing Light to Light Walk is of particular interest to visitors as this bushwalk encounters the park's many natural and historical sites. Throughout the park there are numerous other bushwalks ranging in length and grade allowing for a range of tourist activity.

Several locations in or adjacent to the park's southern sector have widely known recreation value. Pulpit Rock is an important site for land-based game fishing as it is relatively close to the continental shelf. Green Cape is well known for whale watching, scuba diving and snorkelling as it has deep water immediately offshore and has sheltered sites in most wind conditions. Heathland is popular for birdwatching and during the spring bloom.

Saltwater Creek and Bittangabee campgrounds are very popular as they provide opportunities for basic camping in a natural setting, a different experience to caravan parks in nearby towns. Although less popular, remote camping is also currently possible at Mowarry Point and Hegartys Bay.

The proposal site is in the vicinity of a number of popular areas used for recreational activities including:

- Boyds Tower
- Leather Jacket Bay
- Mowarry Point
- Saltwater Creek
- Hegartys Bay
- Bittangabee Bay
- Pulpit Rock
- Green Cape.

5.22 Scenic and visually significant areas

The scenic quality of the Ben Boyd National Park is outstanding, with multiple accessible lookout locations along the coastline. The park is popular with tourists who visit to admire the cultural heritage, historic architecture, natural beauty, and interesting geological formations. The park contains open and closed forested areas progressing to coastal heathland, sand dunes, creeks, beaches and cliff faces, offering a vast range of aesthetically appealing scenic landscapes. The range of native Australian flora and fauna in this landscape is perceived with admiration.

The Light to Light Walk provides one of few opportunities in the NSW Far South Coast for extended walking along a natural coastline.

5.23 Education or scientific values

Highly significant scientific research has been conducted in the park across a range of disciplines. This includes pioneering research in botany, ecology, geology and

geomorphology. The scientific importance of the fossil sites within Ben Boyd National Park is high, as intermediate fossils such as the Devonian era fish are uncommon.

Of particular significance are the fish fossils found in several places along the coastline. The fossils are of a previously unknown species of air-breathing, lobe-finned bony fish, up to 1.5 m long and a plate-covered fish now entirely extinct. They appear to be the remains of schools of fish trapped in mud after drying out of a delta/floodplain system during the Devonian period (360 million years ago). The fossils are of international scientific significance. They are a relic of the era when marine animals were just beginning to leave the ocean to evolve into land-dwellers. These are vulnerable to damage and their locations have not been publicised.

Public education and interpretation facilities have been integrated throughout the national park to assist visitors in understanding, appreciating and protecting the park's values. The Aboriginal Culture Camp at Haycock Point is often visited by school groups to encourage education on the history of the park, the local Aboriginal heritage and traditions and the natural environment. School groups use the Bournda Education Centre and camping sites frequently. The existing Light to Light Walk is undertaken by several school groups each year.

The park is used for educational visits by schools and tertiary institutions, community organisations and individuals. It provides opportunities for study of coastal processes, ecology, threatened animal species, Aboriginal and historic sites and the environmental impact of recreational use.

5.24 Interests of stakeholders

5.24.8 Internal stakeholders

The department's Environment and Heritage Group are a key internal stakeholder group, as the proposed works would occur within the Ben Boyd National Park. Environment and Heritage Group and specialist branches within NPWS have been consulted on the key environmental aspects to ensure the park's values are protected and that the proposal is carried out according to these values.

5.24.9 External stakeholders

Several external stakeholders have an interest in Ben Boyd National Park. A reference group has been formed consisting of local groups and other government departments. The purpose of the reference group is to ensure the views and issues from a broad section of the community are considered in relation to the Light to Light Walk Upgrade project. The group will include representatives from a broad range of local and regional stakeholder groups and organisations. Participation in the group is voluntary. The group will be a key consultative body for the project and will support the project by providing input and advice to NPWS based on sound information about social, cultural, economic and environmental values.

Many members of the public that use the national park, the Light to Light Walk and accommodation facilities for recreational purposes as well as commercial operators, have an interest in the proposal. These people have been engaged through the plan of management amendment process and through regular project updates.

The proposed works are in the interest of these stakeholders as it would improve the safety and quality of the Light to Light Walk track by providing additional accommodation options and introducing an improved experience. The proposed works would also provide economic benefits to local stakeholders as a result of increased visitors to the region to undertake the walk.

Consultation has been undertaken with these stakeholders and is summarised in Section 4.

5.25 Matters of national environmental significance

The EPBC Act identifies 7 matters of national environmental significance. These include World Heritage properties, National Heritage places, Ramsar wetlands of international significance, nationally listed threatened species and ecological communities, listed migratory species, Commonwealth marine areas and nuclear actions. A search of the EPBC databases for items of national environmental significance was conducted to identify significant features within a 10 km radius of the proposed works. A summary of the results is included in Table 18.

Table 18 EPBC matters of national environmental significance (Tab 5-6)

Matters of national significance	Results	Comment
World Heritage properties	None	Not applicable
National Heritage places	None	Not applicable
Wetlands of international importance	None	Not applicable
Great Barrier Reef Marine Park	None	Not applicable
Commonwealth marine areas	None	Not applicable. Proposed works area not within marine environment
Threatened ecological communities	3	Not applicable. There are no TECs within the study area
Threatened species	69	Threatened species have been assessed for potential impact in Section 6.3 and Appendix B. Impacts are not considered likely to be significant for any EPBC Act listed species
Migratory species	50	Migratory species have been assessed for potential impact in Section 6.3 and Appendix B. Impacts are not considered likely to be significant for any EPBC Act listed species

6. Impact assessment

6.1 Assessment summary

The environmental issues relevant to the proposal were reviewed in light of potential impacts, site values and planning requirements. Key issues were identified based on potential impact from the proposed activities, considering the nature of potential impact, the likelihood of impact and the sensitivity of the local environment. The impact assessment approach is consistent with AS/NZ ISO 14004:2004 (Environmental Management Systems) and AS/NZ ISO 13000:2009.

A summary of key impacts for each activity is provided below and categorised as low, moderate and high impact. The key and definitions for each category are in Table 19.

Environmental impacts and analysis for the site is outlined in Table 20.

Table 19 Environmental constraints (6-1)

Constraint	Definition
Low	Minimal impacts are anticipated. Most suitable for development. Standard management protocols would be sufficient to manage any impacts. Least cost for assessment and management of constraints.
Moderate	Impacts should be minimised, where possible. These areas may require specific management protocols and may add some cost and time to the assessment and approval process.
High	Avoid if possible. These areas will be difficult, expensive or may not be possible to obtain approval to develop. They may require costly additional surveys to understand and manage impacts. They may impact the ability to obtain a timely approval and may affect the assessment pathway.

Table 20 Impact assessment summary by activity and location (6-2)

With the mitigation adopted in Sections 6.1 to 6.9, all activities are considered manageable; no high constraints result. This table assists to separate out the activities requiring more focus through detailed design and construction.

Activity	Activity location	Physical and chemical impacts	Biological impacts	Community impacts	Natural resource impacts	Aboriginal cultural heritage impacts	Other cultural heritage potential impacts
1	New walking track: Boyd Tower to Green Cape (installation of wayfinding, directional and interpretative signs)	Moderate	Moderate (with avoidance of specific features the impact is acceptable)	Low	Low	Moderate (with specific permits and salvage mitigation)	Moderate
	Reinstatement of bushfire-impacted track sections	Low	Low	Low	Low	Low	Low
	Maintenance of existing sections of track that were not bushfire-impacted or are not identified for realignment	Low	Low	Low	Low	Low	Low
	Rehabilitation and revegetation of redundant track sections	Low	Low	Low	Low	Moderate	Moderate
2	New hut accommodation and facilities at Mowarry Point	Moderate	Low	Moderate	Low	Moderate	Moderate
	Formalisation of the existing camping area at Mowarry Point	Moderate	Low	Moderate	Low	Moderate	Moderate
	New hut accommodation and facilities at Hegartys Bay	Moderate	Low	Moderate	Low	Moderate	Moderate

Light to Light Walk: review of environmental factors for walk upgrade

Activity	Activity location	Physical and chemical impacts	Biological impacts	Community impacts	Natural resource impacts	Aboriginal cultural heritage impacts	Other cultural heritage potential impacts
3	Maintenance of Hegartys Bay Vehicle Access Trail (including compound)	Moderate	Low	Low	Low	Moderate	Low
	Upgrade of Hegartys Bay Access Track for ATV, e-bike, trolley (along boardwalk from compound to Hegartys Bay accommodation area)	Moderate	Low	Low	Low	Moderate	Low
	Upgrade of the Pulpit Rock car park precinct (including adjusting turning circle and parking)	Moderate	Low	Low	Low	Moderate	Low

6.2 Physical and chemical impacts during construction and operation

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
<p>1. Is the proposal likely to impact on soil quality or land stability?</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>All activities</p> <p>Medium negative (short term)</p> <p>Medium positive (long term)</p>	<p>All activities</p> <p>Excavation and vegetation removal during the construction phase would cause soil disturbance and expose soils to erosive forces. Impacts to soil quality and land stability would be medium to short term. Management would focus on measures that address the erodibility of the soils, slopes and sensitivity of the potential receiving environments.</p> <p>Potential contamination as a result of fuel spills or concrete that will be mixed and used on site during construction could occur, however, is considered low, with the implementation of appropriate mitigation measures and minimal work required.</p> <p>Compaction of soils from the transport and storage of equipment and materials would be minor as storage would occur in disturbed areas and structural components would be assembled off site where possible and delivered to site by helicopter.</p> <p>A detailed geological assessment has been undertaken and the proposal altered in places to avoid areas of geological instability.</p> <p>Soil protection measures are also directly relevant to protection of vegetation and flora and fauna habitat and additional measures have been included to address this risk.</p>	<p>All activities</p> <ul style="list-style-type: none"> • A soil and water management plan (SWMP) must be prepared by the work contractor(s) and approved by NPWS. The SWMP will be adapted as works progress and a number of plans prepared to manage the discrete sections and types of works. • Soil disturbance will be minimised by clearly demarcating the works footprint and marking all other areas as no-go zones prior to works. • Clearing and excavation works will not be conducted during high rainfall periods. The weather will be monitored during the proposed works period and works will cease, and open areas will be stabilised, if heavy rainfall is forecast. • Erosion and sediment control measures are to be implemented and maintained to: <ul style="list-style-type: none"> ○ prevent sediment moving off site and sediment-laden water entering any water course, drainage lines, or drain inlets ○ reduce water velocity and capture sediment on site ○ minimise the amount of material transported from site to surrounding pavement surfaces ○ divert clean water around the site in accordance with the <i>Managing urban stormwater: soils and construction - volume 1, 4th edition</i> (Landcom 2004,

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
		The mitigation measures presented in this REF are considered sufficient to manage these risks.	<p>also known as the 'blue book') prior to any vegetation clearing and site levelling until runoff catchments are stabilised</p> <ul style="list-style-type: none"> ○ sediment controls will be inspected regularly by the relevant contractor and by NPWS staff ○ sediment control measures will also be in place for the storage of any spoil as required. ● Vehicle use and material laydown will be restricted to existing or proposed disturbed areas. ● All areas disturbed by works will be progressively stabilised and rehabilitated to ensure stable surfaces are obtained as soon as practical (progressively where possible). ● Spill kits will be stored in both chemical storage locations and designated refuelling areas. ● No concrete washout will occur on site unless in a purpose-built washout facility.
<p>Activity 1 Medium negative (short term) High positive (long term)</p>	<p>Activity 1 <i>Construction</i> Track realignment impact areas would be restricted to the track corridor and tread width. Compaction of soils from the use of a mini excavator to form the proposed walking track would be minor and would aid in establishing a hard tread surface reducing erosion in operation. Some minor regrading of compacted soil may be required to assist with revegetation. It is unlikely</p>	<p>Activity 1</p> <ul style="list-style-type: none"> ● The track set-out and footing locations will take into account the topography and erosive nature of soils on the site. ● Impacts to geological formations will be designed to have minimal impact and appear natural in design. 	

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
		<p>that there would be any adverse impact to soil quality and land stability.</p> <p>Impacts on geological conditions during construction would include cutting, grinding, drilling and removal of Devonian rock in some areas for track realignment.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p> <p><i>Operation</i></p> <p>The proposed new walking track would have a positive long-term impact on soil quality and land stability, with an operational impact width of 1–1.5 m.</p> <p>The proposed works would formalise walking tracks, fix existing tracks in poor condition or bushfire-damaged and move away from eroding areas where possible, thereby reducing ongoing disturbance and landform instability.</p>	
	<p>Activity 2 Medium negative (short term) Low negative (long term)</p>	<p>Activity 2 <i>Construction</i></p> <p>The accommodation designs have been developed to require as little ground disturbance as possible with footings to utilise ground screws instead of concrete slab or other excavated foundations. Impact of compaction of soil during construction is considered low.</p> <p>For the most part, modular building, materials and other components would be transported to the sites by helicopter.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<p>Activity 2</p> <ul style="list-style-type: none"> • Clearing and ground disturbance within the hut accommodation and camping areas must be restricted to the minimum necessary to carry out the work. • Vehicle movements must not exceed 4 light vehicles and 2 trucks per day during the construction period.

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
		<p><i>Operation</i></p> <p>The proposed hut accommodation, camping area and facilities would have a positive long-term effect on the environment by reducing the impact to soil stability through the removal of informal camping areas that currently do not have any facilities.</p>	
	<p>Activity 3</p> <p>Medium negative (short term)</p> <p>High positive (long term)</p>	<p>Activity 3</p> <p><i>Construction</i></p> <p>Road works associated with the maintenance of Hegartys Bay Vehicle Access Trail, as well as constructing a compound, would expose soils. Other works associated with Activity 3 would also lead to soil exposure with potential for erosion during construction.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p> <p><i>Operation</i></p> <p>The proposed maintenance would have a positive long-term impact on soil quality and land stability for the vehicle access trail and the boardwalk to Hegartys Bay. The proposed works at Pulpit Rock would improve car parking and turnaround areas, reducing the amount of soil disturbance and potential for erosion.</p>	<p>Activity 3</p> <ul style="list-style-type: none"> • All works to conform to <i>Erosion and sediment control on unsealed tracks</i> (OEH 2012)
<p>2. Is the activity likely to affect a water body, watercourse, wetland or natural drainage system?</p>	<p>All activities</p> <p>Low negative (short term)</p> <p>High positive (long term)</p>	<p>All activities</p> <p>Potential contamination risks from hydrocarbons and other products entering waterways during construction exist. This impact potential is low with the appropriate mitigation measures.</p>	<p>All activities</p> <ul style="list-style-type: none"> • All chemicals (fuels, concrete) will be stored in impervious bunded areas located at least 40 m from waterways and in accordance with manufacturer's instructions.

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<p>Ground disturbance would occur as a result of proposed works. This would result in increased potential for erosion and sediment-laden runoff if not managed properly.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<ul style="list-style-type: none"> • Refuelling will be in accordance with manufacturer’s instructions and will only be in designated refuelling areas which are bunded and at least 40 m from waterways. • Contractors are to have, and be competent in the use of, petrochemical spill kits for use of any spillage during the construction. The NPWS is to be notified of any spills and the action taken to contain them. • All machinery is to be free from any fuel and other pollutant residues, with connections and hoses inspected regularly. • Track mats or similar will be utilised for machinery access over sensitive areas. • Avoid use of natural surface trails in proximity to waterways to minimise sediment runoff. • Temporary watercourse crossings will be designed to minimise impacts on hydrology, aquatic habitat and fauna by: <ul style="list-style-type: none"> ○ maintaining low-flow conditions ○ being designed with consideration of the potential for flooding during construction ○ be removed and the area rehabilitated following completion of construction ○ these crossings will take into consideration the requirements of the FM Act and <i>Policy and guidelines for fish habitat conservation and management</i> (DPI 2013).

