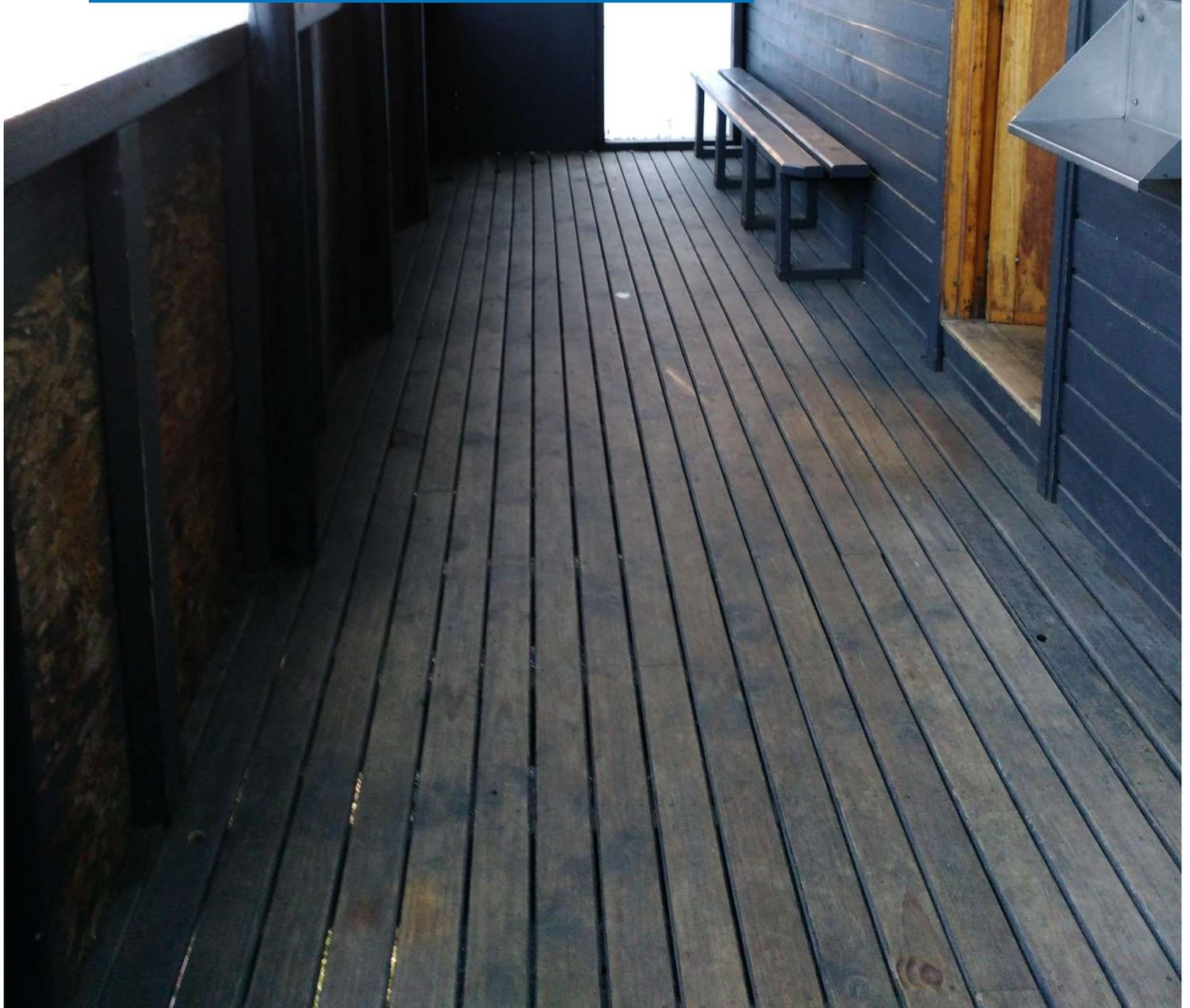


RESERVE ACTIVITY ASSESSMENT #3465

Waterfall Valley Public and Ranger Huts

Overland Track

Cradle Mountain – Lake St Clair National Park



Acknowledgements

ISBN:

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Department of Primary Industries, Parks, Water and Environment

Executive Summary

The subject of this Reserve Activity Assessment (RAA) is to replace the public and ranger huts at Waterfall Valley on the Overland Track. The aim of the works is to improve hut capacity and building standards while protecting site values and the wilderness experience of walkers.

Public huts are an environmental management tool used for the purpose of protecting sites from their own popularity. In the case of Waterfall Valley, the 34 independent walkers starting the Overland Track daily can be concentrated on one hardstand.

The greywater system will also be upgraded and improve wastewater management at the site. The proposed system is consistent with the systems used at the commercial huts on the Overland Track and Tahune Hut on the Frenchmans Cap track. These systems are shown to be effective at managing wastewater in alpine areas.

The size of the proposed public hut is relatively modest with an average area per person 4.5m^2 - an increase from 3.3m^2 in the existing hut. The increase in size provides each walker with an individual bunk, pack storage and seating in the communal area for cooking and socialising. During the peak season and milder weather, walkers will also enjoy the amenity of using outside decks to engage with the scenery of Barn Bluff and surrounding landscape views.

Rangers require suitable accommodation while in the workplace. Rangers provide essential services including assisting unprepared walkers, assisting with search and rescue duties, and first aid and evacuation of injured or unwell walkers. This is in addition to their regular duties of track maintenance, servicing huts and toilets and compliance activities. The proposed ranger hut is consistent in size and number/type rooms with those currently provided at Pelion and Windy Ridge overnight nodes on the Overland Track.

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Glossary and abbreviations

AHT	Aboriginal Heritage Tasmania
BAL	Bushfire Attack Level
BHMP	Bushfire Hazard Management Plan
BT	Bushwalking Tasmania
CEMP	Construction and Environmental Management Plan
FMZ	Fuel Modified Zone
NCH	Natural and Cultural Heritage
NPWAC	National Parks and Wildlife Advisory Committee
OLT	Overland Track
PCAB	Policy and Conservation Assessment Branch
PWS	Parks and Wildlife Service
RAA	Reserve Activity Assessment
TFS	Tasmanian Fire Service
TNPA	Tasmanian National Parks Association
TWWHAMP	Tasmanian wilderness World Heritage Area Management Plan
WFV	Waterfall Valley

1. Introduction

1.1 Project overview

In the 2018 election the State Government committed to invest \$3 million over three years to address the inconsistent capacity and standard of different huts on the Overland Track (OLT). The Overland Track Redevelopment Project has identified Waterfall Valley (WFV), Windermere and Kia Ora nodes as the focus of the funding due to their limited capacity, poor building health and non-compliant building standards.

Waterfall Valley public hut is the first hut to be redeveloped to provide sufficient bunks to accommodate the 34 independent walkers booked each day on the OLT.

Concurrently, the ranger hut at WFV will also be redeveloped. Overland Track 10 Year Works Program has identified replacing the current staff accommodation (igloos and bunk rooms) as a priority over the next 5 five years. The proposed Ranger hut will improve work health safety standards to an acceptable level for staff working on the OLT.

