

Request for Further Information (RFI) – post consultation v3.0

Halls Island Standing Camp, Lake Malbena, Tasmania (EPBC 2018/8177)

Executive Summary

Comprehensive evidence and impact assessments contained in this document result in the following conclusions:

1. No significant new or cumulative impacts from the proposal, as a result of the impact mitigation and avoidance measure being implemented.
2. Wilderness quality impacts generated by changes to Time Remoteness are spatially restricted to a landscape area equivalent area of (approximately) 200ha (0.012% of the total TWWHA landscape), with the occurrence of the wilderness impact temporally restricted to 16% of the year (no wilderness quality changes 84% of the year). No impacts to NWI wilderness quality in the IUCN 1b Wilderness Zone.
3. The spatially and temporally restricted overflight soundscape impacts are shown to be quantitatively minimal, and amongst the smallest impacts of all audited public and private overflight operations in the TWWHA. The proposed overflights are the only touristic overflight in the TWWHA that avoid overflights of the Wilderness Zone. The soundscape impacts are shown not to be new impacts, and quantitatively produce no significant cumulative impacts based on the application of independent data and the use of independent peer-reviewed assessment framework.
4. Previous TWWHA Wilderness Quality Assessments in 1995 failed to identify the presence of the heritage Halls Hut at Lake Malbena, and combined with a failure to adhere to standard mapping conventions led to the incorrect zoning of Lake Malbena in the 1999 TWWHA Management Plan, and subsequent 2014 Draft TWWHA Management Plan. The previous National Wilderness Inventory (NWI) wilderness quality mapping errors have been acknowledged by the authors of the 2015 TWWHA Wilderness Quality Assessment. Subsequent zoning changes in the 2016 TWWHA Management Plan corrected the zoning and mapping errors.
5. The proposed action will improve current on-island biophysical conditions, with the rehabilitation of braided footpads occurring in MNES alpine sphagnum communities, and the installation of full capture toilets.
6. The proposed action will add to the knowledge and monitoring of threatened Tasmanian-wedge tailed eagles with an in-kind cost benefit to conservation of \$22,120 per annum, in direct support of the *Threatened Tasmanian Eagles recovery plan: 2006-2010* research objectives.
7. Independent modelling shows that the operational project will generate ~\$1.83M economic activity annually, and 13 equivalent jobs.
8. The Parks and Wildlife Service will benefit from up to \$40,000 per annum (5% of gross turnover) via lease arrangements, and a further potential \$7,200 annually via Parks Passes. Total returns up to \$47,200 annually.
9. The project will fund the on-going conservation, management and presentation of valuable Tasmanian Listed heritage, including the restoration and on-going management of the private Halls Hut and the associated heritage that led to the foundation of the Walls of Jerusalem National Park. Restoration, annual upkeep, maintenance, rates and lease fees associated with maintaining the private Tasmanian Heritage Listed hut will be funded by income generated by the development, averaging \$15,000 cash and in kind per annum, and totalling more than \$225,000 for the duration of the existing lease. Existing no cost public access to Halls Island and the private hut will continue to be facilitated by the custodians.

About the Document

The following information is provided in relation to the '*request for additional information – preliminary documentation*' (RFI) issued by DCCEEW on 29 September 2020.

This document has been collated by the Director of Wild Drake P/L, Mr. Daniel Hackett. Mr Hackett has multi-disciplinary experience and post-graduate qualifications specifically related to protected area tourism development and operations, wilderness soundscapes, wilderness designation, wilderness mapping, management, governance and mensuration frameworks.

Mr. Hackett is a PhD candidate at the University of Tasmania (Environmental Studies), conducting research *Investigating Theoretical and Policy Frameworks Behind the Mapping, Designation and Management of Wild Places and Soundscapes as Wilderness*. Mr Hackett is a Fulbright Scholar, with international projects focussing on wilderness soundscapes and perceptions of remoteness, with his international research program includes a reference group of international wilderness and soundscape management experts from Australia, the USA and New Zealand.

Mr Hackett has been previously awarded a Master of Protected Area Management and Governance (UTAS), which included the academic thesis *Incorporating overflight-derived wilderness soundscape impacts into the revised National Wilderness Inventory system: Case study, Tasmanian Wilderness World Heritage Area*, and inclusion on the University of Tasmania Roll of Excellence. This Master qualification includes protected area '*governance, planning and management*' and has '*been led by a Steering Committee comprising of UTAS, Tasmanian Parks & Wildlife Service, Tasmanian Land Conservancy, Parks Victoria, Parks Australia, IUCN World Commission on Protected Areas, James Cook University Murdoch University and Charles Darwin University*'. '*The Course has been designed to meet international competencies for protected area planners specified by the IUCN World Commission on Protected Areas, with a particular focus on middle and senior governance and management roles*'.

Mr Hackett is a director of the Tourism Industry Council Tasmania, and was a representative of the Tourism Industry Council Tasmania during the 2015 joint ICOMOS/IUCN Reactive Monitoring mission to the Tasmanian Wilderness.

From 2012-2021 Mr. Hackett designed, developed and operated Tasmania's only sub-alpine standing camp, located at Skullbone Plains in the TWWHA, approximately 11km's south of Lake Malbena, a location regarded as being in the top 10 per cent of the highest rated conservation areas in the State (DPIPWE, 2016). This product was awarded the Gold Qantas Australian Tourism Award in 2016, Silver Australian Tourism Award in 2017, Gold Tasmanian Tourism Award in 2016 & 2017, and achieved clear economic and conservation benefits for the TWWHA and local communities. The knowledge and experiences gained in the design and operations of this TWWHA tourism product is unique, and is directly transferrable to the nearby proposed Lake Malbena project.

This document collates and presents independent expert evidence, advice and peer-reviewed science to provide an informed, expert response to the *request for additional information – preliminary documentation*.

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2. DESCRIPTION OF THE ACTION (collated from various sources including previously submitted documents)

(a) The location, boundaries and size (in hectares) of the disturbance footprint and of any adjoining areas which may be indirectly impacted by the proposal.

The proposed action is the installation and operation of a small-scale 'Type C¹' Standing Camp on Halls Island, Lake Malbena, Tasmania GDA94 442406E, 5355307N (see Figures 2 through 5). Halls Island is 75 metres within the eastern boundary of the IUCN equivalent Class II Walls of Jerusalem National Park, and within the TWWHA. The Standing Camp would cater for up to six guests and two guides per trip.

No actions are proposed for within the IUCN equivalent 1b Wilderness Zone(s) found in the TWWHA.

The Standing Camp is located within an 'L' shaped area consisting primarily of exposed rock approx. 50x10 metres in scale (625m²). The Standing Camp design consists of three pods with complete-capture toiletry facilities, one communal pod with kitchen, complete capture greywater system, guides accommodation, storage and toiletry facilities. Minimal perforated board-walking is to be used on-island to minimise impacts and rehabilitate pre-existing impacts.

The 'pod' structures are to be constructed with 'lightweight' and 'demountable' panels finished in muted non-reflective dark grey finish. The external rooves and eaves of all pods will be constructed of canvas, to ensure typology and experience consistent with that of an upmarket camp.

Solid floor, wall and roof panels are required in this instance to (a) protect from the substantial on-island population of native long-tailed mouse *Pseudomys higginsi*, (b) ensure the structural integrity of the 'pods' from the risk of falling limbs and snow accumulation during storms, and (c) due to the remote alpine environment ensure all-weather protection for customer and staff during the regular occurrence of extreme winds, periods of significant snowfall, and to ensure the structural integrity during regular periods of where the standing camp may be partially-buried in snow for extended periods (including summer). This design methodology is the outcome of direct standing camp design and operational experience from the proponents previous Skullbone Plains (TWWHA) standing camp, 11km south of Lake Malbena.

The internal volume of the 'pods' (refer fig. 4) are 'tent-like' with minimal head room, a low entry way that requires customers to crouch to enter, and minimal floor area with only enough space for bunk(s) and packs to be stored

¹ PWS Standing Camp Policy 2006

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inside. Similar to a tent, the pods are spaces for storing bags, sleeping and seeking basic shelter. The small internal volume is a deliberate way of encouraging visitors out into the surrounding environment, while also providing tent-like spaces.

Openable flaps along with a flyscreen system fitted to the low entry-way of the pods will allow fresh air/ventilation and a direct connection to the external environment providing customers with the opportunity to hear the sounds of the resident birdlife, the wind through the trees, and the smell of fresh rain.

All greywater and sewage will be captured for removal off-site (outside of the TWWHA).

Discrete positioning of the Standing Camp amongst natural features will ensure that views of the infrastructure from the original Halls Hut are minimised. Furthermore, possible views of the infrastructure from the shoreline of Lake Malbena is restricted to a narrow field of between 45 and 90 degrees, at a distance ranging from 175-280 metres. Muted non-reflective cladding and the small scale of the 'pods' ensure the infrastructure is recessive and will blend with the surroundings when viewed across these distances. No clearing is required, though selective lancing (hand pruning) will occur during the micro-siting of infrastructure.

The camping pods will be positioned on the existing exposed sheet rock. There are no proposed excavation, earthwork or alterations to watercourses or the natural drainage. There will be no permanent fixings, with mass / gravity used as the means of positioning the pods.

Minimal raised perforated boardwalking will be used over four small areas, to avoid trampling and protect, conserve and (in the example of the on-island bog) rehabilitate important flora communities (see fig. 4) – this is consistent with the recommendations of the North Barker Flora and Fauna reports (see appendices). With an estimated total length ~75 metres, the boardwalk mesh is perforated to allow approx. 68% light penetration and will prevent the current unplanned track braiding occurring at Halls Island, further minimise the impact on the flora below, while allowing existing impacts to sphagnum bogs (MSP) to rehabilitate.

Visitor exclusion zones, supervision and education will be implemented, excluding visitors from sensitive alpine bogs and fen communities (TASVEG MSP), *Athrotaxis selaginoides* rainforest communities (TASVEG RKP), and locations of *Pherosphaera hookeriana* plant communities (see fig. 4 Location plan). Visitor exclusion zones, supervision and education have proved successful in similar operations in the TWWHA, including the RiverFly standing camp at Skullbone Plains, TWWHA, 11kms south of Lake Malbena.

Access to Halls Island is from a proposed Heli Landing Site located immediately east of Lake Malbena, outside of the National Park, in the IUCN Class Vi equivalent Central Plateau Protected Area of the TWWHA. Approximate location

is GDA94 442534E 5355287N, see fig.4 Location Plan. No infrastructure is proposed for the landing site, which predominantly comprises of exposed sheet rock. No clearing is required, beyond potential selective lancing (hand pruning) as identified in the North Barker Flora and Fauna reports.

Halls Island and Lake Malbena is accessed from the proposed heli landing site by a short walk (<500m) which follows area of exposed rock, and a rocky drainage line along a forest interface (see Fig. 4 Location Plan). No infrastructure, clearing or track building is required. Access from the mainland to the island is provided by row boat. Private row boats have been used at Halls Island since the 1950's, and are an uncontroversial feature of many locations in the TWWHA. The boat-landing site at Halls Island is a pre-existing spit of exposed rock, referred to as a 'natural jetty' (see Fig. 3 Location Plan). This location has been used for these purposes, and the storage of a private row boat since ~1956.

The Heli Landing Site is accessed from the boundary of the TWWHA via a short 9-11 minute helicopter flight entering the TWWHA in the Derwent Bridge area, 22km to the south of Lake Malbena (GDA94 436372E 5335010N). The proposed flight area traverses east of the nearby Wilderness Zone, avoids overflights of the Wilderness Zone, avoids crossing managed walking tracks, adheres to a flight altitude of 1000M AGL where possible, and where flights of 1000M are not possible utilises a pre-determined overflight route that avoids high probability Tasmanian wedge tailed eagle nesting sites (as determined by raptor specialist prior to operations).

Overflights will be capped at 48hours total per annum, and occur on a maximum of 65 days per year. Commercial guiding operations at Halls Island & Lake Malbena will be restricted to 120 days per year (equivalent of 30 trips). These temporal and spatial restrictions ensure that the proposed activities are small in scale, and sensitive to the environmental and social settings relevant to this part of the TWWHA. All heli-access, maintenance and servicing of the operation is encompassed within these annual overflight restrictions. Overflights of the TWWHA are not uncommon, with more than 1100 hours of overflights recorded for 2019². The use of helicopters as proposed would represent the only regulated flight path over the TWWHA that is designed to avoid overflights of walking tracks, avoid overflights of the Wilderness Zone, operates within a defined corridor, and is restricted to annual caps on frequency and routes. As such, the proposed use of helicopters represents a new benchmark in best-practice measures aimed at mitigating or avoiding potential impacts in the TWWHA.

The proposed location (Halls Island) has been subject to various private leases or licence since 1956, preceding National Park and World Heritage Listing. The general area has featured numerous past grazing and agricultural leases and licences prior to incorporation into the TWWHA reserve system. The island is a location of existing human disturbance and private infrastructure.

² Appendix 2

A small privately owned heritage listed hut, Halls Hut, is located at Halls Island. The hut is owned by custodian Mr. Daniel Hackett (whom is also the project proponent). The hut sits on a PWS licenced area within a 5m curtilage. Privately owned huts are not uncommon in the TWWHA, with three others located within 20km's (north-east) of Lake Malbena. The private hut has recently been listed on the Tasmanian Heritage Register, a process which included significant submissions made by the proponent in support of the listing, and preservation of the heritage hut for the enjoyment of future generations of users. The private hut and curtilage are not part of this proposal or submission.

The proposal would operate under a Lease and Licence that has been issued by the Director of Parks to the proponent business, Wild Drake P/L. The Lease and Licence is subject to EPBCA approval being achieved and is a publicly available document³. Commercial leases are common in the Tasmanian reserve system (a landscape area covering ~42% of Tasmania), with approximately 136 leases in existence, and approximately 500 licences in place⁴. According to the PWS, approximately half of these lease and licences are associated with the nature based tourism sector, and of these, approximately 40 are nature based tourism operators specific to the TWWHA.⁵

Installation and operations will commence as soon as practicable following EPBCA considerations. All on-going operational requirements including maintenance works are included within the defined operational figures relating to required flight times and frequency.

This project represents an innovative and appropriate approach to meeting the goals of the 2016 TWWHA Management Plan, including sensitive high-quality interpretation, equity of access, presentation, diversity of product and the protection of Tasmanian listed heritage in the TWWHA. The TWWHA contains a considerable wealth of historic heritage material and associated stories, all of which are important features of the TWWHA's presentation and interpretation since the area was listed⁶. Halls Island and Halls Hut are exemplary examples of this historical built heritage and stories. The 2016 TWWHA Plan notes that *Presentation of built heritage is inextricably linked with its ongoing conservation. Innovative solutions are required to bring historic heritage to life and generate resources for conservation, including through private investment.* This proposal is an example of the innovative solutions suggested by the 2016 Plan.

³ Appendices 15 and 41

⁴ <https://www.abc.net.au/news/2020-02-22/halls-island-at-heart-of-battle-for-tasmania-wilderness/11983556>

⁵ PWS Response to RFI comment

⁶ DIPWE, 2016

Description of the Action – clarifications

Standing Camp design - clarification

Based on feedback received through public comments, there is clear confusion amongst the public as to the design intent and form of the standing camp. To address this confusion and feedback, the proponent will commit to incorporating external canvas roofs and associated coverings on the accommodation pods, and the communal pod. The canvas roofs will be secured to the associated raised platforms with traditional tent-like guide-ropes and turn-buckles. The canvas fixtures will feature the use of roll-up flaps and zippered openings incorporated into the design, forming part of the shelters. Furthermore, there will be no permanent fixings to the ground (all anchoring will be achieved through adjustable legs, and anchoring weights if required – no bolting or chemset required), ensuring that all infrastructure is removable. There are no modern conveniences such as running water, and the size of the pods are the bare minimum required to provide a utilitarian shelter in the very harsh climatic environment. These minor design updates incorporate traditional tent typology, and will ensure that both user and visitor-perception of the infrastructure is that of a 'camp', maintaining unambiguous compliance with the spirit, intent and prescriptions of the 2006 PWS Standing Camp Policy, and 2016 TWWHA Management Plan. The design ensures that the wilderness recreation settings are preserved on the island.

Finally, as highlighted by the PWS RFI comments, the 2006 Standing Camp Policy is applicable to proposals submitted for an RAA prior to June 22, 2021, which includes this proposal. For standing camp applications submitted after that date, the 2021 Standing Camp Policy is applicable. Whilst having no obligation to do so, the proponent wishes to also adopt minor new provisions of the 2021 Standing Camp Policy, and to do so will make the further additional commitment to reduce the overall total cumulative size of the pods to a maximum 64m², a reduction from the planned 73m² draft design (achieved through minor adjustments to pod dimensions). While this is not specifically a matter for considerations under the EPBCA, given the scrutiny applied to the project, we wish to be clear with our commitments to best practice. The 2019 architectural plans will be updated accordingly (pre their submission to local council for Building Approval), and will first be subject to final design-approval by the PWS Director as required by the Lease and Licence requirements. No other changes have been made to the indicative camp designs.

We note that the current Standing Camp design has been assessed by the PWS as being consistent with the Type C prescriptions of the PWS Standing Camp Policy 2006, and both previous EPBCA Decision Briefs have assessed the designs as meeting the requirements of a Standing Camp. See 2019 preliminary Standing Camp design docs (Cumulus Studio)⁷, and the associated Standing Camp Preliminary Design Approval (DPIPWE)⁸ in appendices for further information.

⁷ Appendix 11

⁸ Appendix 18

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Supporting infrastructure – clarification

Early documents relating to the standing camp design referred to a constructed helipad, which has caused some confusion in stakeholder public comments relating to the proposal. To clarify, there is no requirement or proposal to construct a raised helipad. The proposal is to use a heli landing site.

The heli-landing site is a naturally cleared area of exposed rock, described as ‘helipad site 2’ on page 4 of the 2018 North Barker Flora and Fauna addendum⁹. The location has been inspected during a site inspection with the proponent, PWS, and representatives from DCCEEW. The site has been inspected by three pilots, from two Tasmanian helicopter contracting companies, and all agree that it is fit for use under the proposal. The helicopter operator is responsible for ensuring a proposed helicopter landing site or heliport meets CASA’s Guidelines for the establishment and operation of onshore helicopter landing sites (CAAP 92-2 (2)). The site conforms to the description of ‘Basic Heli Landing Site’ under CAAP 92.2 Guidelines¹⁰.

In summary, there are no off-island infrastructure or developments proposed.

Similarly, public comments have reflected confusion over the ‘natural rock jetty’ at Halls Island. There is no proposal for a built-jetty on Halls Island. The boat landing area is an area of naturally exposed sheet rock, referred to as a ‘natural rock jetty’ in the documentation and supporting documents.

Potential Stage Two activities – clarification

Earlier submissions to the DCCEEW referred to a potential ‘Stage Two’ proposal for off-island activities. These included potential cultural interpretation activities and site visits with members of the Aboriginal communities, and a potential off-track walk to Mt Oana. Stage One activities were not reliant on the success or otherwise of potential Stage Two activities, which were purely speculative at the time.

Following from consultation with members of the Aboriginal communities, and after seeking advice from the Aboriginal Heritage Council (7th of July 2018), the proponent formally withdrew from any plans or scoping activities relating to potential off-site cultural interpretation activities. We advised the Aboriginal Heritage Council of this formal withdrawal, in writing, on the 1/04/2019. A copy of the letter was also sent to the Tasmanian Aboriginal Centre, and is attached in the appendices¹¹. A further commitment not to operate any tours based from Halls Island at any time within a 1.5km buffer of the Aboriginal Cultural site east of Lake Malbena has been committed to by the proponent, and added to this document. This is in response to listening and learning from the Aboriginal Heritage Officer engaged by the proponent, and ensuring that any hypothetical actions in the future do not encroach on this important area.

⁹ Appendix 8

¹⁰

https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=MP08_0156%2120190808T015728.195%20GMT

¹¹ Appendix 10

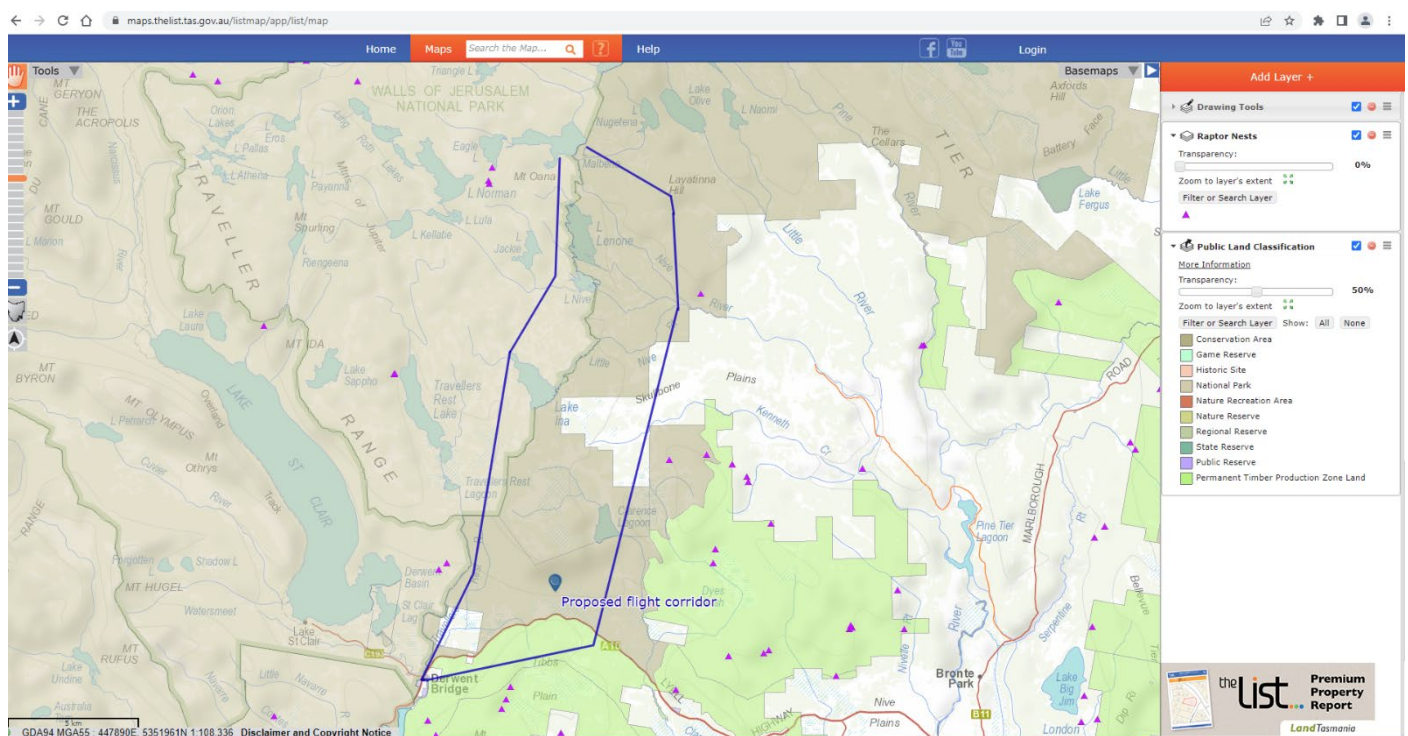
The remaining Mt Oana walk will not be pursued by the proponent at this stage, and no further assessment or scoping work relating to this activity has been pursued or conducted since early 2019.

In light of the above, there are no longer any active considerations of, or any planned future staged activities relevant to this submission. There are no ‘Stage Two’ activities. Primitive water-based activities such as kayaking, row boating and fishing, in addition to on-island passive recreation such as soundscape interpretation, art and disconnection with the outside world will remain the key driving activities backed by high quality interpretation, as they have since the project inception.

Flight path – clarification

Early documentation relating to the proposal described the use of a specific flight path. As a result of subsequent Tasmanian-wedge tailed eagle impact mitigation measures, and wilderness impact mitigation measures supplied to DCCEEW prior to the EPBCA September 2020 Decision, the proposed overflight no longer relies on a single overflight route. Ingress in to the TWWHA will occur as planned from the Derwent Bridge area, however the flight path will follow (i) tailored routes with minimum likelihood of nests, and (ii) the flight route will not overfly the Wilderness Zone. The flightpath is now referred to as a ‘flight corridor’, representing the broader area within which the tailored flight route will be located. See Figure 1 for indicative flight corridor.

Figure 1. Proposed flight corridor, in addition to known eagle nests identified in the ‘raptor nest’ TheLIST overlay sourced from the NVA dataset



Flight frequency and frequency of operations - clarification

We would like to clarify the proposed flight frequencies, and frequency of operations:

- Total TWWHA overflights (including camp maintenance and servicing requirements): 48 hours

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- b) Total capped number of days featuring flights per annum: 65 days (60 days operational, 5 days servicing, training and contingencies)
- c) Total number of operational camp days per annum (conducting guided packages): 120 days

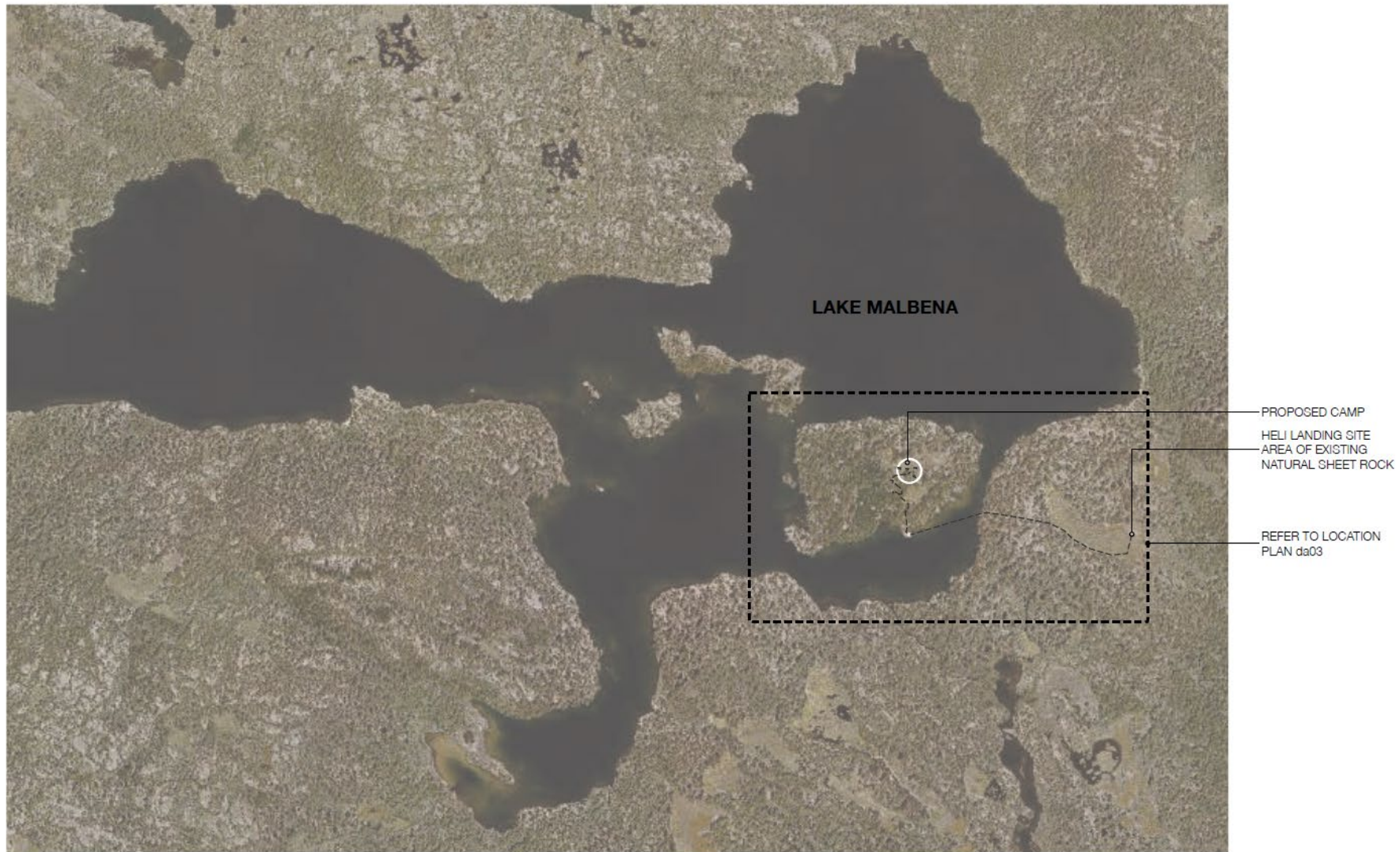
There will be no flights for 300 days+ per year, and no commercial guiding operations for 240+ days per year.

See below for indicative context plan, location plan and site plan, taken from architectural design documents by Cumulus Studio, previously submitted to DCCEEW by the proponent (see appendices 11).