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
	<p>Activity 1 Medium negative (short term) High positive (long term)</p>	<p>Activity 1 <i>Construction</i> The works (including movement of earth and imported material and vegetation clearing) would be undertaken in the vicinity of a number of drainage lines throughout the walking track realignment footprint. The mitigation measures presented in this REF are considered sufficient to manage these risks. <i>Operation</i> The upgraded Light to Light Walk will better manage surface water runoff and have less erosion and fewer maintenance requirements than the current track.</p>	<p>Activity 1</p> <ul style="list-style-type: none"> Structural components will be assembled off site where possible and delivered to work sites by helicopter. Avoid use of natural surface trails in proximity to waterways to minimise sediment runoff.
	<p>Activity 2 Low negative (short term) High positive (long term)</p>	<p>Activity 2 Works associated with construction of hut accommodation areas, camping area and facilities may temporarily impact on drainage lines within and adjacent to the precincts during construction. For the most part, modular building, materials and other components would be transported to the sites by helicopter and vehicle movements to the precincts minimised. The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<p>Activity 2</p> <ul style="list-style-type: none"> Building modules will be assembled off site where possible and delivered to precincts by helicopter. Drainage lines within and adjacent to the accommodation areas must be demarcated and assigned as no-go zones during construction.
	<p>Activity 3 Low negative (short term) High positive</p>	<p>Activity 3 <i>Construction</i> The installation of a mesh boardwalk / gravel path from the end of the Hegartys Vehicle Access Trail to the accommodation area would cross an</p>	<p>Activity 3</p> <ul style="list-style-type: none"> Work must not be undertaken on the mesh bridge during high flow conditions.

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
	(long term)	<p>ephemeral drainage line to the south of the accommodation. This would require construction of a mesh bridge to cross the drainage line with some footings being located within the waterway.</p> <p>Other potential construction impacts on waterways in proximity of work associated with Activity 3 include sediment runoff and any chemical or fuel spills and flow into larger waterways or coastal waters.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<ul style="list-style-type: none"> • Footings locations for mesh bridge must be cleared of all excess material prior to completion. • Structural components associated with the mesh boardwalk must be assembled off site where possible and incrementally installed to minimise disturbance.
<p>3. Is the activity likely to change flood or tidal regimes, or be affected by flooding?</p> <p>Applicable?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p>	N/A	<p>This proposal does not include construction in flood or tidal areas and will not alter flood or tidal regimes or be impacted by flooding.</p>	NA
<p>4. Is the activity likely to affect coastal processes and coastal hazards, including those projected by climate change (e.g. sea level rise)?</p> <p>Applicable?</p>	<p>Activity 1</p> <p>Low negative (long term)</p>	<p>Activity 1</p> <p>The new walking track alignment will, in places, be constructed close to the cliff edge. In some locations the proposed walking track is in steep locations where there is a risk of rock fall. Coastal erosion may affect the longevity of the path into the future, particularly in areas of sandstone and mudstone. A detailed geological assessment has been undertaken to avoid active geological and coastal locations.</p>	<p>Activity 1</p> <p>NA</p>

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Activity 2 Low negative (long term)	The mitigation measures presented in this REF are considered sufficient to manage these risks. Activity 2 The activity is unlikely to be affected by coastal processes and coastal hazards, including those projected by climate change.	Activity 2 NA
	Activity 3 Low negative (long term)	Activity 3 The activity is unlikely to be affected by coastal processes and coastal hazards, including those projected by climate change.	Activity 3 NA
5. Does the activity involve the use, storage, or transport of hazardous substances or the use or generation of chemicals, which may build up residues in the environment? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All Activities Low negative (short term) Low negative (long term)	All activities Fuels would be required for the operation of equipment and machinery for all activities and there is a low possibility of a spill during refuelling activities or a leak that could cause a pollution event. Fuels and other chemicals will be stored at the accommodation areas in purpose-built storage modules during operation. However, there is potential for spills to occur in the operation phase. The mitigation measures presented in this REF are considered sufficient to manage these risks.	All activities <ul style="list-style-type: none"> • All chemicals (fuels, concrete) will be stored in impervious bunded areas located at least 40 m from waterways and in accordance with manufacturer's instructions. • An emergency spill kit is to be kept on site at all times. All staff are to be made aware of the location of the spill kit and trained in its use. • All plant, machinery, tools and fuel storage must be in good working order and regularly checked for leaks. • No concrete washout will occur on site unless in purpose-built washout facility. • Dedicated fuel and other chemical stores must be included in the accommodation areas' design.

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
<p>6. Does the activity involve the generation or disposal of gaseous, liquid or solid wastes or emissions?</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>All Activities</p> <p>Low negative (short term)</p> <p>Low negative (long term)</p>	<p>All activities</p> <p>The proposed works would generate waste including mulch from vegetation removal and material offcuts.</p> <p>Only a small amount of exhaust emitting machinery will be used on site. Minimal liquid and solid wastes would be generated by on-site facilities as a result of construction.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p> <p>The accommodation has been designed with minimal services and utilising sustainable principles. Solid waste generation by visitors would be minimised through education and 'pack it in, pack it out' messaging. Toilet waste would be composted and transferred off-park. Other liquid waste would be treated on site. Limited solar power will be provided and restricted only to lighting of the communal hut, charging points and the staff hut. No power would be provided to the accommodation huts, to remove the need for a supply generator.</p>	<p>All activities</p> <ul style="list-style-type: none"> • Resource management hierarchy principles are to be followed in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i>: <ul style="list-style-type: none"> ○ avoid unnecessary resource consumption as a priority ○ avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery) disposal is undertaken as a last resort • Materials, including mulch and vegetation waste, will be reused on site where possible. • Wastes not reused on site will be taken to an appropriate licensed facility able to accept the waste. • Construction staff will remove litter brought to the site. • Machinery will be well maintained and not left idling.
<p>7. Will the activity involve the emission of dust, odours, noise, vibration or radiation in the proximity of residential or urban areas or other sensitive locations?</p>	<p>All activities</p> <p>Low negative (short term)</p>	<p>All activities</p> <p>The proposal would require the movement of machinery, excavations and increased traffic during the construction period. This would be temporary for the duration of the works. The use of helicopters to transport infrastructure to the site would cause short-term noise, pollution and visual impacts. The construction of new track sections</p>	<p>All activities</p> <ul style="list-style-type: none"> • Ensure machinery used is well maintained and in good working order. • Construction noise to be minimised during peak visitation periods. • Dust suppression techniques to be implemented if required.

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/Mitigation measures
Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		that are close to existing sections may impact visitors as they encounter work locations. There are no permanent residential receivers within the vicinity of the proposed works. In operation the track will require ongoing maintenance with low noise and pollution impacts. The mitigation measures presented in this REF are considered sufficient to manage these risks.	

6.3 Biodiversity impacts during construction and operation

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<p>1. Is any vegetation to be cleared or modified? (Includes vegetation of conservation significance or cultural landscape value).</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>Activity 1 Low negative (long term)</p> <hr/> <p>Activity 2 Low negative (long term)</p>	<p>Activity 1 <i>Construction</i></p> <p>A total of 1.31 ha of native vegetation would be cleared to establish the new track sections, including track features, signs and interpretive elements. Indirect impacts of these activities would be 5 m in forested sections and 3 m in heathland. Plant community types (PCT) impacted include PCT 721, 772, 777, 891, 1084, 1141 and 1157. This includes areas that support threatened species habitat. No communities that meet the definition of a threatened ecological community would be impacted.</p> <p>The linear nature proposed and potential to mitigate impacts, including by rehabilitating redundant sections of trail, are considered to somewhat offset the impact.</p> <p>The proposal consists of a 30 m wide track corridor to allow for micro-siting adjustments to be implemented where habitat trees or other valuable habitat features are identified during the pre-clearing process. The maximum width of this corridor will be utilised around habitat trees to ensure the greatest distance between the track and tree is implemented.</p> <hr/> <p>Activity 2 <i>Construction</i></p> <p>A total of 1.22 ha of native vegetation would be cleared, consisting of PCTs 721 and 891. This</p>	<p>All activities</p> <ul style="list-style-type: none"> • A biodiversity management plan (BMP) will be created and include: <ul style="list-style-type: none"> ○ pre-clearing protocol (including avoidance and micro-siting requirements around habitat features) ○ exclusion zones or other means to clearly demarcate proposal boundaries and protect the adjacent vegetation from clearing or vehicle traffic ○ re-establishment of native vegetation – species, area and method ○ clearing of native vegetation and removal of bush rock (including staged removal of habitat features) ○ unexpected threatened species finds ○ protection of native vegetation, aquatic habitats and riparian zones ○ weed and pathogen management ○ pest management actions and procedures ○ best practice removal and disposal of vegetation ○ rehabilitation of disturbed areas and discontinued tracks ○ develop pre- and post-construction predator monitoring program which utilise the existing Saving Our Species and

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
Activity 3 Low negative (long term)	<p>Activity 3 <i>Construction</i></p> <p>A total of 0.30 ha of native vegetation would be cleared, consisting of PCTs 1157, 721, 777 and 1141. This includes areas that support threatened species habitat. No communities that meet the definition of a threatened ecological community would be impacted.</p> <p>The clearing required for this activity would be carried out to create the compound at the end of Hegartys Vehicle Access Trail, the construction of the Hegartys Bay Access Track (boardwalk/gravel path) from the compound to Hegartys Bay hut accommodation area and the upgrade to the Pulpit Rock car park.</p>	<p>includes areas that support threatened species habitat. No communities that meet the definition of a threatened ecological community would be impacted.</p> <p>The designs minimise disturbance and clearing wherever possible, including by using areas already disturbed, minimal building footprints and minimal APZs. At Hegartys Bay, some short-lived post-bushfire establishing species, primarily black wattle (<i>Acacia mearnsii</i>) and <i>Melaleuca armillaris</i>, that can be hazardous due to falling limbs may be thinned to hasten the end state ecological conditions.</p>	<p>Environmental Trust monitoring and control measures for foxes and cats and add additional monitoring and control measures as necessary, in a manner that will not further endanger native species, in particular the spotted-tail quoll and small mammals</p> <ul style="list-style-type: none"> ○ develop an ongoing monitoring program for various threatened species including long-nosed potoroo and southern brown bandicoot to monitor their populations ○ clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; all groundwork associated with construction and operation of the walking track elements of the proposed activity will be carried out by hand, handheld tools and plant e.g. chainsaws and brush cutters, and a mini excavator if required and with prior approval by the NPWS. Larger machinery may be used for works associated with Activity 2 and Activity 3 ○ the detailed design and construction planning has demonstrated it has minimised the extent of clearing within the development footprint, and avoided heath habitat, the loss of known threatened species, hollow-bearing trees, and essential habitat features ○ use existing tracks where possible to limit the extent of clearing

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
			<ul style="list-style-type: none"> ○ utilise areas already impacted by previous clearing or disturbance for access purposes, stockpiles or the establishment of compound sites. No stockpiling or storage within dripline of any mature trees ○ if clearing of vegetation is required outside the development footprint, these areas will need to be assessed as an addendum to this REF ○ trees to be retained, including trees adjacent but outside of the development footprint, require an adequate tree protection zone (TPZ) for the duration of works – details for calculating TPZs are provided within <i>Australian Standard 4970-2009 – Protection of trees on development sites</i> ○ if the TPZ cannot be avoided during works, the structural root zones (SRZ) of trees will be retained – details for calculating the SRZs are provided within <i>Australian Standard 4970-2009 – Protection of trees on development sites</i> ○ training will be provided to all project personnel, including relevant subcontractors on site; training and site briefing to communicate environmental features to be protected and measures to be implemented ○ undertake site induction and toolbox talks for ecologically sensitive areas. ○ landscape plantings will be comprised of local indigenous species that represent the PCT mapped on site. If seed can be

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<p>2. Is the activity likely to have a significant effect on threatened flora species, populations, or their habitats, or area of outstanding biodiversity value (refer to threatened species assessment of significance (5-part test))? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>All activities Low negative (long term)</p>	<p>All activities Initially, no threatened flora species were recorded within the study area or identified during the field surveys. However, there are historical records and/or potential habitat within the study area for 3 threatened flora species. These species are:</p> <ul style="list-style-type: none"> • leafless tongue orchid (<i>Cryptostylis hunteriana</i>) – BC Act and EPBC Act • hidden violet (<i>Viola cleistogamoides</i>) – BC Act • matted bush pea (<i>Pultenaea pedunculata</i>) – BC Act. <p>A single leafless tongue orchid was found at the beginning of the Hegartys Vehicle Access Trail in December 2021 with the assistance of a member</p>	<p>obtained and propagated locally it may assist in growing endemic populations of plants and contribute towards using locally native species for regeneration</p> <ul style="list-style-type: none"> ○ minimise disturbance of groundcover vegetation during the construction of the walking track and other activities. Clearing of groundcover for Activity 1 will not exceed the 1–1.5 m track width and drains ○ if clearing of vegetation is required outside the development footprint, these areas will need to be assessed as an addendum to this REF ○ ensure stockpiles and equipment do not encroach into adjoining areas and allocate sites prior to clearing in BMP. <p>All activities</p> <ul style="list-style-type: none"> • Maintenance activities on Hegartys Vehicle Access Trail must not be undertaken during leafless tongue orchid flowering period (November to January).