The scope of this RAA is the proposed public and ranger huts. Disturbed areas will be reused within the site to accommodate developments, where the:

- Ranger hut will re-use the former toilet site (new full-capture toilet constructed 2018/19 season), and
- New public hut will be built on the footprint of the existing hut.

This will limit ground disturbance and further impacts to sensitive alpine vegetation that is difficult to rehabilitate.

The proposed developments are consistent with planning documents:

- Draft OLT Recreation Zone Plan V11 2014,
- Waterfall Valley Concept Site Plan 2016, and
- TWWHA Management Plan 2016.

The proposal to redevelop both huts at the same site and time is intended to minimise capital works impacts on walker experiences, plus realise project efficiencies by combining the works at this remote site. Works are proposed for the 2019/20 summer season.

1.2 Project objectives and outcomes

The Tasmanian Wilderness World Heritage Area Management Plan 2016, core objectives include:

“To provide a diversity of visitor experiences in a manner that is consistent with conservation of natural and cultural values.”

The overall aim of the Overland Track Hut Redevelopment Project is to increase capacity and amenity while protecting environmental values and the wilderness experience.

The objectives of the Project are:

- Complete the redevelopment of huts within budget and funding milestones.
- Increase capacity, thermal performance, building health and amenity of huts.

- Ensure specifications for the huts redevelopment encompass energy efficiency and sustainability outcomes.
- Reduce negative environmental impacts within the overnight node.
- Minimise the footprint and area of disturbance caused by the redevelopment construction process. Minimise the impact of the construction program on the walker experience.
- Integrate planning for all projects at each site to ensure works are sequenced to minimise onsite storage requirements, ground disturbance and cumulative impacts on walkers.
- Engage with key stakeholders early in the planning process to maximise their input into planning and delivery and to build support for project objectives and outcomes.

The objectives of redeveloping Ranger huts on the Overland Track are:

- Increase capacity, privacy and amenity of rangers' accommodation to a satisfactory standard;
- Improve thermal performance, energy efficiency and building health; and
- Maintain Work Health and Safety standards for rangers in the workplace.

Outcomes for both projects are:

- Improved visitor and staff accommodation;
- Improved management of walker and staff impacts on the environment; and
- Improved visitor experience.

1.3 Project outputs

Public Hut:

- Total building area of 131 m², including 51m² communal area, 80m² sleeping space and 22m² wet porch.
- Total decked area of 112m² with integrated greywater system underneath and 25m² undercover access to 12,000ltr water tank.
- Pitched roof with wall height of 3m and peak of 5.4m to allow for snow loads.
- Thirty-four individual bunks, five stainless steel tables and seating and cooking benches inside and out.
- Passive heating achieved by insulation envelope retaining internal gains (i.e. cooking and body heat), plus solar power electric convection heater in the communal area.
- Ventilation to allow air flow and moisture extraction from hut by ceramic core heat exchangers in communal area and windows maybe manually opened.
- Photovoltaic power including solar panels and battery storage.
- Minor track works around hut to connect to existing access track from OLT.

Ranger Hut:

- Total building footprint of 43m² that includes combined living and sleeping area and a separate workshop area for regular use by individual rangers.
- Plus 16.5m² loft with additional sleeping area for staff during regular inspections and track works.

- Decked area is 22m² including undercover access to water tank, gas bottles, batteries and small private area for showering.
- Roof will be pitched with a wall height of 3m and peak at 5.3m to allow for snow loads.
- Passive heating will be achieved with an insulation envelop retaining internal gains plus gas for cooking and potentially heating.
- Manual ventilation via windows.

Greywater System:

- System includes two grease traps, dosing chamber and bottomless sand filter.
- All system components will be integrated under the decks of the public hut.
- Ranger hut greywater will be linked to public hut system by piping under walkways.

1.4 Current status of the proposal

The statutory approval pathway for the hut proposal is outlined in Table 1, including the status of the approvals.

Table 1: Statutory approval pathway

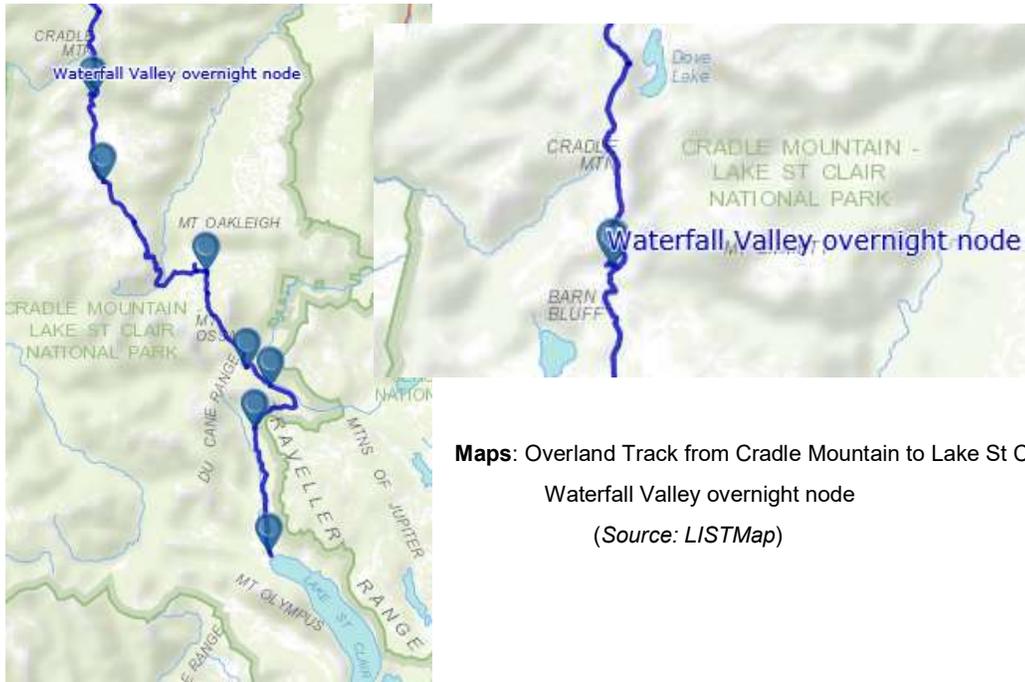
Approval or Permit	Agency or Authority	Documentation and process	Status
Archaeological Survey	AHT	Survey to confirm data from 1999, no aboriginal heritage items identified within development site. Management prescriptions to be finalised by AHT.	Commenced
Natural Values Survey	NCH	Survey confirmed Natural Values Atlas data, no threatened species or critical habitat identified within development site.	Complete
Visual Analysis	PWS	Survey to assess the aesthetic values of the area and the potential impacts of the proposed development. Report identified moderate to low impacts across a majority of factors and the proposal is consistent with visitor expectations and land use.	Complete
Concept building plans	PWS	Concept building plans prepared by Architect in accordance with design briefs.	Complete
TWWHAMP 2016	PWS	3. Use and Development Controls - Recreation Zone and Use Table. - Additional assessment criteria regarding potential impacts to outstanding universals Values.	Complete
RAA Step 4 Impact Assessment	PWS	Surveys, reports and plans obtained to: - describe the proposed development, - address relevant legislation, and - assess potential impacts and proposed management.	Drafted
RAA Step 5 Advice	PWS	Seek specialist advice and public comment regarding proposal and impact assessment.	Current
RAA Step 7	PWS	Development proposal and management controls are refined	Not