Previously submitted documents relating to the Description of the Action are included in the Appendices, including appendix (13) 'RAA – Halls Island proposed standing camp' and (35) EPBCA Webform submission 151 8206.

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Figure 2 Context Plan - refer to appendix 11 for further information



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Figure 3 Location Plan see appendix 11 for further information



Request for Further Information (RFI) – post consultation v3.0

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Figure 4 Site Plan by Cumulus Studio, see appendix 11 for further information

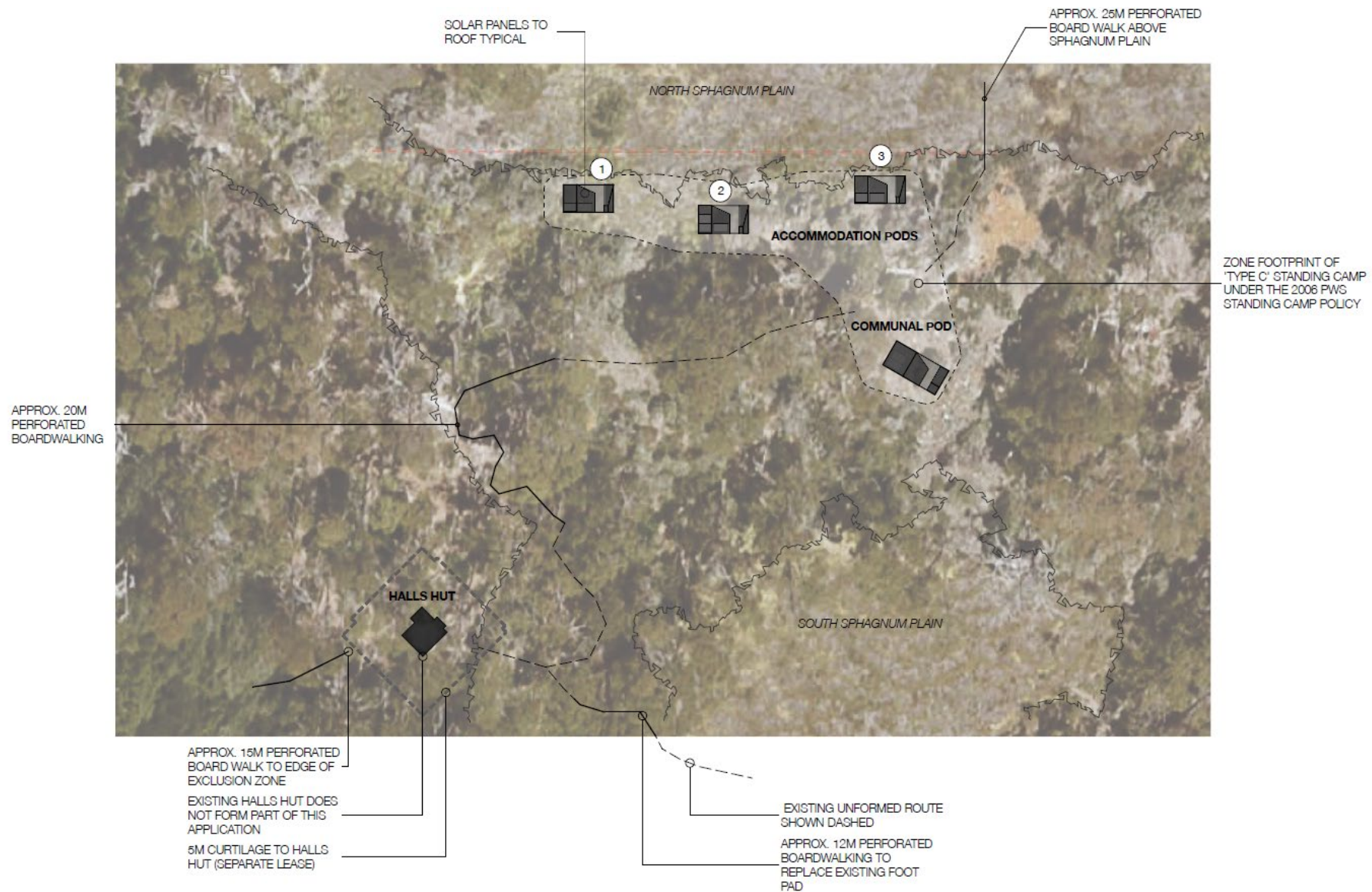
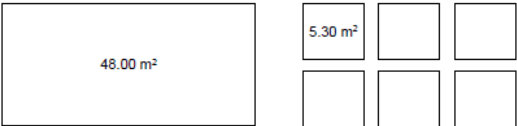


Figure 5 Standing Camp relative scale comparison by Cumulus Studio. See appendix 11 for further information



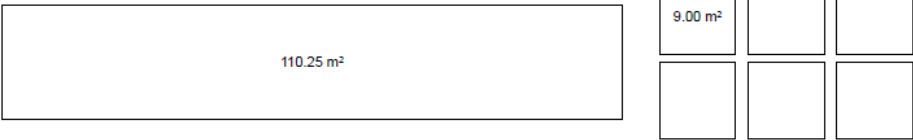
MARIA ISLAND WALK STANDING CAMP - 80m2



RIVERFLY WILDERNESS FLY FISHING STANDING CAMP - 38m2



KRAKANI LUMI - WUKALINA STANDING CAMP - 164m2



HALLS ISLAND PROPOSED STANDING CAMP - 73m2



(b) A description of all components of the action, including the anticipated timing and duration (including start and completion dates) of each component of the project

Due to the unpredictable timings of the complex approval process, no start date is nominated. Due to the temporary nature of the designed infrastructure, the installation of the camp is a quick process, requiring less than one week for installation (approximately). This will occur once all approvals are received. Any associated helicopter use will be incorporated within the proposed annual cap of use.

Annual operations will consist of up to 120 days of guided operations per season. The site will be rested from commercial use for up to 240 days annually, including the three months of August-October (other than essential minor maintenance and inspections should they be required).

(c) A description of any ongoing operational requirements including any anticipated maintenance works

On-going maintenance including greywater or sewage removal, provisioning and light maintenance will be undertaken at either end of commercial trips, effectively utilising empty heli-legs to achieve the objectives.

Complete-capture greywater and sewage production is estimated to be in the vicinity of 4000 litres annually, which will be removed via approximately 7 -8 sling loads per annum (again using empty flight legs) within the current proposed helicopter use provisions. Maintenance requirements will be up to 5 days per year, primarily consisting of cleaning duties, and light camp maintenance using manual or occasional 12volt hand tools (such as a cordless drill to replace a screw). This maintenance will be discretely performed when possible during commercial trips, however a mid-season maintenance day, and an end of season maintenance day is envisaged annually.

Bi-annual wedge-tailed eagle nest searches, and annual nest surveys performed by a raptor specialist are proposed as a component of management and mitigation relating to potential Tasmanian wedge-tailed eagle impacts. This proposed mitigation would represent a new best-practice for helicopter use in Tasmania, and the required flight time is incorporated within the annual overflight time cap.

(d) A description of surrounding land uses

The eastern TWWHA boundary is 6km from Halls Island. Surrounding land to the east of Hall Island (+6km), and to the east of the flight corridor (1-5km) is a mixture of privately owned conservation land, state-owned production forest and rural recreation blocks. This matrix of land includes infrastructure (shacks, former and current logging coupes, fencing, extensive gating and one non-commercial standing camp on private land), along with an extensive matrix of vehicle roads.

(e) Descriptions of any feasible alternatives to the proposed action, or components of the proposed action, to the extent reasonably practicable, including the alternative of taking no action, and sufficient detail to make clear why any alternative is preferred to another. The short, medium and long-term advantages and disadvantages of the options should be discussed.

The private hut was constructed and associated use at Halls Island began circa 1955, prior to designation of the area as a protected-area. Access was by horseback, foot, amphibious seaplane and occasional four-wheel drive. Seventy years later and land tenure has changed significantly, as has associated land management techniques and expectations.

Commercial walking access to Lake Malbena is not a possible alternative, due to potential and unavoidable impacts to MNES. Impact risks include trampling and erosion impacts to MNES alpine *sphagnum* bogs and associated fens, located extensively along potential walking routes between Lake Malbena and the TWWHA boundary 6km's east. Helicopter access is the most environmentally sensitive method of accessing the site, and avoids the serious trampling, erosion, track formation and biosecurity threats associated with walking-access and associated threats to vulnerable plant communities in the area. Furthermore, access to the eastern TWWHA boundary would require ingress through bounding private landholdings to the east. This is not currently possible, with at least one major landholder not engaging in private commercial licences on their properties at this time. As such, access to the surrounding area of TWWHA boundary, and the adjacent TWWHA itself, is subject to varying levels of exclusive capture by the applicable neighbouring landholders, again resulting in the required heli access option.

The alternative to this proposal would be to do nothing, and with this action, the existing built and cultural (European) Tasmanian Listed heritage found on the island is at high risk of being lost. At sixty-five years old, and having never received any form of significant maintenance, the historic private hut with direct links to the foundations of the foundation of the Walls of Jerusalem National Park is now in need of extensive restoration works, primarily to the collapsed sub floor, rotten bottom plates, disintegrating ceiling lining, and fire-damaged chimney. 'Doing nothing' would lead to the continued degradation of the heritage-listed hut, the restoration and on-going management of which is proposed to be privately funded via the income generated by the proposed tourism operations. More information on the important values of the Heritage Listed hut can be found on the associated state listing documents (see footnote)¹². The surrounding environment of the island features MNES alpine bog and fen communities which now contain two braided footpads (as noted elsewhere in this document), signifying increasing damage to alpine bog and fens since monitoring commenced, with the bogs now at risk of erosion and increased threat of weed ingress as a result. There are currently no means through which human waste on the island is collected, again threatening contamination of the sensitive wetland environments on the island as noted

¹² <https://heritage.tas.gov.au/Documents/THR10805%20-%20Halls%20Hut%20-%20Provisional%20entry%20Datasheet%20and%20CPR%20combined.pdf>

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throughout this document. The proposed tourism development involves the installation of boardwalking across the at-risk MNES alpine bogs and fens, which will mitigate the on-going trampling damage, and allow the environment to naturally regenerate. The proposed tourism development will facilitate complete capture of sewage on the island, again mitigating the risk of contamination to the aquatic environments on and around the island. More broadly, the 2016 TWWHA Management Plan include key goals and objectives relating to Presentation, Diversity of Product, Equity of Access; by any interpretation the Plan elevates the development of new tourism products as a key goal of the 2016 TWWHA Management Plan. In the case of ‘doing nothing’, not permitting this project within the parameters set out in the 2016 TWWHA Management Plan would represent a failure to adhere to the key goals and outcomes of the Plan.

This project represents an innovative, reliable and appropriate mechanism through which the 65 year old heritage hut and associated history that influenced the founding of the Walls of Jerusalem National Park can be sustainably conserved, funded, presented and maintained for future generations. Succinctly, the income generated from the proposed standing camp would be used to off-set the preservation and presentation upkeep costs associated with the significant built history located at Halls Island, including but not limited to:

- (a) Annual PWS licence fees, council rates, Public Liability insurance and basic maintenance costs of approximately \$10,000 per annum. This includes the on-going provision of free-of-charge public access by the owners.
- (b) Hut restoration management plan and implementation project currently required to preserve and present the historical structure for the next 25 years, approximate budget up to \$75,000

Over the life of the Standing Camp lease (15 years) these costs amount to \$225,000, which are currently funded by the proponent with clear public benefit. This is not economically sustainable in the long term. The proposed Standing Camp is a sustainable and innovative means through which to fund these significant on-going costs.

For the reasons detailed earlier, ‘doing nothing’ as an alternative would lead to the inevitable destruction of the built Tasmanian Heritage Listed history on Halls Island. In addition, doing nothing would also result in the on-going degradation of the island environment, including continuing threats to MNES such as alpine *sphagnum* bogs and fens, and on going risks related to a lack of sewage collection and disposal. Through the Standing Camp proposal and the proposed installation of waste capture provisions and servicing, and the installation of small sections of perforated boardwalking, the on-going environmental risks of trampling, erosion and pollution impacting MNES will be mitigated. Once again these mitigation and avoidance actions come at extensive capital and ongoing costs, all of which would be subsidised by the proposed small scale Standing Camp for the benefit of the environment outcomes and the facilitation of presentation.

It is clear from the extensive public consultation around the proposal that the proposed helicopter use is a major focus of objections. When constructed, the original historic hut and Halls Island was accessed by foot, 4wd, horse

and amphibious seaplane. None of these options are now possible since incorporation into the TWWHA extensions, and subsequent Management Plan prescriptions and permitted activities. As a result, helicopter use is unavoidable at this location due to the demonstrated lack of walking access, and a lack of reliable access across private land to reach the eastern TWWHA boundary. Moving the heli-landing site is not possible due to the presence of the Wilderness Zone to the west, and the likely need for track building if the site was moved to the east (new tracks are not permitted by the Management Plan). North and south are not viable options due to terrain considerations including the complex matrix of waterways blocking ingress / egress.

The proposed action contains an extensive suite of temporal and spatial mitigations relating to the proposed helicopter use. These mitigation and avoidance measures are shown to avoid significant impacts on the wilderness character of the TWWHA, and other users of the TWWHA. Independently sourced data provided by the Parks and Wildlife Service (contained in this submission) clearly demonstrate that helicopter use is an established action within multiple locations of the TWWHA including the Lake Malbena area. Helicopter use is facilitated at this location within the parameters of the 2016 Management Plan. This submission illustrates that the proposed Halls Island helicopter servicing represents a new benchmark in best-practice heli-planning in relation to wilderness and recreational impact avoidance.

3. Description of the environment and Matters of National Environmental Significance

Details of any potential MNES that occur, or have the potential to occur, in the project area and adjacent area, including but not limited to:

- i. Tasmanian Wilderness - declared property on the World Heritage List (Property ID: 181)*
- ii. Tasmanian Wilderness - listed place on the National Heritage List (Place ID: 105695)*
- iii. Tasmanian Wedge-tailed eagle (Aquila audax fleayi)*

The following is informed by:

- a) the North Barker Flora and Fauna Report and Addendum reports (appendix 8, 9 & 40) and associated site visits, surveys and documents
- b) the Mr Nick Mooney Eagle Assessment documentation (appendix 5,6&7) and associated site visits, surveys and documents (including appendix 16)
- c) the Mr G. Reutersward acoustic (noise) parameters presented in the expert evidence statement (appendix 30),
- d) the Tasmanian Parks and Wildlife Service TWWHA 2019 overflight audit (appendix 2-4)
- e) Advice from Aboriginal Heritage Tasmania (appendix 33)
- f) Lesslie and Maslen *National wilderness inventory handbook of procedures, content and usage*. (Australian Heritage Commission)
- g) McKenna et al, 2016. *A Framework to Assess the Effects of Commercial Air Tour Noise on Wilderness*. Journal of Forestry, 114(3), pp.365-372.
- h) EPBCA policy statements and guides, threatened species recovery plans, SPRAT
- i) Additional advice received through the Parks and Wildlife Service Reserve Activity Assessment (PWS RAA) process (appendix 13), previous DCCEEW EPBCA assessment processes (appendices 1), and other related formal assessments as noted throughout the document
- j) The various references and appendices

The following document contains additional & new materials, in addition to previously submitted information.

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3.fi and 3.fii : Description of Tasmanian Wilderness World Heritage Area (TWWHA) World Heritage Listing Criteria, listed place on the National Heritage List, criteria, values and attributes (sources: DPIPWE 2016¹³ & DCCEEW 2021¹⁴)

National Heritage Listing

The Tasmanian Wilderness was one of 15 World Heritage places included on the National Heritage List on 21 May 2007.

The National Heritage listings for the Place I.D. 105695 are made in accordance with subitem 1A(3) of Schedule 3 of the Environment and Heritage Legislation Amendment Act (No.1) 2003, as the World Heritage Committee has determined that this place meets World Heritage criteria (iii), (v), (vii) (viii), (ix) and (x). As National Heritage listings in this case are subsequent to meeting World Heritage Values, the World Heritage impact summary and details in this document also refer to the corresponding matters listed under the National Heritage List (source DCCEEW May 18, 2022)¹⁵:

- i) Criterion A Events, Process: This place is taken to meet this National Heritage criterion in accordance with subitem 1A(3) of Schedule 3 of the *Environment and Heritage Legislation Amendment Act (No.1) 2003*, as the World Heritage Committee has determined that this place meets World Heritage criteria (iii), (v), (vi), (viii), (ix) and (x).
- ii) Criterion B Rarity: This place is taken to meet this National Heritage criterion in accordance with subitem 1A(3) of Schedule 3 of the *Environment and Heritage Legislation Amendment Act (No.1) 2003*, as the World Heritage Committee has determined that this place meets World Heritage criterion (x).
- iii) Criterion C Research: This place is taken to meet this National Heritage criterion in accordance with subitem 1A(3) of Schedule 3 of the *Environment and Heritage Legislation Amendment Act (No.1) 2003*, as the World Heritage Committee has determined that this place meets World Heritage criteria (viii) and (ix).
- iv) Criterion D Principal characteristics of a class of places: This place is taken to meet this National Heritage criterion in accordance with subitem 1A(3) of Schedule 3 of the *Environment and Heritage Legislation Amendment Act (No.1) 2003*, as the World Heritage Committee has determined that this place meets World Heritage criteria (viii) and (ix)

¹³ TWWHA Management Plan 2016

¹⁴ <https://www.awe.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness#directly-or-tangibly-associated-with-events-or-with-ideas-or-beliefs-of-outstanding-universal-significance> accessed 16/11/21

¹⁵ https://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;search=list_code%3DNHL%3Blegal_status%3D65%3Bkeyword_PD%3D0%3Bkeyword_SS%3D0%3Bkeyword_PH%3D0;place_id=105695

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v) Criterion E Aesthetic characteristics: This place is taken to meet this National Heritage criterion in accordance with subitem 1A(3) of Schedule 3 of the *Environment and Heritage Legislation Amendment Act (No.1) 2003*, as the World Heritage Committee has determined that this place meets World Heritage criterion (vii).

Vi) Criterion G Social value: This place is taken to meet this National Heritage criterion in accordance with subitem 1A(3) of Schedule 3 of the *Environment and Heritage Legislation Amendment Act (No.1) 2003*, as the World Heritage Committee has determined that this place meets World Heritage criterion (iii).

World Heritage Listing Criteria¹⁶, relevant Values and Attributes¹⁷:

‘The Tasmanian Wilderness was inscribed on the World Heritage List in 1982 and extended in 1989, June 2010, June 2012, and again in June 2013. The Tasmanian Wilderness is one of the world’s largest temperate wilderness areas, and a precious cultural landscape for Tasmanian Aboriginal people, who have lived there for at least 35,000 years. The World Heritage property encompasses more than 1,580,000 hectares, covering almost a quarter of the island state of Tasmania in Australia.’¹⁸

‘A Statement of Outstanding Universal Value is the official statement adopted by the World Heritage Committee identifying the criteria under which the property was inscribed, including the assessments of the conditions of integrity or authenticity, and of the protection and management in force. The primary purpose of a Statement of Outstanding Universal Value is to be the key reference for the future effective protection and management of the property. When the Tasmanian Wilderness was listed in 1982 a Statement of Outstanding Universal Value was not required. The Australian Government is working with the Tasmanian Government and technical advisory bodies to the World Heritage Committee (IUCN and ICOMOS) to develop the Statement of Outstanding Universal Value.’¹⁹

Examples of World Heritage Values that contribute to the property’s Outstanding Universal Value include (but are not limited to) those listed below. These examples are illustrative of the World Heritage values of the property, and those values relevant to Lake Malbena and surrounds as advised by the DCCEEW. They do not necessarily constitute a comprehensive list of values. Until the adoption of a Statement of Outstanding Universal Value is completed, the proponent has been advised by the DCCEEW that the list found on the DCCEEW website²⁰ is regarded as the guide to the Outstanding Universal Value of the property.

Criteria (iii) to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;

Values

- The Tasmanian Wilderness bears a unique and exceptional testimony to an ancient, ice age society

¹⁶ <https://whc.unesco.org/en/criteria/>

¹⁷ <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness#directly-or-tangibly-associated-with-events-or-with-ideas-or-beliefs-of-outstanding-universal-significance>

¹⁸ <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness#more-information>

¹⁹ <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness#directly-or-tangibly-associated-with-events-or-with-ideas-or-beliefs-of-outstanding-universal-significance>

²⁰ <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness#directly-or-tangibly-associated-with-events-or-with-ideas-or-beliefs-of-outstanding-universal-significance>

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Attribute

- Pleistocene archaeological sites that are unique, of great antiquity and exceptional in nature, demonstrating the sequence of human occupation at high southern latitudes during the last ice age.

• **Criteria (iv) to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;**

Value

- The Tasmanian Wilderness provides outstanding examples of a type of landscape which illustrates a significant stage in human history.

Attribute

- a) Archaeological sites which provide important examples of the hunting and gathering way of life, showing how people practised this way of life over long time periods, during often extreme climatic conditions and in contexts where it came under the impact of irreversible socio-cultural and economic change

• **Criteria (vi) to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.**

Value

- The Tasmanian Wilderness is directly associated with events of outstanding universal significance linked to the adaptation and survival of human societies to glacial climatic cycles

Attribute (s)

- (a) archaeological sites including Pleistocene sites, which demonstrate the adaptation and survival of human societies to glacial climatic cycles and periods of long isolation from other communities (e.g. the human societies in this region were the most southerly known peoples on earth during the last ice age).

• **Criteria (vii) to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;**

Values

- The landscape of the Tasmanian Wilderness has exceptional natural beauty and aesthetic importance and contains superlative natural phenomena

Attribute (s):

- (a) Impacts to relatively undisturbed landscape

(b) Impacts to the scale of the undisturbed landscapes

- **Criteria (viii) to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;**

Value

- The Tasmanian Wilderness is an outstanding example representing major stages of the earth's evolutionary history

Attribute (s):

- (a) Relic biota with links to ancient Gondwanan biota including endemic conifers
- (b) Soils (blanket bogs, peatlands)

- **Criteria (ix) to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, freshwater, coastal and marine ecosystems and communities of plants and animals;**

Value (s)

- The Tasmanian Wilderness has outstanding examples representing significant ongoing geological processes and ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water and coastal ecosystems and communities

Attribute (s):

- (a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition
- (b) Conifers of extreme longevity
- (c) Species representing significant ongoing biological evolution in mainland animals including Bennett's wallaby *Macropus rufogriseus* and common ringtail possum *Pseudocheirus peregrinus*

- Criteria (x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation**

Value

- The ecosystems of the Tasmanian Wilderness contain important and significant natural habitats where threatened species of animals and plants of outstanding universal value from the point of view of science and conservation still survive

Attribute (s):

- (a) habitats important for endemic plant and animal taxa and taxa of conservation significance, Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*

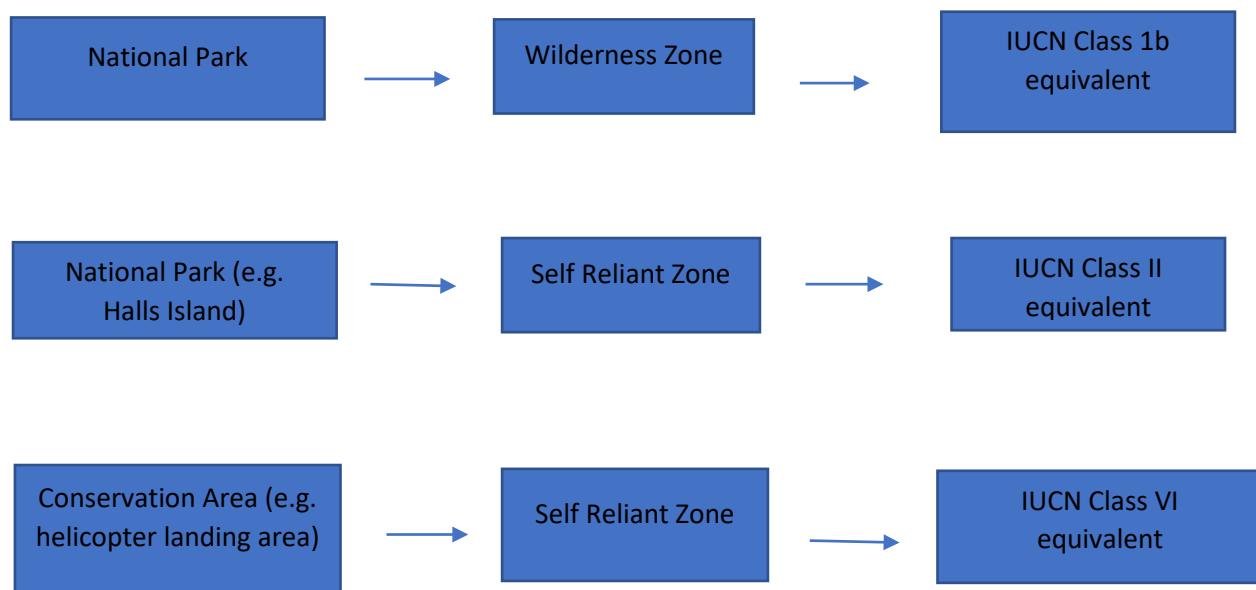
New background information - TWWHA Management classes, historical zonings, and equivalent IUCN land use classes relating to 'wilderness'

TWWHA zonings and IUCN land classification

The TWWHA is a 1.58 million hectare landscape located in Tasmania, an island-state south of mainland Australia, that consists of a complex mix of seven different forms of reserve classes, managed for the protection of cultural and natural values, touristic presentation and community engagement under the 2016 TWWHA Management Plan (DPIPWE, 2016). The TWWHA was initially recognised as a Mixed World Heritage property in 1982 (DPIPWE, 2016), and is one of only two reserves in the world that meets the criteria for listing in seven different categories of Outstanding Universal Values (OUV's) under the World Heritage Convention: four natural and three cultural (DPIPWE, 2016).

The TWWHA Management Plan 2016 sets out what uses may occur within the TWWHA, and guidance is provided through a zoning and overlay system and associated Table of Use (pages 77-80) which further defines permitted uses (DPIPWE 2016, p8).

There are two reserve classes (National Park, and Conservation Area) directly considered in relation to this proposal. Reserve class and purposes are discussed in the TWWHA Management Plan, page 31 (Table 1.2). A zoning overlay system presented as an associated Table of Use (pages 77-80) is representative of the reserve class designation and Management Plan objectives, providing guidance as to what may occur in each zone, and to define permitted uses (DPIPWE 2016, p8). Each management reserve class and zoning correspond to globally accepted IUCN reserve class framework, which is allocated to each reserve under the Nature Conservation Act 2002 (Tas):



Halls Island and Lake Malbena are on the boundary of the Walls of Jerusalem National Park, zoned Self Reliant, and managed as IUCN Class II reserve. ‘*Ecologically sustainable recreation*’ is a common purpose of the National Park reserve class / IUCN Class II purposes. Under the 2016 Management Plan Table of Use, Standing Camps are a permitted use at this location. Under the PWS Standing Camp Policy 2006, Standing Camps provide ‘visitors with a level of comfort and accessibility on an overnight guided tour above that which would normally be achievable as an independent free traveller’ (see appendix 36). This signals the clear intent to provide for additional recreational settings via standing camp provisions under the Management Plan.

The proposed helicopter landing site is located immediately east of Lake Malbena, outside of the National Park. The area is within the Central Plateau Conservation Area (CPPA), zoned as Self Reliant, and managed as an equivalent IUCN VI reserve. This area has not changed zoning or IUCN land equivalent management classification between the 1999 and 2016 plan, and the proposed use is unambiguously facilitated by the land management classification (Central Plateau Conservation Area / IUCN class VI) and associated zoning as Self Reliant and Permitted Uses under the 2016 TWWHA Management Plan. The TWWHA Self Reliant zone and Central Plateau Protected Area is predominantly located in the north-east of the TWWHA, and features a range of recreational settings. These include access to otherwise remote land through the use of mechanised access, such as 4WD tracks in proximity to Clarence Lagoon, Travellers Rest Lagoon, Five Rivers Reserve, Lake MacKenzie, adjacent to Pillans Lake, the area adjacent to private blocks at Bull Hill, and a large mosaic of TWWHA to the east of the A5. Additional motor boat access to areas of the TWWHA Self Reliant Zone are established via Great Lake, Arthurs Lake, Lake MacKenzie and Double Lagoon. Clearly mechanised access is an accepted and established part of the recreational experience settings within the Self

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Reliant Zone and IUCN Class VI CPPA. Succinctly, the proposal to use mechanised access east of Lake Malbena is coherent with the established recreational settings of the Self Reliant Zone / IUCN Class VI equivalent CPPA. ~82% of the TWWHA is managed as Wilderness Zone, an IUCN 1b equivalent management class where there are '*large expanses of remote and undisturbed landscape*' with high wilderness quality values. There are no proposed developments or helicopter landings in the IUCN 1b Wilderness Zone as part of this proposed use and development.