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>of the public following the draft REF public exhibition process.</p> <p>Considering the availability of potential habitat and the cryptic nature of these threatened flora species, tests of significance (BC Act) and assessments of significance (EPBC Act) were undertaken.</p> <p>The results of the assessments found that in the unlikely event one of the assessed species were detected within the study area, the low impacts associated with the proposal would not have an adverse effect on viable local populations or species' lifecycles.</p>	
<p>3. Does the activity have the potential to endanger, displace or disturb fauna (including fauna of conservation significance) or create a barrier to their movement?</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>All activities</p> <p>Low negative (long term)</p>	<p>All activities</p> <p>The proposal would include the disturbance of habitat favoured by some threatened fauna species. In addition to loss of habitat, potential indirect impacts include: over clearing, predation by feral animals, displacement of resident fauna through vegetation clearing and habitat removal, loss of shade/shelter, reduction in viability of adjacent habitat due to edge effects, erosion, introduction and spread of noxious weeds and pathogens, disturbance to marine mammals (i.e. seals), displacement of resident fauna through increased human activity, and disturbance to marine mammals (i.e. seals) due to an increase in human activity.</p> <p>Refugia, such as rocky outcrops or mosaics of unburnt habitat play an important role in survival and how post-fire recovery proceeds. For animals, high-intensity fire can increase predation by</p>	<p>All activities</p> <ul style="list-style-type: none"> • Pre-clearing surveys will be carried out by an ecologist to identify any threatened flora and fauna species, and specific habitat features that may be impacted by construction works. Habitat features of threatened species will be targeted during pre-clearing surveys so that they can be avoided during construction. These include: <ul style="list-style-type: none"> ○ hollow-bearing trees ○ glossy black-cockatoo feed trees ○ quoll denning habitat and latrine sites ○ active nests (woodland birds including dusky woodswallow and flame robin) ○ yellow-bellied glider feed trees ○ rocky outcrops ○ thick groundcover (to 1 m high) and thick shrubs/midstory (1–10 m high)

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>invasive and native species, and fox and cat densities have been shown to increase in the weeks to months following fires.</p> <p>Pre-clearance surveys and mitigation measures which address minimisation of impacts from construction designs to address edge effects have been included to further reduce risks.</p>	<ul style="list-style-type: none"> ○ vegetation within accommodation areas (Activity 2). ● Pre-clearance surveys need to be conducted for all ground-dwelling mammals listed in the test of significance including required methodology and appropriate timing for survey. Ensure pre-clearance survey is conducted by a fauna ecologist one day prior to clearing for striated fieldwren, eastern bristlebird and eastern ground parrot. ● Where pre-clearing surveys of eastern ground parrot cannot be undertaken due to site constraints or staff safety considerations, clearing must not occur during breeding season (September to December) in PCTs 1141, 721 and 891 which form eastern ground parrot habitat. ● If any glossy black-cockatoo feed trees are encountered during pre-clearing surveys, these will be retained. ● Monitoring: The results of the targeted small mammal surveys constitute a valuable and useful baseline study of this biodiversity asset along the walking track corridor. The results will be used to plan monitoring and management activities such that the biodiversity asset is maintained and where possible enhanced. ● Avoid the removal or disturbance of shelter/denning habitat such as woody debris, fallen logs, burrows in the ground, dense shrubs, rock crevices and bush rocks during the construction of the walking track.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
			<p>Preconstruction surveys to detect shelter/denning habitat will be conducted by an experienced ecologist.</p> <ul style="list-style-type: none"> • If active nests of threatened bird species are encountered during preconstruction surveys, the site should be identified and works should not be conducted within 200 m of the tree during the optimum breeding season for the species identified. • If an active threatened owl nest is detected, works within 200 m of the nest tree should only be undertaken outside the breeding season of the species to avoid impacting the lifecycle of species involved. • Clear management measures must be set in place for the continuing maintenance to avoid and minimise impacts on breeding habitat of hollow-dependent forest owls. • As part of continuing maintenance, clear management measures will be set in place to avoid and minimise impacts on breeding habitat and foraging habitat for threatened species (owls, parrots, small woodland birds, heathland birds, bats, arboreal mammals and quolls). • Information on the threatened species within the locality will be included in the induction process for applicable personnel. • An unexpected threatened fauna or flora procedure will be developed and if species are discovered, works will stop immediately, and the environment manager notified. An ecologist will then be engaged to determine

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
			<p>management actions to avoid or mitigate any potential impact.</p> <ul style="list-style-type: none"> • NPWS staff training and public signage (including multilingual messaging) must communicate the importance of remaining on existing tracks, and leaving no trace while in the national park. • Ensure all stockpiles and machinery parking bays are confined to the areas directly impacted by works. • Ensure all staff and visitors to the park are aware of laws regarding approaching marine mammals (in this case seals) in accordance with the Biodiversity Conservation Regulation 2017 (clause 2.3). • Avoid the removal or modification of any hollow-bearing or mature trees (DBH >50 cm) found during pre-clearance surveys in the design and construction of all 3 activities. • Avoid the removal of dead stags. • Avoid and minimise disturbance of eastern pygmy possum shelter/denning habitat (woody debris, stumps, hollow logs and dense shrubs) during construction and operation. • If any yellow-bellied glider feed trees are found during construction, these will be retained. • Preconstruction surveys must be carried out to inspect for breeding suitability/denning

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<p>4. Is the activity likely to have a significant effect on threatened fauna species, or their habitats, or areas of outstanding biodiversity value (refer to threatened species assessment of significance (5 part test))?</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>All activities</p> <p>Low negative (long term)</p>	<p>All activities</p> <p>The receiving environment contains habitat for several threatened fauna. However, the threatened species assessments outlined in Section 5.14.2 and provided in the biodiversity assessment report (Appendix B) conducted for these identified species found that it is unlikely that impacts from the proposed activities will be significant.</p> <p>This conclusion was reached through the consideration of the impacts of the 2019–20 bushfire, suitable breeding and foraging habitat in adjoining habitat remains in some areas, and the limited loss of foraging, nesting, roosting and denning resources caused by the proposal. More mobile species (e.g. birds and bats) are unlikely to rely on burnt areas of the site until vegetation exhibits substantial recovery. However, recovery within 10 months was evident, therefore by the time construction begins, habitat for flora and fauna species at the subject site and in adjacent</p>	<p>structures and communal latrine sites and allow for avoidance of these features.</p> <ul style="list-style-type: none"> • Avoid the removal or modification of bush rocks, large fallen logs and other coarse woody debris in the design and construction of the 3 activities. • Noisy machinery should only be used outside of the breeding season for species involved to minimise impacts on the lifecycle of the species. <p>Activity 1</p> <ul style="list-style-type: none"> • Avoid the removal or disturbance of shelter/denning habitat such as woody debris, fallen logs, burrows in the ground, dense shrubs, rock crevices and bush rocks during the construction of the walking track. • Any fallen timber and dead wood encountered within the development footprint will be left in situ wherever possible or would be relocated to adjacent areas (within the buffer area) of similar habitat to aid in habitat enhancement. • If rock removal is unavoidable it is to be removed with suitable machinery so as not to damage the underlying rock or result in excessive soil disturbance.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		areas of the national park are likely to be extensive.	
5. Is the activity likely to impact on an ecological community of conservation significance? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All activities N/A	All activities No endangered ecological communities (EECs) were observed during the field.	No additional measures.
6. Is the activity likely to have a significant effect on an endangered ecological community or its habitat (refer to threatened species assessment of significance [5 part test])? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All activities N/A	All activities No EECs were observed during the field work and no 5-part tests have been undertaken. The proposal would not significantly impact any EEC.	No additional measures.
7. Is the activity likely to cause a threat to the biological diversity or ecological integrity of an ecological community? Applicable? <input checked="" type="checkbox"/> Yes	All activities Negligible	All activities The diversity and integrity of the local area are not anticipated to be impacted. Mitigation measures aimed at limiting the works footprint and managing risks to ecological communities ensure this risk is manageable.	All activities <ul style="list-style-type: none"> • All machinery will be free from any fuel and other pollutant residues, with connections and hoses inspected regularly. • Contractors will have, and be competent in the use of, petrochemical spill kits for use of any spillage during the construction. The

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<input type="checkbox"/> No			<p>NPWS will be notified of any spills and the action taken to contain them.</p> <ul style="list-style-type: none"> • Temporary watercourse crossings will be designed to minimise impacts on hydrology, aquatic habitat and fauna by: <ul style="list-style-type: none"> ○ maintaining low-flow conditions ○ being designed with consideration of the potential for flooding during construction ○ be removed and the area rehabilitated following completion of construction ○ these crossings will take into consideration the requirements of the FM Act and <i>Policy and guidelines for fish habitat conservation and management</i> (DPI 2013).
<p>8. Is the activity likely to introduce noxious weeds, vermin, feral species or genetically modified organisms into an area?</p> <p>Applicable?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>All activities Low negative (long term)</p>	<p>All activities The establishment of additional tracks and precinct work could encourage pests, weeds and pathogens into areas where they currently do not occur. Mitigation measures include weed, pathogen and pest plans to monitor and manage these impacts.</p>	<p>All activities</p> <ul style="list-style-type: none"> • Monitoring actions as well as a plan of management will be developed to manage waste ingress (especially food waste) into surrounding habitat in relation to Hegartys Bay and Mowarry Point new hut accommodation and camping areas. • Project-specific pest management actions will be detailed in the BMP, and will be appropriately funded and based on the principles of adaptive management. The plan should include provisions for monitoring (e.g. camera traps to detect feral predator densities), evaluation and the use of control strategies through baiting or other means, where appropriate.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
			<ul style="list-style-type: none"> • A weed and pathogen management procedure would be developed for the proposal. This would include: <ul style="list-style-type: none"> ○ management protocol for declared priority weeds under the <i>Biosecurity Act 2015</i> during and after construction ○ weed hygiene protocol in relation to plant, machinery and fill ○ any occurrences of pathogens such as myrtle rust and <i>Phytophthora</i> would be monitored, treated and reported ○ avoid all use of foreign soil matter for landscaping/mulching. Always use matter from in situ ○ install disinfecting facilities – wash-down bays, footbaths and/or scrubbing stations at primary entrance/exit points for both vehicles/machinery and foot traffic ○ in priority locations (heath habitat), install signage (e.g. 'Stay on marked tracks') to reduce off-track disturbance and elevate or divert walking tracks to minimise contact with soil, particularly in locations that have the potential to become muddy ○ the procedure will be incorporated into the biodiversity management plan ○ confine all stockpiles to allocated sites for accommodation areas or previously disturbed areas.
9. Is the activity likely to affect any declared area	All activities	All activities	No additional measures.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
of outstanding biodiversity value? Applicable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	No impacts on declared lands of outstanding biodiversity value would result from the proposal.	
10. Is the activity likely to affect any joint management agreement under the BC Act? Applicable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	All activities N/A	All activities No areas of joint management would be impacted as a result of the works proposed in this REF.	No additional measures.

6.4 Community impacts during construction and operation

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
1. Is the activity likely to affect community services or infrastructure? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All activities Low negative (short term) High positive (long term).	All activities <i>Construction</i> During construction, there would be an increase in construction-associated traffic on both the public and national park road networks for the movement of construction staff, material deliveries, etc. The use of compound sites to store equipment and materials, and helicopters, will reduce the amount of deliveries required to the park each day	All activities <ul style="list-style-type: none"> • Notice of planned work schedules, including impacts to parking areas and road closures, must be advertised to the public in advance of work commencing.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>as equipment and materials can be stored within the park.</p> <p>Construction employee parking would be established within the compound sites, and staff cars would not use parking outside of the national park. Carpooling would be encouraged.</p> <p>As a result, the popular features and precincts of the park are likely to suffer some level of disruption and reduced access.</p> <p>Any disruptions as a result of construction would be short term and minimal, with work preferred during non-peak times.</p> <p>Short-term road closures may be required during the construction period. Roads may also be closed under traffic control for short periods to allow helicopters to pass overhead.</p> <p>No broader community services or infrastructure would be affected.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p> <p><i>Operation</i></p> <p>The proposed works would improve accessibility, safety and facilities in the southern sector of Ben Boyd National Park resulting in a positive outcome for community and visitors to the place. The upgraded walking track would provide a higher level of service that meets Australian and NPWS walking track standards. The accommodation areas would enable a wider group of people to experience the natural and cultural heritage values of the national park.</p>	

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
	<p>Activity 1 Low negative (short term) High positive (long term).</p>	<p>Activity 1 <i>Construction</i> Minor impacts will occur to visitors within Ben Boyd National Park during construction as a result of construction. This would be in the form of small track diversions or discrete track closures. The existing Light to Light Walk, or other tracks within Ben Boyd National Park will not be closed during construction. Roads may be closed under traffic control for short periods to allow helicopter operations or for heavy vehicle deliveries. The mitigation measures presented in this REF are considered sufficient to manage these risks. <i>Operation</i> The upgraded walking track would provide a higher level of service and would provide improved access for park users. Sections of track impacted bushfire would also be reinstated and provide improved access. Some sections would be rehabilitated and no longer be accessible to users of the national park. These would be offset by the new and reinstated sections.</p>	<p>Activity 1</p> <ul style="list-style-type: none"> • The existing track network must remain open until the new track sections are fit for use. • Rehabilitation of existing tracks to be closed must not occur until walking track realignments are completed and open to ensue uninterrupted access to walking track users.
	<p>Activity 2 Low negative (short term) High positive (long term).</p>	<p>Activity 2 <i>Construction</i> Buildings would be constructed as modules, assembled off site, and delivered by helicopter to reduce the amount of on-site construction required. Roads may be closed under traffic control for short periods to allow for helicopter</p>	<p>Activity 2</p> <ul style="list-style-type: none"> • A formalised hut accommodation and camping area booking system must be implemented. A review of its effectiveness will be undertaken within 6 months of commencement.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>operations or heavy vehicles or cranes to access stockpile locations.</p> <p>As such, the impact to users of the southern sector of Ben Boyd National Park due to construction of the precincts is considered short term and minor.</p> <p>During construction, access to the informal camping areas at Mowarry Point and Hegartys Bay will be restricted. Hegartys Bay camping area has not reopened following the 2019–20 bushfires. Day usage of these areas will not be restricted during construction.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p> <p><i>Operation</i></p> <p>Disruptions will occur to users of the existing informal walk-in camping areas at Hegartys Bay and Mowarry Point. Mowarry Point will be formalised, with designated sites and a toilet. Camping will no longer be provided at Hegartys Bay. Additional camp sites will be created at Bittangabee Bay (separate proposal) for pack-campers. Bittangabee Bay is approximately 4.5 km from Hegartys Bay and will have designated walk-in camp sites and toilet. No changes are proposed at Saltwater Creek.</p> <p>Pack-campers will have the choice to stay at the purpose-built walk-in camp sites at Mowarry Point and Bittangabee Bay; and/or the existing Saltwater Creek and Bittangabee campgrounds.</p>	<ul style="list-style-type: none"> Public camping will be formalised and maintained at Mowarry Point, independent of hut accommodation.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>School and other groups will also be able to undertake the Light to Light Walk as a tented experience in this way.</p> <p>Hut accommodation bookings would be limited to one night at each of the locations.</p> <p>On completion of the proposed upgrades to accommodation areas and infrastructure, users would have access to formalised camping areas and purpose-built accommodation.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	
	<p>Activity 3 Low negative (short term) High positive (long term)</p>	<p>Activity 3 <i>Construction</i> Site access disruptions would be temporary and limited to the construction phase for access work associated with Activity 3. Pulpit Rock may need to be closed, or temporary access arrangements installed, for a short time to allow for the new car park to be established.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p> <p><i>Operation</i> In the long term, national park users would benefit from improved car parking facilities at Pulpit Rock. Access improvements at Hegartys Bay would allow for more efficient operation of the accommodation area.</p>	<p>Activity 3</p> <ul style="list-style-type: none"> The construction environmental management plan (CEMP) will include traffic controls, signage and speed limits will be implemented for works undertaken on public access tracks.
<p>2. Does the activity affect sites of importance to local or</p>	<p>Activity 1 Low negative (short term)</p>	<p>Activity 1 <i>Construction</i></p>	<p>Activity 1</p> <ul style="list-style-type: none"> Track closures and impacts on car parks will be minimised and staged to retain public

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<p>the broader community for their recreational or other values or access to these sites?</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>High positive (long term)</p>	<p>During construction, sections of the existing track and portions of the car parks may be temporarily closed or have restricted level of service. Where possible, track diversions would be preferred to allow for the current Light to Light Walk to remain open. Impacts would be limited due to the planned staging of works across the park, with other walks open and available for visitor use.</p> <p>Other popular recreational activities would not be impacted. However, the use of helicopter for material transport will generate temporary noise impacts and require road closure for short periods of time. Traffic controls will need to be put in place. This may result in temporary impacts to park users and road users.</p> <p><i>Operation</i></p> <p>The outcome would be positive in the long term with the walking track upgraded to provide a higher level of service and improved access for park users. Sections of track impacted bushfire would also be reinstated and provide improved access.</p>	<p>access as much as possible during construction.</p> <ul style="list-style-type: none"> • Appropriate controls for flight paths crossing public tracks and trails will be implemented to ensure no people are below the flight path for aircraft operations. • Aircraft operations would be undertaken Monday to Friday avoiding weekends and public holidays unless approved by the Area Manager. • Where required, construction signage and temporary fencing will be installed at either end of work zones to notify visitors and prevent access.
	<p>Activity 2</p> <p>Low negative (short term)</p> <p>High positive (long term)</p>	<p>Activity 2</p> <p>The draft REF submission report (Appendix I) notes some concern that the proposal may change the current experience of the park. Hard-roof accommodation has been designed to be screened from other park users and is set back from the coastline. Both proposed accommodation areas have historically been used for camping.</p> <p><i>Construction</i></p>	<p>Activity 2</p> <ul style="list-style-type: none"> • The design and style of accommodation and facilities will be in keeping with the surrounding landscape. • The design and scale of accommodation and facilities will be in accordance with NPWS design guidelines. • Revegetation screening with locally appropriate species must be incorporated into the landscape designs for both precincts