External Approvals		during Step 5 and integrated into Step 6 Activity Plan. Permission granted to seek external approvals.	commenced
Planning Permit	West Coast Council	Development application is required by West Coast Council to assess the proposal for compliance with West Coast Interim Planning Scheme 2013. If the application is deemed 'discretionary', then the development application will be publicly advertised for 14 days and public submissions can be made to Council.	Not commenced
Bushfire Hazard Management Plan (BHMP)	TFS	AS-3959 - Construction of buildings in bushfire prone areas. Tasmanian Fire Service are the permit authority under the Tasmanian <i>Building Act 2016</i> for assessing developments that don't comply with Standard. A Bushfire Hazard Practitioner endorsed by TFS prepares the BHMP that includes building conditions and site mitigation. Strategies for visitor safety and building protection that also limit disturbance to the wilderness area are under-development. These will be finalised with detail building drawings and before a Certificate of Likely Compliance is issued by the Building Surveyor.	Preliminary advice and ongoing analysis of alternatives
Certificate of Likely Compliance	Building Surveyor	Building Surveyors are the delegates under the Tasmanian <i>Building Act 2016</i> for assessing building designs to ensure compliance with NCC, AS and the Act. The Building Surveyor will assess the detailed building drawings and engineering designs to ensure compliance with NCC, the Act and relevant Australian Standards before issuing the Certificate of likely Compliance.	Preliminary advice and ongoing discussions with Architects.
Building Permit	West Coast Council	West Coast Council are the permit authority under the <i>Building Act 2016</i> and will issue a Building Permit, on receipt of the Certificate of Likely Compliance from the Building Surveyor.	Not commenced
Plumbing Permit	West Coast Council	Greywater design upgrade has been prepared by a suitably qualified engineer and compliant with AS1547 for submission to the permit authority. West Coast Council is the permit authority under the <i>Building Act 2016</i> for issuing Special Plumbing permits (i.e. any system not connected to reticulated services).	Not commenced
RAA Step 8 Final Determination	PWS	Following the receipt of external permits and approvals, Step 6 Activity Plan is finalised with any additional conditions. Final RAA determination is given – approved, approved with conditions or not approved. If approved, a works authority will be issued outlining the conditions of approval to be implemented during construction.	Not commenced

2. Proposal description

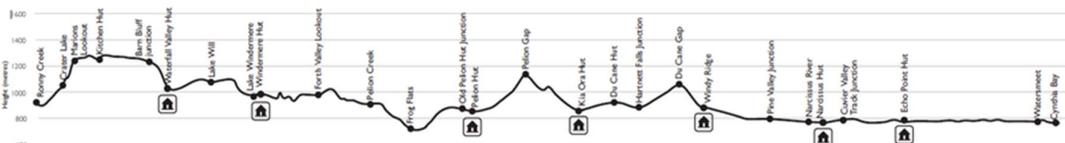
2.1 Location

The proposed public and ranger huts are located at WFV overnight node. This is the first of eight overnight nodes on the OLT. The OLT is Australia's premier alpine walk and is a 65km long traverse of the Cradle Mountain-Lake St Clair National Park, in the Tasmanian Wilderness World Heritage Area.



Maps: Overland Track from Cradle Mountain to Lake St Clair; Waterfall Valley overnight node
(Source: LISTMap)

The OLT is a serious undertaking for well-prepared walkers with a good level of fitness and who understand the risks of walking in remote alpine areas. Walkers have the freedom walk the track at their own pace, stay more than one night in a hut, visit all eight huts and over as many days as they are prepared to travel. The spirit of the OLT is that walkers are independent and have the flexibility to complete the track at their own pace in north to south direction. Bunks are not allocated or guaranteed in huts and walkers must be prepared and carry a tent for safety reason.



Overview: Overland Track Daily Walker Notes, (Source: www.parks.tas.gov.au)

WFV is south west of Cradle Mountain and below the exposed Cradle Cirque. It is nestled on the slope of a glacial basin with expansive views of Barn Bluff to the west. The

vegetation is primarily alpine heath and *scorparia*, interspersed with alpine eucalypts on higher slopes. The site is regularly visited by a variety of animals grazing on the alpine grasses at the base of the valley.



Photograph: Waterfall Valley overnight node, toilet in foreground and hut roof bottom right of picture (Source: PWS)

2.2 Need

The OLT is a hut based walk. There is a variety of huts on the track, all constructed at different times and for different visitor numbers, therefore, the number of beds provided and conditions between huts are inconsistent. Track rangers also endure significant differences in accommodation when working their eight day shifts on the OLT.

Public Hut:

Most walkers complete the OLT in five nights - six days, staying at Waterfall Valley, Windermere, Pelion, Kia Ora and Windy Ridge. Walkers also have the flexibility to stay at other overnight nodes including Scott Kilvert, Narcissus and Echo Point.

During inclement weather, the majority of walkers prefer to sleep in a hut but some huts do not have the capacity to accommodate the daily quota of walkers (34). Walker feedback has identified the need to address inconsistencies in the capacity and building condition between huts. Walkers consistently rate the quality of Waterfall Valley hut less than Pelion and Windy Ridge that have greater bunk capacities and building health.

Building health is very poor in traditional hut designs. The older style huts have no insulation, ineffectual heating, cramped conditions and unventilated moisture loads from cooking, clothes and breathing. The moisture trapped in huts condenses with cold overnight temperatures and drips from walls and ceilings. These moist conditions also propagate mould. Active mould growth is black and stains the internal cladding regardless of how often it is cleaned by track rangers. Poor building health negatively impacts walker experiences and could pose health risks.

The proposed public hut design is intended to resolve building health issues by preventing moisture loads in the hut and integrating thermal performance and ventilation to create a comfortable hut environment.

A separate wet room for wet jackets and boots will reduce the amount of moisture entering the hut. Decking with steel cooking plates will encourage walkers to socialise and cook outside when conditions allow. Moisture will be ventilated via ceramic core heat exchanger that allows air and moisture to leave the building while retaining the heat. This system has shown to be effective at Lake Tahune hut. The heat exchangers will only be located in the communal space to limit any noise nuisances in sleeping areas.

Both the public and ranger huts will be built with an insulation envelope in the floor, walls and roof. The insulation will allow the hut to retain internal heat gains just from people staying in the huts. Solar power electric convection heater will also be provided in the communal area to maintain a constant temperature, which further aids building health and structural longevity.

The hut warden accommodation at WFV will also be upgraded with the new hut. The warden's room will be larger and contain a separate storage space and benched area. The room is part of the new hut so the warden/s are accessible as well as providing additional privacy with a separate entrance.