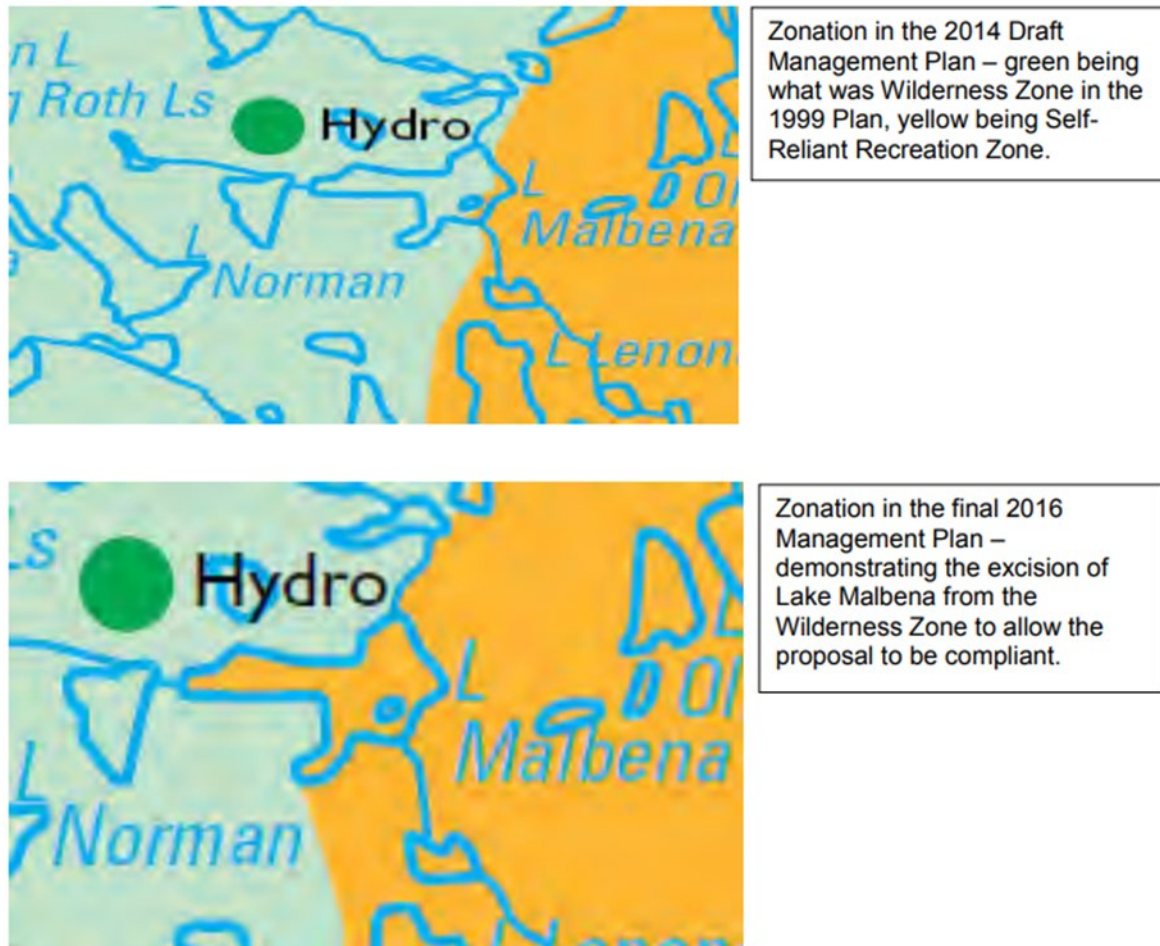
Specific to the zoning of Lake Malbena (encompassing Halls Island), the lake was re-zoned from Wilderness Zone to Self-Reliant Zone during the creation of the 2016 TWWHA Management Plan²¹. This re-zoning has been extremely contentious to ENGO opponents of this proposal, including political leader Ms Cassy O'Connor (The Tasmanian Greens), the Wilderness Society and their wilderness expert Mr Martin Hawes, as well as the (ENGO) Tasmanian National Parks Association and the Vice President Mr Grant Dixon. To understand the clear justification for the re-zoning, it is relevant to discuss the history of zoning and wilderness value assessments applied to the area.

Under the previous 1999 TWWHA Management Plan, and the subsequent 2014 Draft TWWHA Management Plan, a majority of the 185 Ha Lake Malbena was zoned Wilderness Zone. Under the 2014 Draft Plan, it is uncontroversial to state that the zoning of Lake Malbena itself was ambiguous, due to the failure of the mapper(s) to adhere to normal mapping conventions: the zonation boundaries were unclear, failed to follow natural boundaries or contours, resulting in the boundary being marked for an ill-defined line somewhere *inside* of the eastern portion of Lake Malbena, and potentially touching or encompassing parts of Halls Island (see figure 7 below). For simplicity, the image (figure 7) was taken from the previous Wilderness Society public comment submissions to the federal DCCEEW dated 19 July 2018 (page 5). Under the 2014 Draft Management Plan (top image, fig 7), the zoning at Lake Malbena was ambiguous (partially covering the eastern extent of the lake and possibly the island), did not adhere to normal mapping conventions by following natural contours or features, and did not take into account the presence of the private Tasmanian heritage listed hut. The updated 2016 TWWHA Management Plan zoning map (bottom image, fig. 7) now displays the appropriate zoning at Lake Malbena, is unambiguously mapped using accepted mapping conventions such as the use of natural contours and boundaries, and the overall zoning is now reflective of the corrected and updated 2015 wilderness quality assessment, presence of the heritage hut, and recognition of the associated history of recreational use and recreational settings:

²¹ <https://nre.tas.gov.au/Documents/RTI%20026%20-%202018-19.pdf>

Figure 7: Inadequate zoning found in the 2014 Draft plan (top), and the subsequent approved zoning in the 2016 TWWHA Management Plan (bottom) (image source, Wilderness Society Tasmania public and legal submissions)

Zone changes between the 2014 and 2016 management plans



During initial pre-assessment discussions between the proponent and the PWS (circa 2015), it is a matter of public record that the proponent expressed formal concerns over the inadequate zonation mapping quality found in the previous 1999 TWWHA Management Plan, and the subsequent 2014 Draft Plan. Clarification was sort by the proponent as to whether the zonation mapping and supporting National Wilderness Inventory (NWI) wilderness value assessments took into account the presence of the existing historical private hut and use on Halls Island.

For the first time during this lengthy assessment process, we can now confirm that the previous 1999, and the draft 2014 application of management zonings (which in this location essentially brought through the 1999 boundaries), did not take into account the presence of the historical Halls Hut at Lake Malbena. Previous National Wilderness Inventory (NWI) TWWHA wilderness quality assessments (1999) failed to consider, or measure, the pre-existing

Apparent Naturalness impacts caused by the historical private hut and associated recreational use²². This led to a previously incorrect NWI character assessment being applied to Halls Island and Lake Malbena under the previous TWWHA Management Plan (1999).

Confirmation of this mapping error was noted by Hawes within the 2015 TWWHA NWI wilderness quality assessment document prepared as part of the 2016 TWWHA Management Plan process (Hawes and Ling 2015, p 16), noting that there was a '*substantial change*' to the wilderness values at Lake Malbena as an outcome of the 2015 assessment, caused by the likelihood that previous TWWHA NWI wilderness quality assessments failed to account for the presence of the private historical hut and associated activities at Lake Malbena.

At no point in his active role advocating against the project, including legal interventions (relating to local planning permits) and expert capacities obo The Wilderness Society, has Mr Hawes sought to bring this historical mapping error to the fore, despite opportunities to do so during multiple legal presentations or submissions related to the planning process and zonations, expert witness statements by Mr Hawes at the Tasmanian Resource Management Planning Appeals Tribunal (RMPAT) hearings, or in any of the published works by Mr Hawes in his associated roles with the Wilderness Society. The error has only been brought to public focus by independent research conducted by the proponent.

The 2015 NWI wilderness quality mapping report²³ and subsequent re-zoning of Lake Malbena in the 2016 TWWHA Management Plan now appropriately reflects the revised wilderness quality, and associated historically important past and on-going history of recreational use (recreational settings) at Lake Malbena. In reference to the allocation of Wilderness zonation, and as highlighted in the TWWHA Management Plan 2016 and further noted in the PWS RFI Public Comment submission, '*there are some areas where the wilderness value may exceed 12 that are not in the (wilderness) zone, such as in the Central Plateau*²⁴'. We note that the proposed action is in the Central Plateau. We note that equally, the area may have been retained as Wilderness Zone, acting as a buffer area. It is our strong position that the change of zoning under the 2016 Management Plan from Wilderness to Self Reliant is appropriate, for the following factual reasoning: The original wilderness zonation were based on erroneous NWI mapping originating from 1995, and were unclear in delineation / positioning. The new zonations now follow natural boundaries, the boundaries are now clearly defined, and as such the mapping now conform to normal mapping conventions. The designation of IUCN Class II equivalent management prescriptions via the Self-Reliant Zoning facilitates the opportunity for 'environmentally compatible recreational and visitor opportunities', which importantly is now consistent with the recreational settings and historical uses of the island, private heritage hut and broader lake area. The application zonation of Wilderness Zone to Lake Malbena would not reflect these recreational settings and historical uses (including private hut) found at the location.

²² See Table 7, Hawes and Ling 2015

²³ Hawes and Ling 2015

²⁴ P177

TWWHA Wilderness Management

The TWWHA is one of the largest temperate wilderness areas in the Southern Hemisphere (DPIPWE, 2016), and elements of ‘wilderness’ are considered values of Criteria Vii of World Heritage Listing, in the form of ‘*superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance*’ (DCCEEW, 2020).

There is no official Statement of Outstanding Universal values for the TWWHA, however a ‘guide on the Outstanding Universal Value of the property’ has been produced by DCCEEW (2021)²⁵. As a value of Criteria Vii, ‘wilderness areas’ are legislatively protected under the federal Environment Protection and Biodiversity Conservation Act 1999 (EPBCA), in the form of ‘*the relatively undisturbed nature of the property; the scale of the undisturbed landscapes*’ (DCCEEW, 2021²⁶). Corresponding wilderness protection is provided via prescriptions of the TWWHA Management Plan 2016, where ‘*large expanses of remote and undisturbed landscapes with high wilderness values*’ and additional buffer areas have been incorporated into a Wilderness Zone²⁷ featuring highly restrictive use and development prescriptions (IUCN 1b equivalent).

Approximately 82% of the TWWHA, or ~1.3 million hectares (DPIPWE, 2020) is managed for IUCN 1b wilderness equivalent outcomes as Wilderness Zone, and no commercial infrastructure or touristic aircraft landings are permitted. The 2016 TWWHA Management Plan protects an additional ~76,000ha of landscape as IUCN 1b equivalent wilderness in comparison to the 1999 TWWHA Management Plan, providing for more protected area wilderness than any previous management plan. Objectively, landscape protected and managed as IUCN 1b equivalent wilderness has been expanding for the past forty years in Tasmania, and is at historically high levels.

Zonations are the primary tool for managing land as wilderness. High wilderness quality areas (defined as 12+ under the National Wilderness Inventory framework) do occur outside of Wilderness Zones, but are managed for additional qualities such as presentation, equity of access and recreation in addition to wilderness quality. In this case, and as noted more broadly in relation to wilderness law, Rogers and Mackey (2015) note that ‘a distinction can be made between the ‘wilderness quality’ of a place’ and the formal designation of a place as a ‘wilderness area’, and one does not necessarily lead to the other.

The 2016 TWWHA Management Plan was prepared by the Tasmanian Government. Following review by the then Australian Government Department of the Environment and Energy, the plan was found to be consistent with the Australian World Heritage Management principles as set out in Schedule 5 of the *Environment Protection and Biodiversity Conservation Regulations 2000*. The Plan was also found to give effect to, or be consistent with, the 2015

²⁵ <https://www.awe.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness#contains-superlative-natural-phenomena-formations-or-features-for-instance-outstanding-examples-of-the-most-important-ecosystems-areas-of-exceptional-natural-beauty-or-exceptional-combinations-of-natural-and-cultural-elements> Accessed 17/11/2021

²⁶ <https://www.awe.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness#contains-superlative-natural-phenomena-formations-or-features-for-instance-outstanding-examples-of-the-most-important-ecosystems-areas-of-exceptional-natural-beauty-or-exceptional-combinations-of-natural-and-cultural-elements> Accessed 17/11/2021

²⁷ DPIPWE 2016, P. 63

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reactive monitoring mission's recommendations and the 2016 decision of the World Heritage Committee. Balancing competing interests of visitation, presentation, equity of access, diversity of product, and protection of natural and cultural heritage values such as wilderness character are part of the delicate balance that the Plan aims to achieve through zonation and the accompanying Table of Use:

'The prescriptions and measures provided for the regulation of use in the TWWHA, in particular the zoning system and the associated Table of Use, are intended to ensure that the balance between tourism and recreation and the protection of natural values is met. These also apply to commercial tourism proposals and activities'.²⁸

It is clear that zonation and the associated Table of Use, rather than NWI value, is the key determinate of whether an activity is permitted or otherwise: *'management overlays are important in the regulation and management of use in the TWWHA'*²⁹. Simply relying on NWI values would fail to take into account history of use, recreational opportunities (recreational settings), diversity of product, presentation, equity of access and other matters considered and allowed for in the Plan.

Once the activity is permitted by the zonation and associated Table of Use, *'pro-active management measures are used to identify and avert adverse effects and threats'* whilst acknowledging that *'a degree of impact is inevitable and acceptable under certain conditions'*³⁰. New proposals undergo assessments that enable mitigation strategies to be embedded as lease and licence conditions, should the proposal be approved³¹. The Lake Malbena proposal has embedded a suite of achievable and effective mitigation and avoidance strategies into the proposed development (46 individual measures), ensuring that adverse threats have been identified, mitigated or avoided.

Management of Aerial Access

Aerial access is considered a 'significant component of presentation in the TWWHA'³², and has been a historically important activity in the TWWHA (as identified in the previous 1981 Nomination, and 1989 Extension Requests, for instance).

Aircraft overflights themselves are not regulated, with the federal government Civil Aviation and Safety Authority (CASA) generally responsible for regulating overflights in Australia (with the exception of federally managed protected areas such as Kakadu), leaving the Tasmanian Parks and Wildlife Service with the power to only regulate *landings* in the reserve. A poorly drafted and outdated voluntary Fly Neighbourly Advice (FNA) exists; however it is widely acknowledged that this provides very little or no benefit in mitigating potential soundscape impacts from overflights in the Wilderness Zone, or the greater TWWHA. In this respect, the Halls Island proposal has developed a

²⁸ DPIPWE 2016, P 149-150

²⁹ DPIPWE 2016, p 117

³⁰ DPIPWE 2016, P 109

³¹ DPIPWE 2016, P 117

³² DPIPWE 2016, P 134

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suite of detailed overflight impact mitigation measures and commitments that far exceed those within the current FNA arrangements, and represent a new & higher benchmark.

The 2016 Plan '*provides an appropriate and balanced approach to providing opportunities for aircraft access*'³³.

Potential touristic aircraft landing sites are only permitted outside of the IUCN 1b equivalent Wilderness Zone, and outside of additional nominated 'no landing' overlay areas in the Self-Reliant and Recreation Zones which are aimed at protecting recreational settings and the recreational experience sought by some visitors^{34 35}. As a consequence, potential landings are only permitted in a landscape area equivalent to less than 12% of the TWWHA landscape. Therefore, landings themselves are heavily regulated by the TWWHA Management Plan.

A cap of five landing sites applies to the Self-Reliant Zone (up from a potential three sites under the 1999 Plan), and the proposed Lake Malbena landing is the only 'conditionally approved' landing site in the Self-Reliant Zone(s). The Lake Malbena proposed landing site is within the Central Plateau Conservation Area (IUCN Class VI equivalent) Self Reliant Zone. The proposed landing site (and flight corridor) is outside of any 2016 TWWHA Management Plan management overlays that preclude helicopter landings in order to preserve recreational settings³⁶. The PWS Standing Camp Policy 2006³⁷, which has been used to determine Standing Camp design under the TWWHA Management Plan 2016, notes that standing camps provide visitors 'with a level of *comfort and accessibility* on an overnight guided tour above that which would normally be achievable as an independent free traveller'³⁸. In summary, the proposed use of this location for helicopter landings is unambiguously supported by the TWWHA Management Plan 2016.

As illustrated by interrogation of the PWS 2019 flight audit details (Tasmania, 2020), the proposed Lake Malbena flight path, along with the 'Walls of Jerusalem ingress' and 'Maatsuyker overflight' routes, are the only overflight routes (out of twelve recorded) that avoid direct overflights of the Wilderness Zone. In the case of Lake Malbena overflight, this is one of several purposeful and effective mitigation measure aimed at decreasing potential impacts to wilderness quality in the Wilderness Zone. Furthermore, the Lake Malbena overflight is the only overflight listed in the 2019 PWS audit that purposefully avoids overflying PWS managed walking tracks (in order to protect wilderness recreation values). The proposed flight path purposefully adheres to the eastern boundary of the TWWHA (to protect wilderness integrity at the core of the reserve, and avoid potential for fragmentation), again mitigating impacts over and above any other current TWWHA flight path. The proposed flights are capped in temporal frequency, restricted to a cap of 48 hours per annum, across a cap of 65 days per annum. These combined measures

³³ DPIPWE 2016, p 13

³⁴ DPIPWE 2016, p 13

³⁵ DPIPWE 2016, p 134

³⁶ DPIPWE 2016, P 134&135

³⁷ Applicable for proposals submitted for RAA prior to 22 June 2021. Subsequent standing camps assessed under the 2021 Standing Camp Policy

³⁸ PWS 2006, pg 5.

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are purposeful and effective mitigation measures which achieve the goal of minimising wilderness landscape, wilderness soundscape, and wilderness recreation impacts.

3 . f. A Description of any potential MNES that occur, or have a potential to occur, in the project area and adjacent area (sources include: North Barker flora and fauna reports, NVA, EPBCA protected matters database, SPRAT Database profiles, DCCEE World Heritage Listing information)

MNES species and communities' details (see page 14-16 appendices 9 for instance):

Flora

- Alpine *sphagnum* bogs and associated fens (MSP) – Endangered

*'As the name suggests, the Alpine Sphagnum Bogs and Associated Fens ecological community can usually be defined by the presence or absence of sphagnum moss, even though it is not always the dominant genus...The Alpine Sphagnum Bogs and Associated Fens ecological community contains a number of recognised variants, changing in a predictable progression from the hillsides down to the valley floor'*³⁹

- *Pseudocephalozia paludicola* liverwort – Vulnerable

*'An erect liverwort that is light coloured and often lucid green. Known to occur in wet ground in subalpine grassland, moorland and sphagnum areas.'*⁴⁰

- *Eucalyptus gunnii* ssp. *Divaricate* - Miena Cider Gum

*'a small to medium tree of open woodland, growing to 15 m tall. Its branchlets are covered in a heavy waxy bloom that often extends onto the flower buds and young seed capsules (Potts, Potts & Kantvilas, 2001).'*⁴¹

- *Colobanthus curtisiae* - Curtis' colobanth

*'A small perennial herb of grasslands and grassy woodlands, often on rocky outcrops within these habitats.'*⁴²

- *Leucochrysum albicans* var. *tricolor* - grassland paper daisy

*'A floriferous herb of grasslands and grassy woodlands, generally on basalt soil.'*⁴³

Fauna

- *Aquila audax* subsp. *Fleayi* Tasmanian wedge tailed eagle – Endangered

*'The Wedge-tailed Eagle (Tasmanian) is a large bird that measures 100 to 110 cm in length, with a wingspan of 1.9 to 2.3 m, and a mass of 3.5 to 5.5 kg. Females are larger than males; they have a longer body, a much larger bill, and are about 15% heavier (Bell & Mooney 1998).'*⁴⁴

- *Galaxias johnstoni* Clarence galaxias – Endangered

³⁹ <https://www.agriculture.gov.au/sites/default/files/documents/alpine-sphagnum-bogs.pdf>

⁴⁰ Appendices 9

⁴¹ <https://www.environment.gov.au/biodiversity/threatened/species/pubs/68394-conservation-advice.pdf>

⁴² Appendices 9

⁴³ Appendices 9

⁴⁴ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64435

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*'The Clarence Galaxias is a small, stout, yellow-bellied, freshwater fish, endemic to central Tasmania. This species occurs only in isolated parts of the upper Derwent River catchment, where it is restricted to high altitude, freshwater habitats and is both lake and stream-dwelling.'*⁴⁵

- *Dasyurus maculatus maculatus* Spotted tailed quoll – Vulnerable

*'The Spotted-tailed Quoll (Tasmanian population) is a medium sized carnivorous marsupial and member of the Dasyuriade family. It is one of Australia's largest extant marsupial carnivores with males weighing between 2.6 kg and 4.6 kg and females between 1.5 kg and 2.2 kg... They have thick, short fur which is golden to dark chocolate brown on the back and a pale cream on the underside. The Spotted-tailed Quoll (Tasmanian population) has distinct white spots of varying size over the back, head and along the tail.'*⁴⁶

- *Sarcophilus harrisii* Tasmanian devil – Endangered

*'The world's largest extant marsupial carnivore, the Tasmanian Devil typically weighs 7.7–13.0 kg (males) or 4.5–9 kg (females) (Jones 2001; Jones et al. 2007), having a black coat with variable patches of white on the chest, shoulder and rump, and a stocky frame with fore legs longer than hind legs.'*⁴⁷

- *Tyto novaehollandiae castanops* Masked owl (Tasmanian) – Vulnerable

*'The Masked Owl (Tasmanian) is mainly greyish-brown above, with white and black spots. The species has a prominent facial disc of pale chestnut-brown to brownish-buff, with a darker chestnut shaded patch around the eyes, extending towards the base of the bill. The rim of the facial disk is very prominent and brown with darker speckles. The eyes are blackish-brown and the bill whitish-cream. Underparts are boldly marked with relatively large dark spots. Legs are feathered and toes greyish-brown to yellowish-grey with long blackish-brown talons.'*⁴⁸

- *Botaurus poiciloptilus* Australasian bittern – Endangered

'The Australasian Bittern is a large, stocky, thick-necked, heron-like bird. The species grows to a length of 66–76 cm and has a wingspan of 1050–1180 cm. The average male weighs approximately 1400 g and the average female weighs approximately 900 g (Marchant and Higgins, 1990). The upper-parts of the body are brown and dark brown to black, mottled and buff, in complex patterns that aid the bird's concealment in swamp vegetation.'

- *Calidris ferruginea* Curlew sandpiper – Critically endangered

*'The Curlew Sandpiper is a small, slim sandpiper 18–23 cm long and weighing 57 g, with a wingspan of 38–41 cm. The legs and neck are long. The bill is also long, and is decurved with a slender tip. The bill is black, sometimes with a brown or green tinge at the base. The head is small and round, and the iris is dark brown. The legs and feet are black or black-grey. When at rest, the wing-tips project beyond the tip of the tail.'*⁴⁹

- *Lathamus discolor* Swift parrot – Critically endangered

'The swift parrot is a small parrot that has rapid, agile flight. During summer, it breeds in colonies in blue gum forest of south-east Tasmania. Infrequent breeding also occurs in north-west Tasmania. Breeding occurs in tree hollows and

⁴⁵ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=26184

⁴⁶ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=75183

⁴⁷ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=299

⁴⁸ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=67051

⁴⁹ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=856

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*they have high site fidelity. The entire population migrates to the mainland for winter. On the mainland it disperses widely and forages on flowers and psyllid lerps in eucalypts. The birds mostly occur on inland slopes, but occasionally occur on the coast.*⁵⁰

- *Numenius madagascariensis* Eastern curlew – Critically endangered

*'The eastern curlew is Australia's largest shorebird and a long-haul flyer. It is easily recognisable, with its long, down-curved bill. The eastern curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home to Australia in August to feed on crabs and molluscs in intertidal mudflats. It is extremely shy and will take flight at the first sign of danger.'*⁵¹

- *Pterodroma leucoptera* Gould's petrel – Endangered

*'Gould's Petrel is a small, slightly-built petrel with a distinct 'M'-shaped marking on its upperwings. Gould's Petrels measure about 70 cm, and weigh about 200 g. The head is characterised by a white forehead with dark freckles that merge into a black hood over the crown and nape; the mantle is blue-grey or dark grey, and the rump darker grey; the short, rounded tail is grey with a brown wash, grading darker at the end; and the underparts are white. The upperwing is dark brownish grey with a prominent blackish 'M'-shaped mark which extends across the lower back. The underwings are white with a blackish trailing edge and a blackish leading edge which extends towards the middle of the wing at the carpal joint, forming a distinct diagonal carpal bar. The bill is black; the eyes are dark brown; and the legs and feet are off-white with the toes, joints, webs and claws dull black (Marchant & Higgins 1990; Roberson & Bailey 1991; Surman et al. 1997). Gould's Petrel is usually seen at sea singly or in twos, occasionally in groups of about 12, and infrequently in groups as large as 60 (Hindwood & Serventy 1941; Surman et al. 1997).'*⁵²

- *Oreixenica ptunarra* Ptunarra brown butterfly – Endangered

*'The Ptunarra Brown Butterfly (Oreixenica ptunarra) is a small brown and orange butterfly found only in Tasmania. The species occurs in Poa tussock grassland and grassy shrubland and woodland above 400 m in the north-west plains, Central Plateau, southern Midlands, the Steppes, and the eastern highlands. The female is similar in size to the male, but is a brighter orange. The caterpillars feed exclusively on the leaves of Poa grass. The adult flying season lasts only a few weeks in early autumn, during which time the butterflies mate and lay eggs on the tussocks.'*⁵³

- *Apus pacificus* Fork-tailed swift – Listed migratory

'The Fork-tailed Swift is a medium to large member of the Apodidae Family. It has a length of 18–21 cm, a wingspan of 40–42 cm and weighs around 30–40 g. It is a medium-sized Swift, with a slim body with long scythe-shaped wings that taper to finely pointed tips. It is characterized by a long and deeply forked tail. It is smaller and slimmer than the White-throated Needletail, Hirundapus caudacutus, with much narrower wings and a longer, more deeply forked tail. It is much bigger than Swiftlets with much longer wings and a lower forked tail. The Fork-tailed Swift is mainly blackish with a white band across the rump. There is also a white patch on the chin and throat. The body, tail and upperwings are black-brown and they have a faint pale scaling to the saddle and white scalloping to the underbody.

⁵⁰ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=744

⁵¹ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=847

⁵² https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=26033

⁵³ <https://www.threatenedspecieslink.tas.gov.au/Pages/Ptunarra-Brown-Butterfly.aspx>

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*The sexes are alike with no seasonal variation, juveniles are also indistinguishable in the field (Higgins 1999).*⁵⁴

- *Myiagra cyanoleuca* Satin flycatcher – Listed migratory

*'The Satin Flycatcher is a member of the Dicruridae family. They have a length around 17.5 cm, a wingspan of 23 cm and a weight of 17 g. The species is characterised by an upright posture, short erectile crest, and a distinctive habit of quivering the tail when perched. Males are glossy blue-black above, with a blue-black chest and white below, while females are duskier blue-black above, with a orange-red chin, throat and breast, and white underparts and pale-edged wing and tail feathers. Young birds are dark brown-grey above, with pale streaks and buff edges to the wing feathers, and a mottled brown-orange throat and chest (Higgins et al. 2006).*⁵⁵

- *Gallinago hardwickii* Latham's snipe – Listed migratory

*'Latham's Snipe is a medium sized wader, and the largest snipe in Australia, with a length of 29-33 cm, a wingspan of 50-54 cm and a mass of 150-230 g. It has a long straight bill, rather short broad pointed wings, a long tail and short legs (Higgins & Davies 1996). The cryptic plumage is intricately marked with barring and chevrons of buff, black and various shades of brown, with blackish-brown stripes across the crown and cream streaks down the back. The belly and parts of the head are white, and the tail is rufous with a white tip. The eyes are large and blackish-brown in colour (Higgins & Davies 1996; Pizzey & Knight 1997). The colour of the bill varies from pale-brown to olive, becoming blackish at the distal third and olive-yellow at the base. The legs and feet are olive-grey to olive in colour. The sexes are similar in appearance, and there is no seasonal variation in the plumage. Juveniles in fresh plumage differ only slightly from adults, but can be distinguished by slight differences in the patterning on the upperwing. Adults and juveniles are indistinguishable after early November (Higgins & Davies 1996). In non-breeding areas, snipe that are flushed from cover flee with a distinctive and rapid 'zig-zagging' flight'.*⁵⁶

- Tasmanian Wilderness World Heritage Area (World Heritage List Property ID: 181) / National Heritage List (List Place ID: 105695)

*'The Tasmanian Wilderness is one of the world's largest temperate wilderness areas, and a precious cultural landscape for Tasmanian Aboriginal people, who have lived there for at least 35,000 years. The World Heritage property encompasses more than 1,580,000 hectares, covering almost a quarter of the island state of Tasmania in Australia.'*⁵⁷

*'The Tasmanian Wilderness was inscribed on the World Heritage List in 1982 and extended in 1989, 2010, 2012 and 2013. It is inscribed on the basis of seven World Heritage criteria – three cultural ((iii), (iv) and (vi)) and four natural ((vii), (viii), (ix) and (x)). The property covers approximately 1.58 million hectares, or around 23 per cent of the island State of Tasmania'*⁵⁸

'The Tasmanian Wilderness was one of 15 World Heritage places included on the National Heritage List on 21 May

⁵⁴ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=678

⁵⁵ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=612

⁵⁶ https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=863

⁵⁷ <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness>

⁵⁸ <https://www.dcceew.gov.au/sites/default/files/documents/tasmanian-wilderness-state-party-report.pdf>

A list of TWWHA Criteria, MNES Values and example attributes is located at pages 24 to 27 of this document.