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>The existing informal camping area at Hegartys Bay has not reopened following the 2019–20 bushfires. The informal camping area at Mowarry Point will be closed during construction. Other day use and recreational activities, at the precincts or elsewhere in Ben Boyd National Park, would not be restricted.</p> <p>A purpose-built walk-in campground is currently under construction at Bittangabee Bay (addressed under a separate REF) designed specifically for Light to Light Walk pack-campers. Bittangabee Bay is approximately 4.5 km from Hegartys and will have toilet facilities.</p> <p><i>Operation</i></p> <p>Provision of new hut accommodation at Mowarry Point and Hegartys Bay would provide for a broader range of visitors, particularly those who are unable to camp.</p> <p>The formalisation of the Mowarry Point camping area as well as other proposals within Ben Boyd National Park, including precincts upgrades at Boyds Tower and Green Cape, will provide improved recreational opportunities for park users.</p> <p>The removal of pack-camping at Hegartys Bay will have some negative long-term impact for visitors who value camping at this location. Hegartys Bay will remain open for day users and general walkers. The removal of camping at Hegartys Bay will partly be offset by new pack-camping sites at Bittangabee Bay, approximately 4.5 km to the south.</p>	<p>to reduce the visual impact of the hut accommodation to other users while matching the surrounding environment.</p>
	Activity 3	Activity 3	Activity 3

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
	Low negative (short term) High positive (long term)	The proposed works would have a temporary and minor impact on access to these sites that would be limited to the construction period. Vehicle access to Pulpit Rock may need to be restricted for a short time to allow for the new car park to be established. Fishers and other users would be able to walk in from a temporary car park. The impacts on the community would be temporary and the outcome would be positive with improved and safer access to recreational areas.	No additional measures.
3. Is the activity likely to affect economic factors, including employment, industry and property value? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All activities Medium positive (short term and long term)	All activities There will be short-term local employment of contractors and hire of local plant and equipment during construction of the proposal. The proposal would create a new experience on-park, and will create local jobs and overall regional economic benefit. The value of any land outside the national park is not expected to be affected by this proposal.	NA
4. Is the activity likely to have an impact on the safety of the community? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All activities Medium negative (short term) Low negative (long term) Medium positive (long term)	All activities <i>Construction</i> During construction, there would be an increase in construction-associated traffic on the public road network for movement of construction staff, material deliveries etc. The use of compound sites to store equipment and materials will reduce the number of deliveries required to the park each day, as equipment and materials can be stored within the park.	All activities <ul style="list-style-type: none"> • Vehicles will be restricted to low speeds (20 km/h) as a general speed and 5 km/h when within vicinity of the public. • Construction sites must be managed to prevent public access during and outside work times. • Proposed works must be certified to comply with the <i>Building code of Australia</i> or relevant Australian Standards as per the NPWS <i>Construction assessment procedures</i> (OEH 2011).

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>Construction employee parking would be established within the compound sites, and staff cars would not use parking outside of the national park.</p> <p>The use of a helicopter to transport certain construction materials to remote areas of the proposal site will result in fewer disruptions to park users.</p> <p>All work would be constructed to meet relevant Australian Standards, building codes and bushfire regulations with independent certification granted where required.</p> <p>All work sites will be fenced off from park users.</p>	
	<p>Activity 1 Low negative (long term) Medium positive (long term)</p>	<p>Activity 1 <i>Operation</i> Overall, the upgraded and reinstated track will provide a safer experience for walkers with better constructed stairs, grades and drains that will prevent erosion and keep the tread in good condition. A quantitative geological assessment has been undertaken for areas of the walking track where geological hazards were identified. In some places the track has been moved to avoid hazards. In places, the track will be located in the vicinity of fall risk locations. Provided users stay on the track, there would be no risk of falling.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<p>Activity 1</p> <ul style="list-style-type: none"> • The walking track must be constructed to meet <i>Australian Standard 2156: Walking tracks classification and signage</i> and the NPWS <i>Park facilities manual</i> (NPWS 2016a). • Geological and landslide risks must be managed in accordance with the NPWS <i>Landslides and rockfalls procedures</i>.
	<p>Activity 2</p>	<p>Activity 2 <i>Operation</i></p>	<p>No additional measures.</p>

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
	Medium positive (long term)	<p>The accommodation areas will be installed as per all relevant Australian Standards and building codes to create a safe site. This will include internal fire separations, balustrades etc. Mowarry Point camping area will provide an improved and safer experience for users with dedicated camp sites and a toilet.</p> <p>Bushfire refuge locations have been identified at Mowarry Point. At Hegartys Bay, the staff hut has been designed and sized as a bushfire refuge. Other bushfire provisions including asset protection zones, appropriate building materials and under-floor clearances have also been incorporated into the design.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	
	<p>Activity 3 Low negative (short term) Medium positive (long term)</p>	<p>Activity 3 <i>Operation</i></p> <p>The compound at the end of the Hegartys Vehicle Access Trail will remain in operation and provide an evacuation point for injured or ill walkers. The Hegartys Bay Access Trail will also assist in transporting people in the event of an emergency.</p> <p>The Pulpit Rock car park upgrade will create a safer precinct with the toilet located away from moving vehicles and designated? car parking spaces.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	No additional measures.
5. Is the activity likely to cause a bushfire risk?	All activities	All activities	All activities

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Low negative (short and long term)	<p><i>Construction</i></p> <p>The southern sector of Ben Boyd National Park is located within bushfire prone land. There would be potential for increased bushfire risk during construction in the summer months due to increased traffic and operation of machinery. Use of welding equipment, machinery with hot exhausts or any activities likely to emit sparks may be a fire hazard.</p> <p>All NSW national parks are non-smoking.</p> <p><i>Operation</i></p> <p>An increase in visitors to the southern sector of the park due to improved facilities and access has the potential to increase bushfire risk. However, most visitors who use the upgraded track will be undertaking a managed experience, NPWS hut hosts present at the 2 accommodation points.</p> <p>NPWS also routinely closes national parks during high and extreme fire danger rating periods, and this practice would continue.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<ul style="list-style-type: none"> • No mechanical works involving the use of welding equipment, machinery with hot exhausts or any activities likely to emit sparks which may be a fire hazard will be undertaken during total fire bans. • The construction environmental management plan (CEMP) must identify construction works that represent an ignition risk and include mitigation measures to reduce the risk. The CEMP will also include mitigation measures for extreme fire danger weather events. • A bushfire-specific evacuation plan and emergency management procedures will be developed which adheres to the park's fire management plan, and put in place to evacuate staff and contractors in the event of wildfire. This plan must be developed for Hegartys Bay, Mowarry Beach and for the Light to Light Walk.
	<p>Activity 1</p> <p>Low negative (long term)</p>	<p>Activity 1</p> <p>In some areas, the walk will be located further from access tracks. This may increase the risk to visitors from bushfire due to an increased distance from evacuation areas and potential difficulty in closing the park. The walk is also expected to increase the overall visitation to the park.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<p>No additional measures.</p>

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
	<p>Activity 2 Medium positive (long term)</p>	<p>Activity 2 Building, evacuation and asset protection zone protocols have been assessed for Hegartys Bay and Mowarry Point (Ecological Australia 2019). Recommendations include a refuge building at Hegartys Bay and rock refuge sites at Mowarry Point. Accommodation areas would always be staffed by NPWS hut hosts, and a daily safety briefing would take place. This would include bushfire safety. Campfires will not be permitted at the Mowarry Point camping area. The addition of a compound capable of helicopter operations within the vicinity of Hegartys Bay would improve emergency access to the area for evacuation or firefighting. The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<p>Activity 2</p> <ul style="list-style-type: none"> • Infrastructure (including the huts, communal kitchen and staff hut) at Mowarry Point and Hegartys Bay must be constructed to meet development standards of land as categorised by Ecological Australia (2019): <ul style="list-style-type: none"> ○ the staff accommodation at Hegartys Bay must be constructed to meet the development standards of BAL-FZ and a community refuge ○ all other buildings must be BAL-29 ○ appropriate asset protection zones must be maintained. • Campfires will not be permitted at the hut accommodation or camping areas.
	<p>Activity 3 High positive (long term)</p>	<p>Activity 3 Works associated with Hegartys Bay access would improve emergency access, as such reducing bushfire risk. The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<p>No additional measures.</p>

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
6. Will the activity affect the visual or scenic landscape? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Activity 1 Medium negative (short term) Medium positive (long term)	Activity 1 <i>Construction</i> The proposal has been designed with limited use of permanent signage, handrails and stairs by using the natural topography to reduce impacts on the scenic experience. Safety aspects will remain important ensuring the trail is clearly identified and safe for users. Vegetation clearing, soil disturbance and machinery may impact on the visual landscape, however, as this would be restricted to the immediate track width this impact is considered minor. <i>Operation</i> This activity would improve the visual and scenic landscape for visitors by providing more diverse and increased experiences. The mitigation measures presented in this REF are considered sufficient to manage these risks.	Activity 1 <ul style="list-style-type: none"> • The use of signs, handrails and steps and other track infrastructure will be minimised where possible. • Where these structures are required, as much as possible, they must utilise natural materials that blend into the environment.
	Activity 2 Medium negative (long term) Medium positive (long term)	Activity 2 <i>Construction</i> The construction of hut accommodation infrastructure within Mowarry Point and Hegartys Bay would have a permanent impact on visual and scenic landscape, as these areas currently have no infrastructure. Although to a lesser extent, the formalisation of the Mowarry Point camping area and inclusion of a toilet would also have a permanent visual impact.	No additional measures.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p><i>Operation</i></p> <p>The proposed accommodation would enable a wider range of visitors to enjoy the natural and cultural values of the park. The design and style of the huts has been raised by the community during consultation phases. The final designs have been carefully placed to be screened from other park users with smaller buildings front facing and the impact gradient extending away from public spaces.</p> <p>Vegetation regeneration within the accommodation areas will reduce the impacts on visibility over time.</p> <p>The draft REF submission report (Appendix I) noted that some members of the community hold concern for the visual impacts the proposal would have on the park.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	
	<p>Activity 3 Negligible negative (long term)</p> <p>Medium positive (long term)</p>	<p>Activity 3</p> <p><i>Construction</i></p> <p>Construction activities at Hegartys Bay are for the most part away from visitor locations and visual amenity would not be impacted. Vegetation clearing, soil disturbance and machinery may impact on the local visual landscape for the duration of construction at Pulpit Rock.</p> <p><i>Operation</i></p> <p>The widening and formalisation of access to Hegartys Bay via the access track (boardwalk/gravel path) would have a permanent</p>	<p>Activity 3</p> <ul style="list-style-type: none"> • Construction equipment, machinery and materials will be stored at nominated compound sites. • The Hegartys Bay Access Track boardwalk/gravel path must be kept to a minimal height and follow the natural topography.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>impact on the local visual and scenic landscape, particularly the section of heathland. The Pulpit Rock upgrade would lead to an improved visual setting with dedicated vehicle loop, car parking and better access to the toilet.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	
<p>7. Is the activity likely to cause noise, pollution, visual impacts, loss of privacy, glare or overshadowing to members of the community, particularly adjoining landowners?</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>All activities</p> <p>Negligible negative (long term)</p>	<p>All activities</p> <p><i>Construction</i></p> <p>The impacts of construction-related noise, vibration, dust generation and traffic impacts are considered manageable with the implementation of the mitigation measures in this REF.</p> <p><i>Operation</i></p> <p>There is no overshadowing to properties outside the southern sector of Ben Boyd National Park and no loss of privacy to adjoining landowners.</p>	<p>All activities</p> <ul style="list-style-type: none"> Walking tracks, accommodation and service infrastructure must be designed and constructed to minimise operation and maintenance requirements. Works to be carried out during standard work hours (i.e. 7 am to 6 pm Monday to Friday; 8 am to 1 pm Saturdays). Any work that is performed outside normal work hours or on Sundays or public holidays must be approved prior and is to minimise noise impacts. Aircraft operations must not be undertaken in early morning or late afternoon or in a way that will impact campers and other park users.
	<p>Activity 2</p> <p>Low negative (short term)</p>	<p>Activity 2</p> <p>Localised and minor impacts relating to noise, vibration, dust generation and traffic generation during the construction phase of this activity would occur.</p> <p>The accommodation areas will require ongoing servicing and maintenance with potential to impact park users.</p>	<p>No additional measures.</p>

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
	<p>Activity 3 Low negative (short term)</p>	<p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p> <p>Activity 3 The use of helicopters to transport infrastructure to the site would cause short-term noise, pollution and visual impacts. In operation, service roads and tracks would require ongoing maintenance and would impact park users.</p> <p>No ongoing noise or other impacts are proposed from work associated with Activity 3.</p> <p>The mitigation measures presented in this REF are considered sufficient to manage these risks.</p>	<p>No additional measures.</p>