Ranger Hut:

Ranger accommodation on the OLT varies greatly between sites. Pelion and Windy Ridge have purpose built ranger huts with separate sleeping, living and workshop areas. The older style huts including Windermere, Kia Ora and Waterfall Valley have an integrated bunk room in the public hut. Igloos are also located at Waterfall and Kia Ora for staff accommodation.



Photographs: Waterfall Valley Ranger igloo and bunk room in public hut

(Source: PWS files).

Igloos are emergency shelters and not rated as habitable buildings. The bunk rooms and igloos are not suited to longer stays and offer little amenity or privacy for rangers when working. Also, more bunks and pack space are often needed to accommodate groups of up to 4 personnel for inspections and works, which is not possible with the current facilities.

2.3 Site identified for development

The site identified for the proposed public and ranger huts are those identified in the Waterfall Valley Concept Site Plan 2016.

The public hut will be built on the same footprint as the existing public hut. The proposed ranger hut will be built on the footprint of the former toilet as shown in the Site Plan extracts below and full plans provided as Attachment 1 and 2.

The sites will make use of existing disturbed ground in an alpine area where rehabilitation is extremely difficult.



Site Plan: WFV Concept Site
Plan 2016



Site Plan: WFV public and ranger huts concept drawing,
Green Designs 2019

2.4 Alternatives

WFV overnight node is an established part of the OLT. The proposal is to upgrade existing facilities. The proposal is not a new use and it will not increase the level of use. As such, the alternatives discussed relate only to how the proposal could be reconfigured within the node and do not relate to the type of use, scale of use or changes to the established management of the OLT.

Table 2: Description of alternatives

Alternative	Description and comments
<p>Eliminate the huts</p>	<p>Huts are an environmental management tool to concentrate walkers on a hard-stand and to protect the site from its own popularity. OLT is a hut based walk, and providing huts is a major part of its sustainable management at current use levels.</p> <p>Huts have a long historical use on the OLT and in alpine areas of Tasmania as huts are offer refugee in serious and changeable weather conditions. It is the expectation of walkers that huts will be provided on OLT for safety and sustainable management.</p> <p>Work health and safety is priority in any workplace. Rangers are integral to track management and walker safety. As such it is necessary to provide habitable buildings for these staff that are required to stay overnight in their workplace for extended periods.</p>
<p>No change</p>	<p>Existing facilities provide insufficient capacity and poor building health with reoccurring mould infestations that pose a risk to walker health. Unpleasant hut conditions, particularly during inclement weather when it is overcrowded and the moisture beings to condensate. Heating provided in the existing hut is ineffectual and sourced from fossil fuels.</p> <p>Rangers would continue to be accommodated in temporary and transportable emergency shelters, rather than habitable buildings. Works health safety standards remain unacceptable for staff in the workplace.</p>
<p>Upgrade of existing hut and/or add extensions</p>	<p>Initially it was preferred to retain and upgrade the existing hut whilst adding additional floor area, either in the form of a direct extension to the existing hut or as separate sleeping or communal pods. To retain the existing hut, a considerable amount of work would be required to make it comply with the health and safety requirements of the Building Code of Australia and to upgrade its thermal efficiency.</p> <p>The embodied energy in the existing hut is high, while it would be preferable to keep the existing building fabric to reduce the total environmental footprint, the building fabric is predominately plywood or pine and not salvageable hardwoods. Also an upgrade of the existing hut is likely to be a compromise on function and thermal performance compared to a new structure.</p> <p>Ultimately, it was concluded that demolition of the existing hut and a complete new construction will result in the best hut for the site. This is because the design can be optimised for energy efficiency, longevity, aesthetics and appearance, function and compliance with new building regulations. A new design will avoid inefficiencies and compromises.</p>
<p>Relocate public hut to toilet site and convert existing hut for rangers:</p>	<p>The former toilet site is a prominent elevated site which oversees the valley and is the first building viewed on arrival from the OLT. This site could be an alternative location for the new public hut.</p> <p>The combination of retaining the existing hut and building a new hut would likely result in a larger overall building footprint on the site. The higher elevation of the toilet site is also likely to increase the visibility of the buildings in the landscape, although the architects considered this to be manageable within the design.</p> <p>The alternate site would have been departure from the Waterfall Valley Concept Plan 2016 that was supported by key stakeholder groups. The site would also change the profile of the hut and be inconsistent with design brief where walkers are to be immersed in the Tasmanian wilderness and facilities are not to feature or detract from this experience.</p> <p>It was also determined not to convert existing hut for rangers due to all the reasons noted above for not upgrading the existing public hut.</p>
<p>Old WFV hut become ranger hut:</p>	<p>Old Waterfall Hut remains an emergency shelter on the Overland Track and is an important part the history of the area. Extensive changes to the building would be required to make it habitable. It would also require a bushfire fuel modified zone and additional greywater system.</p> <p>Composting toilets must be relocated when replaced as the former toilet must remain in situ to compost before removal. As such, reuse of the composting toilet site is better than the alternative of a scared ground unlikely to rehabilitate. Consolidated services and reuse of disturbed area at the one site is considered a better overall result for the node.</p>

3. Planning context

3.1 TWWHA Management Plan 2016

The Tasmanian Wilderness World Heritage Area Management Plan 2016 is a statutory plan that must be complied with. The plan sets overarching management objectives for the wilderness world heritage area and also restricts use and development within appropriate zones.

In Section 3. Use and Development Controls, WFV is located within the Recreation Zone and section 3.1.1.2 of the plan describes this zone.

Recreation Zone is characterised as a corridor or area providing access for a range of recreational activities in natural setting. The access maybe for day use or overnight. Typical infrastructure in this zone includes walking tracks, toilets, huts, camping areas and signs as well as trailhead facilities such as vehicle access and car parking.

OLT is encompassed in a Recreation Zone corridor as depicted on the Map 4 and 5 of the plan. The acceptable use and developments in the Zone is listed in section 3.2 Table of Use.

- Existing public or historic huts and associated infrastructure
 - Permitted in the Recreation Zone - may be maintained or replaced including through a partnership agreement.

The proposal to replace the existing public hut and ranger igloo is a permitted activity at the site as it is within the Recreation Zone and the development can occur within the zone.

It is important to note that the proposed upgrade to the huts will not change the existing use or increase the level of use at the site. The booking system for the OLT limits the number to a maximum of 34 independent walkers per day for half the year, from November - May. Walkers do not need to book for the remaining months, however the weather conditions restrict the track use to experienced walkers.

3.1.1 V11 Overland Track Recreation Zone Plan 2014 (draft)

The Overland Track Recreation Zone Plan has been in draft since its first release in 2005. The plan has been updated and revised regularly internally, with latest version 11 and dated 2014. The current draft offers a useful guide for works on the OLT and has informed the Waterfall Valley Concept Site Plan 2016 that is discussed below.

The current draft is under review due to the key desired outcome (KDO) in the TWWHAMP, for walking tracks including the OLT, to ensure these are maintained and managed appropriately. The management action prescribed to achieve this KDO is the development of Recreation Zone Plans as noted below.