3 g) Targeted surveys to confirm the presence, status and extent of relevant listed threatened species within the proposed action area (if it is believed that targeted surveys are not necessary, an explanation of why, including evidence, should be provided).

Flora and Fauna surveys

North Barker Ecosystem Surveys – October 2016

Targeted surveys have included two surveys of the action area and surrounding landscape conducted by expert staff from North Barker. These have included surveying of the proposed action area, in addition to areas outside of the immediate proposed action area, conducted by Dr Grant Daniels (North Barker) during 24 and 25 October 2016, and second searches by Mr Andrew North in May 2018.

Upon initial surveys, TASVEG modelling of flora communities for Halls Island was found to be incorrect as noted in appendices 9. The corrected post-survey TASVEG mapping can be found in appendices 8 and 9, and figure 8 and figure 10 below (as well as being found in the current TASVEG 4.0).

When reading this document (and associated appendices) it should be noted that in specific relation to alpine *sphagnum* bogs and fens, the TASVEG units MSP or ASP are used to identify alpine *sphagnum* bogs and fens. These mapping units are described as the Tasmanian 'state equivalent to the (EPBCA) alpine *sphagnum* bog and fen community'⁶⁰ under EPBCA Policy Statement 3.16 (Alpine Sphagnum Bogs and Associated Fens). Vegetation unit MSP was updated to the ASP acronym in TASVEG circa 2018.

The October 2016 survey area and field methods (appendices 9 North Barker report), are summarised as follows (paraphrased from page 1, 10 & 11):

'The potential impact areas on the island were not definitively marked on the ground, but the proponent was present to identify proposed actions and sites...Field work was undertaken on foot by one observer on the 24th and 25th of October, 2016. Vegetation was mapped across the island in accordance with units defined in TASVEG 3.06. Three quarters of the island (excluding the northwest quadrant where no actions are proposed and no impacts are anticipated based on the vegetation) were surveyed for vascular plants using a meandering area search technique (as described by Goff *et al*, 1982)⁶¹. Additional effort was focussed around the potential impact footprint, within potential threatened species habitats (MSP), and within threatened vegetation communities (eg within the *P*.

⁵⁹ <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness>

⁶⁰ <https://www.agriculture.gov.au/sites/default/files/documents/alpine-sphagnum-bogs.pdf> page 12

⁶¹ <https://link.springer.com/content/pdf/10.1007/BF01875062.pdf>

hookeriana population, and within the RKP community). Plant species lists were compiled within each vegetation type using the current census of Tasmanian plants for nomenclature. Surveying and identification of non-vascular flora was limited to searches for the EPBCA vulnerable *Pseudocephalozia paludicola* focussing on suitable MSP habitat. Observations of habitat suitability for fauna, as well as direct or indirect indicators of presence (i.e. sightings, scats, tracks, dens, etc.) were made concurrently with the flora survey...All data points were recorded with a handheld GPS.'

Figure 8 Dr Grant Daniels conducting on-island survey, October 2016.



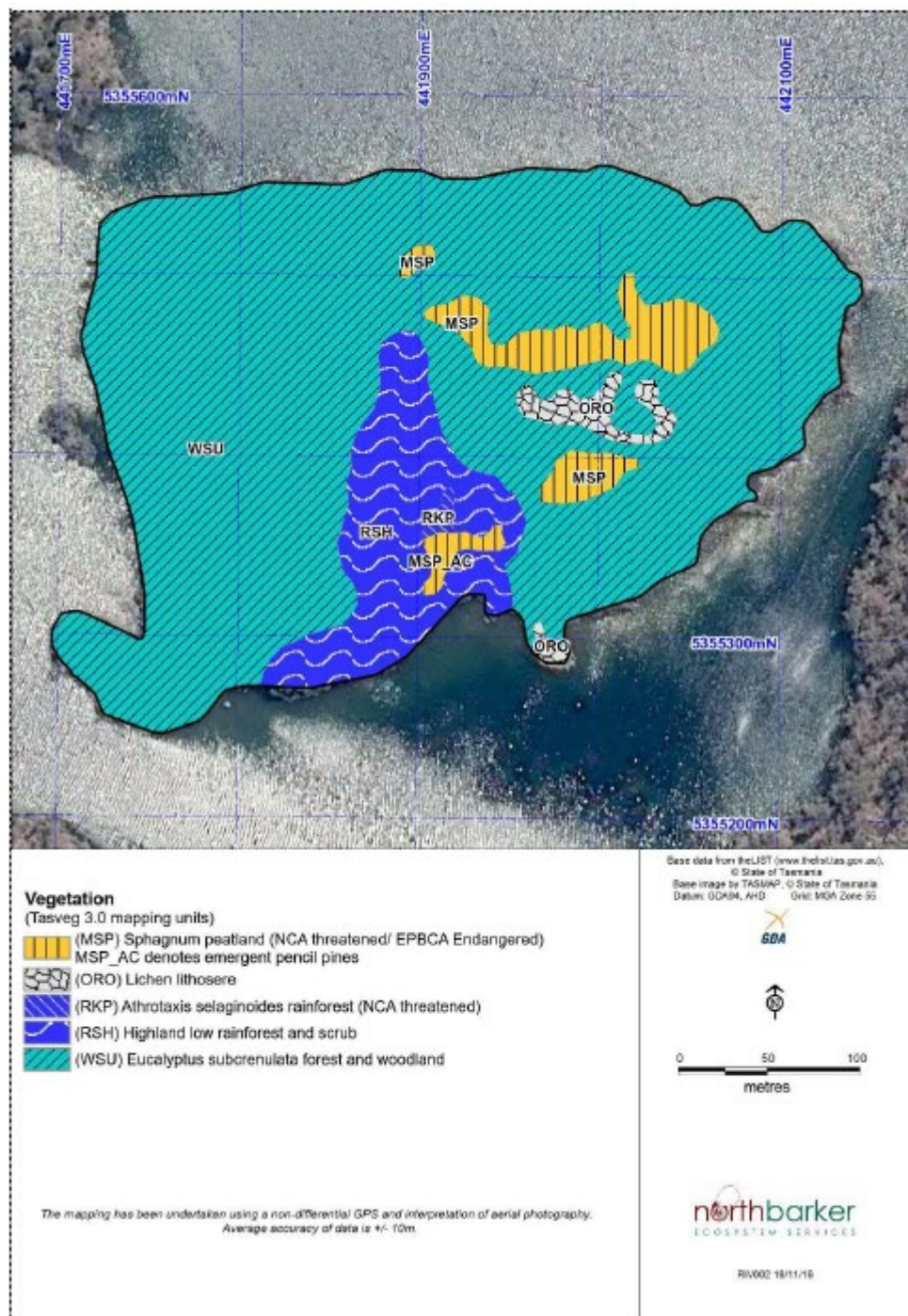
The surveyed ASP communities identified on Halls Island, and east of Malbena, conform to the TASVEG community benchmarks⁶², and are easily identifiable in these locations by the dominant *sphagnum* species present, and very well-defined visual edges. The exception to this was the eastern-edge delineation of the mainland ASP and HSE community (shown at figure 9), the delineation which was determined through the use of four transect surveys as noted in appendices 8 report.

In relation to *Pseudocephalozia paludicola*, only one record is known from within 5 km of the island. Suitable habitat (areas of MSP) were searched for the species and it was not recorded.

⁶² <https://nre.tas.gov.au/Documents/ASP.pdf>

See appendix 9 for additional information. See fig. 9 below for an example of the output mapping and survey results derived from the Flora and Fauna assessment (taken from appendix 9) which shows updated flora community mapping as a result of the surveys:

Figure 9. Corrected vegetation mapping (TASVEG units), Halls Island



North Barker Ecosystem Surveys - May 2018

A second flora and fauna survey was conducted by Mr Andrew North of North Barker on 24 May 2018, and included specific surveys relating to the proposed off-island heli landing site, and ingress walking route between the lake edge

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at Lake Malbena and the heli landing site. The proponent was present for this survey, and guided Mr North to the proposed heli landing site ('heli pad site 2') where a foot search was conducted within a ~25 metres radius of the two potential heli landing sites, along with a search of ~20metres either side of the proposed walking route between the heli pad and Lake Malbena edge. A transect survey was conducted of the eastern edge of the alpine *sphagnum* bog and fen adjacent to the proposed 'helipad landing site 2' (see appendices 8) to clearly delineate the boundary between flora communities. A second survey was also conducted on-island at this time, focussing on fire-history observations (on-island) (focussing on evidence such as *E. subcrenulata* coppicing, tree scarring, and distinct cohorts of *Phyllocladus aspleniifolius*), in addition to a brief re-inspection of the specific standing camp site, with reporting presented in appendix 8. All relevant findings were recorded by North Barker with the aid of GPS. A distinct, rocky drainage line between the ASP and DDE forest was inspected for suitability as a walking route between the proposed heli-landing site and DDE forest (as identified as a yellow line on fig. 10), and was found to be of suitable width, defined area and form to provide for walking route access without impacting the adjacent, very clearly identifiable (and avoidable) ASP community. There will be no traverse of the ASP community as a result.

See fig. 10 below from appendix 8, detailing the approximate search locations (yellow line). The largest ASP community (centre image) was assessed for soil depth on the eastern boundary through the use of transects as noted further in appendices 8:

Figure 10 Helicopter landing site and walking route, mainland east of Halls Island



Tasmanian wedge tailed eagle surveys (arranged by date)

Surveys specific to raptors were commenced with a (heli) nest search conducted by qualified PWS staff at Lake Malbena in May 2016, incidental to other PWS heli-activities in the area. The aerial search focussed on an area within 1km radius of Halls Island. No nests were found within 1km of Halls Island.

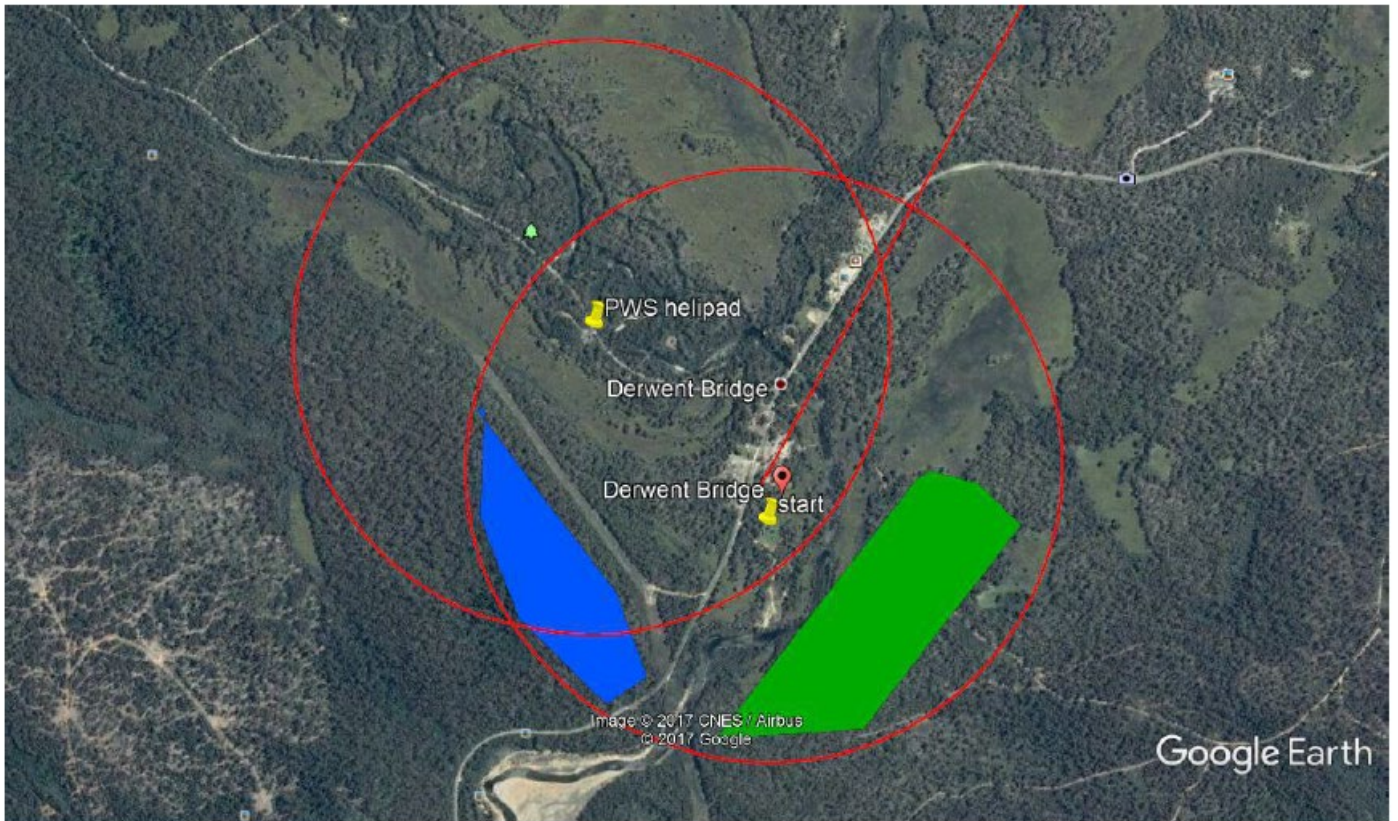
September 2017

A comprehensive search of the Derwent Bridge landing area was conducted on foot by eagle expert Mr Nick Mooney on the 19/9/2017 on behalf of the proponent (with the proponent present and assisting as directed by Mr Mooney). The foot search involved two overlapping areas, each radiating 1km radius from the proposed heli landing site (PWS helipad) at Derwent Bridge, and a second backup heli landing site on the southern side of Derwent Bridge (both locations are marked with pins on the map below). Both radius were systematically traversed by Mr Mooney, with the aid of GPS and binoculars. Particular areas of focus were high probability nesting areas as indicated by the green and blue shading in fig. 11 below, derived from nest habitat modelling. Within hillside terrain, effort was focussed on 'likely areas'⁶³ within the hillside terrain. The search procedures conform to the nest search guidelines of the Fauna Technical Note Series: Eagle Nest Management⁶⁴. The expert recommendations and reporting was further informed by desktop nest habitat modelling using TheLIST and Natural Values Atlas. No nests were located in either search radius. A map of the search area is included below, taken from appendices 5.

Figure 11. Eagle nest survey areas, Derwent Bridge

⁶³ <https://www.environment.gov.au/epbc/notices/assessments/2007/3385/pubs/note1-eagle.pdf>

⁶⁴ <https://www.environment.gov.au/epbc/notices/assessments/2007/3385/pubs/note1-eagle.pdf>



April 2019

Independent of the Malbena proposal and proponent, the Department of Primary Industry Water and Environment (Natural Values Section, DPIPWE Tas) conducted five days of heli surveys for eagle nests in TWWHA ‘priority locations’ during April 2019 (see appendices 16 for full report). Advice from Mr Mooney (appendices 7) is that one of the aims of this survey was to ‘to find eagle nests in the general area of the proposed Lake Malbena flight path’. No nest were found within the proposed flight path area, or within 1km of the proposed flight corridor. The closest nest was located approximately 3.5km west of Halls Island in an area predicted by modelling (adjacent to Eagle Lake). The survey supports the previous advice and findings supplied by Mr Nick Mooney, and the survey follows the guidelines of the Fauna Technical Note Series: Eagle Nest Management⁶⁵. The survey flight details and findings from the April 2019 survey are detailed further in appendix 16, with a map of the survey routes and associated nesting probability cut and pasted in fig 12 below:

⁶⁵ <https://www.environment.gov.au/epbc/notices/assessments/2007/3385/pubs/note1-eagle.pdf>

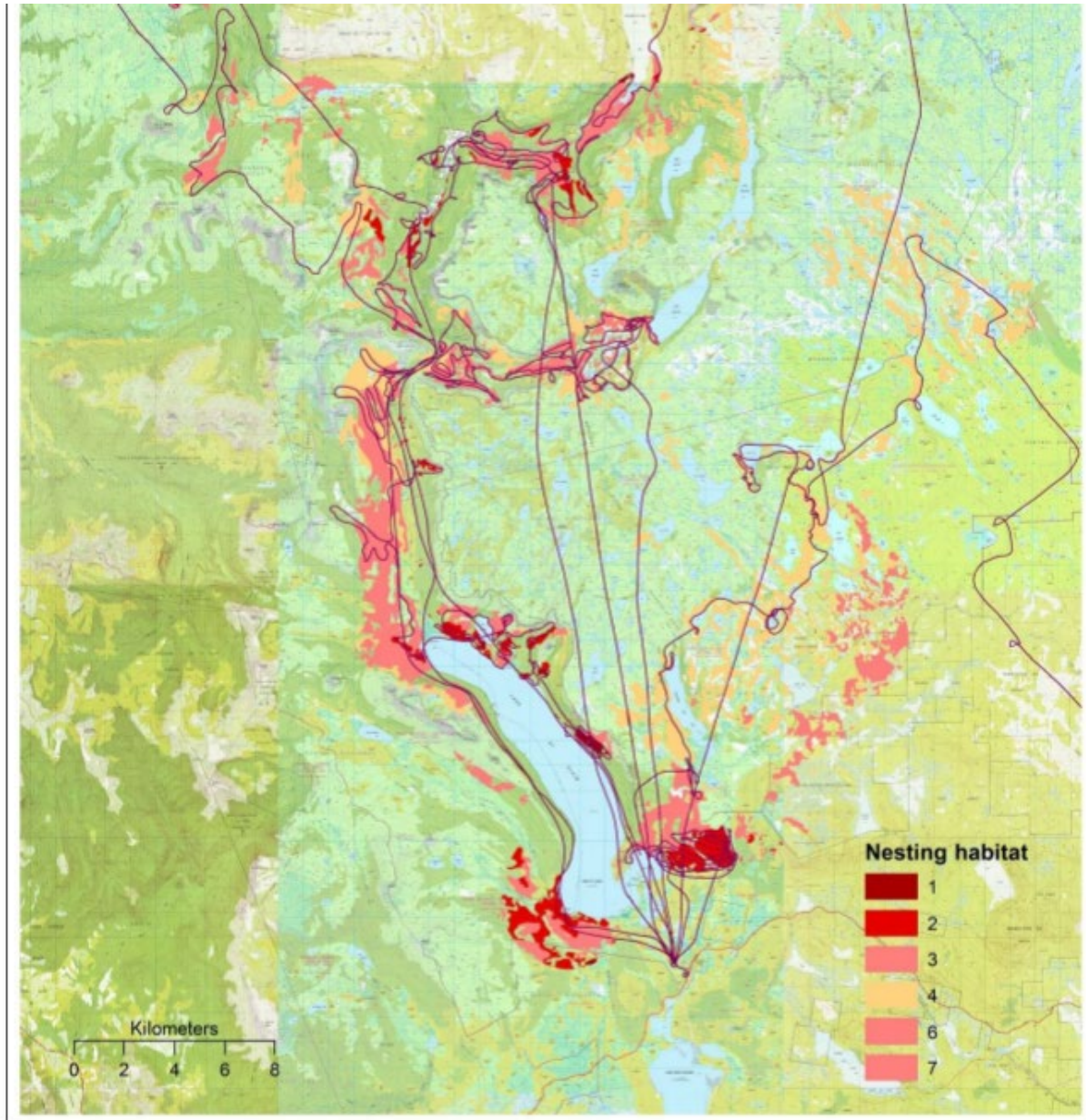


FIGURE 5: MAPPED POTENTIAL NESTING HABITAT AND SEARCH FLIGHT PATH, OVERLAND TRACK AND WALLS OF JERUSALEM. The legend indicates the probability of potential nesting habitat as extracted from existing spatial datasets; the darker the shading, the higher the potential nest habitat suitability. Numbers indicate PI-type forest height (note: forest coded as 3, 6, and 7 are very similar in habitat suitability therefore are shaded accordingly).

Eagle nest search prior to construction and operations

Important in the context of this proposal, the Tasmanian wedge tailed eagle impact mitigation and avoidance measures recommended by raptor expert Mr Nick Mooney require a survey for eagle nests of areas within 1km plus of the proposed route and takeoff/landing places be undertaken prior to commencement of construction (outside of defined breeding season August-Feb inclusive⁶⁶), and then every two years in autumn. The proponent will adopt this

⁶⁶ <https://www.environment.gov.au/epbc/notices/assessments/2007/3385/pubs/note1-eagle.pdf>

requirement in full. This would allow for adaptive management of the operating procedures, and represents a ‘belt and braces’ approach to avoiding impacts on the Tasmanian wedge tailed eagle.

3h) Information detailing known populations (and records) or habitat for the relevant listed threatened species within 5km of the proposed action area

The following is taken directly from the North Barker Flora and Fauna assessments (November 2016) appendix 9. North Barker reports and surveys (2018 and 2022) appendices 8, 9 and 40 provide further relevant information:

2.4. Fauna Species of Conservation Significance

2.4.1. Field survey results

Eleven species of vertebrate fauna were observed directly or indirectly during our survey (Appendix D). Based on our observations, the long-tailed mice (*Pseudomys higginsii*) and the Tasmanian froglet (*Crinia tasmaniensis*) may be the only vertebrate species permanently resident on the island. No threatened fauna species were observed, nor were any habitat elements that could conceivably be used for nesting or denning by threatened species.

2.4.2. Range boundaries within 500 m

Based on range boundaries from the NVA, the island is in the potential range of seven threatened fauna species (Table 2). Each of these species have average home range sizes that are too large for the island to support permanent populations. Based on the absence of available nesting and denning opportunities, it is likely that if any of these species use the island it would only be occasionally for foraging. Even if nesting or denning was attempted by any of the species in Table 2, it is unlikely that the island would have sufficient prey to make raising a litter/brood there energetically viable.

No eagle nests are known or likely to occur within 500 m or 1 km line of sight.

Table 2: Threatened fauna species with range boundaries within a 500 m radius of the island¹⁸ - SS = TSPA; NS = EPBCA

Species	Common Name	SS	NS	Potential	Known	Core
<i>Aquila audax</i>	wedge-tailed eagle	pe	PEN	1	0	0
<i>Dasyurus maculatus</i>	spotted-tailed quoll	r	VU	1	0	0
<i>Aquila audax subsp. fleayi</i>	tasmanian wedge-tailed eagle	e	EN	1	0	0
<i>Sarcophilus harrisii</i>	tasmanian devil	e	EN	1	0	0
<i>Tyto novaehollandiae</i>	masked owl	pe	PVU	1	0	0
<i>Accipiter novaehollandiae</i>	grey goshawk	e		1	0	0
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		1	0	0

2.4.3. Known occurrences within 5 km

The only threatened fauna species known to occur within 5 km of the island is the Clarence galaxias, *Galaxias johnstoni* (TSPA and EPBCA endangered). The known occurrence of this species (Table 3) is adjacent to an area that will potentially be traversed on foot by visitors to the island. The island itself has no suitable habitat for the species.

2.4.4. EPBCA database predictions within 5 km

Several other species are predicted by the EPBCA protected matters database as having potential to occur within 5 km of the island (Table 4)¹⁹. Of these species, only the Japanese snipe and the satin flycatcher have a moderate likelihood of utilising the island. The snipe is a non-breeding migrant that may use the bogs for foraging. The flycatcher is unlikely to be impacted by a proposal of this scale and nature.

**Table 3: Known observations of threatened fauna within a 5 km radius of the island²⁰ -
SS = TSPA; NS = EPBCA**

Id	Species	Common Name	SS	NS	Observers	Date	Obs Type	Easting/Northing GDA94 Zone 55
I357038	<i>Galaxias johnstoni</i>	clarence galaxias	e	EN	Jean Jackson (1308), Andrew Harvey (1844)	13-Apr-2000	Sighting	446588, 5355240 +/- 20m
I262700	<i>Galaxias johnstoni</i>	clarence galaxias	e	EN	Robert Freeman (20722)	01-Jan-2009	Sighting	446808, 5355059 +/- 200m
I357039	<i>Galaxias johnstoni</i>	clarence galaxias	e	EN	Jean Jackson (1308), Andrew Harvey (1844)	13-Apr-2000	Sighting	446588, 5355240 +/- 20m
I262702	<i>Galaxias johnstoni</i>	clarence galaxias	e	EN	Jean Jackson (1308)	07-Nov-2001	Sighting	446008, 5355006 +/- 100m
I262701	<i>Galaxias johnstoni</i>	clarence galaxias	e	EN	Jean Jackson (1308)	13-Apr-2000	Sighting	446812, 5355058 +/- 100m

Table 4: Potential for EPBCA listed threatened and/or migratory species to occur within 5 km of the island, based on the protected matters database and excluding species covered in Table 2 and 3 – status refers to EPBCA listing only²¹

Name	Status	Type of Presence
Birds		
<u><i>Botaurus poiciloptilus</i></u> Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
<u><i>Calidris ferruginea</i></u> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<u><i>Lathamus discolor</i></u> Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
<u><i>Numenius madagascariensis</i></u> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<u><i>Pterodroma leucoptera leucoptera</i></u> Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area
Insects		
<u><i>Oreixenica ptunarra</i></u> Ptunarra Brown, Ptunarra Brown Butterfly, Ptunarra Xenica [26327]	Endangered	Species or species habitat may occur within area

Migratory Marine Birds

Apus pacificus

Fork-tailed Swift [678]

Species or species habitat likely to occur within area

Migratory Terrestrial Species

Myiagra cyanoleuca

Satin Flycatcher [612]

Species or species habitat likely to occur within area

Migratory Wetlands Species

Calidris ferruginea

Curlew Sandpiper [856]

Critically Endangered

Species or species habitat may occur within area

Gallinago hardwickii

Latham's Snipe, Japanese Snipe [863]

Species or species habitat may occur within area

Numenius madagascariensis

Eastern Curlew, Far Eastern Curlew [847]

Critically Endangered

Species or species habitat may occur within area

Table 1: Flora species of conservation significance known or predicted to potentially occur within a 5 km radius of the island¹⁵

Species	Status TSPA / EPBCA	Potential to occur if not observed	Observations and preferred habitat
KNOWN FROM HALL'S ISLAND			
<i>Ptherosphaera hookeriana</i> Mt Mawson pine	Vulnerable/ -	PRESENT	<p>A coniferous shrub or small tree that is highly sensitive to fire. Can form extensive clonal thickets by suckering, which can make the estimation of population size difficult.</p> <p>Our field survey recorded a dense but narrow band of plants around most of the southern edge of the island (Figure 4, Plates 8 and 9). Estimated percentage cover within this area of 3,500 m² is 30 %. The previous record of this species attributed to Hall's Island estimated 150 ± 50 plants are present, but this is likely to be an underestimate based on our mapping.</p>
REPORTED FROM WITHIN 5 km¹⁶			
<i>Planocarpa nitida</i> black cheeseberry	Rare/ -	Very low	<p>A short, compact shrub endemic to Tasmanian and found mostly on the eastern Central Plateau. Only one record known from within 5 km of Hall's Island.</p> <p>Habitat on the island is moderately suitable in areas of WSU and ORO, but the distinctive species is considered highly unlikely to have been overlooked.</p> <p>The more widespread congeneric species, <i>Planocarpa petiolaris</i>, was</p>

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			present on the island and is differentiated by leaf morphology and inflorescence traits.
Pseudocephalozia paludicola liverwort	-/ VULNERABLE	Low	An erect liverwort that is light coloured and often lucid green. Known to occur in wet ground in subalpine grassland, moorland and sphagnum areas. Only one record is known from within 5 km of the island. Suitable habitat (areas of MSP) were searched for the species and it was not recorded.
PREDICTED AS POSSIBLY OCCURRING WITHIN 5 km¹⁷			
<i>Colobanthus curtisiae</i> Curtis' colobanth	Rare/ VULNERABLE	None	A small perennial herb of grasslands and grassy woodlands, often on rocky outcrops within these habitats. No suitable habitat on the island and not likely to have been overlooked.
<i>Eucalyptus gunnii</i> ssp. <i>divaricata</i> Miena cider gum	Endangered/ ENDANGERED	None	No suitable habitat is found on the island and the species is highly unlikely to have been overlooked. During the walk in to Lake Malbena some specimens of <i>E. gunnii</i> were noted around 443429.59 E, 5355189.74 N. Material collected from these plants is being examined to differentiate to the subspecies level. Impacts to these trees are very unlikely given the nature of the proposal.
<i>Leucochrysum albicans</i> var. <i>tricolor</i> grassland paper daisy	Endangered/ ENDANGERED	None	A floriferous herb of grasslands and grassy woodlands, generally on basalt soil. No suitable habitat on the island and not likely to have been overlooked.