6.5 Natural resource impacts during construction and operation

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
1. Is the activity likely to result in the degradation of the reserve or any other area reserved for conservation purposes? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All activities Low negative (short term) High positive (long term)	All activities The locality will undergo a transformation due to construction of the upgraded walk, accommodation and improved site access. The design has been iterative and has avoided sensitive areas that may be prone to degradation where possible. A previously proposed fourth day was excluded from the proposal due to the unacceptable impact it may have resulted in. Multi-day walkers generally align with NPWS values, in particular, an interest in and concern/respect for the natural and cultural heritage that national parks protect. These visitors are looking for opportunities to spend time in nature, are interested in places that provide stories and are looking for a deeper connection with nature and culture that contrasts with normal life.	No additional measures.
	Activity 1 Low negative (short term)	Activity 1 <i>Construction</i> Realignment of tracks and closure/rehabilitation of existing tracks will be undertaken. This will impact the park by creating new tracks in some undeveloped areas. In places these realignments will move the track from sensitive landforms or consolidate networks of informal tracks. Redundant tracks will be closed and rehabilitated.	No additional measures.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p><i>Operation</i></p> <p>New track sections have been scoped to meet the relevant Australian Standard and NPWS <i>Park facilities manual</i> with minimal grade changes, track infrastructure and signage. Imported material will be minimised with a natural surface preferred. This type of track aligns with visitor expectations for a multi-day walk. Short day walks, from formal car parks and precincts, are available within Ben Boyd National Park and are more popular with general park users.</p> <p>Fisheries are an important natural as well cultural resource. There is potential for the proposal to provide greater access for recreational fishing activities to areas that would not have previously been accessible. Given the coastal access points will be walk-in only, increased fishing levels due to the additional track access, such that they would affect fish stock, is not anticipated.</p>	
	<p>Activity 2 Low negative (short term)</p>	<p>Activity 2 <i>Construction</i></p> <p>Whilst complete avoidance of impacts to these aspects is not possible, the proposal has been designed to avoid and minimise impacts to the park. Both sites have experienced historical agricultural disturbance and have been partially cleared of vegetation. Buildings have been sited to use these previously disturbed areas and impacts would be restricted to the immediate locality.</p> <p>Work sites will be established to be the minimal size necessary to construct the precincts.</p>	<p>Activity 2</p> <ul style="list-style-type: none"> • Construction of accommodation huts and associated infrastructure at Hegartys Bay and Mowarry Point will be undertaken with minimal disturbance necessary. • Boardwalks will be installed in preference to gravel tracks in areas with wetter vegetation communities to minimise impacts on local hydrology where practical.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>Buildings would be modular and transported to the sites by helicopter to minimise on-site disturbances. The buildings would be removable and would be founded on ground screw piles. Internal footpaths would be either boardwalks or gravel paths to reduce impacts.</p> <p>Compost toilets have been specified with the compost material removed from the park. This will minimise the need for on-site treatment and disposal of wastewater.</p> <p>Mitigation measures have been included to mitigate any impacts that cannot be avoided or minimised, to ensure that impacts are reduced to the minimum necessary to undertake the works.</p> <p><i>Operation</i></p> <p>The new accommodation will offer an improved experience to park users closely aligned with NPWS values. Some loss of natural space will occur within the locality of the precincts.</p> <p>While there will be some ongoing impacts from the proposal, the current situation of uncontrolled toileting, litter and campfires at both Mowarry Point and Hegartys Bay will no longer occur.</p> <p>Furthermore, the formalisation of the precincts will allow access to these locations by a wider group of people increasing the appreciation of the park and other reserves.</p> <p>The proposed Mowarry Point and Hegarty Bay accommodation also includes the construction of a staff hut. This will be staffed full-time and will allow for ongoing maintenance of the facilities to ensure degradation of these areas does not</p>	

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		occur. The hut host will also provide welcome briefings to all visitors and provide an opportunity to remind visitors on the sensitive nature of the setting.	
	Activity 3 Low negative (short term)	Activity 3 While there will be some short-term minor impacts during construction, access upgrades at Hegartys Bay will allow for the efficient operation of the accommodation area. The Hegartys Bay Access Track (boardwalk/gravel path) will remove a surface track through heathland and allow for recovery of that plant community along its length. The Pulpit Rock car park upgrade will require minor impacts during construction. Longer term, this work will provide a more formal car park and remove the current practice of vehicles impacting the park by parking informally.	No additional measures.
2. Is the activity likely to affect the use of, or the community's ability to use, natural resources? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All activities Low positive	All activities The proposal would not affect the community's ability to use natural resources. Access to all fishing locations would be unchanged. The Light to Light Walk will enable a wider range of visitors to enjoy the natural surroundings whilst minimising impacts on the natural and cultural values of the national park.	No additional measures.
3. Is the activity likely to involve the use, wastage, destruction or depletion of natural resources including water, fuels, timber or	All activities Negligible negative (short term) Low positive	All activities Although the proposal would involve the use of natural resources including rock, gravel and timber, these resources would not be used to a degree that would lead to destruction or depletion. Reuse of on-site natural resources such as top	No additional measures.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
extractive materials? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	(long term)	soil sods and woody debris would be undertaken where appropriate. Buildings have been designed to standard dimensions to reduce wastage. Sustainable and recycled materials have been specified that are long lasting and simple to maintain in a remote setting. With the implementation of appropriate construction measures the project would not impact water quality and no water within the park is used as a water supply or forms a water supply catchment.	
4. Does the activity provide for the sustainable and efficient use of water and energy? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Activity 2 Negligible positive (long term)	Activity 2 The buildings associated with Activity 2 have been designed as off-grid remote hiking huts. Limited solar power will be provided and restricted only to lighting of the communal hut, charging points and the staff hut. No power would be provided to the accommodation huts. Roof-harvested rainwater tanks would be installed and will provide water for drinking and cooking. No showers will be provided. Highly efficient pellet heaters will be used in the communal hut.	Activity 2 <ul style="list-style-type: none"> The design and fit out of the accommodation locations must specify energy and water efficient fixtures as required.

6.6 Aboriginal cultural heritage impacts during construction and operation

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<p>1. Will the activity disturb the ground surface or any culturally modified trees?</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>All activities</p> <p>Medium negative (short term)</p> <p>Low negative (long term)</p>	<p>All activities</p> <p>All activities would result in ground disturbance and vegetation removal. One culturally modified tree (scar tree) was identified. No large trees would be impacted by the proposal.</p> <p>Ground disturbance has been minimised by specifying a Class 4 natural surface track with minimal signage and track infrastructure, using existing tracks where appropriate and using non-disturbing building techniques.</p>	<p>All activities</p> <ul style="list-style-type: none"> • A 20-year Aboriginal heritage impact permit (AHIP) must be obtained through Heritage NSW to allow impacts from the proposed Light to Light Walk Upgrade, including walking tracks between Boyds Tower and Green Cape Lightstation, Mowarry Point, Hegartys Bay and associated vehicle and access tracks. • A program of surface collection and salvage excavation will be completed prior to impacts. Salvage is recommended for sites listed at points given in the Aboriginal cultural heritage assessment (ACHA) report (Lantern Heritage 2021a), in accordance with the methodology given in Appendix 5 of the archaeological report, developed by Lantern Heritage as part of the ACHA report. • The Aboriginal cultural heritage management plan, developed by Lantern Heritage as part of the ACHA report, will be implemented to reduce and manage potential long-term visitor impacts to recorded sites located outside the Light to Light Walk Upgrade project area. • Ground-disturbing activities associated with the proposal are monitored by Eden LALC or other Aboriginal community representatives as chosen by NPWS. • No work is to be conducted beyond the proposed AHIP areas developed by Lantern Heritage as part of the ACHA report. All areas beyond the proposed AHIP boundary are to be

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
2. Does the activity affect known Aboriginal objects or Aboriginal places? Applicable? <input checked="" type="checkbox"/> Yes	Medium negative (short term) Low negative (long term)	All activities Extensive site searches were conducted via AHIMS on 21 January 2021 and on 15 February 2021. A total 181 sites or objects were listed as being present within the south Ben Boyd National Park search area. Of the 181 sites listed within the search	<p>treated as no-go zones and must not be used for stockpiling of materials or vehicle access, unless existing vehicle access tracks are used or through a separate archaeological investigation/AHIP.</p> <ul style="list-style-type: none"> • Prior to working in the study area, all contractors associated with the project to receive cultural heritage inductions delivered by either NPWS staff trained in Aboriginal cultural heritage site identification or a member of Eden LALC. • In the event that ancestral (human) skeletal remains, or suspected human skeletal remains, are encountered during any of the proposed works or salvage actions, all work must stop and the procedures outlined in Appendix 6 of the archaeological report, developed by Lantern Heritage as part of the ACHA report, will be implemented. <p>Activity 1</p> <ul style="list-style-type: none"> • Walking track works within the Light to Light Walk Upgrade project will be limited to a 30 m wide corridor, based on the alignment illustrated in the ACHA report. • An arborist will be engaged to assess the cultural origins of an identified scarred tree (location given in the ACHA report). <p>No additional measures.</p>

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<input type="checkbox"/> No		<p>area, there were 93 previously recorded Aboriginal sites listed on AHIMS as being within 100 m of the Light to Light Walk upgrade areas. Sites were recorded within each section of proposed upgrades with the exception of the Pulpit Rock access track and car park area, where no sites were recorded.</p> <p>Previous investigations between Boyds Tower and Green Cape Lighthouse within Ben Boyd National Park have identified a suite of sites along the coastal fringe, including middens, artefact scatters and at least one burial.</p> <p>A total of 67 sites would be partially impacted by either direct or indirect harm as a result of the proposed works. Of these:</p> <ul style="list-style-type: none"> • 23 sites are located within the existing track, and would be at risk from continued use • 25 sites are located within the new track corridor, and would be at risk from the proposed works • 9 sites are located within sections of redundant track, vehicle tracks or subsidiary tracks and would be partially impacted • 10 sites are located in such a way that they would be at risk from multiple of the proposed activities. 	
<p>3. Is the activity located within, or will it affect, areas containing the following landscape features?</p> <ul style="list-style-type: none"> • within 200 m of waters • within a sand dune system 	<p>Medium negative (short term)</p> <p>Low negative (long term)</p>	<p>All activities</p> <p>Most of the proposal is within landscape features where Aboriginal objects are commonly found – that is, within 200 m of water and on ridge tops/ridge lines/ headlands.</p> <p>Test excavations and field surveys have revealed significant cultural sites and deposits within these</p>	<p>No additional measures.</p>

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<ul style="list-style-type: none"> on a ridge top, ridge line or headland within 200 m below or above a cliff face within 20 m of or in a cave, rock shelter or a cave mouth. <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>		<p>landforms confirming their importance as cultural points in this landscape.</p>	
<p>4. If Aboriginal objects or landscape features are present, can impacts be avoided?</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>Medium negative (short term)</p> <p>Low negative (long term)</p>	<p>All activities</p> <p>Significant track and building design refinements have been undertaken to avoid Aboriginal objects and minimise impacts to sensitive areas.</p> <p>To minimise on-ground impacts, the walk has been developed to Class 4 standard. These tracks require bushwalking experience, are generally narrow, follow the natural topography, may be rough and steep with minimal signage and track infrastructure. Likewise, the hut accommodation and camping areas have been designed in line with these principles with small footprints and basic services to reduce on-ground impacts.</p> <p>Significant sites discovered between Green Cape and Disaster Bay led to the removal of this section of walking track from the scope of this proposal.</p> <p>Activity 1</p> <p>The proposal consists of a 30 m wide track corridor to allow for micro-siting adjustments to be implemented where cultural sites are present. The maximum width of this corridor will be used when siting the 1 m track alignment to ensure the greatest</p>	<p>All activities</p> <ul style="list-style-type: none"> The long-term management and mitigation measures outlined in the ACHA report and Aboriginal cultural heritage management plan will be implemented over the life of the AHIP (subject to approval). <p>Activity 1</p> <ul style="list-style-type: none"> Walking track works within the Light to Light Walk Upgrade project must be limited to within the 30 m wide micro-siting corridor. <p>Activity 2</p> <ul style="list-style-type: none"> All cultural material recovered from the proposed surface collection, salvage excavation and previously completed test excavations at Hegartys Bay and Mowarry Point will be moved or reburied as close to the site as possible. An updated AHIMS site card will be submitted to Heritage NSW recording the new location of artefacts. An area for Aboriginal cultural heritage interpretation and display of selected artefacts will be constructed at Mowarry Point and

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>distance between the track and the site to avoid and minimise harm.</p> <p>Floating boardwalks, where the mesh deck is fixed to treated pine sleepers laid directly on the ground, will also be used to pass through sensitive locations with minimal ground disturbance (see Appendix H).</p> <p>Activity 2</p> <p>Site plans for both precincts have been developed to utilise existing disturbed areas as much as possible. Buildings have been designed to be modular with ground screws used as the preferred footing type. These are screwed directly into the ground with disturbance restricted to the diameter of the screw, avoiding the need for extensive excavation associated with concrete foundations.</p> <p>Internal footpaths will be boardwalks or gravel paths with simple post footings or floating timber sleepers. In operation, all staff and visitors will be required to stay on pathways so as to not impact adjacent areas.</p> <p>For the most part, service pipes and conduits will be hung from boardwalks to avoid trenching.</p> <p>The formalisation of the Mowarry Point camping area will create dedicated tent sites and includes a toilet which will avoid the current practice of dispersed camping.</p> <p>Activity 3</p> <p>Work associated with Activity 3 is restricted to existing disturbed areas or is located away from cultural sites.</p>	<p>Hegartys Bay accommodation areas in accordance with registered Aboriginal parties' recommendations.</p>

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<p>5. If the above steps indicate that there remains a risk of harm or disturbance, has a desktop assessment and visual inspection been undertaken (refer to the Due Diligence Code)?</p> <p>Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Medium negative (short term)</p> <p>Low negative (long term)</p>	<p>The proposed Hegartys Bay Access Track will be constructed on the alignment of an existing track as either a boardwalk or gravel path.</p> <p>Despite these actions, some sites cannot be avoided.</p> <p>All activities</p> <p>In 2020, Lantern Heritage surveyed the Light to Light Walk upgrade areas and recorded a total of 108 sites that comprised of 79 previously recorded sites. Due to the high visibility encountered during survey as a result of the Border Fire, the extent of previously recorded sites was clearly seen to be much larger than originally observed. Rather than record additional small sites, Lantern Heritage used a large-scale landform-based approach to combine previously recorded sites into larger sites where appropriate.</p> <p>Sites were recorded within each section of proposed upgrades with the exception of the Pulpit Rock access track and car park area, where no sites were recorded.</p> <p>Impacts to Aboriginal sites caused by the Border Fire varied greatly within the surveyed areas.</p> <p>The field survey identified areas of potential archaeological deposit across the proposed accommodation areas at Hegartys Bay and Mowarry Point.</p> <p>Test excavations at Hegartys Bay in July 2019 found significant archaeological deposits. In December 2020 Lantern Heritage undertook an archaeological test excavation program at Mowarry Point and found subsurface archaeological deposits at 4 locations.</p>	<p>All activities</p> <ul style="list-style-type: none"> • A program of surface collection and salvage excavation must be completed prior to impacts. Salvage is recommended for sites listed in the ACHA report and in accordance with its methodology outlined in Appendix 1 of the archaeological report (Appendix 1 in the ACHA report). • Management and mitigation measures outlined in the ACHA report (Appendix A) must be implemented over the life of the AHIP (subject to approval). • A copy of the final ACHA report must be forwarded to all registered Aboriginal parties for their review and comment. • NPWS must consider the recommendations of Donaldson's 2018 intangible cultural heritage study of Ben Boyd National Park. These recommendations include but are not limited to: <ul style="list-style-type: none"> ○ providing opportunities for registered Aboriginal parties and local Aboriginal people to showcase their culture and heritage values in the interpretative signage proposed for the Light to Light Walk Upgrade project ○ undertaking an Aboriginal naming project across Ben Boyd NP

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<p>6. Is the activity likely to affect wild resources or access to these resources, which are used or valued by the Aboriginal community? Applicable?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	NA	<p>All activities</p> <p>The proposed activity is not expected to affect wild resources used or valued by the local Aboriginal community.</p> <p>The proposed activity may have an impact on access to resources by the local Aboriginal community in the short term, however, positive long-term impacts for community access are proposed.</p>	No additional measures.
		<p>Fifty-four per cent (54%) of sites will be directly impacted by the proposed works, although this harm will be partial only. Thirty-five per cent (35%) of sites will not be harmed and the long-term management and protection of these sites will be covered in an Aboriginal cultural heritage management plan. Remaining Aboriginal objects/sites are located within the proposed Light to Light impact areas and can be avoided by the proposed works.</p> <p>While the proposed Light to Light upgrade works will result in direct harm to 4 Aboriginal sites, the majority of harm is limited to areas that have already been disturbed by long-term visitor use. Proposed impacts from the walking track upgrade will serve to protect the archaeological and natural resources in the Light to Light Walk upgrade study area from further impact by limiting visitor access to areas that are less disturbed. The sites to be impacted by Light to Light upgrade works represent a very small proportion of the entire Ben Boyd National Park.</p> <p>An Aboriginal cultural heritage assessment report (ACHAR) has been completed and is attached to this REF in Appendix A (note that access to the report is restricted).</p>	<ul style="list-style-type: none"> o continuing to support Aboriginal use of the campgrounds within Ben Boyd National Park.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>As part of the Light to Light Walk Upgrade, some sections of track will be closed, which will discourage public access to parts of the coast that are considered to have high cultural value to the local Aboriginal community. Access to the coastal resources of Ben Boyd National Park for the local Aboriginal community will be enhanced through development of a community campground within Bittangabee campground (separate proposal). This will support ongoing connections for local Aboriginal community with the natural resources and cultural values of the park.</p>	