KDO 6.4 A range of recreational walking experiences is provided and maintained in the TWWHA through the provision of appropriate levels of corresponding track infrastructure and management.

- *Develop Recreation Zone Plans for the South Coast Track, Frenchmans Cap and Overland Track.*

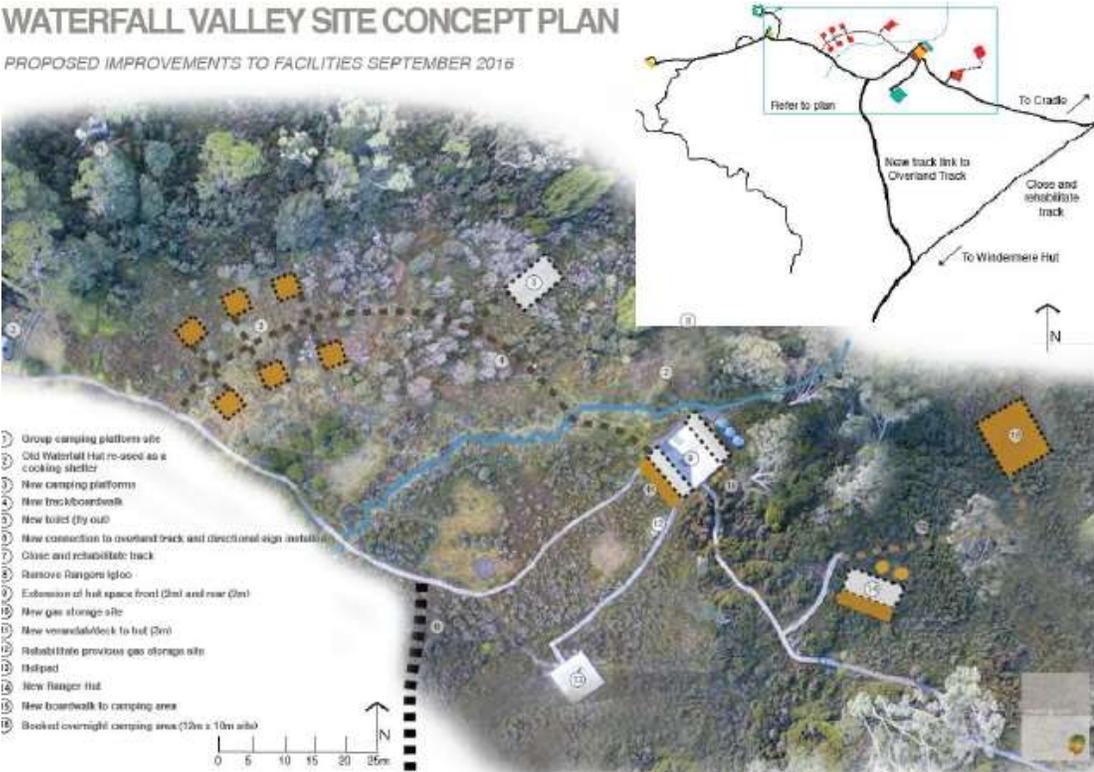
A strategic review of Recreation Zone Plans is underway. With regard to OLT, the requirements of the TWWHAMP are being integrated into the existing draft. The format of the plan is also being reviewed and will be consistent across Recreation Zone Plans prepared for the TWWHA.

3.2 Waterfall Valley Site Concept Plan 2016

PWS engaged Inspiring Place to prepare a site concept plan for the Waterfall Valley overnight node in 2016. The site concept plan assessed the current visitor infrastructure and recommended the proposed siting of new visitor infrastructure, consistent with the sustainable management of natural and cultural heritage values. Key stakeholders were consulted in preparing the plan including Bushwalking Tasmania, Tasmanian Walking Company and Tasmanian National Parks Association.

The service model for the site provides facilities for environmental and recreation management. In many ways, the site plan hinges on the location of the toilet as this must be central to the site so walkers use it rather than impact surround vegetation by bush toileting.

Composting toilets can't be built on the same site as baskets must be left in situ to compost before removal. A new toilet location was required and a more central and discrete site was identified. The tent platforms provide hard-stands for camping to reduce physical impacts and visual intrusion of tents on the grassed lawns below the hut.



Map: Waterfall Valley Concept Site Plan 2016

Development planning and concept plan ground truthing commenced in 2017 with the intent to replace the toilet and tent platforms in 2018/19 summer season. As more

information was gathered the location of these facilities changed to some degree. Firstly, the toilet site was re-evaluated and decision made to relocate the ranger's igloo onto a tent platform so the disturbed site could be reused by the toilet. Then the tent platforms were raised slightly on the slope above wet ground and located closer to the toilet. Resulting in an overall condensed footprint.

A natural values report was prepared as part of the development planning and addressed all the proposed developments at Waterfall Valley and is provided as Attachment 3. The tent platforms and toilet works were assessed in an RAA prior to this hut proposal.

The report notes:

"with careful planning and construction practices, it may be possible to locate some platforms within the eastern portion of the area in which they are currently proposed, working around Sphagnum patches, however this option would need to include measures to minimise ongoing disturbance of vegetation by platform users."

Mitigation measures for ongoing protection of Sphagnum included:

- tent platform area is largely covered by *Richea scoparia* (very prickly) and would be undesirable to walk through/against,
- the walkways were constructed to 1m wide to allow traffic to pass in both directions comfortably without stepping off the track, and
- all platforms/walkways are raised allowing for regeneration of vegetation if disturbed during construction.

The proposed locations of the hut developments raised no concerns in the natural values report, which is the topic of this RAA.

The proposed public and ranger huts will be located as described on the plan. The new public hut will be built over the footprint of the existing hut. The new hut is similar in size to Pelion and Windy Ridge huts and approximately double the size of the existing hut. The greywater system will be upgraded and integrated under the decking.

The ranger hut will be built on the former toilet site and again will reuse disturbed ground. Greywater from the ranger hut will be gravity piped under the boardwalk to the public hut system.

Developments proposed are consistent with intent and management strategies of the Waterfall Valley Concept Site Plan. Orientation and scale of the works differ to the site plan due to new information obtained during development planning. These differences do not represent significant inconsistencies.

4. Engagement

4.1 Overland Track Walker Survey 1999-2018

Bi-annually, OLT walkers are invited to complete a survey about their experience. It is an opportunity for walkers to provide feedback regarding the track, facilities and services as well as for PWS to understand more about the people using the track.

Results have shown that approximately 30% of walkers consider the huts to be crowded. The larger huts - Pelion and Windy Ridge - are also considered a higher quality than the older and smaller huts at Waterfall Valley, Kia Ora and Windermere, as shown in Tale 2 below. Hence, these huts are the focus of the OLT Hut Redevelopment Project, coupled with their generally poor building conditions and potential health risks.