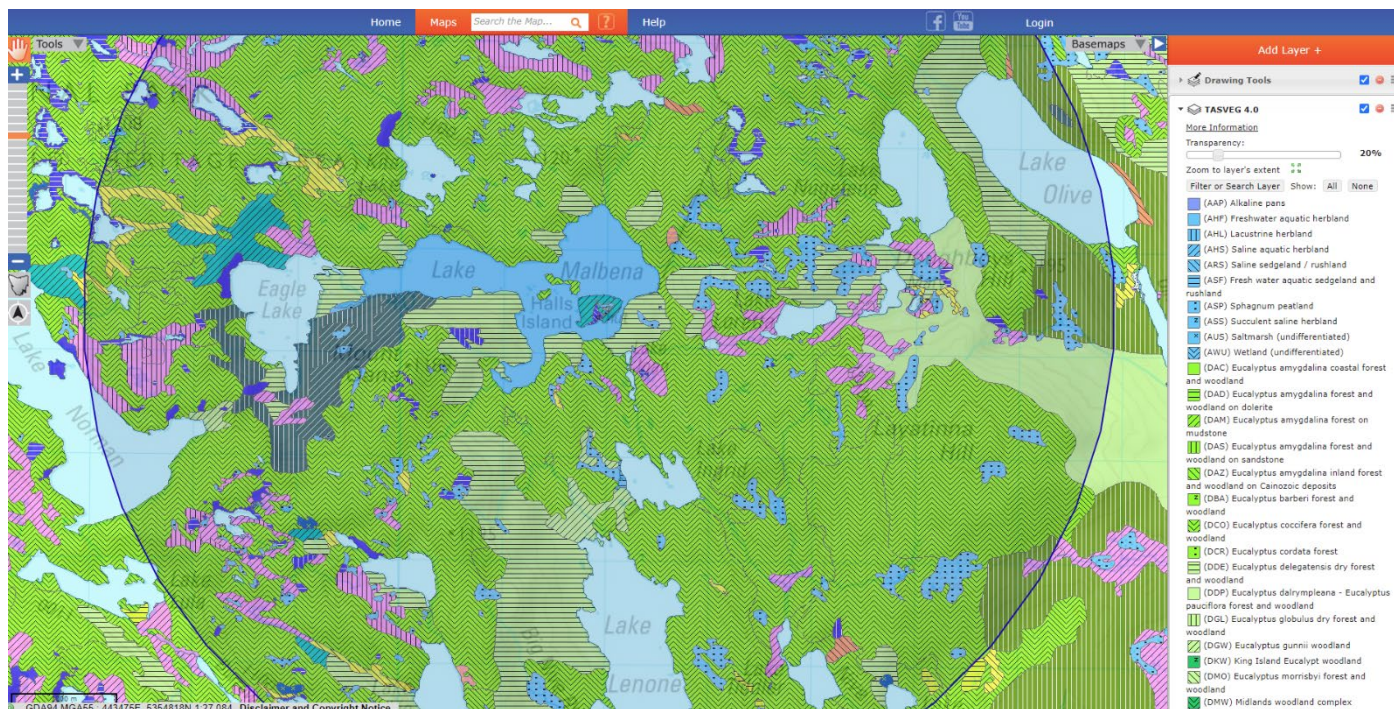
Additional flora of significance

TASVEG units MSP or ASP are described as the Tasmanian 'state equivalent to the (EPBCA) alpine *sphagnum* bog and fen community'⁶⁷. North Barker reports (appendices 8 & 9) identifies the presence of EPBCA listed (endangered) alpine *sphagnum* bogs and fens located on Halls Island, and one mainland location adjacent to the heli landing site and walking route east of Lake Malbena. Alpine *sphagnum* bogs and fens are also considered an MNES as an element of World Heritage Criteria Viii, ix & X. Specific to Halls Island, four alpine *sphagnum* bogs and fens have been identified (see figure 11 previous), in addition to one adjacent to the walking route & heli landing site east of Malbena (see figure 12 previous). Numerous alpine *sphagnum* bogs and fens are predicted (modelled) to occur within 5km of Lake Malbena on TASVEG mapping, beyond the proposed action area, as noted in the detailed appendices of the North Barker reports and illustrated in figure 13 below (the circle edges represent a 5km buffer).

Arthrotaxis selaginoides (king billy pine) rainforest community (TASVEG RKP) and *Pherospheara hookeriana* species (Mt Mawson Pine) are also identified in the proposed action area, and discussed further in the North Barker reports (appendices 8 & 9). Both *Arthrotaxis selaginoides* and *Pherospheara hookeriana* are considered MNES, as elements of World Heritage Criteria Viii, ix & X.

⁶⁷ <https://www.agriculture.gov.au/sites/default/files/documents/alpine-sphagnum-bogs.pdf> page 12

Figure 13: TasVeg units mapped within 5km radius of Halls Island. Blue shading with black dots represents alpine *sphagnum* bogs and fens.



Additional fauna of significance

Macropus rufogriseus (Bennett's wallaby) and *Pseudocheirus peregrinus* (common ringtail possum) are both identified in the proposed action area, as noted within the North Barker reports (appendices 8 & 9). Both species are considered MNES, as elements of World Heritage Criteria ix.

Tasmanian wedge tailed eagle

Information specific to EPBCA listed Tasmanian wedge tailed eagles was provided by expert Mr Nick Mooney, in addition to the North Barker reports, and resources on TheLIST and the Natural Values Atlas (NVA). As noted in the 'survey guidelines for Australia's threatened birds'⁶⁸, locations of most active nests are known.

Eagle nests (which can be used by either Tasmanian wedge tailed eagles or sea eagles) are found within 5km of the proposed overflight corridor and landing area, as noted in figure 1 (page 13) which uses the 'raptor nest' overlay found on TheLIST (sourced from the NVA dataset). This finding corresponds with previous reports and expert advice provided by Mr Nick Mooney. TheList data (see figure 1, page 13) indicates that approximately 30 nests are within 5km of the proposed flight corridor. Each nest does not correlate to an eagle or breeding pairs, with the nesting areas likely accommodating approximately 8-9 breeding pairs (see appendices 5 modelling for instance). No known eagle nests occur inside of the proposed flight corridor, or within the 1km buffer distance of the corridor (see previous figure 1).

Other TWWHA criteria attributes

There is no official Statement of Outstanding Universal Values for the TWWHA, however a 'guide on the Outstanding Universal Value of the property' has been produced by DCCEEW (2021)⁶⁹.

⁶⁸ Page 214 <https://www.agriculture.gov.au/sites/default/files/documents/survey-guidelines-birds-april-2017.pdf>

In assessing potential impacts to flora and fauna derived from the proposed action, North Barker and the proponent have considered the extensive list of OUV attributes prepared by DCCEEW (2021). Targeted surveys and/or expert advice was provided for a number of specific attributes (for example: conifers of extreme longevity, Bennetts (Red-necked) wallaby (*Notamacropus rufogriseus*), and eastern ring-tailed possum (*Pseudocheirus peregrinus*). The associated reports and advice has been provided in the North Barker Flora and Fauna Report 2016 (*North Barker Appendix Flora and Fauna assessment Nov 2016*), North Barker Flora and Fauna June 2018 addendum (*North Barker Flora and Fauna Assessment June 2018 Addendum*), and North Barker wallaby and ringtail addendum 2022. These reports have been included in the Halls Island RFI V4.4, and associated appendix 9, 8 & 40.

Several additional flora and fauna species or communities considered to be example attributes of OUV's can be found within 5km of the proposal. These include (but are not limited to) examples such as monotremes (e.g. platypus *Ornithorhynchus anatinus*, short beaked echidna *Tachyglossus aculeatus*), common wombat *Vombatus ursinus*, common brushtail possum *Trichosurus vulpecula*, in addition to examples from the plant genera *Bellenden*, *Agastachys* and *Cenarrhenes* in the Proteaceae, and other plant genera with Gondwanan links (e.g. *Eucryphia*, *Orites*, *Lomatia* and *Nothofagus*). In adherence to the Precautionary Principle, potential impacts to all example OUV's provided by DCCEEW (2021) have been considered, and it was determined that targeted surveys for flora and fauna attributes not specifically outlined in the listed North Barker reports were not required. This decision was made on the basis that the remaining example flora and fauna attributes compiled by DCCEEW (2021) are either not relevant to the area of the proposed action, or the proposed action would have no impacts on the flora and fauna in question.

3 i. Information about the resources used to identify and assess the environmental values of the site

North Barker Ecosystem Services were used by the proponent to provide expert flora and fauna surveys, advice and reports. This advice is included in appendices 8, 9 and 40, and included multiple site visits and surveys conducted over multiple days, during multiple assessments between 2016 and 2018. Dr Grant Daniels and Mr Andrew North both conducted separate site visits and surveys.

Raptor advice was sought and provided by eagle expert Mr Nick Mooney, and includes on-site surveys in the Derwent Bridge area, and reports included in appendices 5-7. A major eagle nest survey covering the area was also relied upon, and has been included in appendices 16.

⁶⁹ <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness>

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The state-based Parks and Wildlife Service Reserve Activity Assessment (appendices 13) also includes various information and advice provided by the Planning Branch, and the Policy and Conservation Advice branch.

TASVEG and the Natural Values Atlas were also used during surveys and assessments related to the environmental values of the site, along with numerous EPBCA guides and threatened species database documents.

3. j. An assessment of the adequacy of any surveys undertaken

Source and currency of North Barker reports and subsequent recommendations (statement supplied by North Barker 07/07/2021)

2018/8177 PD

(a)Source		Currency	(b) Reliability	(c) Uncertainties	(d) Guidelines etc
Report	Author/Date				
Halls Island, Flora and Fauna Assessment	NBES 21 November 2016	Stability of environments suggest no anticipated change in time period to put currency of data into question.	High – Method consistent with survey guidelines	Few. Acknowledgement that some species may be overlooked in a single survey but consideration of the likelihood of priority species being overlooked has been assessed and determined to be low, very low or none.	Guidelines for Natural Values Surveys – Terrestrial Development proposals. DPIPWE 2015
Proposed Helicopter Landing Site and Access to Halls Island	NBES 14 June 2018		High – as above		

Tasmanian wedge tailed eagles: adequacy of the information

The surveys conducted in relation to the proposed Lake Malbena overflight corridor and 1km of the proposed landing sites, and the use of nest habitat modelling and nest location mapping follow the guidelines of the Fauna Technical Note Series: Eagle Nest Management⁷⁰ including survey form and structure, and the identification of priority search areas. As noted in appendices 6, ‘these nest searching techniques have been developed over many years through the Forest practices Authority (FPA) and its predecessors and have been accepted as methods in both technical reports and refereed publications’.

⁷⁰ <https://www.environment.gov.au/epbc/notices/assessments/2007/3385/pubs/note1-eagle.pdf>

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The additional recommendation to ‘conduct a survey for eagle nests of areas within 1km plus of the proposed route and takeoff/landing places prior to commencement of construction (outside of defined breeding season August-Feb inclusive⁷¹), and then every two years in autumn’ also complies with best practice such as the Fauna Technical Note Series: Eagle Nest Management⁷², and provides for an adaptive approach to avoiding impacts on the species. The proponent will adopt this recommendation in full prior to commencement of any elements of the action.

The information and recommendations provided by Mr Mooney conforms to the *Threatened Tasmanian Eagles recovery plan: 2006-2010*⁷³

Additional information relating to the adequacy of the information provided by Mr Nick Mooney was addressed in July 2021 (see appendices 6 for full statement). An excerpt is pasted below:

‘Question: The Dept. Request For Information has asked for the following details from all consultant reports please:

a) The source and currency (date) of the information.

a) The information on nest locations along the proposed route is from DPIPW’s 2019 eagle nest search and a ground nest search around the Derwent Park helipad in 2017. The information on impacts of helicopter use and the effectiveness of 1km exclusion zones comes from nest searches around and near the 3CT route in 2012 and 2018 and annual aerial checks (since and including 2013) of activity at all those nests and productivity at those nests found active in that year. Results of searches and monitoring are held by PWS (DPIPWE). These nest searching and monitoring techniques have been developed over many years through the Forest practices Authority (FPA) and its predecessors and have been accepted as methods in both technical reports and refereed publications.

b) How the reliability of the information was tested

b) Logging operations and other development as a consequence of those searches and checks provide a cross-check in that missed nests will highly likely be found. A variety of nests in logging areas, 3CT and other monitored areas (eg St Helens Bike Track) are checked at various times through the season by various people both formally and informally because the nests are obvious or placed so they can be easily checked or photographed. Overwhelmingly, results of aerial monitoring by appropriately experienced people are confirmed as accurate (ie a nest deemed active is being used for breeding) . Some of this data from coincidental cross-checking is on the NVA as records for particular nests. FPA has much such data showing aerial checks are far more reliable than ground checks.

c) The uncertainties (if any) in the information.

c) It appears 95% of nests are found by appropriately experienced searchers (FPA records). The 2018 nest search of the 3CT found only one nest not recorded in the 2012 search and that nest appeared quite new. This search result success fits the norm.

⁷¹ <https://www.environment.gov.au/epbc/notices/assessments/2007/3385/pubs/note1-eagle.pdf>

⁷² <https://www.environment.gov.au/epbc/notices/assessments/2007/3385/pubs/note1-eagle.pdf>

⁷³ <https://www.dcceew.gov.au/sites/default/files/documents/tasmanian-wedge-tailed.pdf>

d) The guidelines, plans and/or policies considered.

d) Most guidelines for conserving eagle nests in Tasmania come from FPA prescriptions in the Forest Practices Code (FPC) for commercial forestry. These are routinely used by DPIPWEE to regulate non-logging activities through conditions and/or recommendations. The flight exclusion of 1km from active nests around the 3CT also comes from the 1km line-of-sight to active nests restriction for commercial forestry (FPC). The PWS has adopted this distance as operating procedures for helicopters it contracts around the 3CT in particular and features in PWS fly-neighbourly agreements elsewhere. At the date recommendations were made for the proposed flights there appeared to be no other guidelines for flights and eagle nests specific to other activities.'

– end quote -

3. k. A summary of known helicopter / aircraft use in the vicinity of the proposed action and other similar areas in the TWWHA, including aircraft type, flight duration and frequency, and altitude.

A comprehensive audit of aircraft flights, volumes and nodes has been collated by the Parks and Wildlife Service, and is presented as appendices 2-4. The audit contains details for flights by the Tasmania Parks & Wildlife Service and Commercial Operators during 2019, with more than 1100 hours of flights accounted for. Key data is summarised below (cut and pasted from Tasmania, 2021 appendices 2):

The main flight areas/paths are shown in Table 1 below and in the appended maps A and B (Aircraft Flight Paths, Volumes and Nodes TWWHA 2019).

Table 1: PWS main flight areas/paths within the TWWHA during 2019	Total hours flown (number days flown) (rounded to nearest whole number)
Flight areas/paths	
South West National Park	
(PWS flights) Cambridge to Melaleuca	44(25)
(PWS flights) Cambridge to Maatsuyker Island (via Ryan's Point)	22(9)
(PWS flights) South Coast Track	15(2)
(Commercial Operator flights) Cambridge to Melaleuca	744(over the visitor season)
Walls of Jerusalem National Park	
(PWS flights) Walls of Jerusalem area (generally Fish River/Wild Dog Creek area)	27(11)

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Franklin Gordon Wild Rivers National Park.

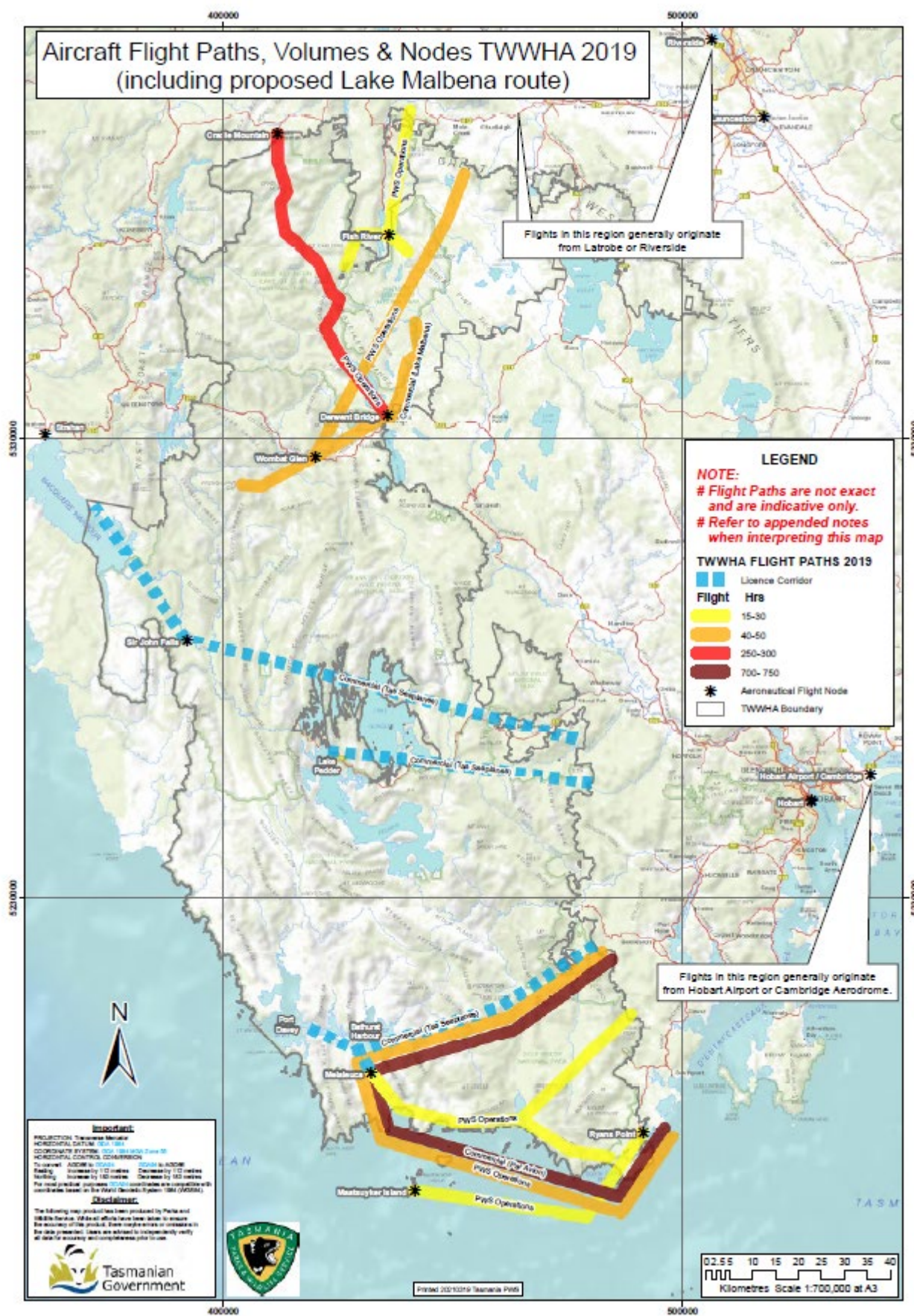
(PWS flights) Frenchmans Cap area (generally Derwent Bridge/Wombat Glen/Lake Tahune/Lake Vera area) 41(8)

Cradle Mountain National Park

(PWS flights) Cradle Mountain/Overland Track (OLT)/Lake St Clair 295(58)

To note: when interpreting Table 1 above and the appended maps A and B (Aircraft Flight Paths, Volumes and Nodes TWWHA 2019):

- • Flights include both helicopter and fixed wing flights.
- • PWS flights include operational flights but exclude any fire-related flights.
- • Flights only include those that involve a landing/drop of materials/people, they do not include overflights. This applies to both PWS and commercial operator flights.
- • The number of hours flown are approximate and to be used as a guide only.
- • Commercial operator hours flown have been determined by applying approximate flight times to visitation data (number of flights) provided to PWS in annual statutory declarations.
- • The number of hours flown are not only the hours spent in the TWWHA – they may also include time spent flying to/from a departure base outside of the TWWHA.
- • The flight areas/corridors are determined by the typical flight movements within particular geographical areas. Only flight areas/corridors with more than 10 hours of total flying time during 2019 have been presented.
- • The flight paths on the map are generalised and are indicative of the area flown. They should not be viewed as the actual flight paths, which can also differ depending upon weather and flight purpose.
- • The total hours flown in the Cradle Mountain/Overland Track/Lake St Clair flight area/corridor (295) include hours spent on the Overland Track Hut Redevelopment Project (68 hours), and
- The total hours flown by commercial operators only includes data from one commercial operator flying to Melaleuca (it is roughly approximated that this represents about 80 per cent of commercial operator flights within the TWWHA).
- Does not include data from several other operators that land in the TWWHA in either Melaleuca, Cradle or Bathurst Harbour (roughly estimated to be no more than 20 per cent of total commercial operator flights in the TWWHA). Detailed flight information from commercial operators was not available at the time of this request.
- Does not include flying hours that commercial operators may do for the purpose of servicing private huts within the TWWHA e.g. servicing of huts on the Overland Track. Detailed flight information from commercial operators was not available at the time of this project.



4. Relevant Impacts before mitigation

4a. An assessment of the direct and indirect loss and/or disturbance of listed threatened species populations and habitat as a result of the proposed action. This must include the quality of the habitat impacted, a quantification of the total individuals/populations and habitat area impacted in hectares and analysis of the indirect and facilitated impacts (without mitigation and avoidance measures in place)

Potential impacts to MNES species and communities’:

4.a (i) Potential impact: Fire

Value: Alpine sphagnum bogs and associated fens (MSP) – EPBCA Endangered

Likelihood: Low risk to Halls Island MSP communities. Very low risk to off-island populations adjacent to heli landing site (one community adjacent to landing site, see figure 10).

4.a (ii) Potential impact: Trampling and / or track formation related to on-island activities and proposed walking routes from helipad to lake edge, and / or construction activities (proposed walking routes are shown in figure 4 (Site Plan) and figure 12).

Value: Alpine sphagnum bogs and associated fens (MSP) – EPBCA Endangered

Likelihood: Low-Moderate

4.a (iii) Potential impact: Introduction of exotic biota.

Value: Alpine sphagnum bogs and associated fens (MSP) – EPBCA Endangered

Likelihood: Low

4.a (iv) Potential impact: Trampling

Value: *Pseudocephalozia paludicola* liverwort – EPBCA Vulnerable

Likelihood: Very Low. No population observed on Halls Island.

4.a (v) Potential impact: Disturbance through helicopter use

Value: *Aquila audax subsp. Fleayi* – EPBCA Endangered

Likelihood: Very low in relation to breeding disturbance. No nesting sites within 3km of Halls Island, no nesting sites within 1km of flight corridor.

High likelihood of temporal very minor disturbance in relation to disturbance of foraging and maintenance (eg: behavioural distraction or physical avoidance while looking for food or preening for example) as helicopter flies by. Resulting in very occasional disruption to 'loafing' (technical term) or hunting (extremely short temporal disturbance given the speed of heli fly by), and minor interruption in the context of the daily activities of an eagle. (information provided by N Mooney).

The following table authored by Mr Mooney and previously supplied by proponent, summarises the likely impacts of the proposed helicopter use if all the recommendations are adopted. New and additional information has been supplied as footnotes.

'It can be seen that the most serious potential event has the lowest likelihood. Means of minimising all potential events exist, and monitoring and periodic nest searches will allow adaptive management. All in all I think the proposed activity will have little or no measurable impact on either wedge-tailed eagles nor white-bellied sea-eagles.'
- Mr. Nick Mooney

Table 1. Assessment of likelihood of impact on eagles by the use of helicopters in the manner proposed, given all the recommendations including modifications and additions are adopted.

POTENTIAL EVENT	LIKELIHOOD	REASON FOR LIKELIHOOD	LIKELY CONSEQUENCE OF EVENT	MINIMISATION, MITIGATION & AMELIORATION
Aircraft collision with helicopter	Extremely low.	Pilots and eagles are alert and eagles and helicopters usually very manoeuvrable. Pilots are required to report such incidents and I know of no such in Tasmania although unconfirmed anecdotes do exist.	Serious	Pilots remain alert and aside from taking off and landing should fly predictable routes at transit speeds at 1000m plus whenever possible. No feeding of eagles (eg with fish) such that they may be encouraged to be near the route.

Eagle(s) leave active nest(s) for a critical period(s) ⁷⁴ causing failure.	Very low	Searching has not found nests within critical distances ⁷⁵⁷⁶ (1km). Most flying will be transits of 1000m above ground level (AGL). Most flying will be in second half of breeding when eagles are less likely to 'desert' due to a greater investment.	Temporarily and locally moderately serious	Standard Operating procedure of moderate (gradual) angles of ascent and descent from 1000m plus transit to avoid blade slap noise. Biannual nest searches of route. Annual nest monitoring No hovering or loitering
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⁷⁴ A *critical period* in that context is a length of time that the egg or chick might be harmed by or die from exposure or be predated on. The former issue depends largely on weather. The latter issue depends on what risks the eagles judge in their vicinity at the time. If forest ravens or other diurnal raptors for instance are nearby and the eagles have eggs or young chicks the eagles will be reluctant to leave the nest. If they have old chicks (beyond 1/3 grown) they will not be so reluctant. Critical periods in extreme weather could be regarded as 20-40mins (20 for a young chick, 40 for an egg) and in regard to nearby predators 10 minutes or less could bring risk. There is no measured data about survival of chicks or eggs regarding weather but there are anecdotal observations of predation both when no human disturbance was evident (from cameras) and because of human disturbance. (For context, a helicopter would travel the 1km radius (2km) past an unknown nest in approximately 40 seconds.)

⁷⁵ The *critical distance* applied to helicopter use and active nests is 1km, a distance borrowed from research applied to forestry to minimise the impacts of forestry activities on active nests. The Forest Practices Authority routinely applies the 1000m LOS (line-of-sight) rule to a great many activities that occur under the broad description of forest operations. Many of these activities are similar to other land clearing, construction, and other human activities (eg quarries and non-forestry land clearing), including helicopter use (in seeding, spraying, burning, firefighting and survey).

⁷⁶ *Critical distance* for management practices noted in page 29 of the *Threatened Tasmanian Eagles recovery plan: 2006-2010*: 'Implement breeding season buffers against disturbance of 500m and 1000m in line-of-sight to protect nests from disturbance.' The adopted 1km buffer exceeds this practice.