6.7 Other cultural heritage impacts during construction or operation

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
<p>1. What is the impact on places, buildings, landscapes or moveable heritage items?</p> <p>Applicable?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>Medium negative (short term)</p> <p>Low negative (long term)</p>	<p>All activities</p> <p>Statements of heritage impact have been completed for each site located within the proposal area, and are provided in the historic assessment report (Lantern Heritage 2021b at Appendix J). Overall, heritage impacts to the cultural landscape of south Ben Boyd National Park will be minimal. Direct impacts will occur from the proposed works at 4 items (Boyds Tower, Mowarry Homestead complex, Ancillary features, Mowarry Point and Hegartys Bay complex), with the remaining 9 sites not directly impacted.</p> <p>No items of world, national or Commonwealth significance are present within or adjacent to the project area. An item listed on the Maritime Heritage Database would not be impacted by the proposal.</p> <p>Heritage items listed on the Bega Valley LEP within Ben Boyd National Park would not be impacted by the proposal.</p> <p>The proposal extends onto the curtilage of the state heritage-listed Green Cape Maritime Precinct.</p> <p>The proposal would also occur within the vicinity of the 3 heritage items listed on the NPWS s 170 register.</p>	<p>All activities</p> <ul style="list-style-type: none"> • All contractors involved in all activities associated with the project must receive historic heritage inductions prior to undertaking work in the study areas. • If encountered, archaeological remains will be assessed by an archaeologist to determine whether the suspected find constitutes a relic under the NSW Heritage Act and whether NSW Heritage Council should be notified. • Conduct archival recording at all heritage items of local or state significance where impacts are anticipated within the curtilage of an item. • Subsurface disturbance must be avoided across all identified areas of potential archaeological deposits predicted to contain relics. • A conservation management plan be prepared for the heritage items identified in the historic assessment report (see Appendix J) to reduce and manage potential long-term visitor impacts to the locally and state significant items present along the Light to Light Walk. • An unexpected finds procedure will be developed prior to commencement of works and integrated into the above conservation management plan. • A heritage interpretation plan must be developed for the Light to Light Walk that also incorporates any additional information or

Activity 1

A small portion of the upgraded section of track between Bittangabee Bay and Green Cape would pass through the curtilage of the Green Cape Maritime Precinct. Work at this location would involve the establishment of a natural surface track from the rock platform to the Green Cape precinct. This would be 1–1.5 m wide and have minimal track infrastructure and signage.

Significant fabric (meaning physical material of the place/item including elements, fixtures, landscape features, contents, relics and objects which contributes to heritage significance) would not be impacted. This work does not qualify as a standard exemption and an approval under s 57(1) of the *Heritage Act 1977* would be required.

Activity 2

Heritage items listed on the NPWS s 170 register are located at both accommodation areas. At Mowarry Point evidence of former agricultural activity and possibly earlier whaling activities has been identified. At Hegartys Bay several building foundations, chimneys, footpaths and garden beds have been observed.

Site plans for both areas have been developed to avoid obvious evidence of historic heritage items.

Buildings have been designed to be modular with ground screws utilised as the preferred footing type to avoid the need for extensive excavation associated with concrete foundations.

Internal footpaths will be boardwalks with simple post footings or floating timber sleepers. In operation, all staff and visitors will be required to stay on boardwalks to not impacts adjacent

research undertaken in relation to the mitigation measures provided in this section of the REF.

Activity 1

- NPWS must apply to Heritage NSW for an exemption under s 57(1) of the Heritage Act for walking track work proposed within the Green Cape Maritime Precinct curtilage. This can occur through a s 60 fast track works application or a standard s 60 works application.

Activity 2

- NPWS must apply to Heritage NSW for an excavation permit under s 140 of the Heritage Act to undertake works at Mowarry Point and Hegartys Bay where ground disturbance activities are anticipated and will need to be mitigated through monitoring and/or salvage excavations.

Is the proposed activity likely to... Applicable?	Likely impact	Reasons	Safeguards/Mitigation measures
		<p>areas. This approach has been adopted to avoid the need for gravel footpaths.</p> <p>For the most part, service pipes and conduits will be hung from boardwalks to avoid trenching.</p> <p>The formalisation of the Mowarry Point camping area will create dedicated tent sites and includes a toilet which will avoid the current practice of dispersed camping.</p> <p>Activity 3</p> <p>No historic heritage items have been identified in the vicinity of work locations associated with this activity.</p>	
<p>2. Is any vegetation of cultural landscape value likely to be affected (e.g. gardens and settings, introduced exotic species, or evidence of broader remnant land uses)?</p> <p>Applicable?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p>	<p>N/A</p>	<p>All activities</p> <p>No vegetation of cultural landscape value will be affected by the proposal.</p>	

6.8 Matters of national environmental significance under the EPBC Act

No matters of national environmental significance under the EPBC Act would be impacted by the activities that form this proposal.

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/mitigation measures
1. Listed threatened species or ecological communities (TECs)? Applicable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	No species or TECs listed under the EPBC Act would be significantly impacted as a result of the activities that form this proposal. Refer to the biodiversity assessment report (Appendix B).	No additional measures.
2. Listed migratory species? Applicable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	No migratory species would be significantly impacted as a result of the activities that form this proposal. Refer to the biodiversity assessment report (Appendix B).	No additional measures.
3. The ecology of Ramsar wetlands? Applicable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	No Ramsar wetlands would be impacted as a result of the activities that form this proposal.	No additional measures.
4. Commonwealth marine environment Applicable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	No Commonwealth marine environment would be impacted as a result of the activities that form this proposal.	No additional measures.
5. World Heritage values of World Heritage properties? Applicable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	No world or national heritage items, places or properties would be impacted as a result of the activities that form this proposal.	No additional measures.

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/mitigation measures
6. The national heritage values of national heritage places? Applicable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	No national heritage values of national heritage places would be impacted as a result of the activities that form this proposal.	No additional measures.

6.9 Cumulative impacts

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/mitigation measures
1. Are there any cumulative environmental impacts with other existing or likely future activities? Applicable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Negligible	<p>Several additional activities have been proposed by NPWS within the southern sector of Ben Boyd National Park. These include:</p> <ul style="list-style-type: none"> • precinct upgrades at Boyds Tower, Saltwater Creek campground and Bittangabee campground • car park and service upgrades at Green Cape and Disaster Bay • the upgrade of Mowarry Point Trail, including a new bridge, to provide improved bushfire access • strategic bushfire access upgrade programs within south Ben Boyd. <p>Although not currently being proposed, a project to reconfigure the building at Green Cape Lightstation to provide a third nights accommodation for Light to Light walkers may commence.</p> <p>These proposals are generally located within existing precincts, disturbed areas and road formations and would be consistent with existing uses at these locations.</p>	<ul style="list-style-type: none"> • All proposals must be coordinated to minimise impacts to park users.

Is the proposed activity likely to... Applicable?	Impact level	Reasons	Safeguards/mitigation measures
		<p>While any additional activity in the park has potential to cause impact (clearing and soil disturbance, additional vehicle movements or impacts to visitors through closures and noise) the impacts of these projects will be well regulated and managed on a project-by-project basis and the low level cumulative impacts to environmental or heritage factors are considered justifiable on the basis of broader community and park management benefits.</p>	

7. Summary of impacts

Category of impact	Significance of impacts (extent and duration)	Nature of impact	Impact on sensitive features
Physical and chemical	Moderate short term	<p>The Light to Light Walk Upgrade would change the 2-day or 3-day walk with camping at public campgrounds to a multi-day 'hut-to-hut' style walk with shorter walking lengths each day and provision of overnight accommodation. The new alignment is broken into new sections for the purpose of separating work areas. The walking tracks will be 1–1.5 m wide with mostly surface tracks and some stairs with excavation and vegetation removal required during the construction phase.</p> <p>Compaction of soils from the transport and storage of equipment and materials would be minor as storage would be restricted to previously disturbed areas.</p> <p>Fuels would be required for the operation of equipment and machinery, with the likelihood of a spill/pollution event occurring being very low.</p> <p>Construction noise may cause temporary disturbance to users of the national park.</p>	<p>Erodibility of the soils, slopes and sensitivity of the potential receiving environments.</p> <p>Should a spill/pollution event occur it has potential of entering drainage lines and waterways.</p>
Biological	Moderate short term	<p>Direct impacts have been calculated at 2.83 ha of vegetation. Around 1.31 ha is associated with the walking track upgrades, a 1–1.5 m track for realignments, and would be spread over the entire study area. Accommodation precinct works would result in 1.22 ha of vegetation loss over the 2 sites. Access upgrades would result in a further 0.30 ha of vegetation loss.</p> <p>Potential indirect impacts include over clearing, predation by feral animals, displacement of resident fauna through vegetation clearing and habitat removal, loss of shade/shelter, reduction in viability of adjacent habitat due to edge effects, erosion, introduction and spread of noxious weeds and pathogens, displacement of resident fauna through increased human activity, and disturbance to intertidal zones due to an increase in human activity.</p>	<p>No TECs will be impacted. While threatened species are known from the area, impacts have been assessed as non-significant.</p> <p>The proposed rehabilitation of redundant sections of the existing track will somewhat offset the direct impacts associated with the proposal.</p>
Community	Low to moderate short term	<p>Construction disturbance would be temporary and a number of measures would be implemented to reduce the impact of construction on users of Ben Boyd National Park.</p>	<p>Construction noise impacts on users of the Ben Boyd</p>

Category of impact	Significance of impacts (extent and duration)	Nature of impact	Impact on sensitive features
		<p>Extensive community consultation has been undertaken throughout both the plan of management amendment and draft REF exhibition processes. NPWS has noted the issues raised from the community and has amended the proposal where appropriate.</p> <p>During operation, visitors would benefit from the new Light to Light Walk with improved accommodation and facilities (cooking, toilets etc.) as well as a new track experience.</p>	<p>National Park may affect their experience.</p>
Natural resources	Low short term	<p>Realignment of tracks, closure/rehabilitation of existing tracks, maintenance and upgrades to site access and provision of accommodation huts and facilities will impact Ben Boyd National Park.</p> <p>The walk will enable visitors to enjoy the natural surroundings whilst minimising impacts on the natural and cultural values of the park.</p>	<p>The process of avoid, minimise and offset would be implemented to minimise any negative impacts on the national park.</p>
Aboriginal culture heritage	Moderate	<p>An Aboriginal cultural heritage assessment has been completed to assess the impacts of the proposal on Aboriginal objects and the activities will result in disturbance to Aboriginal objects.</p> <p>The realignment of tracks would have the broadest impact, with the majority of the recorded sites being present along the coast on the proposed Light to Light Walk.</p> <p>Aboriginal objects are also present at both proposed accommodation areas. Site layouts have been adjusted based on the outcomes of cultural test excavations at these locations to minimise impacts.</p> <p>No Aboriginal objects were identified along the Hegartys Bay Access Track or at Pulpit Rock.</p>	<p>The proposal will impact Aboriginal heritage. Recommendations from the Aboriginal heritage assessment report and AHIP? would need to be adhered to.</p>
Other cultural heritage	Low	<p>Background research has been undertaken in order to establish a general historic context for the study area, and to pursue lines of historic investigation specific to the study area. Field work undertaken and searches of relevant heritage databases found several historical heritage items within the study area.</p> <p>The heritage items and potential heritage items recorded within the current project area largely relate to pastoralism and include hut complexes at Mowarry</p>	<p>The proposal will impact historic heritage. Recommendations from the historic assessment report would need to be adhered to.</p>

Light to Light Walk: review of environmental factors for walk upgrade

Category of impact	Significance of impacts (extent and duration)	Nature of impact	Impact on sensitive features
Matters of national environmental significance	Nil	<p>Point and Hegartys Bay. Overall, heritage impacts to the cultural landscape of the park will be minimal.</p> <p>No matters of national environmental significance under the EPBC Act would be impacted by the activities that form this proposal.</p>	NA
Cumulative impacts	Negligible	<p>Several additional activities have been proposed by NPWS within the southern sector of Ben Boyd National Park. These include precincts upgrades at Boyds Tower, Saltwater Creek, Bittangabee Bay and the Disaster Bay Lookout and road upgrades at Mowarry Point Trail. A future proposal may also upgrade Green Cape with adaptive reuse of building and an upgrade of the car park.</p> <p>These proposals are located within existing precincts and road formations and would be consistent with existing uses at these locations.</p> <p>While any additional activity in the park has potential to cause some impact (additional vehicle movements or impacts to visitors through closures and noise) these are considered negligible and no cumulative impacts to environmental or heritage factors are expected by these additional proposals.</p>	Work must be coordinated to minimise impacts to park users.

8. Summary of mitigation measures

Category of impact	Safeguards/Mitigation measures
<p>Physical and chemical</p>	<p>All activities</p> <ul style="list-style-type: none"> • A soil and water management plan (SWMP) must be prepared by the work contractor(s) and approved by NPWS. The SWMP will be adapted as works progress and a number of plans prepared to manage the discrete sections and types of works. • Soil disturbance will be minimised by clearly demarcating the works footprint and marking all other areas as no-go zones prior to works. • Clearing and excavation works will not be conducted during high rainfall periods. The weather will be monitored during the proposed works period and works will cease, and open areas will be stabilised, if heavy rainfall is forecast. • Erosion and sediment control measures are to be implemented and maintained to: <ul style="list-style-type: none"> ○ prevent sediment moving off site and sediment-laden water entering any water course, drainage lines, or drain inlets ○ reduce water velocity and capture sediment on site ○ minimise the amount of material transported from site to surrounding pavement surfaces ○ divert clean water around the site in accordance <i>Managing urban stormwater: soils and construction – volume 1, 4th edition</i> (Landcom 2004, also known as the 'blue book') prior to any vegetation clearing and site levelling until runoff catchments are stabilised ○ sediment controls will be inspected regularly by the relevant contractor and by NPWS staff ○ sediment control measures will also be in place for the storage of any spoil as required. • Vehicle use and material laydown will be restricted to existing or proposed disturbed areas. • All areas disturbed by works will be progressively stabilised and rehabilitated to ensure stable surfaces are obtained as soon as practical (progressively where possible). • Spill kits will be stored in both chemical storage locations and designated refuelling areas. • No concrete wash out will occur on site unless in a purpose-built washout facility. • All chemicals (fuels, concrete) will be stored in impervious bunded areas located at least 40m from waterways and in accordance with manufacturer's instructions. • Refuelling will be in accordance with manufacturer's instructions and will only be in designated refuelling areas which are bunded and at least 40 m from waterways. • Contractors are to have, and be competent in the use of, petrochemical spill kits for use of any spillage during the construction. The NPWS is to be notified of any spills and the action taken to contain them.