Table 2: Overland Track Walker Survey 2017-18

15. How would you rate the QUALITY of the huts where you stayed?

	Much better than I expected	Better than I expected	What I expected	Worse than I expected
Waterfall Valley Count Row %	169 16.3%	292 28.2%	439 42.4%	52 5.0%
Windermere Count Row %	157 15.6%	306 30.4%	386 38.3%	43 4.3%
Pelion Count Row %	418 40.0%	332 31.8%	215 20.6%	32 3.1%
Kia Ora Count Row %	145 14.3%	256 25.3%	426 42.1%	80 7.9%
Bert Nichols / Windy Ridge Count Row %	394 39.7%	269 27.1%	149 15.0%	57 5.7%

4.2 Waterfall Valley Site Concept Plan 2016

Key stakeholders were engaged with the site planning at Waterfall Valley. In developing the plan, consultants met with representatives from:

- Bushwalking Tasmania (BT) and two regionally based bushwalking clubs,
- Tasmanian National Parks Association (TNPA), and
- Tasmanian Walking Company.

The proposed service model and location of facilities were discussed, and stakeholders were generally supportive of the plan.

4.3 Overland Track Hut Redevelopment Project 2018

An Engagement and Communications Plan has been prepared as part of the OLT Hut Redevelopment Project. The plan is an operational document for operations and provides internal guidance for:

- key messages and strategies,
- lists of stakeholders including clubs, associations, licence and lease holders, agencies and local tourism businesses, and
- types of engagement such as flyers/newsletters, booking notices, work notices, group presentations, focus group and RAA comment periods.

These lists were developed into a matrix to identify how best to deliver relevant information to different groups. An action plan for this matrix is a dynamic part of the plan to organise and record engagement and communication tasks.

Group presentations were delivered in September and October 2018, to notify stakeholders of the information available at the time including:

- funding committed at the election,
- project will be staged over three years, with only one hut to be worked on each year to limit disruption to walker experience.
- WFV hut would be the first hut to be redeveloped,
- hut designs will encompass energy efficiency, thermal performance, building health and amenity.
- daily walker departures will not change and will remain consistent with the capacity of the track and existing huts.

These presentations were provided to bushwalking clubs (and associations), key lease holders and internal PWS personnel directly impacted by the project.

RAA 3465 Waterfall Valley Public and Ranger Hut was circulated to targeted stakeholders in April 2019. The stakeholders included BT (through Bushwalking Australia), National Parks and Wildlife Advisory Committee (NPWAC) and TNPA. These groups were selected due to their interest and knowledge of the area, and ability to assist development planning.

5. Impact assessment & management

5.1 Natural values assessment

5.1.1 Flora and Fauna

Natural Values Survey of proposed Waterfall Valley Hut area redevelopment, Biodiversity Monitoring Section DPIPWE, December 2018 is provide as Attachment 3. The report assessed the whole site, while only the development area of huts is relevant to this impact assessment.

There are two main vegetation communities within the survey area. *Eucalyptus coccifera* woodland (DCO) occurs on the slope north of the hut, while Eastern alpine heathland (HHE) on flatter area south of the hut.

The only threatened species recorded at the overnight node was *Viola cunninghamii*, which is listed as rare under the Threatened Species Act 1995. This species occurs in the patches of lawn south of the hut development area.

The survey identified abundant signs (scats) of grazing marsupials (common wombat, Bennett's wallaby) throughout the area, in particular in association with the lawn areas.

The survey of the proposed hut sites did not identify any:

- threatened species or communities. or
- denning sites or potential denning sited for threatened Dasyurids.

Management controls:

- Avoid storage of equipment or materials during construction on the grassed lawns to prevent impacts to threatened plant.

5.1.2 Geo-Conservation

The development is within the Barn Bluff - Mt Inglis Late Palaeozoic Glacial Valley geo-conservation site. This site is a partly exhumed Late Palaeozoic glacially-eroded valley. The deeply dissected present-day topography allows the altitude of the base of the Permian succession to be determined at a sufficient number of points to draw form lines on the surface of deposition. The basin is at least 9.6 km long and 3.2 km wide.

The proposed development is equivalent to 'Commercial Scale' impact according to the threating processes for geo-conservation sites. Impacts include:

- Earthworks such as dingo, bobcat or small excavator to dig footings.

Policy and Conservation Assessment Branch (PCAB) with in DPIPWE, provided specialist advice that, based on the location and description of the works, no significant impact to this site is anticipated.

5.1.3 Landscape and viewfields

Waterfall Valley Facilities Visual Values Impact Analysis 2019, was undertaken by Inspiring Place to assess the visual impacts of the proposed huts and is provided in Attachment 4.

The Waterfall Valley setting is described as a glacial basin with valley floor comprised of moraine and associated deposits interspersed with boggy ground that create a varied topography. Numerous small creeks flow through the site combining nearby to form the waterfalls for which the valley is named.

The facilities at WFV site are at an elevation of ~1,040m and are embraced by higher ground to the north and south with its western perimeter dominated by Barn Bluff and the Bluff Cirque.

The evaluation of potential impacts are detailed in the report in Table 1 Factors Affecting Visual Impact. Viewing sensitivity against some factors is noted as 'high' including:

- due to the significant sensitivity of walkers to impacts (contrasting elements) that compete with the beauty of the high quality, wild scenery;
- in locations from which the facilities can be seen in close view; and
- the limited capacity to screen the proposed facilities.

Overall potential for visual impacts is low-moderate given the facilities are consistent with an existing land use and despite the visual presence of the facilities, visitors will be expecting to see them.

It would be preferred to relocate the rangers' hut to a more discrete location. However, the environmental and operational rationale for not doing so (i.e. that revegetation of the disturbed former toilet site would be problematic and the desire for the rangers' presence to be readily visible) outweighed the increased visual presence.

Management Controls:

Visuals Impact Analysis identified the following mitigation measures and these have been integrated in hut designs.

- architectural design of walker hut broken into small components where the large screens the small part,
- design process to consider possibility of modification to gable roofs to achieve further separation of elements.
- black colour of various components to mitigate visual impacts.
- use black fibre-reinforced plastic (FRP) on walkways and black on stain visible timbers.
- black butt timbers allowed to weather naturally.
- protect vegetation for its screening value around the hut during construction.
- eliminate or integrate gas bottles with new public hut.

5.1.4 Wilderness

The current methodology for quantifying wilderness quality is by the National Standard in Wilderness World Heritage Areas. A rating of 12 or above is considered high quality wilderness. The WHA wilderness quality assessment 2015 rating for the development site is 12.9.

Wilderness ratings are derived from mapping 'points' (i.e. huts, bores, towers, jetties) and 'lines' (i.e. tracks, roads, ferry routes). Attenuation areas are mapped around points and lines, and the accumulation of these lessen the wilderness value from a maximum of 20.

Public huts are an environmental management tool used for the purpose of protecting sites from their own popularity. Walkers can be concentrated on one hardstand at designated overnight nodes.

The proposed huts will not change the linear or built infrastructure as it is currently mapped. The proposal will also no change the current level of use as walker numbers are managed by the booking system.

As such the proposal is highly unlikely to diminish the current wilderness quality.