Eagles stop breeding along flight route or leave flight route for breeding (if an unknown nest exists on the flight route)	Very low.	Monitoring at Three Capes walk with far more and varied helicopter activity suggested no eagles moved nor failed in breeding beyond a 'background' rate. Neighbouring territorial eagles limit opportunities to move.	Little if any impact on local breeding	Standard Operating procedure of moderate (gradual) angles of ascent and descent from 1000m plus transit to avoid blade slap noise. Biannual nest searches of route. Annual nest monitoring
Eagles not colonising flight route for breeding	Very low	Monitoring at Three Capes walk with far more and varied helicopter activity suggested no eagles moved beyond a 'background' rate and minor moves included toward common helicopter routes. Neighbouring territorial eagles limit opportunities to move.		Standard Operating procedure of moderate (gradual) angles of ascent and descent from 1000m plus transit to avoid blade slap noise. Biannual (every two years) nest searches of route. Annual nest monitoring

Disruption of foraging and maintenance activities (eg preening) ⁷⁷	High and temporary.	Helicopters will be in transit at 1000m plus over the vast majority of the route.	Very small. The activity will likely spur curiosity in local eagles as much as disturbance.	Very small. The activity will likely spur curiosity in local eagles as much as disturbance. No hovering or loitering
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The proponent will adopt all of the expert recommendations from Mr Nick Mooney, as summarised:

1. Helicopter operations follow tailored routes (as opposed to a fixed flight path) within the flight corridor identified at Fig 1, which has a minimum likelihood of nests, climbing and descending *gradually* whilst staying within end point 'safe zones'. (Gradual decent avoids helicopter 'bladeslap', a sharp increase in blade noise potentially caused by quick descents in this case).
2. Avoid known nesting sites (as recorded on TheLIST) by 1km lateral distance.
3. Wherever possible use flight landing and take-off routes at Derwent Bridge already established by Parks and Wildlife Service Helicopter use.
4. Where possible, transient operational height 1000+m (AGL) (when safe to do so, as determined by the pilot and CASA regs). This operational height is a further 'belt and braces' approach aimed at avoiding (unknown) nests by 1km lateral distances

⁷⁷ Disruption would be in the form of behavioural distraction or physical avoidance while looking for food or preening (for example). In the context of the passage of a helicopter at cruising speeds at the height proposed, the eagles if perched would likely be distracted and watch it for a time (likely a few minutes). They would rarely if ever take flight in response. If foraging by flying the eagles may change their flight path to either avoid or investigate the aircraft. This largely depends on where the bird happened to be in relation to the aircraft, whether the eagle was a resident (impacts territoriality), what breeding stage it might be at (impacts territoriality) and the age of the eagle (impacts territoriality), besides its basic level of curiosity/aggression which varies markedly between individual eagles. Eagles spend little time at 1000m above the ground so a transiting overhead helicopter would likely result in a flying eagle simply gliding away (I have often seen this) then resuming its activity. Consequences: Although an aircraft can distract eagles while hunting it also can distract their prey thereby enhancing hunting. Such disruption is temporary and at the transit rate proposed I think very minor amongst the eagles' daily activities. A bird that moves aside from a transiting aircraft usually simply resumes its activity but if a breeding eagle and flying at the height of the aircraft may react by displaying just as it would to another eagle. At aircraft transit speed this is usually very brief the aircraft being too fast for complex interaction. Pilots also typically avoid eagles at aircraft height by flying well around them. Most of eagles' days are spent 'loafing' (a technical term), typically perched surveying their surrounds, watching other eagles and unusual activity, often preen, scratch etc and forage opportunistically. Occasional disruption of loafing is a very minor issue.

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5. Close manoeuvring, hovering and other 'lingering' to be avoided en route and minimised during landing and take-off.
6. During weather conditions not allowing 1000+m (AGL) utilise the pre-determined overflight route that avoids high probability nesting sites (since it has a very low chance of nests).
7. Eagles flying at or above operational heights to be circumvented⁷⁸ to avoid territorial interactions between the bird and aircraft or similar.
8. Monitoring by aircraft of all nests within 4km of the proposed route and take-off/landing places be undertaken each year in mid-October (to note the establishment of breeding) and mid-December (to note nesting success). This would allow for adaptive management of the operating procedures.
9. Survey for eagle nests of areas within 1km plus of the proposed route and takeoff/landing places be undertaken prior to commencement of construction (outside of defined breeding season August-Feb inclusive), and then every two years in autumn. This would allow for adaptive management of the operating procedures.

Case Study: Tasmanian Wedge Tailed eagle impact mitigation measures, existing TWWHA and protected-area protocols

The following table provides a brief case study comparison of differing existing overflights, and their associated Tasmanian wedge-tailed eagle mitigation prescriptions

⁷⁸ If an eagle is just below, then the pilot would circumvent it, but if well below (50m+) pilots usually continue on. The pilot will make up their own mind in regards to safety at the time. At aircraft transit speed (110knts +) the aircraft travels too fast to cause a complex interaction with the eagle which usually glides away, then resumes its activity. Pilots are very good at spotting them because of their enhanced situation awareness. Either approach is idiosyncratic to the occasion, and would result in very low risk to the eagle (or helicopter).

	1km buffer from known nests	Minimum 1000m AGL transit altitude	Biannual (every two years) nest searches	Annual nest monitoring	Tailored flight route of least likelihood for eagles
Halls Island proposal	Y	Y – subject to weather conditions	Y	Y	Y
Three Capes EPBCA Particular Manner prescriptions ⁷⁹ , (proposal required more than 17,600 flights during construction)	Y – (Particular Manner Decision)	N	N (though monitoring does occur outside of EPBCA Decision requirements)	N (though monitoring does occur outside of EPBCA Decision requirements)	N (though tailored routes are used outside of EPBCA Decision requirements)
Melaleuca commercial flight prescriptions	Unknown	N	N	N	N
Balance of the 1000hrs+ of annual TWWHA overflights shown on the PWS audit of 2019 overflights	Unknown	N	N	N	N

⁷⁹ Three Capes – Reason for Decision DSEWPC 30 March 2012

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4b. An assessment of the likely duration of impacts to MNES species and communities as a result of the proposed action

MNES species and communities' details:

4.b (i) Potential impact: Fire

Value: Alpine sphagnum bogs and associated fens (MSP) – EPBCA Endangered

Likely Duration: Temporal incident causing potential medium to long term impacts to localised population

4.b (ii) Potential impact: Trampling and / or track formation related to on-island activities and proposed walking routes from helipad to lake edge.

Value: Alpine sphagnum bogs and associated fens (MSP) – EPBCA Endangered

Likely Duration: Potential for on-going impacts during operations. Short to medium term lasting impact specific to localised footpads.

4.b (iii) Potential impact: Introduction of exotic biota.

Value: Alpine sphagnum bogs and associated fens (MSP) – EPBCA Endangered

Likely Duration: Short-medium term, localised

4.b (iv) Potential impact: Trampling

Value: *Pseudocephalozia paludicola* liverwort – EPBCA Vulnerable

Likely Duration: Short term, individual plants, localised. No individuals found in surveys.

4.b (v) Potential impact: Disturbance through helicopter use

Value: *Aquila audax subsp. Fleayi* – EPBCA Endangered

Likely Duration: High likelihood of temporal very minor disturbance in relation to disturbance of foraging and maintenance (eg: behavioural distraction or physical avoidance while looking for food or preening for example) as helicopter flies by. Resulting in very occasional disruption to 'loafing' (technical term) or hunting (extremely short temporal disturbance given the speed of heli fly by), and minor interruption in the context of the daily activities of an eagle. (information provided by N Mooney). Very low likelihood of breeding disruption.

4c. An assessment of whether the impacts are likely to be repeated, for example as part of maintenance or upkeep (without mitigation and avoidance measures in place)

MNES species and communities' details:

4.c (i) Potential impact: Fire

Value: Alpine sphagnum bogs and associated fens (MSP) – EPBCA Endangered

An assessment of whether impacts are likely to be repeated, for example as part of maintenance or

upkeep: Unlikely to occur or be repeated.

4.c (ii) Potential impact: Trampling and / or track formation related to on-island activities and proposed walking routes from helipad to lake edge.

An assessment of whether impacts are likely to be repeated, for example as part of maintenance or upkeep:

Unlikely to occur during construction and operations

4.c (iii) Potential impact: Introduction of exotic biota.

An assessment of whether impacts are likely to be repeated, for example as part of maintenance or upkeep:

Unlikely to occur, or be repeated.

4.c (iv) Potential impact: Trampling

Value: *Pseudocephalozia paludicola* liverwort – EPBCA Vulnerable

An assessment of whether impacts are likely to be repeated, for example as part of maintenance or

upkeep: Unlikely to occur or to be repeated.

4.c (v) Potential impact: Disturbance through helicopter use

Value: *Aquila audax subsp. Fleayi* – EPBCA Endangered

An assessment of whether impacts are likely to be repeated, for example as part of

maintenance or upkeep: Very low impact, on-going (repeated) potential disturbance to foraging and maintenance activities (eg preening) during on-going helicopter usage resulting in very small consequence (see NJ Mooney advice). Unlikely to occur in relation to breeding disturbance.

4d. Discussion of whether any impacts are likely to be unknown, unpredictable or irreversible

Potential impacts are known, predictable, and are temporal in nature.

The proposal has undergone a number of high-profile assessments, including state-based assessments, previous EPBCA Decisions, multiple public comment processes, lengthy local planning-related reviews, and numerous legal court cases at the state and federal level. All likely impacts have been addressed, including those identified by flora and fauna specialists, state and federal government assessors, as well as legal opponents to the project. Due to the lengthy high profile and highly-contested nature of this proposal, the presence of unknown impacts is considered highly unlikely.

4.e Full justification of all discussion and conclusions based on the best available information

The proposal has been informed by multiple expert flora and fauna site assessments and reports conducted by North Barker, and Mr Nick Mooney. The various elements of the proposed action such as bushwalking, the use of standing camps and supporting infrastructure, and the use of helicopters in Tasmanian protected areas are common activities; the impacts are therefore predictable and well defined based on long-term research, evidence and practices which has been relied upon by the experts. All likely impacts have been addressed, including those identified by flora and fauna specialists, state and federal government assessors, as well as legal opponents to the project. Relevant case studies are included in this assessment, to provide further evidence confirming the recommendations of experts. Federal EPBCA guides and databases have been referred to in the preparation of assessments and presentation of findings.

4.f Relevant impacts to the World Heritage property and National Heritage place MNES impacts

4.f (i) Potential Impact: Disturbance or culturally inappropriate use or interpretation of sites

OUV Criteria (iii), Attribute

- (a) Pleistocene archaeological sites that are unique, of great antiquity and exceptional in nature, demonstrating the sequence of human occupation at high southern latitudes during the last ice age

OUV Criteria (iv), Attribute

- (a) Archaeological sites which provide important examples of the hunting and gathering way of life, showing how people practised this way of life over long time periods, during often extreme climatic conditions and in contexts where it came under the impact of irreversible socio-cultural and economic change

OUV Criteria (vi), Attribute

- (a) Archaeological sites including Pleistocene sites, which demonstrate the adaptation and survival of human societies to glacial climatic cycles and periods of long isolation from other communities (e.g. the human societies in this region were the most southerly known peoples on earth during the last ice age).

Likelihood: Low. Formal advice from Aboriginal Heritage Tasmania is that *‘Due to a review of previous reports and the level of impact intended for the site, it is believed that the area has a low probability of Aboriginal heritage being present. Accordingly, there is no requirement for an Aboriginal heritage investigation and AHT have no objection to the project proceeding’* (see appendix 38 & 33)

4. f (ii) Potential Impact : Fire

OUV Criteria (viii), Attribute (s):

- (a) Relic biota with links to ancient Gondwanan biota including endemic conifers

- (b) Soils (blanket bogs, peatlands)

OUV Criteria (ix), Attribute (s)

(a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition

- (b) Conifers of extreme longevity

OUV Criteria (x), Attribute (s)

(a) Habitats important for endemic plant and animal taxa and taxa of conservation significance, including Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*

Likelihood: Low likelihood on-island, no likely ignition sources. Very low off-island, no ignition sources.

4.f (iii) Potential Impact: Trampling and track formation: Potential impacts to soils from erosion (eg blanket bogs, peatlands).

OUV Criteria (viii), Attribute (s):

- (a) Relic biota with links to ancient Gondwanan biota including endemic conifers

- (b) Soils (blanket bogs, peatlands)

OUV Criteria (ix), Attribute (s)

(a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition

- (b) Conifers of extreme longevity

OUV Criteria (x), Attribute (s)

(a) Habitats important for endemic plant and animal taxa and taxa of conservation significance, including Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*

Likelihood: Low-moderate risk of trampling and track formation without mitigations.

4. f (iv) Potential Impact: Introduction of exotic biota.

OUV Criteria (ix), Attribute (s)

(a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition

- (b) Conifers of extreme longevity

OUV Criteria (x), Attribute (s)

(a) Habitats important for endemic plant and animal taxa and taxa of conservation significance, including Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*
Likelihood: Low

4. f (v) Potential Impact: Disturbance to species *Macropus rufogriseus* and *Pseudocheirus peregrinus* from the nature and / or use of the development

OUV Criteria (ix), Attribute (s)

(c) Species representing significant ongoing biological evolution in mainland animals including Bennett’s wallaby *Macropus rufogriseus* and common ringtail possum *Pseudocheirus peregrinus*

Likelihood: Very Low. It is highly unlikely the proposed nature and intensity of use would result in disturbance to the species that could limit the likelihood of colonisation/recruitment events and/or increase rates of mortality of individuals on the island.

4. f (vi) Potential Impact: Impacts to the relatively undisturbed landscape, including viewfields and soundscapes

OUV Criteria (vii), Attribute (s):

(a) Impacts to relatively undisturbed landscape

(b) Impacts to the scale of the undisturbed landscapes

Likelihood: Low-Med risk of soundscape impact to the overflight area may resulting from un-mitigated helicopter use. Very low risk of new or cumulative viewfield impacts due to camp design and location in area of existing viewfield impacts. Very low risk of social (experiential) impacts due to very low operational capacity (30 trips per year), and adherence to small maximum groups sizes (6 customers) adhering to the recreational settings outlined in the 2016 TWWHA Management Plan Table of Use, zonation restrictions, and subsidiary PWS Standing Camp Policy 2007. Very low risk of impacts to apparent naturalness due to camp design, appropriate site selection, and no proposed land clearing.

New information - Lake Malbena Wilderness Quality Impact Assessment

Referring to the Statement of Reasons and Decision Brief, the proponent strongly feels that there is confusion from DCCEE and the Minister as to interpretation of the findings presented within the previously supplied PWS Wilderness Quality Assessment report titled ‘Wilderness Quality Assessment (WQA) – Halls Island proposed standing camp, helicopter landing site and guided tourism EOI within the Tasmanian Wilderness World Heritage Area’ (see appendix 20 for full PWS report).

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For instance, (103) of the Decision Brief, and (76) of the Statement of Reasons indicate that it was not clear to the DCCEEW, or Minister, that the PWS assessment was raw modelling only, and *did not* take into consideration mitigation or avoidance measures.

Accompanying the PWS WQA document, the proponent authored a letter to the DCCEEW dated 02/04/2020 highlighting the fact that mitigation and avoidance measures *were not* accounted for in the modelling (see appendices 15). This letter was noted at (69) of the Statement of Reasons, however this appears to have been overlooked or disregarded in the making of the Decision by the Minister. This has resulted in DCCEEW / the Minister making the incorrect assumption that the PWS WQA assessment presented a statement of final wilderness impacts. We welcome this opportunity to assist the DCCEEW and Minister in clarifying this element of the assessment.

In order to unequivocally remove any doubt that the PWS WQA assessment *did not* include the consideration of impact mitigation or avoidance measures, we include a letter directly from the PWS service dated 7/6/2021 (received from PWS Director Landscape Programs), with the contents cut and pasted below:

Start of PWS correspondence 07/06/2021

The original report was aimed at presenting impacts according to the wilderness quality (WQ) model. There has been little attempt by PWS at this stage to take into consideration actions or factors that mitigate the modelled impacts on WQ.

PWS will do this once the final RAA is submitted.

As you know recreational settings are made up of the biophysical, social and managerial conditions which comprise the following elements:

1.	Biophysical	Vegetation, landscape, wildlife, topography, scenery, space (size) naturalness, remoteness, viewfields, appearance, water quality, human induced noise, sounds, light and smells.
2.	Social	Level of use, type of use, group size.
3.	Managerial	Development that directs and controls use and impacts. Access facilities – walking tracks, roads, signs. General recreational facilities – toilets, barriers, signage, fencing. tracks and roads) levels of servicing, presence of management, interpretation, information. Regulation of use e.g. booking or permit systems.

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While WQ model does not directly take into account the social conditions, helicopter access does influence the level of use and group sizes (social conditions).

As the level of use increases so too does the impact on biophysical conditions.

The motorised access (in this case helicopter) generally allows a social gathering and level of use that would otherwise not be typical of an area that is not easily accessed by foot. The number of people in a remote area negatively impacts wilderness quality, but is not measured by the computer model. Depending on the activities of the group, human sights, sounds, and informal trampling and track formation can adversely impact biophysical conditions relevant to wilderness recreational settings.

When the camp is not operating (and no people are on site) there would be no change to the social conditions of the area.

So while the WQ model also does not take into account visitor numbers (the social settings), impacts from increased usage, noise and other factors that may add to the impact. Conversely the model will tend to overestimate impacts on the biophysical setting from built infrastructure as it assumes that any infrastructure will be visible given it assumes a flat topography and no vegetation screening.

Temporal influences such as noise from helicopter landings are not measured by the WQ model. The fact that the helicopter and camp will be only operated for certain periods of the year will mitigate the social impacts on wilderness recreational settings.

Feel free to present the email exchange as PWS acknowledgment of the limitation to WQ modelling.

End of Correspondence

With the PWS NWI impact assessment qualified, we take this opportunity to further address wilderness quality impacts, taking into account those additional factors highlighted by the PWS, including mitigation and avoidance measures and all other matters not included in the previously supplied PWS wilderness quality assessment.

NWI Wilderness quality impacts: Apparent Naturalness (AN), Biophysical Naturalness (BN), Remoteness from Settlement (RS), and Time Remoteness (TR)

The NWI Handbook created by the Australian Heritage Commission⁸⁰ succinctly describes wilderness ‘as part of a continuum of remote and natural conditions that vary in degree from pristine to urban’. The outputs provide no statement as to whether something is wilderness or otherwise⁸¹. Wilderness character is simply presented in the context of the particular landscape, and is not used for comparison to other areas or landscapes. This concept is

⁸⁰ Lesslie and Maslen 1995, p 3

⁸¹ Lesslie and Maslen, 1995 p. 3

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known as the Wilderness Continuum⁸², and has permeated wilderness methodologies for the ensuing forty years, and prevails in the eminent methodologies used globally today (see Landres et al 2008, p. 7 for instance).

Understanding the Wilderness Continuum is key to understanding NWI value assessments. Simply using the NWI 12+ threshold as an impact assessment tool is arbitrary, and was an outcome of the Regional Forestry Agreements negotiations some 25 years ago (see Commonwealth of Aus 1997, for instance). The methodology does not aim to tell the user whether something is high quality wilderness or not (Lesslie & Maslen 1995), and an NWI score of 12+ does not determine whether it is wilderness or not. Put simply, wilderness values alone are not a binary determination of quality.

A shortfall of the Australian NWI methodology is the exclusion of key impact variables during assessment, with obvious examples including encounters with large groups of recreational users, viewfield impacts, overflight impacts and soundscape impacts. This is an uncontested observation, and is congruent with the details supplied by the PWS (7/6/21). The NWI handbook clarifies the appropriate approach to considering such information, and instructs the user to consider the following (Lesslie & Maslen 1995):

‘where there is additional local information that is relevant to a consideration of wilderness quality, then this local information should be taken into account when interpreting standard results’

This is a direct invitation to adapt the method to the relevant context, by considering additional local information. An appropriate response to this invitation is to consider other criteria, in this case spatial and temporal mitigations, along with overflight soundscape impacts. This NWI approach is congruent with the clarification letter from the PWS 7/6/21. This approach is congruent with other wilderness impact assessment techniques (such as McKenna et al 2016, for instance). Furthermore, the NWI guidelines previously located on the federal Department of Environment website also supported this position (see <https://www.environment.gov.au/node/20136> part 5), indicating that *‘the significance and permanence of any impact should be taken into consideration when assessing impacts’*.

The following enhanced wilderness quality assessment follows from this accepted approach, by considering additional mitigation and avoidance measures in context with the previous independent NWI assessment provided by the PWS (4/3/2020)⁸³.

Apparent Naturalness

Viewfields and Apparent Naturalness (AN) are directly relevant to World Heritage Criteria Vii: *‘The relatively undisturbed nature of the property; the scale of the undisturbed landscapes’*

As outlined in the original 4/3/2020 PWS assessment, it is agreed that there are no impacts to the characteristic of AN from the proposal. This is as a direct result of appropriate siting in an area of pre-existing AN impact caused by the pre-existing heritage hut, and associated recreational uses.

⁸² Lesslie and Maslen, 1995

⁸³ See appendix 20

In addition, the related viewfield image supplied by Cumulus Studio (Figure 14) confirms that no material change will occur to the viewfield. Any minor viewfield impacts will be partially obscured by existing natural screening, and will be only viewable from a single area on the Lake Malbena lake edge some 175metres away. This same viewfield is currently impacted by the by the existing private heritage hut, and is therefore not a new impact.

Figure 14 Viewfield impact. (Source: RMPAT expert evidence Cumulus Studio)



Biophysical Naturalness (BN) & Remoteness from Settlement (RS)

As outlined in the original PWS WQA assessment, it is agreed that there are no impacts to the categories of BN or RS from the proposal.

Time Remoteness (TR)

Time Remoteness under the NWI+ framework categorises Time Remoteness as landscapes with 0-0.5 days, 0.5-1 days, 1-2 days or 2+ days' remoteness (interpreted as 3 hours, 6 hours and 12 hours of walking), in relation to walking times from points of mechanised access such as roads, airstrips, motorised vessels⁸⁴. These time ranges are mapped akin to simple buffer rings. As such, any aircraft landings in the TWWHA that decrease walking times by 3 hours or more will display as extremely large-scale spatial impacts on the raw NWI mapping, as the arc/radius of Time Remoteness (in increments of 3 hours) are pushed out (potentially 360 degrees) from the impact. This is based on the basic arbitrary assumption that the new point of mechanical access is permanently open 365 days per year, and facilitates subsequent travel 360 degrees in all directions, as would be the case with an unrestricted landing strip such as Melaleuca in the TWWHA south west. For example, at Melaleuca, anyone from the public can charter an aircraft, land at Melaleuca, and walk in any direction they wish, for as long as they wish, on any day of the week. This

⁸⁴ Hawes and Ling 2015, see appendix 30

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is not the case with a proposal such as Malbena, where users of the mechanised access are restricted spatially and temporally by mitigating Lease and Licence conditions as explained further below.

As clearly established, in order to understand and calculate potential impacts of the action it is appropriate under the NWI framework to consider additional spatial and temporal information related to Time Remoteness impacts. Conforming to the 7/6/21 PWS advice that temporal influences have the ability to mitigate impacts⁸⁵, temporal and spatial information is an important input for land managers looking to optimise experiential management while minimising environmental impacts (Stamberger et al., 2018). Temporal and spatial mitigation is further supported by elements of McKenna et al (2016), Landres et al., 2015 and Carver et al., 2018. Even Hawes et al., 2018⁸⁶ identify that *'the frequency of mechanised access should be weighted in considerations'*, something that the various formal Hawes submissions and wilderness quality assessments (on behalf of The Wilderness Society) have failed to acknowledge, and at times challenged, in relation to this proposal.

Temporal considerations are a key mitigating element of this proposal. For example, there is an obvious qualitative TR difference to a location that is open to mechanised access for 365 days of the year, and a location that is open to mechanised access only 1 day per year. Lake Malbena heli-access for guests is proposed to be restricted to 60 days per annum, or 16% percent of the year, which is infrequent. In another words, 84% of the year features unchanged access arrangements, and unchanged NWI TR qualities.

The second key geographical mitigating factor relating to TR is the deliberately spatially restrictive nature of the proposed action. This has a major mitigating effect of bounding the impact: there are no guests (users of mechanised access) whom can travel beyond the Lake Malbena area, therefore there can be no Time Remoteness impacts beyond the Lake Malbena area. Equally, other users in the reserve will not encounter users who have arrived via mechanised access anywhere outside of the Lake Malbena area. This is important to the recreational experience of other users, who can have the peace of mind that the area outside of Lake Malbena remains remote for all users – therefore TR outside of the licenced Lake Malbena area remains unchanged. From both perspectives, that of the proposed customer, and that of other users, there are no reasonable means through which remoteness or the perception of remoteness can be impacted beyond the Lake Malbena area of ~200ha. Therefore the TR impact is spatially restricted to ~200ha, during a temporally restricted 16% of the year.

In summary, the primary mitigation measures available to reduce the TR impact of new access points are (i) spatial and (ii) temporal, which is congruent with the advice supplied by the PWS, and other assessment frameworks such as the Landres et al 2015. The Halls Island proposal has incorporated both of these impact mitigation measures, which reduce impacts to an occurrence of just 16% of the year (65 days or less per year), across a landscape of ~200ha (0.012% of the TWWHA).

⁸⁵ PWS letter 7/6/21

⁸⁶ Table 2, pg 40

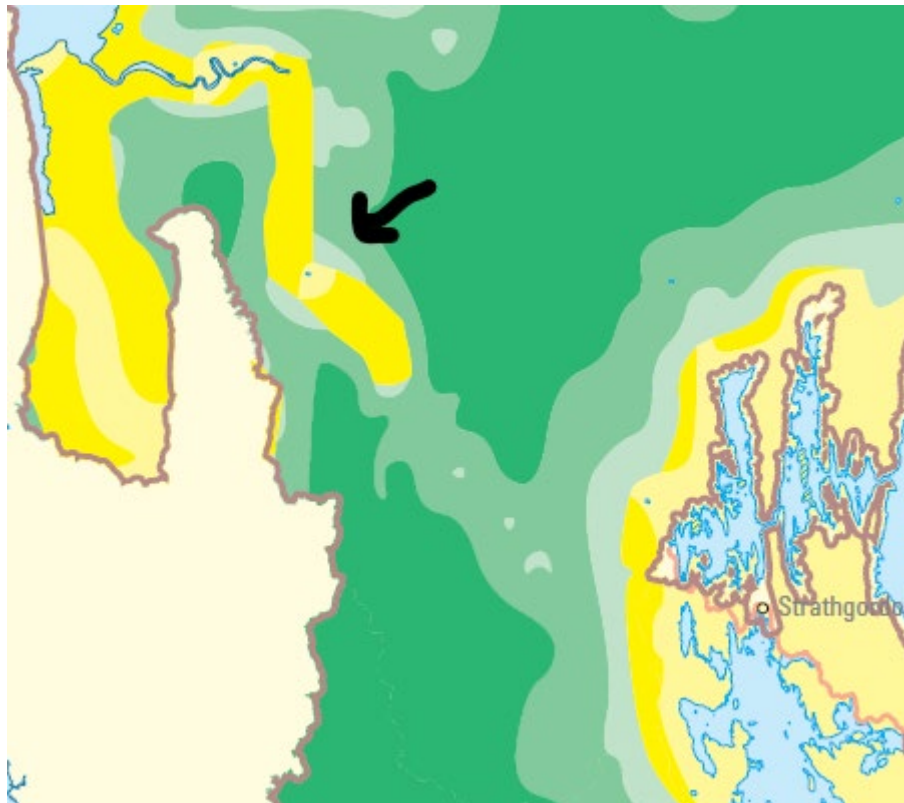
Time Remoteness as a World Heritage Value - OUV

This document provides an in-depth examination of potential impacts to NWI qualities, including Time Remoteness, along with mitigation and avoidance measures. Time Remoteness was a wilderness quality focussed upon in previous Wilderness Society submissions relating to this proposal, hence this focussed response. While noting that Time Remoteness as a wilderness quality has been focussed upon within this submission, we are not aware of any World Heritage Listing value, attribute or criteria directly related to the specific attribute of 'Time Remoteness' applicable to the TWWHA. We are also not aware of any UNESCO definition of 'wilderness' that includes time remoteness.

Mechanised Access – comparative case studies and research literature

Mechanised access is commonly used in support of commercial and recreational activities in the TWWHA. The two most common examples are the South Coast Track, predominantly accessed at Melaleuca by air from Hobart, and the second is the Franklin River rafting expeditions, which typically relies on mechanised boat egress to reach the west coast at the end of each trip. Both create extensive and significant wilderness impacts to the quality of Time Remoteness under the raw NWI+ modelling, far greater in temporal and spatial extent than the Lake Malbena proposal (see figure 15. for example). Despite this, the mechanised access associated with both the Melaleuca flights and the Franklin River rafting activities are generally regarded as acceptable actions that facilitate high quality wilderness experiences, in areas commonly perceived as high quality wilderness (remote and undisturbed) or colloquially referred to as 'pristine' wilderness. These case studies illustrate that a high quality wilderness experiences, and the provision of landscape perceived as '*relatively undisturbed*' does not have a linear relation to remoteness from mechanised access. This observation is also supported by international literature, such as Landres et al which notes that 'opportunities for solitude can exist on established travel routes and near developments within wilderness if visitation is low' (Landres et al., 2015). Landres et al (2014) goes on to note the paradoxical nature of aerial access, which can 'be part of the wilderness experience itself: the quick feeling of isolation when a plane takes off and leaves you there can enhance the feeling of intimidation and excitement of being truly alone in a vast landscape'.

Figure 15. NWI wilderness quality impact corridor in NWI high quality wilderness, created by mechanised impacts on TR values relating to motor boats access servicing Franklin River rafters and scenic tours



Additional geographical information relevant to the assessment of wilderness character impacts

Wilderness Assessment – social (recreational) settings and experiential outcomes

As per the PWS advice 7/6/21, encounters with other groups of users can impact the perceived experiential outcomes of some users.

Proposed mitigation measures which will be adopted by the proponent include restricting guided tours to 120 days per year (restricting changes in social settings to 33% of the year), restricting group maximum sizes to 6+2, and restricting group activities to occur within the 200ha area Lake Malbena area, located outside of the Wilderness Zone. There are no social impacts outside of the Lake Malbena area (~200ha), and no social impacts within wilderness areas represented by the Wilderness Zone.