Category of impact	Safeguards/Mitigation measures
	<ul style="list-style-type: none"> • All machinery is to be free from any fuel and other pollutant residues, with connections and hoses inspected regularly. • Track mats or similar will be utilised for machinery access over sensitive areas. • Avoid use of natural surface trails in proximity to waterways to minimise sediment run-off. • Temporary watercourse crossings will be designed to minimise impacts on hydrology, aquatic habitat and fauna by: <ul style="list-style-type: none"> ○ maintaining low-flow conditions ○ being designed with consideration of the potential for flooding during construction ○ be removed and the area rehabilitated following completion of construction ○ these crossings will take into consideration the requirements of the FM Act and <i>Policy and guidelines for fish habitat conservation and management</i> (DPI 2013). • An emergency spill kit is to be kept on site at all times. All staff are to be made aware of the location of the spill kit and trained in its use. • All plant, machinery, tools and fuel storage must be in good working order and regularly checked for leaks. • No concrete wash out will occur on site unless in purpose-built washout facility. • Dedicated fuel and other chemical stores must be included in the accommodation design. • Resource management hierarchy principles are to be followed: <ul style="list-style-type: none"> ○ avoid unnecessary resource consumption as a priority ○ avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery) ○ disposal is undertaken as a last resort (in accordance with the Waste Avoidance & Resource Recovery Act 2001). • Materials including mulch and vegetation waste will be reused on site where possible. • Wastes not reused on site will be taken to an appropriate licensed facility able to accept the waste. • Construction staff will remove litter brought to the site. • Machinery will be well maintained and not left idling. • Ensure machinery used is well maintained and in good working order. • Construction noise to be minimised during peak visitation periods. • Dust suppression techniques to be implemented if required. <p>Activity 1</p> <ul style="list-style-type: none"> • The track set-out and footing locations will take into account the topography and erosive nature of soils on the site.

Category of impact	Safeguards/Mitigation measures
	<ul style="list-style-type: none"> • Impacts to geological formations will be designed to have minimal impact and appear natural in design. • Structural components will be assembled off site where possible and delivered to work sites by helicopter. • Avoid use of natural surface trails in proximity to waterways to minimise sediment run-off. <p>Activity 2</p> <ul style="list-style-type: none"> • Clearing and ground disturbance within the hut accommodation camping areas must be restricted to the minimum necessary to carry out the work. • Vehicle movements must not exceed 4 light vehicles and 2 trucks per day during the construction period. • Building modules will be assembled off site where possible and delivered to precincts by helicopter. • Drainage lines within and adjacent to the accommodation precincts must be demarcated and assigned as 'no-go zones' during construction. <p>Activity 3</p> <ul style="list-style-type: none"> • All works to conform to <i>Erosion and sediment control on unsealed tracks</i> (OEH 2012). • Work must not be undertaken on the mesh bridge during high flow conditions. • Footings locations for mesh bridge must be cleared of all excess material prior to completion. • Structural components associated with the mesh boardwalk must be assembled off site where possible and incrementally installed to minimise disturbance.
<p>Biological</p>	<p>All Activities</p> <ul style="list-style-type: none"> • A Biodiversity Management Plan (BMP) will be created and include: <ul style="list-style-type: none"> ○ pre-clearing protocol (including avoidance and micro-siting requirements around habitat features) ○ exclusion zones or other means to clearly demarcate proposal boundaries and protect the adjacent vegetation from clearing or vehicle traffic ○ re-establishment of native vegetation – species, area and method ○ clearing of native vegetation and removal of bush rock (including staged removal of habitat features) ○ unexpected threatened species finds ○ protection of native vegetation, aquatic habitats and riparian zones ○ weed and pathogen management ○ pest management actions and procedures ○ best practice removal and disposal of vegetation ○ rehabilitation of disturbed areas and discontinued tracks ○ develop pre and post construction predator monitoring program which utilise the existing Saving Our Species and Environmental Trust monitoring and control measures for foxes and cats and add additional monitoring and control measures as necessary, in a manner that will not further endanger native species, in particular the spotted-tail quoll and small mammals

Category of impact	Safeguards/Mitigation measures
	<ul style="list-style-type: none"> ○ develop an ongoing monitoring program for various threatened species including long-nosed potoroo and southern brown bandicoot to monitor their populations ○ clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; all groundwork associated with construction and operation of the walking track elements of the proposed activity will be carried out by hand, handheld tools and plant, e.g. chainsaws and brush cutters, and a mini excavator if required and with prior approval by the NPWS. Larger machinery may be used for works associated with Activity 2 and Activity 3 ○ the detailed design and construction planning has demonstrated it has minimised the extent of clearing within the development footprint, and avoided heath habitat, the loss of known threatened species, hollow-bearing trees, and essential habitat features. <ul style="list-style-type: none"> ● Use existing tracks where possible to limit the extent of clearing. ● Utilise areas already impacted by previous clearing or disturbance for access purposes, stockpiles or the establishment of compound sites. No stockpiling or storage within dripline of any mature trees. ● If clearing of vegetation is required outside the development footprint, these areas will need to be assessed as an addendum to this REF. ● Trees to be retained, including trees adjacent but outside of the development footprint, require an adequate tree protection zone (TPZ) for the duration of works. Details for calculating TPZs are provided within <i>Australian Standard 4970-2009 – Protection of trees on development sites</i>. ● If the TPZ cannot be avoided during works, the Structural Root Zones (SRZ) of trees will be retained. Details for calculating the SRZs are provided within <i>Australian Standard 4970-2009 – Protection of trees on development sites</i>. ● Training will be provided to all project personnel, including relevant subcontractors on site; training and site briefing to communicate environmental features to be protected and measures to be implemented. ● Undertake site induction and toolbox talks for ecologically sensitive areas. ● Landscape plantings will be comprised of local indigenous species that represent the PCT mapped on site. If seed can be obtained and propagated locally it may assist in growing endemic populations of plants and contribute towards using locally native species for regeneration. ● Pre-clearing surveys will be carried out by an ecologist to identify any threatened flora and fauna species, and specific habitat features that may be impacted by construction works. Habitat features of threatened species will be targeted during pre-clearing surveys so that they can be avoided during construction. These include: <ul style="list-style-type: none"> ○ hollow-bearing trees ○ glossy black-cockatoo feed trees ○ quoll denning habitat and latrine sites ○ active nests (woodland birds including dusky woodswallow and flame robin)

Category of impact	Safeguards/Mitigation measures
	<ul style="list-style-type: none"> ○ yellow-bellied glider feed trees ○ rocky outcrops ○ thick groundcover (to 1m high) and thick shrubs/midstory (1–10 m high) ○ vegetation within accommodation precincts (Activity 2). ● Pre-clearance surveys need to be conducted for all ground-dwelling mammals listed in the Test of Significance including required methodology and appropriate timing for survey. Ensure pre-clearance survey is conducted by a fauna ecologist one day prior to clearing for striated fieldwren, eastern bristlebird and eastern ground parrot. ● Where pre-clearing surveys of eastern ground parrot cannot be undertaken due to site constraints or staff safety considerations, clearing must not occur during breeding season (September to December) in PCTs 1141, 721 and 891 which form eastern ground parrot habitat. ● If any glossy black-cockatoo feed trees are encountered during pre-clearing surveys, these will be retained. ● Monitoring: The results of the targeted small mammal surveys constitute a valuable and useful base line study of this biodiversity asset along the walking track corridor. The results will be used to plan monitoring and management activities such that the biodiversity asset is maintained and where possible enhanced. ● Avoid the removal or disturbance of shelter/denning habitat such as woody debris, fallen logs, burrows in the ground, dense shrubs, rock crevices and bush rocks during the construction of the walking track. Preconstruction surveys to detect shelter/denning habitat will be conducted by an experienced ecologist. ● If active nests of threatened bird species are encountered during preconstruction surveys, the site should be identified and works should not be conducted within 200 m of the tree during the optimum breeding season for the species identified. ● If an active threatened owl nest is detected, works within 200 m of the nest tree should only be undertaken outside the breeding season of the species to avoid impacting the life cycle of species involved. ● Clear management measures must be set in place for the continuing maintenance to avoid and minimise impacts on breeding habitat of hollow-dependent forest owls. ● As part of continuing maintenance, clear management measures will be set in place to avoid and minimise impacts on breeding habitat and foraging habitat for threatened species (owls, parrots, small woodland birds, heathland birds, bats, arboreal mammals and quolls). ● Information on the threatened species within the locality will be included in the induction process for applicable personnel. ● An unexpected threatened fauna or flora procedure will be developed and if species are discovered, works will stop immediately, and the environment manager notified. An ecologist will then be engaged to determine management actions to avoid or mitigate any potential impact.

Category of impact	Safeguards/Mitigation measures
	<ul style="list-style-type: none"> • NPWS staff training and public signage (including multilingual messaging) must communicate the importance of remaining on existing tracks, and leaving no trace while in the national park. • Ensure all stockpiles and machinery parking bays are confined to the areas directly impacted by works. • Ensure all staff and visitors to the park are aware of laws regarding approaching marine mammals (in this case seals) in accordance with the Biodiversity Conservation Regulation 2017 (Clause 2.3). • Avoid the removal or modification of any hollow-bearing or mature trees (DBH>50cm) found during pre-clearance surveys in the design and construction of all 3 activities. • Avoid the removal of dead stags. • Avoid and minimise disturbance of eastern pygmy possum shelter/denning habitat (woody debris, stumps, hollow logs and dense shrubs) during construction and operation. • If any yellow-bellied glider feed trees are found during construction, these will be retained. • Preconstruction surveys must be carried out to inspect for breeding suitability/denning structures and communal latrine sites and allow for avoidance of these features. • Avoid the removal or modification of bush rocks, large fallen logs and other coarse woody debris in the design and construction of the 3 activities. • Noisy machinery should only be used outside of the breeding season for species involved to minimise impacts on the life cycle of the species. • Minimise disturbance of ground cover vegetation during the construction of the walking track and other activities. • Ensure stockpiles and equipment do not encroach into adjoining areas and allocate sites prior to clearing in BMP. • All machinery will be free from any fuel and other pollutant residues, with connections and hoses inspected regularly. • Contractors will have, and be competent in the use of, petrochemical spill kits for use of any spillage during the construction. The NPWS will be notified of any spills and the action taken to contain them. • Temporary watercourse crossings will be designed to minimise impacts on hydrology, aquatic habitat and fauna by: <ul style="list-style-type: none"> ○ maintaining low-flow conditions ○ being designed with consideration of the potential for flooding during construction ○ be removed and the area rehabilitated following completion of construction ○ these crossings will take into consideration the requirements of the FM Act and Policy and guidelines for fish habitat conservation and management (NSW Department of Primary Industries, 2013).

Category of impact	Safeguards/Mitigation measures
	<ul style="list-style-type: none"> • Monitoring actions as well as a plan of management will be developed to manage waste ingress (especially food waste) into surrounding habitat in relation to Hegarty's Bay and Mowarry Point new accommodation precincts. • Project-specific pest management actions will be detailed in the BMP, and will be appropriately funded and based on the principles of adaptive management. The plan should include provisions for monitoring (e.g. camera traps to detect feral predator densities), evaluation and the use of control strategies through baiting or other means, where appropriate. • A Weed and Pathogen Management procedure would be developed for the proposal. This would include: <ul style="list-style-type: none"> ○ management protocol for declared priority weeds under the <i>Biosecurity Act 2015</i> during and after construction ○ weed hygiene protocol in relation to plant, machinery, and fill ○ any occurrences of pathogens such as Myrtle Rust and Phytophthora would be monitored, treated, and reported ○ avoid all use of foreign soil matter for landscaping/mulching. Always use matter from in situ ○ install disinfecting facilities – wash-down bays, footbaths and/or scrubbing stations at primary entrance/exit points for both vehicles/machinery and foot traffic ○ in priority locations (heath habitat), install signage (e.g. 'Stay on marked tracks') to reduce off-track disturbance and elevate or divert walking tracks to minimise contact with soil, particularly in locations that have the potential to become muddy • The procedure will be incorporated into the Biodiversity Management Plan. • Confine all stockpiles to allocated sites for accommodation areas or previously disturbed areas.
	<p>Activity 1</p> <ul style="list-style-type: none"> • Clearing of groundcover for Activity 1 will not exceed the 1-1.5 m track width and drains. • Avoid the removal or disturbance of shelter/denning habitat such as woody debris, fallen logs, burrows in the ground, dense shrubs, rock crevices and bush rocks during the construction of the walking track. Any fallen timber and dead wood encountered within the development footprint will be left in situ wherever possible or would be relocated to adjacent areas (within the buffer area) of similar habitat to aid in habitat enhancement. If rock removal is unavoidable it is to be removed with suitable machinery so as not to damage the underlying rock or result in excessive soil disturbance.
	<p>Activity 3</p> <ul style="list-style-type: none"> • Maintenance activities on Hegartys Bay Access Track must not be undertaken during <i>Cryptostylis hunteriana</i> flowing period (November-January).

Category of impact	Safeguards/Mitigation measures
<p>Community</p>	<p>All Activities</p> <ul style="list-style-type: none"> • Notice of planned work schedules, including impacts to parking areas and road closures must be advertised to the public in advance of work commencing. • Vehicles will be restricted to low speeds (20 km/h) as a general speed and (5 km/h) when within vicinity of the public. • Construction sites must be managed to prevent public access during and outside work times. • Proposed works must be certified to comply with the Building Code of Australia (BCA) or relevant Australian Standards as per the <i>Construction assessment procedures</i> (OEH 2011). • No mechanical works involving the use of welding equipment, machinery with hot exhausts or any activities likely to emit sparks may be a fire hazard, will be undertaken during total fire bans. • The Construction Environmental Management Plan (CEMP) must identify construction works that represent an ignition risk and include mitigation measures to reduce the risk. The CEMP will also include mitigation measures for extreme fire danger weather events. • A bushfire-specific evacuation plan and emergency management procedures will be developed, which adheres to the Reserve Fire Management Plan in place to evacuate staff and contractors in the event of wildfire. This plan must be developed for Hegartys Bay, Mowarry Beach and for the Light to Light Walk. • Walking tracks, accommodation and service infrastructure must be designed and constructed to minimise operation and maintenance requirements. • Works to be carried out during standard work hours (i.e. 7 am to 6 pm Monday to Friday; 8 am to 1 pm Saturdays). Any work that is performed outside normal work hours or on Sundays or public holidays must be approved prior and is to minimise noise impacts. • Aircraft operations must not be undertaken in early morning or late afternoon or in a way that will impact campers and other park users. <p>Activity 1</p> <ul style="list-style-type: none"> • The existing track network must remain open until the new track sections are fit for use. • Rehabilitation of existing tracks to be closed must not occur until walking track realignments are completed and open to ensure uninterrupted access to walking track users. • Track closures and impacts on car parks will be minimised and staged to retain public access as much as possible during construction • Appropriate controls for flight paths crossing public tracks and trails will be implemented to ensure no people are below the flight path for aircraft operations. • Aircraft operations would be undertaken Monday to Friday avoiding weekends and public holidays unless approved by the Area Manager.