5.1.5 Water quality

The proposal includes an upgrade to the existing greywater system with the introduction of sand traps to filter particulates. *Waterfall Valley Hut Greywater Design Upgrade 2019* is provided as Attachment 5.

Any impacts from greywater are likely to reduce as the filtration systems will be improved while water use will remain the same as not change in walker numbers is proposed. .

Water quality at the site is unlikely to be negatively impacted by the development and use of the site.

5.1.5 WHA universal values

In recognition of the particular circumstances and management obligations in the TWWHA, an additional set of assessment criteria are prescribed to any assessment in the TWWHA undertaken through the RAA process. The additional criteria describes the potential impacts to the WHA universal values and is provided as Attachment 6.

5.2 Cultural values assessment

5.2.1 Aboriginal heritage

AHT advised an Aboriginal heritage site was recorded within or close proximity to the works (AH5648 - an artefact scatter). This scatter was recorded in 1999 and the location could be between Waterfall Valley and Cradle Cirque. An Aboriginal heritage investigation is recommended to be conducted in the proposed works area.

Management Controls:

- Investigation conducted on 7 May 2019 and no artefacts identified.
- Confirm management controls with AHT to proceed with UDP or additional controls during works.

5.2.2 Historic heritage

Waterfall Valley overnight node includes the original 1957 hut, referred to as old Waterfall Valley Hut. The hut is not a listed site under the *Historic Cultural Heritage Act 1995*.

The hut will remain and important part of the story of the OLT and an emergency shelter for walkers. The works will not impact this hut.

5.3 Recreation values assessment

5.3.1 Overland track

The proposed hut upgrades will not change the ongoing use of the of Waterfall Valley overnight node. Walkers have the freedom to visit all eight huts, stay in a hut more than one night and complete the track over as many days as they are prepared to travel. The majority of booked walkers complete the track in 5 nights and 6 days, with the first night spent at WFV.

The spirit of the OLT is that walkers are independent and have the flexibility to complete the track at their own pace in north to south direction. Bunks are not allocated or guaranteed in huts. Walkers must be prepared for all weather conditions and carry a tent as reaching a hut is not always possible.

The OLT is an introductory multi-day walk for many walkers and its profile attracts less experienced walkers. However, the track is a difficult bushwalk with natural hazards that cannot be controlled and may be life threatening. Huts represent a safe haven when weather conditions are severe, though every effort is made to prepare and warn walkers of the risks before booking and setting off on the track.

5.3.2 Construction phase

The usual operation of the OLT will be disrupted in the 2019/20 booked season due to the construction of the new huts at Waterfall Valley. Plans to accommodate independent walkers on the first night will include recommending Scott-Kilvert hut to avoid the construction site at WFV. Walkers are likely to be redirected via the Cradle Cirque as the track east of Cradle (known as the 'face track') is a significantly different standard of track to the OLT.

Group bookings that utilise the group platforms on the OLT will still be able to access these platforms at WFV. The group platforms are physically separate from the construction site. However, their walking experience will still be disrupted by the noise and visual intrusion of the work site.

Other tent platform facilities are located within the construction site and cannot be safely separated for use during the works. Access to tent platforms will not be valuable during construction works. All current facilities and services will return to usual availability following the build.

5.3.3 Lease and licenses

Tasmanian Walking Company has a lease to operate commercial tours with their own accommodation nodes and do not rely public facilities. Their usual tour operations will not be changed by the works as the OLT will remain open on its current alignment. One of the commercial huts is located on the southwest rim of Waterfall Valley and the construction noise may disrupt walkers.

Commercial licence holders that use the group platforms are permitted to operate their tours using public facilities. As described above, group bookings utilising the group platforms will still be able to access these works at WFV.

Management Controls:

- finalise operational plans to accommodate independent walkers other than at WFV.

- notified walkers of changes to the usual track operations before booking system reopens in July 2019.
- all current facilities and services will return to usual availability following the build.

5.4 Biosecurity risk assessment

5.4.1 Weeds and pathogens

The natural values survey did not identify any weeds at WFV. It is of the highest importance that the construction works maintain this weed free status, particularly given it is part of the Wilderness World Heritage Area.

There is a high risk of importing weeds, diseases or pathogens from poor hygiene practices and maintenance of:

- tools and equipment,
- machinery, and
- imported materials i.e. gravel, rock etc.

Biosecurity risks pose a significant threat to the natural values of the site.

Biosecurity controls will be stipulated in tender documents and contractors will be required to address these in their submission. The successful contractor will also be required to complete a Construction and Environmental Management Plan (CEMP) outlining their hygiene protocols to the satisfaction PWS before contracts are finalised.

Management Controls:

- CEMP to include:
 - Weed and Hygiene planning
 - 'Keep it Clean' guidelines for tools and equipment,
 - Wash-down guidelines for machinery, and
 - Only importing building materials stipulated on building plans
- PWS Project Officer to supervise works to ensure compliance with CEMP.

5.4.2 Waste and pollutant management

Works will generate waste and pose a risk of contamination, such as:

- spills of fuels, chemicals or other liquids,
- sawdust, cut off timber, nails, bolts, washers etc.,
- wrapping straps and plastics coverings, and
- other general rubbish items.

Polluting substances could be spilt on site and cause contamination of the soils and ground water. Light-weight waste could be blown from the work site into the National Park. Construction waste around the buildings can accumulate if not collected and contained regularly.

As described above, waste management requirements will be stipulated in the procurement process. The successful contractor will then need to describe their waste and pollutant management in the CEMP to the satisfaction of PWS before contractors are finalised.

Management Controls:

- CEMP to include waste management system such as:
 - silt traps on down slope of buildings and storage areas,
 - bunded storage area for chemicals, fuels, solvents and paints,
 - drop sheets to collect shavings and cut offs,
 - metal detector search for metal waste,
 - water proof rubbish bags and bins with lids, and
 - regular extraction of waste materials.

5.5 Hazard risk assessment

5.5.1 Bushfire hazards

Construction works

Construction works can increase bushfire hazards at the site. Heat, sparking or flammable substances can ignite fine fuels. Hazards include:

- hot works such as welding, metal grinders
- machinery engines sparking or heat in the undercarriage catching fine fuels, and
- flammable substances being poorly handled or stored.

The successful contractor will need to describe their bushfire hazard management in the CEMP to the satisfaction of PWS before contracts are finalised.

Management Controls:

- CEMP to contain bushfire hazard mitigation methods and firefighting equipment such as:
 - no hot works on days rated high or above for forest fire danger (FDI),
 - limited amounts of flammable substances on site and stored according to MSDS, and
 - water tank, pump and hose prepared and primed for firefighting, plus other suitable extinguishers for electrical or fuel fires.

Hut designs

Waterfall Valley is a bushfire prone area and the proposed buildings are habitable, as such the following standard applies:

- AS 3959-2009 Construction of buildings in bushfire-prone areas

Preliminary assessment of the site has been conducted by a Bushfire Hazard Practitioner. The primary concern is protection of people and secondary is protection of property.