This proposal conforms to the permitted groups sizes of the PWS Track Classification Scheme PWS P- 036, and other similar guiding operations in the TWWHA including the previous Skullbone Plains operations of the proponent. The predicted changes in social settings are quantitatively minor, temporal in nature, and the proposed use (and associated recreational settings) are compliant with the commercial tourism opportunities and permitted activities in the TWWHA Management Plan Table of Use and associated zoning prescriptions. The proposal directly supports

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the Presentation goals of the TWWHA Management Plan, through the provision of diversity of product and equity of access goals.

Specific to air access, The Management Plan (p 134) notes *‘measures that minimise the impact of aerial access on other users include: selection of landing-site approaches that minimise the extent of over-flights; careful site-selection to avoid unnecessary conflict with other users; and low volumes’*. The proposed air access utilises a landing site and approaches that deliberately minimise overflights of other users, and avoids the overflight of any walking tracks. Temporally restricting flights to <65 days per annum and <48 hours per annum ensures low volumes and frequency, and ensures that the proposal has adopted all mitigation measures identified in the 2016 TWWHA Management Plan.

Wilderness Assessment – Biophysical impacts

The PWS letter 7/6/21 notes that biophysical impacts are not accounted for in the presented NWI modelling. Biophysical impacts are comprehensively addressed within the North Barker reports (see 8 & 9), particularly in relation to trampling and track formation risks.

The advice, reports and evidence of North Barker previously supplied to the DCCEEW note that potential trampling impacts will be mitigated through the installation of perforated boardwalks as described, adherence to the natural rocky landscape areas, along with the use of the naturally exposed bedrock site as the camp location.

The North Barker findings also correlate well with the broader findings of TWWHA research (Dixon et al 2004 for instance⁸⁷), which find that optimum track siting in the Central Plateau is based on *‘low gradients, good drainage and stony or rooty substrate’*. This is the predominant environment covered by the proposed Halls Island activities, as identified in the North Barker reports. The proponent will adopt all recommendations of the North Barker reports.

Summary of biophysical impacts

Erosion impacts will be mitigated or avoided by appropriate site selection, and the use of perforated boardwalking where appropriate, as per the North Barker recommendations. These recommendations align with previous published data on the success of raised, perforated boardwalking implemented across bogs and fens in Kosciuszko National Park⁸⁸.

⁸⁷ Specifically, Dixon et al (2004) found that optimum track siting is based on low gradients, good drainage and stony or rooty substrate. The findings of this study also informed track selection in the *‘Walls of Jerusalem National Park - walking track alignment and redevelopment report’* by G Dixon <https://parks.tas.gov.au/Documents/Appendix%20B%20-%20Walking%20Track%20Alignment%20and%20Redevelopment%20Report.pdf> page 7, and relate to the exact environmental-setting relevant to the proposed Halls Island activities (rocks and roots don’t erode), as identified by and correlated by the North Barker flora and fauna reports.

⁸⁸ For instance see https://www.researchgate.net/profile/Catherine-Pickering/publication/228604806_Managing_the_Kosciuszko_Alpine_Area_Conservation_milestones_and_future_challenges/links/559dc1fe08ae76bed0bb4821/Managing-the-Kosciuszko-Alpine-Area-Conservation-milestones-and-future-challenges.pdf

The current unplanned track braiding occurring as a result of increased public usage and inappropriately large visitor group sizes (primarily activists using the island) will be rehabilitated and managed through the proposed installation of raised, perforated boardwalking, resulting in improved biophysical conditions in the MNES alpine *sphagnum* bog and fen, and decreased risk of impacts such as erosion and weeds, as per the North Barker reports and other examples from Kosciuszko NP and the TWWHA. As illustrated by the comparative images below (fig. 16), track braiding is continuing to develop on the MNES southern alpine *sphagnum* bog and fen since first surveys in 2016. The right hand track was the original footpad noted in the North Barker flora and fauna reports. The left-hand braid has developed in the last 36 months, a period during which groups of activists as large as twelve have used the island (no consent was given by Wild Drake P/L).

The installation of full-capture sewage pods will improve the existing biophysical conditions on the island and lower risk of on-island and lake contamination, due to the existing lack of appropriate sewage collection.

Figure 16. Comparative images showing original track formation (top, October 2016 from appendices 9), and new track braiding (bottom, September 2021).





Summary of new information and clarifications relating to wilderness character, wilderness soundscapes, recreational setting impacts and mitigations

The following summarises key findings of section 4L. The findings have been informed by independent and / or publicly available key data from the Parks and Wildlife Service, published advice from the Parks and Wildlife Service, expert submissions, peer reviewed papers, and publicly available information related to the proposal. The findings are repeatable and transparent.

Summary of NWI (AN, BN, RS, TR) assessment findings:

1. PWS report confirms no impacts to AN, BN or RS.
2. Viewfield model supplied by Cumulus Studio confirms no change to viewfields, and therefore no changes to the Criteria Vii: *'relatively undisturbed nature of the property; the scale of the undisturbed landscapes'* as a result of the infrastructure.
3. TR impact mitigations will be fully adopted, ensuring that the impact on TR is restricted or 'ring-fenced' to the area of licenced operations, an extremely small landscape area of ~200ha (0.012% of the TWWHA). This ~200ha is outside of the IUCN 1b equivalent Wilderness Zone.
4. Mitigation measures reduce the temporal nature of the TR impact, resulting in the impact occurring for a restricted 16% of the year (the impact is therefore infrequent).
5. Summary of TR impacts: **200ha impacted, for 16% percent of the year**. No change to AN, BN or RS characteristics.

6. Importantly, there is no change in NWI wilderness quality of IUCN 1b land managed as Wilderness Zone, due to the spatial and temporal nature of the action(s), which in turn ringfence the spatially and temporally ringfence the impacts to within the specific Lake Malbena landscape and near surrounds.

Summary of social impacts:

7. Lake Malbena area will be subject to dual-social (recreational) settings, split 33% / 67% across the year. Dual recreational settings are a common occurrence in many areas across the TWWHA, particularly reflective of seasonal fluctuations, and shared public/private use. For instance the Overland Track is subject to +1000 visitors per month in summer months, but just 76 users during May 2017⁸⁹, and 556 users during May 2021⁹⁰, illustrating contrasting seasonal recreational settings. In reference to the Malbena proposal, the social settings remain unchanged for 67% of the year, and only slightly modified as a result of a small increased chance of encounters with small commercial groups on Lake Malbena for 33% of the year. This change is clearly within the expectations set by 2016 TWWHA Management Plan provisions.
8. The minor change in social (recreational) settings is spatially confined to the Lake Malbena area (~200ha). There will be no change in social settings beyond Lake Malbena area, as groups will not be in any areas beyond the general Lake Malbena area.
9. There will be no change in social settings within IUCN 1b wilderness in the Wilderness Zone, as no activities occur in that zone.

Summary of biophysical impacts

10. Erosion impacts will be mitigated or avoided by appropriate site selection, and the use of raised, perforated boardwalking where appropriate (as recommended by North Barker).
11. Current unplanned track braiding will be rehabilitated and managed through the planned installation of raised, perforated boardwalking as recommended by North Barker and associated literature, resulting in improved on-island biophysical conditions to the MNES alpine *sphagnum* bogs and fens.
12. The installation of full-capture sewage pods will improve the existing biophysical conditions on the island, which currently has no sewage collection, and has a current associated risk that users will contaminate water courses as a result.
13. There are no biophysical impacts to the IUCN 1b equivalent Wilderness Zone.

Wilderness soundscape impacts from proposed overflights (taken from next section, 4 g.)

14. The action does not represent a new impact to the Wilderness Zone overflight area or surrounds – no change to the scale of ‘undisturbed landscapes’.
15. The independent data and peer-reviewed assessment framework shows that the potential new impacts are in the form of a minimal ‘short (daily), infrequent (annually)’ impact, on 2.33% of Wilderness Zone soundscape. These impacts would produce short-lasting, infrequent ‘slight interference with natural quite’

⁸⁹ Tasmania’s Next Great Iconic Walk Feasibility Study, 2021

⁹⁰ PWS public comment, 2022

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from the perspective of an average recreational user of the area. All assessment matrix are at the lowest level of impact that can be assessed.

16. The data shows that the proposed action does not produce a cumulative impact to the '*The relatively undisturbed nature of the property*'.
17. The action does not produce a significant new or cumulative impact to the '*The relatively undisturbed nature of the property; the scale of the undisturbed landscapes*' within the overflight and adjacent areas.

Key mitigation and avoidance measures from wilderness related assessments:

These mitigation and avoidance measures have been incorporated into the full list of mitigation and avoidance measures at section 5 (a), which the proponent will adopt in full :

18. Install full capture sewage and greywater system for removal to outside of the TWWHA
19. Install raised perforated boardwalks across two alpine *sphagnum* bogs and fens as recommended by North Barker reports (see figure 4 Site Plan for locations)
20. Restrict commercial guiding operations to a cap of 120 days per annum
21. Restrict associated helicopter use to a cap of 65 days per annum (60 days for customer ingress and egress, and a further 5 for maintenance and training contingencies)
22. Restrict associated helicopter use to a cap of 48 hours per annum
23. No infrastructure or guiding large groups in the Wilderness Zone (groups must not exceed 2+2 as recommended by the PWS Track Class Policy⁹¹)
24. Avoid overflights of the Wilderness Zone.
25. Avoid overflights of walking tracks (as identified by map appendix 19)

4. g An assessment of noise impacts from the proposed helicopter use on the values of the Tasmanian Wilderness World Heritage Area, undertaken by a suitably qualified and independent third party, giving consideration to any previous assessments.

Wilderness soundscapes - background

The US National Parks Service has been developing skills, methods and processes to quantify wilderness soundscapes since the late 1980's (Miller, 2008). This timeline parallels the implementation of the 1987 National Parks Overflight Act (USA), and these skills, methods and processes from the U.S.A. have been influential on soundscape theory in places as far away as New Zealand (Harbrow et al, 2011). Conversely, only three protected-area soundscape mapping and assessment exercises have been identified from Australian and New Zealand: a (Masters thesis) study

⁹¹ https://parks.tas.gov.au/Documents/Walking_Track_Classification_Policy_.pdf

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commissioned by the Great Barrier Reef Marine Park Authority (GBRMPA) at Whitehaven Beach to test soundscape conditions against applicable Recreational Opportunity Spectrum targets (Hamilton, 2003), followed by a (Masters thesis) overflight soundscape ‘tranquility’ assessment around protected area glaciers in New Zealand (Kissick, 2018). More recently Hackett (2021) produced a supervised Masters thesis quantifying wilderness soundscapes in the TWWHA titled *Incorporating overflight-derived wilderness soundscape impacts into the revised National Wilderness Inventory system: Case study, Tasmanian Wilderness World Heritage Area, Australia*. This was the first and only academic paper to have investigated the wilderness soundscape impacts of overflights across the TWWHA, and utilised the PWS 2019 overflight audit as baseline data (appendices 2-4). The thesis has recently been prepared as a research paper submission by D Hackett and an Assoc. Prof. from UTAS, and is expected to be published late in 2023. Hamilton (2003), Kissick (2018) and Hackett (2021) all correspond to similar assessment approaches and assumptions, and all correspond well to the body of literature relating to USA wilderness soundscape management.

Quantitatively measuring the effects and impacts of overflights sounds in wilderness areas has been conducted through numerous studies in the USA (for instance see McKenna et al 2016; Chen et al 2005; Rapoza et al 2015). As a result, the outcomes of dose-response studies focusing on experiential aspects of noise exposure are well publicised, with results that are able to predict visitor responses to overflight scenarios. These results are suitable for use as evaluative tools of potential impact (Rapoza et al, 2015). McKenna et al (2016) expertly ties results from the differing influential American studies and concepts (such as Rapoza et al 2015, and Miller 2008) into what is thought to be the only widely-publicised, peer-reviewed overflight noise wilderness assessment framework. The McKenna et al (2016) method is designed to directly ‘inform acoustic conditions as an indicator for the wilderness quality of solitude or primitive and unconfined recreation’ (McKenna et al 2016). Described as ‘*A Framework to Assess the Effects of Commercial Air Tour Noise on Wilderness*’, McKenna et al present a procedural-tool that quantifies the impacts of overflights on wilderness at the reserve level (McKenna et al 2016). Scrutiny of the 2016 McKenna et al decision tree (Figure 5 above) shows that it incorporates the criteria of audibility (#1) (defining the landscape impact), and the concepts of noise free intervals (#3 and #5) and A-weighted sound levels (#4) as recommend by Miller (2008). The thresholds at #3 and #4 of the decision tree were determined by reference to the Rapoza et al (2015) wilderness dose-response studies, indicating that at threshold (#3), 30% of users would report ‘slight interference’ at these levels with mixed-aircraft overflight types (increasing to 55% for helicopter-only overflights), and at (#4) a predicted 60% of backcountry users would report ‘slight interference’ to the experience of natural quiet (McKenna et al 2016, p. 4).

In reference to the Lake Malbena proposal, the potential impact of the proposed helicopter use on wilderness soundscapes is of concern to stakeholders. We respectfully acknowledge this concern, and thank the DCCEEW for the opportunity to quantitatively address that concern by assessing the potential overflight impacts. To do so, we present the independent data from the Parks and Wildlife Service (appendices 2-4), and apply this independent data to the independent peer-reviewed McKenna et al (2016) assessment framework used in USA wilderness areas.

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We note that wilderness soundscape impacts relate directly to elements of World Heritage Criteria Vii: *‘The relatively undisturbed nature of the property; the scale of the undisturbed landscapes’*. It is our proposition that this element of Criteria Vii is highly-specific to considerations of the relative management settings of each zone, noting that only the Wilderness Zone / IUCN equivalent 1b landscape zonation is managed purely as a IUCN 1b equivalent wilderness area. Other areas of lesser IUCN equivalent management classes / TWWHA zonations (such as Self Reliant and Visitor Services) represent areas managed for a decreased management focus of high (‘pure’) wilderness quality outcomes due to the need to facilitate competing outcomes permitted by the TWWHA Management Plan, such as visitation, equity of access and high quality touristic presentation, and wilderness quality is but one management priority of many. For example, wilderness quality management in the Visitor Services Zones vs. Wilderness Zones differs greatly. Though it is clear that Criterion Vii listing applies to the whole TWWHA, it is also clear that the wilderness quality management settings, wilderness quality outcomes, and wilderness quality expectations related to *‘The relatively undisturbed nature of the property; the scale of the undisturbed landscapes’* are completely different within these two different zonations. This is a result of other influencing factors such as TWWHA Management Plan permitted uses, which by default lead to lower wilderness quality settings, expectations and outcomes. In other words, the wilderness quality settings are ‘relative’ to the zonations, with an emphasis on the word ‘relative’ and its use in the Criteria Vii attribute description *‘the relatively undisturbed nature of the property’*.

The proposed action straddles the boundary of the IUCN equivalent class II Walls of Jerusalem National Park, and the IUCN equivalent class Vi Central Plateau Protected Area, both within the TWWHA. We observe that the IUCN equivalent II and VI equivalent landscapes in the TWWHA are subject to agreed management settings that represent decreased levels of wilderness quality management applied in order to provide for a competing, agreed Management Plan objectives such as access to ecosystem services, diversity of product, presentation, equity of access and other important management obligations required under the TWWHA Management Plan 2016. The level of wilderness quality management applied to the class II (Self Reliant Zone, Walls of Jerusalem NP) / VI landscape (Self Reliant Zone, Central Plateau Protected Area) areas are clearly identified and managed by the application of agreed management zonations (DPIPWE 2016, p59), management overlays (DPIPWE 2016, p 64) and a Table of Use (DPIPWE 2016, p. 77-79) found in Chapter 3 Use and Developments within the Plan. The use of aircraft is specifically discussed further in the Chapter 6 of the Plan (DPIPWE 2016, pg 133-135), including the identification of further overlay areas where landings are not permitted. It is clear that the proposed helicopter use is permitted in the Self-Reliant Zone as identified in the Table of Use, and the proposed landing is not within or near a prohibited overlay areas identified within the Plan. It is therefore reasonable to identify that the wilderness quality settings applied to the applicable IUCN II / Vi landscape relevant to this proposal both permits and acknowledges the use of aircraft overflights, associated landings, and associated soundscape impacts and resultant change in wilderness quality settings. The similar use of zonations and varying levels of wilderness quality management is found and supported in many international wilderness management case studies, and is an effective management tool aimed at providing for ‘different visitor types and various expectations’ (Cságyoly et al., 2017). Cole echoes these sentiments with

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research on planned diversity and the case for several types of wilderness areas, managed differently, and for different purposes, as advanced by the founders of the American wilderness movement (Cole, 2011). Diverse settings are required to meet the needs of a diverse population (Cole and Williams, 2012).

Assessment background and approach

The TWWHA overflight soundscape data presented in this section was sourced from the independent PWS 2019 overflight data (appendices 2-4). This independent PWS flight data was converted to map data using ArcGIS. The IUCN equivalent 1b Wilderness Zone area was manually added as a layer to the ArcGIS mapping (scanned from the TWWHA Management Plan 2016), to enable the intersection of the PWS 2019 overflight soundscape impacts and the Wilderness Zone / IUCN 1b wilderness to be identified (see Figure 17). Soundscape impacts of overflights on the non-Wilderness Zone areas were not displayed on the mapping due to the decreased wilderness purism and recreational management settings applied to these IUCN equivalent class II and VI TWWHA landscapes, acknowledgement that the physical proximity of these areas to permanent and irreversible sources of soundscape impacts and uses such as highways (eg Lyell Highway), walking tracks, four wheel drive tracks and vehicle roads inside and outside of the reserve, visitor nodes (eg Lake St Clair), existing aircraft nodes and overflights, and adjacent agricultural and forestry land result in permanently impaired soundscape naturalness outside of the 1b Wilderness Zone. To be clear, the impact to non-Wilderness Zone soundscapes has however been assessed and summarised using the peer reviewed framework, and is the same as that applied to the Wilderness Zone via the Table 3 results.

The assessment of soundscape impacts was made by applying the independent PWS 2019 overflight data to the peer-reviewed assessment framework developed by McKenna et al (2016), *A Framework to Assess the Effects of Commercial Air Tour Noise on Wilderness* (see Figure 17 below). As the McKenna et al 2016 framework relies upon detecting 'audibility' using digital noise monitoring and baseline data which is unavailable for the audited PWS TWWHA overflights, an equivalent proxy of 11km either side of the flight path was mapped as the 'audible' noise dispersion distance (audibility) of overflights. This figure was taken from the independent expert evidence supplied by Mr G Ruetersward (see Table 2, sourced from appendices 30). The use of 11km to represent audibility (as opposed to <16km in Table 2) was considered appropriate as the Ruetersward report did not determine the average background noise levels, or take into consideration 'the level and frequency spectrum of background "masking noise" at the observation point' (see appendix 30, page 13). The Reutersward report acknowledges that masking sounds would include wind in the foliage, watercourse and fauna such as insects, frogs and birds. The proposed overflight area is primarily eucalypt forest and watercourses, with an average daily wind speed >20km/hr (source BOM). These natural daytime settings would result in the consistent presence of masking noises including wind-ruffled eucalypt forests, running watercourses, and wildlife such as birds which combine to produce likely average daytime ambient sound levels in excess of 20dB, which was used to justify the adoption of the 11km threshold identified in the Reutersward report to represent audibility. This estimate of daytime natural ambient sound levels corresponds well with the NZ soundscape study by Kissick (2018), which measured ambient soundscape levels (background noise) >20dB in Aoraki/Mount Cook National Park.

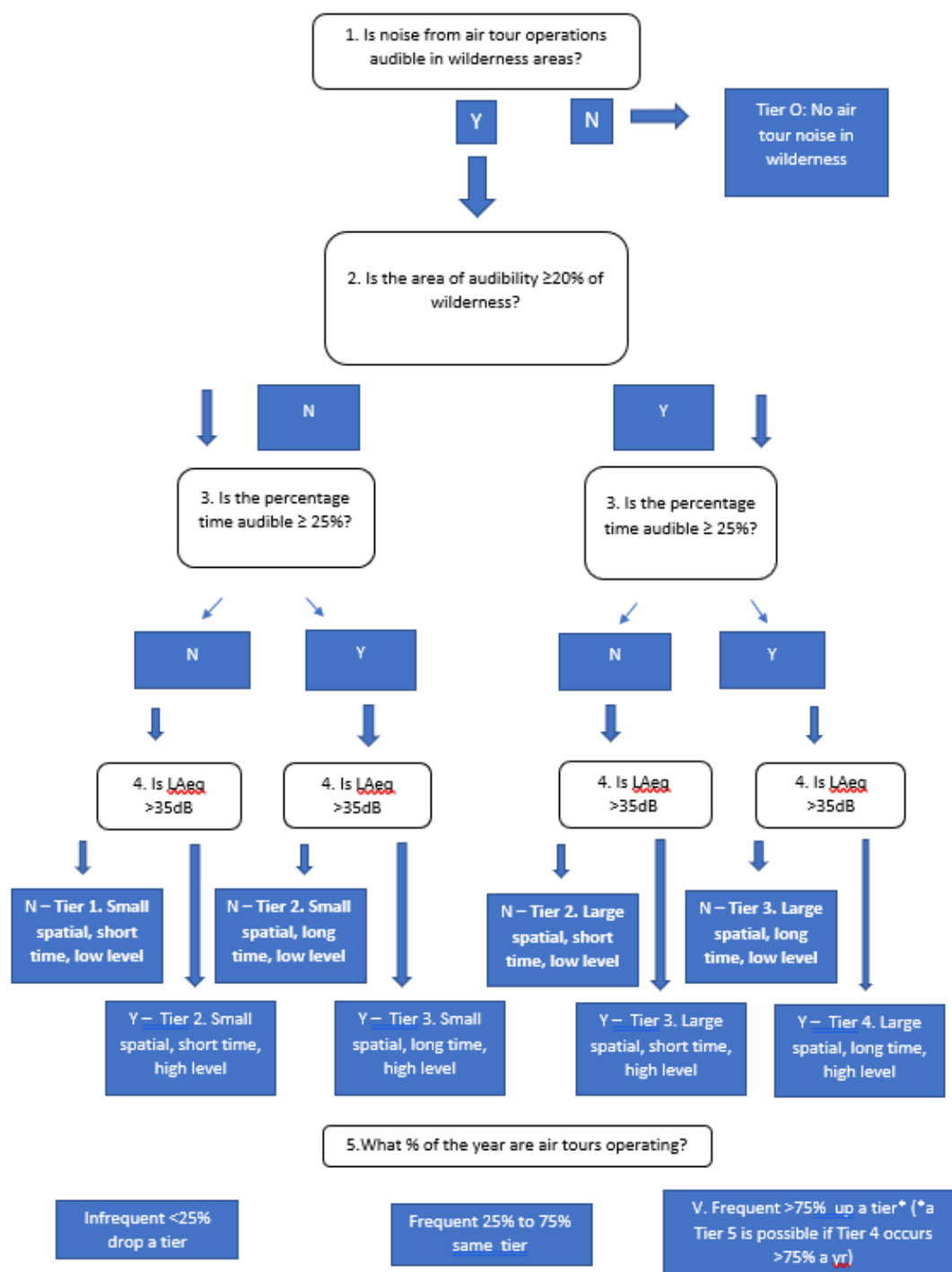
Furthermore, in the absence of precise LAeq measures for the TWWHA, a 5km buffer was used to represent soundscape impacts greater than 35dB (based on the Reutersward modelling, pg 14 Appendices 30). This threshold is directly representative of the McKenna et al threshold of 35db equivalent continuous sound (LAeq) which indicates the threshold between low noise and high noise, based on multiple studies (McKenna et al, 2016).

Table 2 Area of audibility, taken from the Reutersward report (appendices 30)

Distance from flight path	LA Max	Audibility
2 km	50 dBA	
4 km	40 dBA	
7 km	30 dBA	Likely to be clearly audible
11 km	20 dBA	likely to be audible *
<16 km	10 dBA	has the potential to be audible*
> 16 km	10 dBA	unlikely to be audible

* The use of 11km (as opposed to <16km in Table 2) to represent audibility in the modelling for the Overflight Wilderness Soundscape Character mapping described below was considered appropriate, as the Reutersward report did not determine the average background or 'masking' noise levels. The proposed overflight area is likely to feature average daytime ambient sound levels in excess of 20dB, which was used to justify the adoption of the 11km threshold identified in the Reutersward report to represent audibility. Discussed further in previous two pages of submission.

Figure 17. McKenna et al (2016) wilderness reserve impact decision tree



Overflight Wilderness Soundscape Character mapping – Results

Figures 18 & 19* (below) represent the mapping output of the PWS northern overflight audit 2019 (including and excluding Lake Malbena) overlaid on the 2015 NWI+ TWWHA wilderness character mapping sourced from the PWS (available via TheList). Line buffers representing 11km distance were implemented either side of the flight paths, which is the ‘area of likely audibility’ determined by the independent Reutersward evidence. The highlighted areas of buffers (orange) indicate the areas of existing soundscape impacts where the ‘likely audible’ soundscape impact of each overflight intersects with the TWWHA 2016 Wilderness Zone layer within the ArcGIS map.

Note the area surrounding the proposed Malbena corridor is an area of pre-existing impact (fig. 18), as indicated by the orange buffers. This is a predictable outcome, due to the proximity of the area to the adjacent high-use Lake St Clair helicopter node, and strongly corresponds to previous information supplied by the proponent. Significantly, this finding directly rejects assertions or implied statements made by other parties such as Hawes and Reutersward (submissions to the DCCEEW and Tasmanian assessment bodies on behalf of the Wilderness Society) that presented the proposed overflight corridor as a pristine soundscape, and failed to represent baseline conditions.

The independently supplied PWS 2019 overflight data represented in maps 18 and 19 illustrate that the potential soundscape impacts of the Lake Malbena overflight does not represent an impact to the *scale of the undisturbed landscape*, as the impact is clearly within an area of pre-existing overflight disturbances as demonstrated by the mapping of PWS 2019 overflight audit data.

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Figure 18 Mapping of the 2019 PWS overflight northern routes (ex Malbena). Areas of orange indicate the intersection of soundscape impact and Wilderness Zone. Background layer is NWI modelling (supplied by PWS).

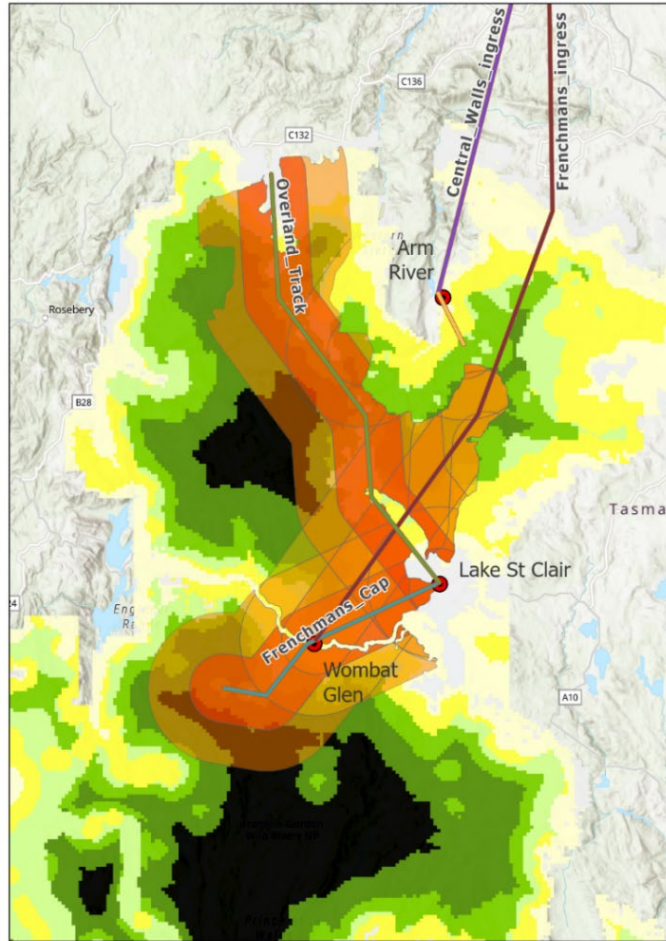
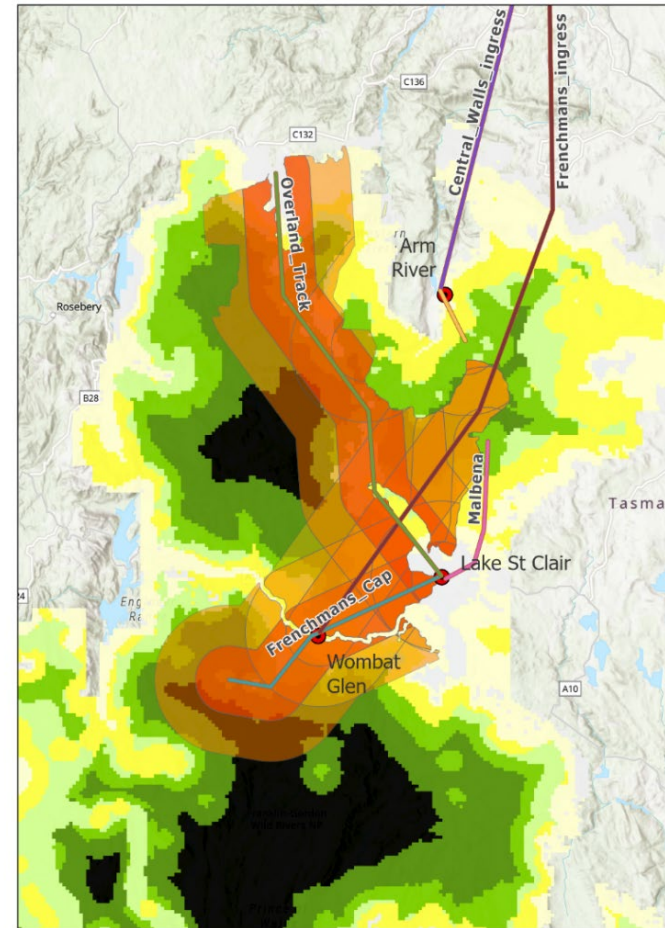


Figure 19 Mapping of the 2019 PWS overflight audit northern routes (inc Malbena). Areas of orange indicate the intersection of soundscape impact and the Wilderness Zone



Impact of the proposed action – quantifying the impact

The peer reviewed McKenna et al (2016) Decision Tree (fig. 17 previous) can be used to provide quantitative impact descriptions to qualitatively different overflights, such as quantifying the difference between the example scenario: *‘an average of 10 flights per day could mean there were 1,000 flights over 100 days or 100 flights over 10 days, even though there is a 10-fold difference in the absolute level of activity’* (McKenna et al, 2016). This is directly relevant to quantifying the impact of the proposed Lake Malbena overflights on the *‘relatively undisturbed nature of the property’*.