Category of impact	Safeguards/Mitigation measures
	<ul style="list-style-type: none"> • Where required, construction signage and temporary fencing will be installed at either end of work zones to notify visitors and prevent access. • The walking track must be constructed to meet <i>Australian Standard 2156: Walking tracks classification and signage</i> and the <i>NPWS Park facilities manual</i>. • Geological and landslide risks must be managed in accordance with the NPWS Landslides and Rockfalls Procedures. • The use of signs, handrails and steps and other track infrastructure will be minimised where possible. • Where these structures are required, as much as possible, they must utilise natural materials that blend into the environment.
	<p>Activity 2</p> <ul style="list-style-type: none"> • A formalised hut accommodation and camping area booking system must be implemented. A review of its effectiveness will be undertaken within 6 months of commencement. • Public camping will be formalised and maintained at Mowarry Point, independent of hut accommodation. • The design and style of hut accommodation and facilities will be in keeping with the surrounding landscape. • The design and scale of hut accommodation and facilities will be in accordance with NPWS design guidelines. • Revegetation screening with locally appropriate species must be incorporated into the landscape designs for both precincts to reduce the visual impact of the hut accommodation to other users while matching the surrounding environment. • The CEMP will include traffic controls including signage and speed limits will be implemented for works undertaken on public access tracks. • Infrastructure (including the huts, communal kitchen and host hut) at Mowarry Point and Hegartys Bay must be constructed to meet development standards of land as categorised by Ecological Australia (Ecological Australia, 2019): • The hut hosts accommodation at Hegartys Bay must be constructed to meet the development standards of BAL-FZ and a community refuge. • All other buildings must be BAL 29. • Appropriate Asset Protection Zones must be maintained. • Campfires will not be permitted at the accommodation precincts.
	<p>Activity 3</p> <ul style="list-style-type: none"> • Construction equipment, machinery and materials will be stored at nominated compound sites. • The Hegartys Bay access boardwalk must be kept to a minimal height and follow the natural topography.

Category of impact	Safeguards/Mitigation measures
<p>Natural Resources</p>	<p>Activity 2</p> <ul style="list-style-type: none"> • Construction of hut accommodation huts and associated infrastructure at Hegartys Bay and Mowarry Point will be undertaken with minimal disturbance necessary. • Boardwalks will be installed in preference to gravel tracks in areas with wetter vegetation communities to minimise impacts on local hydrology where practical. • The design and fit out of the accommodation locations must specify energy and water efficient fixtures as required.
<p>Aboriginal Culture Heritage</p>	<p>All Activities</p> <ul style="list-style-type: none"> • A 20-year Aboriginal heritage impact permit (AHIP) must be obtained through Heritage NSW to allow impacts from the proposed Light to Light Walk Upgrade, including walking tracks between Boyds Tower and Green Cape Lightstation, Mowarry Point, Hegartys Bay and associated vehicle and access tracks. • A program of surface collection and salvage excavation will be completed prior to impacts. Salvage is recommended for sites listed at points given in the Aboriginal cultural heritage assessment (ACHA) report (Lantern Heritage 2021a), in accordance with the methodology given in Appendix 5 of the archaeological report, developed by Lantern Heritage as part of the ACHA report. • The Aboriginal cultural heritage management plan, developed by Lantern Heritage as part of the ACHA report, will be implemented to reduce and manage potential long-term visitor impacts to recorded sites located outside the Light to Light Walk Upgrade project area. • Ground-disturbing activities associated with the proposal are monitored by Eden LALC or other Aboriginal community representatives as chosen by NPWS. • No work is to be conducted beyond the proposed AHIP areas developed by Lantern Heritage as part of the ACHA report. All areas beyond the proposed AHIP boundary are to be treated as no-go zones and must not be used for stockpiling of materials or vehicle access, unless existing vehicle access tracks are used or through a separate archaeological investigation/AHIP. • Prior to working in the study area, all contractors associated with the project to receive cultural heritage inductions delivered by either NPWS staff trained in Aboriginal cultural heritage site identification or a member of Eden LALC. • In the event that ancestral (human) skeletal remains, or suspected human skeletal remains, are encountered during any of the proposed works or salvage actions, all work must stop and the procedures outlined in Appendix 6 of the archaeological report, developed by Lantern Heritage as part of the ACHA report, will be implemented. • The long-term management and mitigation measures outlined in the ACHA report and Aboriginal cultural heritage management plan will be implemented over the life of the AHIP (subject to approval).

Category of impact	Safeguards/Mitigation measures
	<ul style="list-style-type: none"> • A program of surface collection and salvage excavation must be completed prior to impacts. Salvage is recommended for sites listed in the ACHA report and in accordance with its methodology outlined in Appendix 1 of the Archaeological Report (Appendix 1 in the ACHA report). • Management and mitigation measures outlined in the ACHAR must be implemented over the life of the AHIP (subject to approval). • A copy of the final ACHAR must be forwarded to all Registered Aboriginal Parties for their review and comment. • NPWS must consider the recommendations of Donaldson’s 2018 intangible cultural heritage study of Ben Boyd National Park. These recommendations include but are not limited to: <ul style="list-style-type: none"> ○ providing opportunities for registered Aboriginal parties and local Aboriginal people to showcase their culture and heritage values in the interpretative signage proposed for the Light to Light Walk Upgrade project ○ undertaking an Aboriginal naming project across Ben Boyd National Park ○ continuing to support Aboriginal use of the camp grounds within Ben Boyd National Park. <p>Activity 1</p> <ul style="list-style-type: none"> • Walking track works within the Light to Light Walk Upgrade project will be limited to a 30 m wide corridor, based on the alignment illustrated in the ACHAR. • An Arborist will be engaged to assess the cultural origins of an identified scarred tree (location given in the ACHAR). • Walking track works within the Light to Light Walk Upgrade project must be limited to within the 30 m wide micro-siting corridor. <p>Activity 2</p> <ul style="list-style-type: none"> • All cultural material recovered from the proposed surface collection, salvage excavation and previously completed test excavations at Hegartys Bay and Mowarry Point will be moved or reburied as close to the site as possible. An updated AHIMS site card will be submitted to Heritage NSW recording the new location of artefacts. • An area for Aboriginal cultural heritage interpretation and display of selected artefacts will be constructed at Mowarry Point and Hegartys Bay accommodation areas in accordance with registered Aboriginal Parties recommendations.
Other cultural heritage	<p>All activities</p> <ul style="list-style-type: none"> • All contractors involved in all activities associated with the project must receive historic heritage inductions prior to undertaking work in the study areas.

Category of impact	Safeguards/Mitigation measures
	<ul style="list-style-type: none"> • If encountered, archaeological remains will be assessed by an archaeologist to determine whether the suspected find constitutes a relic under the NSW <i>Heritage Act 1977</i> and whether NSW Heritage Council should be notified. • Conduct archival recording at all heritage items of local or state significance where impacts are anticipated within the curtilage of an item. • Subsurface disturbance must be avoided across all identified areas of potential archaeological deposits predicted to contain relics. • A Conservation Management Plan be prepared for the heritage items identified in the Historic Assessment (see Appendix J) to reduce and manage potential long-term visitor impacts to the locally and state significant items present along the Light to Light Walk. • An unexpected finds procedure will be developed prior to commencement of works and integrated into the above Conservation Management Plan • A heritage interpretation plan must be developed for the Light to Light Walk that also incorporates any additional information or research undertaken in relation to the mitigation measures provided in this section of the REF. <p>Activity 1</p> <ul style="list-style-type: none"> • NPWS must apply to Heritage NSW for an exemption under section 57(1) of the <i>Heritage Act 1977</i> for walking track work proposed within the Green Cape Maritime Precinct curtilage. This can occur through a S.60 fast track works application or a standard S.60 works application. <p>Activity 2</p> <ul style="list-style-type: none"> • NPWS must apply to Heritage NSW for an excavation permit under section 140 of the <i>Heritage Act 1977</i> to undertake works at Mowarry Point and Hegartys Bay where ground disturbance activities are anticipated and will need to be mitigated through monitoring and/or salvage excavations.
MNES	NA
Cumulative Impacts	<p>All activities</p> <p>All proposals must be coordinated to minimise impacts to park users.</p>

9. Conclusion

This review of environmental factors has assessed the potential impacts of activities associated with the Light to Light Walk Upgrade project proposed in the Ben Boyd National Park south of Eden NSW. The proposal involves walking track upgrades, the establishment of hut accommodation and camping areas, and access improvements. The preferred option is the establishment of the 3-day hut-to-hut walk. The delivery and strategy for the Light to Light Walk Upgrade meets the objectives of the NPWS Visitor Infrastructure Program and New South Wales Government's Regional Growth – Environment and Tourism Fund.

The proposed Light to Light Walk Upgrade project is the result of 3 years of considered assessment and design refinement to allow more people to appreciate the natural and cultural values of Ben Boyd National Park. This process of design and refinement has involved 2 separate community consultation processes and has been undertaken in close consultation with the Aboriginal community.

The proposed work as part of the Light to Light Walk project will not result in total loss of values for any environmental factors considered in this REF. The areas of direct or indirect impact are largely restricted to the existing walking track or areas that have already been disturbed through long-term visitor use or historic pastoralism. NPWS plans to use on-ground refinement of the track location and low-impact construction methods to limit ground disturbance.

The proposed Light to Light Walk upgrade works have been developed with ecological sustainability in mind. Every effort has been made to ensure the sustainability of the land, longevity of the walking track and conservation of the study area for future generations.

Initial field work and assessment of these works was completed prior to the 2019–20 bushfire season, which decimated many areas of native vegetation across the east coast of Australia and caused significant impacts to wildlife and heritage, including threatened species and Aboriginal and non-Aboriginal objects. Scientists and government agencies have been working to understand how the fires have affected the environment and to determine where management intervention is needed. To date, surveys indicate that vegetation regeneration post-fire has been and continues to be successful in providing increased habitat and groundcover, with post-fire colonisation by some small mammals observed.

Impacts to threatened species have been addressed in tests of significance (BC Act listed species) or assessments of significance (EPBC Act listed species). No threatened species are considered to be at risk of significant impact. Most of the mitigation measures recommended for the proposal are commonplace and are proven to be effective. With the effective implementation of safeguards and mitigation measures identified in this assessment, risk of impacts to biodiversity can be minimised to negligible levels.

The post-bushfire conditions allowed excellent visibility for a comprehensive recording and avoidance of Aboriginal and non-Aboriginal sites, greatly reducing impacts to heritage items.

Several additional activities have been proposed by NPWS within the southern sector of Ben Boyd National Park. These proposals are located within existing precincts and road formations and would be consistent with existing uses at these locations. While any additional activity in the park has potential to cause some impact (additional vehicle movements or impacts to visitors through closures and noise) these are considered negligible and no cumulative impacts to environmental or heritage factors are expected by these additional proposals.

Risks to soil, water, native vegetation, flora, fauna, community safety and Aboriginal and non-Aboriginal heritage have been identified as requiring mitigation. Significant impacts are not anticipated. With the implementation of mitigation measures set out in this REF, these impacts are considered acceptable.

10. Supporting documentation

Documentation supporting this REF is detailed below, including appendix number. Access to the Aboriginal cultural heritage assessment (Attachment A) is restricted to registered Aboriginal parties, access to the Historic assessment report (Appendix J) contains sensitive information and is restricted to NPWS use. Other appendices are supplied as separate PDFs accessible via the Light to Light Walk project webpage.

Appendix	Document	Author/Citation	Date
Appendix A	Aboriginal cultural heritage assessment (restricted)	NGH (2021a)	December 2021
Appendix B	Biodiversity assessment report	NGH (2022)	January 2022
Appendix C	Preliminary walking track scoping report	Track and Trail Management Services, TTMS (2019)	July 2019
Appendix D	Plan of management amendment: Light to Light improvements	NPWS (2021a)	Adopted 11 January 2021
Appendix E	Light to Light Walk: public exhibition report	NPWS (2021b)	
Appendix F	Database searches		
Appendix G	Proposed architect design drawings – <ul style="list-style-type: none"> G.1 hut accommodation areas (Andrew Burns Architecture) G.2 Mowarry Point camping area (Shannon Architects) G.3 Pulpit Rock car park design (Shannon Architects) G.4 Extracts from NPWS <i>Park facilities manual</i> and <i>Road maintenance manual</i> 		
Appendix H	Examples of proposed track construction methods	NPWS	no date
Appendix I	Submissions report: Light to Light Walk Upgrade draft review of environmental factors	NPWS (2022)	
Appendix J	Historic assessment report (restricted)	Lantern Heritage (2021b)	December 2021

11. Signature of proponent

By signing the REF, the proponent confirms that the information in the REF is accurate and adequate to ensure that all potential impacts of the activity can be identified.

Signature: 

Name (printed): Kane Weeks

Position: Director Park Operations, South Coast Branch

Date: 24/11/2022

12. References

- Australia ICOMOS. (2013) *The Burra Charter: The Australia International Council on Monuments and Sites Charter for Places of Cultural Significance*. Australia ICOMOS.
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- DPIE (2020b) 'Landslides and rockfalls procedure', DPIE, Sydney South.
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- Miles J (2022) *Wattle Identification from Pulpit Rock Area, Green Cape, Ben Boyd NP* [unpublished report].
- NGH (2021) 'Draft review of environmental factors: Light to Light Walk upgrade', Department of Planning, Industry and Environment, Sydney South.
- NGH (2022) 'Biodiversity assessment report: Light to Light Walk [PDF 20.4MB]', (Appendix B of this REF), Department of Planning and Environment, Parramatta.
- NPWS (National Parks and Wildlife Service, NSW) (2010) *Ben Boyd National Park and Bell Bird Creek Nature Reserve plan of management*, NPWS, Sydney.
- NPWS (2011) *Roads manual*, NPWS, Sydney.
- NPWS (2016a) *Parks facilities manual* [unpublished report], NPWS, Sydney.
- NPWS (2016b) *Parks signage manual* [unpublished report], NPWS, Sydney.

NPWS (2021a) 'Ben Boyd National Park and Bell Bird Creek Nature Reserve plan of management', Department of Planning, Industry and Environment, Parramatta.

NPWS (2021b) 'Ben Boyd National Park and Bell Bird Creek Nature Reserve plan of management amendment: Light to Light Walk improvements', (Appendix D of this REF), Department of Planning, Industry and Environment, Parramatta.

NPWS (2021c) 'Light to Light Walk public exhibition report', (Appendix E of this REF), Department of Planning, Industry and Environment, Parramatta.

NPWS (2021d) 'Light to Light Walk strategy, Ben Boyd National Park', Department of Planning, Industry and Environment, Parramatta.

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TTMS (Track and Trail Management Services Pty Ltd) (2019) Ben Boyd National Park Light to Light Walk: recommended alignment and construction, v1.0, July 2019 [PDF 16.7MB], (Appendix C of this REF), Department of Planning and Environment, Parramatta.

More information

- [Light to Light Walk project webpage](#)
- **NPWS park policies:**
 - [Landslides and rockfalls policy](#)
 - [Visitor accommodation policy](#)
 - [Visitor safety policy](#)
 - [Walking tracks policy](#)
- **Acts, regulations and environmental planning instruments:**
 - [Biodiversity Conservation Act 2016](#)
 - [Biosecurity Act 2015](#)
 - [Bega Valley Local Environment Plan 2013](#)
 - [Environmental Planning and Assessment Regulation 2000, Schedule 3](#)
 - [Environment Protection and Biodiversity Conservation Act 1999 \(Cth\)](#)
 - [Fisheries Management Act 1994 No 38](#)
 - [Heritage Act 1977](#)
 - [National Parks and Wildlife Act 1974](#)
 - [Rural Fires Act 1997](#)
 - [State Environmental Planning Policy \(Biodiversity and Conservation\) 2021](#)
 - [State Environmental Planning Policy \(Planning Systems\) 2021](#)
 - [State Environmental Planning Policy \(Resilience and Hazards\) 2021](#)
 - [State Environmental Planning Policy \(Transport and Infrastructure\) 2021](#)
 - [Wilderness Act 1987](#)