Protection of people in the event of a bushfire is currently prescribed by the:

- Overland Track Bushfire Response plan 2017

The plan provides guidance for level of risk, track management levels, closure and evacuation strategies.

Protection of property is prescribed by the AS 3959-2009 with different building standards, referred to as Bushfire Attack Level (BAL) ratings, with highest protection being BAL 40. The proposed hut designs cannot comply with the AS prescriptions as a road and

hardstand cannot be provided at site. The hut designs will be assessed by performance criteria with regard to the natural setting, recreation risk and emergency planning.

Building design strategies identified to protect the hut from bushfire could include:

- BAL 40 substructure to prevent embers igniting under hut,
- BAL 29 timbers used for cladding and decking to minimise risk of ignition while maintaining a natural building exterior (hardwood timbers such as black but, stringy barks, iron bark),
- Fuel modified zone (FMZ) of approximately 2 metres width to prevent surrounding heath reaching the building if laid flat with bushfire.
- FMZ to be converted to marsupial lawn around hut with organic shape (no straight or square edges) to blend with natural landscape.

These mitigation strategies are being discussed with the bushfire practitioner, architect, building surveyor and Tasmanian Fire Service (TFS). TFS are the permit authority under the Tasmanian *Building Act 2016* for assessing developments relying on performance criteria of the AS.

Management controls:

- biosecurity risk prevents importing gravel or rock to site to surround building (marsupial lawn proposed as alternative).
- ongoing negotiation to limit impacts to site values while maximising bushfire protection for walkers.

5.5.2 Visitor hazards

Usual walker route and experience will be disrupted by works from October – April 2019-20. Independent walkers will need to use an alternative route and over-night node as described in section 5.3 Recreation Values Assessment.

The greatest increase in visitor hazards from the works is identified as groups using WFV node may be exposed to helicopter operations, particularly longlining equipment and materials to the site. The likelihood of dropping loads is rare but the consequences are major or extreme.

PWS will manage helicopter operations at the site according standard procedures, which includes managing public access.

Management controls:

- CEMP to include public access management for walkers during works and helicopter operations,
- PWS to identify site specific walker management during helicopter operations including signage on track and node, physical barriers and notification.
- PWS and helicopter pilot to identify flight path least likely to encounter walkers at node or on track.

5.5.3 Other hazards

No other hazards identified for the site such as:

- Landslip,
- Flooding,
- Acid sulphate soils, or
- Coastal inundation or erosion.

6. Management controls

6.1 Design controls

Visuals Impact Analysis identified the following mitigation measures and these have been integrated in hut designs.

- architectural design of walker hut broken into small components where the large screens the small part,
- design process to consider possibility of modification to gable roofs to achieve further separation of elements.
- black colour of various components to mitigate visual impacts.
- use black FPR on walkways and black stain on visible timbers.
- black butt timbers allowed to weather naturally.
- protect vegetation for its screening value around the hut during construction.
- eliminate or integrate gas bottles with new public hut.

Detailed hut designs to be developed while working with relevant agencies and permit authorities to:

- Confirm management controls with AHT such as to proceed with UDP or additional controls during works.
- Biosecurity risk prevents importing gravel or rock to site to surround building (marsupial lawn proposed as alternative).
- Ongoing negotiation to limit impacts to site values while maximising bushfire protection for walkers.

6.2 Construction controls

CEMP is an industry standard document. It is a project specific plan designed to ensure best practice environmental management practices and work health safety standards are applied throughout the construction, operation and demolition phases of a project.

For this project, the procurement process will stipulate management controls in an Annexure to be addressed in tenders provided by contractors. Management controls can affect the cost and usual construction methods to be used on site. As such the contractor is required to address them in their tender submission.

The selection committee for the tender process will set a number of assessment criteria to compare different tenders such as price, experience and availability. A contractor's knowledge and ability to comply with management controls will also be a determining factor of tender.

The successful contractor will be required to complete a CEMP that outlines the project specific management controls to the satisfaction PWS before contracts will be finalised. The management controls include (but not limited to):

Site planning:

- identifying a greater construction zone to restrict public access to ensure safety,
- building zones to restrict ground disturbance during demolition and works onsite,
- construction zone to include staff accommodation/living arrangements, storage areas for equipment/machinery and set down sites for sling loads, and

- identify exclusion zones such as grassed lawns to avoid storage of equipment or materials and prevent impacts to threatened plant species.

Biosecurity controls:

- Weed and Hygiene planning
- 'Keep it Clean' guidelines for tools and equipment,
- Wash-down guidelines for machinery, and
- only importing building materials stipulated on building plans.

Waste and pollutant controls:

- silt traps on down slope of buildings and storage areas,
- bunded storage area for chemicals, fuels, solvents and paints,
- drop sheets to collect shavings and cut offs,
- metal detector search for metal waste,
- water proof rubbish bags and bins with lids, and
- regular extraction of waste materials.

Bushfire hazards

- no hot works on days rated high or above for forest fire danger (FDI),
- limited amounts of flammable substances onsite and stored according to MSDS, and
- water tank, pump and hose prepared and primed for firefighting, plus other suitable extinguishers for potential electrical or fuel fires.

Visitor risk management

- public access management for walkers during works including fencing and signage.

PWS responsibilities during construction to include (but not limited to):

- finalise planning to accommodate independent walkers other than at WFV,
- notify walkers of changes to the usual track operations before booking system reopens in July 2019,
- identify site specific walker management during helicopter operations including signage on track and node, physical barriers and notification,
- identify flight path least likely to fly loads over walkers at node or on track, and
- PWS Project Officer to supervise works to ensure compliance with CEMP and project specific agreements.

7. Conclusion

WFV is an established overnight night node on the OLT and huts are existing facilities on the site. No change to the current types of use is proposed and nor will the works increase use as walker numbers are controlled by the booking system and level of walker skill and experience.

The proposed huts comply with legislation, plans and policies. The developments are consistent with:

- *National Parks and Reserves Management Act 2002*,
- TWWHA Management Plan 2016,
- V11 OLT Recreation Zone Plan 2014 (draft), and
- Waterfall Valley Concept Site Plan 2016.

The proposed hut design will achieve the objectives and desired outcomes of the project including:

- providing a variety of visitor experiences in the TWWHA,
- increase hut capacity, thermal performance and building health,
- improve walker experiences and amenity at overnight nodes, and
- maintain Work Health and Safety standards in the workplace.

The proposed works have been prepared based on information gained from walker surveys and feedback. Key stakeholders have been engaged during site planning for WFV and development planning for the hut proposal.

The majority of the management controls are related to managing construction methods and restricting the potential footprint of the works. These will be integrated into a CEMP and works will be supervised by the dedicated PWS Project Officer.

8. Attachments

8.1 Waterfall Valley Concept Site Plan 2016

8.2 Concept Hut Plans Waterfall Valley (1811) 2019

8.3 Natural Values Survey DPIPWE 2018

8.4 Waterfall Valley Facilities Visual Values Impact Analysis 2019

8.5 Waterfall Valley Hut Greywater Design Upgrade 2019

8.6 Additional TWWHA Assessment Criteria

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