The characteristics of the Lake Malbena overflight proposal was assessed using the McKenna et al (2016) framework by manually breaking down the independent PWS 2019 overflight audit data, which was then assessed against steps #3 and #5 in the McKenna et al Decision tree framework. See Table 3 below for a manual breakdown of the independent PWS 2019 overflight data for assessment against #3 and #5 of the McKenna et al (2016) framework.

Assessment of the Lake Malbena data using the McKenna et al framework steps #3 and #5 results in the proposed Lake Malbena overflights being quantitatively assessed as a *‘short time (daily), infrequent (annually)’* impact, on 2.33%⁹² of the Wilderness Zone soundscape. By any interpretation, this is the lowest quantifiable level of temporal impact possible under the peer-reviewed McKenna framework, as illustrated by the results at Table 3. For context, by comparative assessment with ten of the pre-existing TWWHA overflight route details in the PWS 2019 Overflight audit, the proposed Malbena overflight route generates the equal lowest levels of spatial and temporal impact when judged against existing overflights.

The results illustrate with confidence that the independent PWS 2019 Overflight Audit data, when assessed against the independent peer-reviewed McKenna et al (2016) framework, shows that the proposed action will generate a minimal impact on the *‘relatively undisturbed nature of the property’*. The impact is in the form of a *‘short (daily), infrequent (annually)’* impact, on 2.33% of Wilderness Zone soundscape. The 2.33% of Wilderness Zone being impacted is subject to pre-existing soundscape impacts.

The Rapoza et al (2014) peer-reviewed dose response studies referenced by the McKenna et al 2016 soundscape assessment framework identify that the proposed *‘short time, infrequent’* impact would produce a short & infrequent *‘slight interference with natural quite’* from the perspective of an average recreational user of the area.

By way of comparison, other listed PWS 2019 audited overflight case studies can be assessed as generating ‘large spatial, short time, very frequent’, through to ‘large spatial, long time, infrequent’ impacts, representing the highest levels of impacts possible under the McKenna et al framework.

⁹² 2.33% determined by ArcGIS mapping of the overflight buffer intersected with Wilderness Zone

Table 3 Manual calculations of the PWS 2019 overflight data, presented against the associated McKenna et al (2016) impact assessment framework

Manual extrapolation of PWS 2019 overflight audit data					
Name	Approximate total Wilderness Zone area impacted % (from ArcGIS mapping of PWS 2019 overflight data)	McKenna Decision #3. PWS overflight data, Wilderness Zone time audible on given 7hr day when operating (%). ≥25% represents long impact. <25% represents short impact from McKenna et al (2015)	McKenna Decision #5. Frequency of annual operations ≤25% (infrequent), 25%-75% (frequent) , ≥75% (very frequent), using thresholds from McKenna	Impact descriptor based on McKenna et al (2015) Decision #3 and #5	
Maatsuyker	1.08	12.11	2.47	short time, infrequent	
Frenchmans_Cap	7.10	39.86	2.19	long time, infrequent	
Frenchmans_ingress	6.78	3.22	2.19	short time, infrequent	
Malbena	2.33	6.99	16.44	short time, infrequent	
Central_Walls_Ingress	0.01	4.25	3.01	short time, infrequent	
Central_Walls	0.40	32.11	3.01	long time, infrequent	
Overland_Track	9.04	36.95	15.89	long time, infrequent	
Par_Avion_PWS_Melalueca	13.88	2.56	75.34	short time, very frequent*	
PWS_SC_Track_ingress	7.94	3.22	0.55	short time, infrequent	
PWS_SC_Track_maintenance	5.80	44.83	0.55	long time, infrequent	
* Annual frequency not included in the PWS data. Assumed >75% annual frequency based on current un-restricted use provisions of airstrip					

The McKenna et al 2016 decision tree addresses considerations of intensity, duration, magnitude and geographic extent of impacts. Each element of impact consideration is represented by a score on the decision tree framework.

Decision points #3 (Time audible on any given day $\geq 25\%$), and #5 (% of year are air tours operating), along with geographical footprints expressed by the mapping, are the relevant factors determining cumulative impacts. Data to inform these decision points was taken determined by ArcGIS mapping the independent PWS 2019 overflight data and the associated Table 3 (above).

Cumulative impacts are indicated by overlaps of overflight soundscape impacts (buffers) in the ArcGIS mapping of the independent PWS 2019 data (Figure 18 & 19). The level of the cumulative impact is the additive impacts from steps #3 and #5 of the McKenna et al Decision Tree for each overlapping overflight buffer in the PWS 2019 overflight dataset. This provides a conservative worst-case scenario set of results (adhering the precautionary principle).

From Table 2 (above) we can determine scenarios for the cumulative impacts of the Malbena flight, and the overlapping Frenchmans Ingress, Overland Track and Frenchmans Cap overflights. It is reasonable to assume that overflights occur predominantly on concurrent days, as appropriate weather and related seasonal conditions are the major governing factor when planning helicopter use. Based on this assumption, and adding impacts in decision point #3, the results do not change the overall McKenna et al 2016 impact score for any of the overlapping impacts relating to daily audibility impact thresholds. Any addition of decision #3 data involving Overland Track will remain at the same answer, as the threshold is already exceeded by the Overland overflights (daily intensity). Similarly, if we look at the landscape areas potentially impacted by cumulative use of Frenchmans Ingress and Malbena (but excluding areas impacted by the Overland Track flights), again decision #3 results remain unchanged as the combined time audible will remain below the $\geq 25\%$ of daily intensity (scoring a combined 10.21% under a worst-case concurrent scenario). Decision point #5 results would also be generally the same in regards to cumulative impacts, based on a reasonable assumption that concurrent usage would occur in relation to total number of frequency of operations. In summary, there are no forms of significant cumulative impact under this assessment and assumptions of concurrent use.

If we sensitivity test the assumption of daily concurrent use with the opposing (unlikely) assumption that use of overflights routes is on differing days (providing a maximum impact on #5 frequency of annual operations), we can see that the combined impact of Malbena and Frenchmans Ingress remain under the 25% annual frequency threshold, and the McKenna et al impact score again remains unchanged for areas of cumulative impact. The only potential change in impact score under any scenario is if we assumed the very unlikely scenario that overlapping Malbena and Overland Track soundscape impacts occur on opposing dates throughout a season. Currently under decision #5, both overflights occur with a frequency of less than 25% of the year (see Table 3). However, if #5 data is assumed to occur on opposing days then the combined overflights would occur for a total of ~98 days per annum. This indicates that as an unlikely worst-case scenario, if either operation conducted any more than 8 days worth of

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flights per annum on days when the other was not operating, the decision #5 ‘frequency of operations’ score for the cumulative impact of the Overland Track and Malbena flight would change from <25% tier to the 25%-75% tier, representing a small potential cumulative impact to the specific overlapping landscape area. It is also worth noting that the PWS overflight data of 2019 use included more than 69 hours of use related to new hut construction on the Overland Track – it is again reasonable to assume that long term annual trends would be for significantly lower helicopter use in relation to the Overland track, with the consequence that any potential cumulative impact arising from overlapping Malbena and Overland soundscapes would be completely avoided in average years.

In relation to the unlikely cumulative impact, ArcGIS shows that this unlikely cumulative impact would be restricted to a very small area of Wilderness Zone landscape, located to the east of Lake St Clair, and north-east of the Lake St Clair node and the associated Recreation Zone. The scale of the cumulative impact is geographically small and restricted, applying to an area of existing impacts equivalent to *less than* 1% of the TWWHA Wilderness Zone in scale. Such cumulative impact interactions close to nodes and adjacent Recreational Zones are predictable, expected (and already occur), and it would be reasonable to consider that such cumulative effects (of any flights) around nodes have a negligible effect on wilderness characteristics and recreational settings. This assumption is based on the observation that these geographical areas are already operating as helicopter nodes (as shown in the PWS 2019 overflight data), but are also subject to much larger and permanent soundscape impacts relating to other pre-existing significant Remoteness from Settlement (RS) and Apparent Naturalness (AN) impacts near the location. These impacts include major and permanent soundscape impacts from roads (Lake St Clair road), adjacent highway (Lyell Highway), towns (Derwent Bridge and Lake St Clair), villages, the use of motorised boats and ferries (Lake St Clair), nearby logging activities, and other permanent and significant soundscape impacts. This location would be similar to what Miller (2009) describes as soundscapes with ‘moderate’ to ‘low sensitivity to human produced sound’, which may offer ‘a sense of remoteness or peace...but human sounds are unavoidable...and do not diminish the visitor experience’, and ‘visitors are likely to expect moderate levels of human sounds’. This unlikely potential cumulative impact therefore does not alter the *relatively undisturbed nature of the property, or the scale of the undisturbed landscapes* in these pre-existing soundscapes.

In summary, with a high degree of certainty, the independent PWS data and independent peer-reviewed McKenna et al assessment framework represented in this assessment finds that the potential Lake Malbena overflight soundscape wilderness character impacts relevant to OUV Criteria Vii:

1. Does not represent a new form of impact to the Wilderness Zone overflight and adjacent area - no change to the scale of ‘*undisturbed landscapes*’.
2. The independent data and peer-reviewed assessment framework shows that the potential impacts are in the form of a minimal ‘*short (daily), infrequent (annually)*’ impact, on 2.33% of Wilderness Zone soundscape. These impacts would produce short-lasting, infrequent ‘*slight interference with natural quiet*’ from the

perspective of an average recreational user of the area. All assessment findings are at the lowest level of impact that can be assessed.

3. The independent data and peer reviewed assessment methodology shows that the proposed action does not produce a significant cumulative impact to the '*The relatively undisturbed nature of the property*'.
4. The action is therefore shown definitively not to produce a significant new or cumulative impact to the '*The relatively undisturbed nature of the property; the scale of the undisturbed landscapes*' of the overflight corridor and adjacent areas.

Key mitigating factors resulting in the low impact nature of the proposed Lake Malbena overflights are (i) location of the overflights in an area of pre-existing soundscape impacts generated by pre-existing flights emanating from the nearby Lake St Clair node, (ii) mitigation provisions that avoid overflights of the wilderness zone, and the (iii) the proposed low daily and annual frequency of flights.

Conclusion of wilderness soundscape matters

There are inherent tensions between the competing needs for touristic presentation in reserve areas while providing for natural wilderness soundscapes (Chen et al 2005). Global wilderness soundscape expert Miller (2008) asks the question, '*how much human produced sound is appropriate in a National Park setting*' and follows with the observation that the answer of '*none*' is generally not feasible. As Miller (2008) highlights, both touristic presentation of reserve areas and natural soundscapes are legitimate needs. These findings reflect the provisions of the 2016 TWWHA Management Plan, which provides for large areas of 1b wilderness, whilst permitting other activities such as presentation, aerial access and high quality tourism in the remaining 15% of the TWWHA that is managed through zonations of lower wilderness management quality.

Everyone that uses any form of infrastructure or formal access in the TWWHA generates a wilderness impact, and associated overflight derived wilderness soundscape impacts. For example, the soundscape data illustrates that every user of the Overland Track, Frenchmans Cap, South Coast Track, Melaleuca or the Walls Of Jerusalem National Park are indirectly generating helicopter use, and more broadly, wilderness soundscape impacts. This is an unavoidable outcome of the inherent balance between the need to management for high quality 'pure' wilderness, while managing for other legitimate uses such as presentation, equity of access, biophysical landscape management, and general infrastructure maintenance such as emptying toilet pods and maintaining boardwalks. We don't make a value judgement on these observations, merely highlight the fact that every human undertaking modern recreational activity in the TWWHA generate their own suite of wilderness quality impacts.

The modelling confirms that the proposed Lake Malbena overflights produce a *short lasting, infrequent soundscape impact, with small spatial extent*. The soundscape impact is not a new impact to that area, and there are no significant cumulative impacts to wilderness according to the peer-reviewed McKenna et al (2016) thresholds.

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The proposed Lake Malbena overflight is one of only two overflight routes, along with Maatsuyker, that avoids direct overflights of walking tracks in the TWWHA. This effective mitigation measure ensures that wilderness recreation settings are protected by avoiding landscape areas of regular or significant recreational use along the flight corridor, as it follows the eastern boundary of the TWWHA.

In relation to potential impact to anglers on the Central Plateau, which has been a concern of public feedback to date, the modelling clearly shows that there are no soundscape impacts to anglers in the core Western Lakes management area defined by the map on page 193 of the 2016 TWWHA Management Plan.

In relation to the popular Central Walls area in the Walls of Jerusalem National Park, the modelling shows there will be no recreational soundscape impacts from the proposed Lake Malbena overflights impacting the famed Central Walls.

Key mitigation and avoidance measures resulting in minimal impacts from the proposed Lake Malbena overflight route include a commitment not to overfly wilderness areas, along with capped annual flight hours (48hours) and frequency (≤ 65 days per year). The proponent will adopt these mitigation measures in full.

As a flight path that avoids over-flying the Wilderness Zone, avoids overflying managed walking tracks, and is capped in its frequency, the proposed Lake Malbena servicing flight sets a new level of best-practice for overflights of the TWWHA.

All findings, mitigation and avoidance measures noted in this chapter have been incorporated into *Chapter 3. Description of the environment and Matters of National Environmental Significance, and Protected Matters Environmental Management Plan (Customised Fly Neighbourly Advice (FNA) Subplan)* found in this document.

Reliability of the information

The data inputs were taken from the independent PWS 2019 TWWHA flight audit (Tasmania 2021), the independent expert Reutersward acoustic report for ‘audibility’ parameters (appendix 30), and the McKenna et al (2016) peer-reviewed framework for impact assessment. As such, the inputs and results are transparent, repeatable, meaningful, and sourced from independent and suitably qualified third-parties, or peer reviewed methods. The assessment method and framework corresponds well with that used in the Whitehaven Beach GBRMPA soundscape report (Hamilton, 2003), the Kissick (2018) study of New Zealand protected area overflight impacts, the Hackett (2021) assessment of overflight impacts in the TWWHA, and the McKenna et al (2016) peer reviewed assessment framework.

The quality of the outputs are limited to the quality of the raw data inputs, which in this case is the PWS flight audit data (Tasmania, 2021). In reference to the specific Malbena data, having hard data relating to the maximum number of days flown per annum, the maximum number of corresponding flights, and the maximum hours per annum ensured that near-exact data was available in this case, meaning that Malbena-specific results are accurate and reliable.

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The fixed-distance buffers to represent the acoustic parameters of audibility, and +35dB, relies on the expert Reutersward modelling, associated buffer distances and limitations noted in the Reutersward report (see appendix 30). The 11km buffer represents the ‘time audible’ decision point on the McKenna et al (2016) decision tree. The use of the 5km distance buffer to represent the extent of sound impacts above 35dB was based modelling within the expert Reutersward modelling. The use of the selected buffers has the effect of substituting the McKenna et al (2016) parameters of ‘audibility’ and ‘>35dB LAeq’ measures with a corresponding ‘percent time above’ measure, an accepted alternate method of determining protected-area sound impacts as described by Brown (2011 & 2014). As noted in Brown (2014), the ‘time above’ measure replaces a sound energy measure with a measure that discriminates (by way of time limits and noise thresholds) between wanted and unwanted sound sources, and has been previously implemented as a measure in USA protected area soundscape projects noted by Brown (2011), as well as the Kissick (2018) overflight tranquillity project in New Zealand. Importantly, using the more basic approach of mapped buffer distances and ‘time-above modelling’ rather than complex park-scale digital recordings ensures that modelling is possible for reserve managers and assessors who have access to GIS skills and primary data, but limited access to the technology and digital data required to use the INMA-based McKenna et al (2016) framework.

In summary, the results of the soundscape modelling uses independent PWS data, expert soundscape information thresholds from the Reutersward modelling, and the leading peer reviewed assessment framework developed by McKenna et al (2016). The methods and framework correspond well with previous Australian (Hamilton, 2003) and New Zealand (Kissick, 2018) overflight soundscape modelling exercises, and is the same approach used in past TWWHA overflight soundscape impact modelling research conducted by Hackett (2021). The results are meaningful, transparent, repeatable and reliable, and satisfy the precautionary principle.

Comparative case study: Existing TWWHA overflight soundscape impact mitigation and avoidance measures

The following table provides a brief case study comparison of differing existing overflights, and their associated soundscape impact mitigation and avoidance measures

Table 4: Case study comparisons of overflight soundscape impact mitigation and avoidance measures applied to audited TWWHA overflights

Overflight use	Capped frequency prescriptions (temporal mitigations)	Avoids overflights of IUCN 1b equivalent Wilderness Zone	Avoids overflights of walking tracks	Effective minimum flight altitude mitigations	Prescribed flight corridor (spatial mitigations)
Lake Malbena proposal	✓	✓	✓	✓	✓
Existing Melaleuca commercial tourism flights	X	X	X	X	X
Existing TWWHA private (commercial) hut servicing	X	X	X	X	X
Existing TWWHA touristic overflights	X	X	X	X	X

4. h An assessment of the likely duration of impacts to MNES as a result of the proposed action (without mitigation and avoidance measures in place)

4.f (i) Potential Impact: Disturbance or culturally inappropriate use or interpretation of sites

OUV Criteria (iii), Attribute

- (a) Pleistocene archaeological sites that are unique, of great antiquity and exceptional in nature, demonstrating the sequence of human occupation at high southern latitudes during the last ice age

OUV Criteria (iv), Attribute

(a) Archaeological sites which provide important examples of the hunting and gathering way of life, showing how people practised this way of life over long time periods, during often extreme climatic conditions and in contexts where it came under the impact of irreversible socio-cultural and economic change

OUV Criteria (vi), Attribute

(a) Archaeological sites including Pleistocene sites, which demonstrate the adaptation and survival of human societies to glacial climatic cycles and periods of long isolation from other communities (e.g. the human societies in this region were the most southerly known peoples on earth during the last ice age).

4. h (i) Likely Duration: Unlikely to occur

4. f (ii) Potential Impact: Impacts to the relatively undisturbed landscape, including viewfields and soundscapes

OUV Criteria (vii), Attribute (s):

- (a) Impacts to relatively undisturbed landscape
- (b) Impacts to the scale of the undisturbed landscapes

4. h (ii) Likely Duration: Temporal – when helicopters are in use

4. f (iii) Potential Impact : Fire

OUV Criteria (viii), Attribute (s):

- (a) Relic biota with links to ancient Gondwanan biota including endemic conifers
- (b) Soils (blanket bogs, peatlands)

OUV Criteria (ix), Attribute (s)

- (a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition
- (b) Conifers of extreme longevity

OUV Criteria (x), Attribute (s)

(a) Habitats important for endemic plant and animal taxa and taxa of conservation significance, including Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*

4. h (iii) Likely Duration: Unlikely, temporal incident causing medium to long term impacts to localised populations

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4.f (iv) Potential Impact: Trampling and track formation: Potential impacts to soils from erosion (eg blanket bogs, peatlands).

OUV Criteria (viii), Attribute (s):

(a) Relic biota with links to ancient Gondwanan biota including endemic conifers

(b) Soils (blanket bogs, peatlands)

OUV Criteria (ix), Attribute (s)

(a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition

(b) Conifers of extreme longevity

OUV Criteria (x), Attribute (s)

(a) Habitats important for endemic plant and animal taxa and taxa of conservation significance, including Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*

4. h (iv) Likely duration: During operations, leading to short to medium term impacts to specific localised populations

4. f (v) Potential Impact: Introduction of exotic biota.

OUV Criteria (ix), Attribute (s)

(a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition

(b) Conifers of extreme longevity

OUV Criteria (x), Attribute (s)

(a) Habitats important for endemic plant and animal taxa and taxa of conservation significance, including Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*

4. h (v) Likely Duration: Short to medium term

4. f (vi) Potential Impact: Disturbance to species *Macropus rufogriseus* and *Pseudocheirus peregrinus* from the nature and / or use of the development

OUV Criteria (ix), Attribute (s)

(c) Species representing significant ongoing biological evolution in mainland animals including Bennett's wallaby *Macropus rufogriseus* and common ringtail possum *Pseudocheirus peregrinus*

4. h (vi) Likely Duration: It is highly unlikely the proposed nature and intensity of use would result in

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disturbance to the species that could limit the likelihood of colonisation/recruitment events and/or increase rates of mortality of individuals on the island.

4 I An assessment of whether impacts are likely to be repeated, for example as part of maintenance and upkeep (without mitigation and avoidance measures in place).

4.f (i) Potential Impact: Disturbance or culturally inappropriate use or interpretation of sites

OUV Criteria (iii), Attribute

- (a) Pleistocene archaeological sites that are unique, of great antiquity and exceptional in nature, demonstrating the sequence of human occupation at high southern latitudes during the last ice age

OUV Criteria (iv), Attribute

- (a) Archaeological sites which provide important examples of the hunting and gathering way of life, showing how people practised this way of life over long time periods, during often extreme climatic conditions and in contexts where it came under the impact of irreversible socio-cultural and economic change

OUV Criteria (vi), Attribute

- (a) Archaeological sites including Pleistocene sites, which demonstrate the adaptation and survival of human societies to glacial climatic cycles and periods of long isolation from other communities (e.g. the human societies in this region were the most southerly known peoples on earth during the last ice age).

4. i (i) An assessment of whether impacts are likely to be repeated, for example as part of maintenance or upkeep:

No, unlikely to occur

4. f (ii) Potential Impact: Impacts to the relatively undisturbed landscape, including viewfields and soundscapes

OUV Criteria (vii), Attribute (s):

- (a) Impacts to relatively undisturbed landscape
- (b) Impacts to the scale of the undisturbed landscapes

4. i (ii) An assessment of whether impacts are likely to be repeated, for example as part of maintenance or upkeep: Temporal – when helicopters are in use

4. f (iii) Potential Impact : Fire

OUV Criteria (viii), Attribute (s):

(a) Relic biota with links to ancient Gondwanan biota including endemic conifers

(b) Soils (blanket bogs, peatlands)

OUV Criteria (ix), Attribute (s)

(a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition

(b) Conifers of extreme longevity

OUV Criteria (x), Attribute (s)

(a) Habitats important for endemic plant and animal taxa and taxa of conservation significance, including Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*

4. i (iii) An assessment of whether impacts are likely to be repeated, for example as part of maintenance or upkeep: No, unlikely to occur

4.f (iv) Potential Impact: Trampling and track formation: Potential impacts to soils from erosion (eg blanket bogs, peatlands).

OUV Criteria (viii), Attribute (s):

(a) Relic biota with links to ancient Gondwanan biota including endemic conifers

(b) Soils (blanket bogs, peatlands)

OUV Criteria (ix), Attribute (s)

(a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition

(b) Conifers of extreme longevity

OUV Criteria (x), Attribute (s)

(a) Habitats important for endemic plant and animal taxa and taxa of conservation significance, including Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*

4. i (iv) An assessment of whether impacts are likely to be repeated, for example as part of maintenance or upkeep: During operations and construction

4. f (v) Potential Impact: Introduction of exotic biota.

OUV Criteria (ix), Attribute (s)

(a) Blanket bogs, bolster heaths and peat soils where processes of hydrological and geomorphological evolution are continuing in an uninterrupted natural condition

(b) Conifers of extreme longevity

OUV Criteria (x), Attribute (s)

(a) Habitats important for endemic plant and animal taxa and taxa of conservation significance, including Alpine *sphagnum* bogs and associated fens (MSP), *Athrotaxis selaginoides* rainforest (RKP), *Pherospheara hookeriana*

4. i (v) An assessment of whether impacts are likely to be repeated, for example as part of maintenance or upkeep: irregular (less than annually) associated with site use

4. f (vi) Potential Impact: Disturbance to species *Macropus rufogriseus* and *Pseudocheirus peregrinus* from the nature and / or use of the development

OUV Criteria (ix), Attribute (s)

(c) Species representing significant ongoing biological evolution in mainland animals including Bennett's wallaby *Macropus rufogriseus* and common ringtail possum *Pseudocheirus peregrinus*

4. i (vi) An assessment of whether impacts are likely to be repeated, for example as part of maintenance or upkeep: It is highly unlikely the proposed nature and intensity of use would result in disturbance to the species that could limit the likelihood of colonisation/recruitment events and/or increase rates of mortality of individuals on the island.

4j Discussion of whether any impacts are likely to be unknown, unpredictable or irreversible

Potential impacts are known, predictable, spatially restricted and temporal in nature.

The proposal has undergone a number of high-profile assessments, including state-based assessments, a previous EPBCA assessment and determination, lengthy local planning-related reviews and numerous legal court cases at the state and federal level. All likely impacts have been addressed, including those identified by flora and fauna specialists, state and federal government assessors, as well as legal opponents to the project. Due to the lengthy high profile and highly-contested nature of this proposal, the presence of unknown impacts is considered unlikely.

4. k Full justification of all discussions and conclusions and where relevant based on the best available information and guidance documentation

The proposal has been informed by multiple expert flora and fauna site assessments and reports conducted by North Barker, and Mr Nick Mooney, Aboriginal Heritage Tasmania, and Parks and Wildlife Service Tasmania. The various elements of the proposed action such as bushwalking, the use of standing camps and supporting infrastructure, and the use of helicopters in Tasmanian protected areas are common existing activities; the impacts are therefore predictable and well defined based on long-term research, evidence and practices which has been relied upon by the experts and presented in this document. All likely impacts have been addressed, including those identified by flora and fauna specialists, state and federal government assessors, as a well as opponents of the project relevant to public comments and legal debates. Relevant case studies are included in this assessment, to provide further evidence confirming the recommendations of experts. Relevant federal EPBCA recovery strategies, published guides and management plans have been used in the preparation of the advice and contents of this document, including the NVA, SPRAT database and the 2016 TWWHA Management Plan.

In specific reference to the assessment of wilderness soundscape impacts, the assessment uses independent Parks and Wildlife Service audit data, and assesses the audited flight paths based on independent, peer reviewed assessment framework (McKenna et al, 2016). Identified sound / noise propagation thresholds were determined by an independent expert (Reutersward). The assessment is repeatable, meaningful and transparent, and relies on the independent PWS data and the independent McKenna et al (2016) framework to present the findings. While reliant on international peer-reviewed assessment framework, the concepts and mensuration framework are also consistent with the previous protected area soundscape research conducted in Australia, including *'Incorporating overflight-derived wilderness soundscape impacts into the revised National Wilderness Inventory system: Case study, Tasmanian Wilderness World Heritage Area, Australia'* supervised Masters thesis by Hackett 2021 (UTAS), the Whitehaven Beach soundscape report (Masters thesis) by Hamilton (2003), and the Tranquillity in New Zealand National Parks (Masters thesis) by Kissick, 2018.

Proposed Avoidance and Mitigation Measures to avoid, or minimise impacts (including consolidated list)

5 (a) Details of any agreed understandings, agreements or plans developed to manage impacts to the MNES and heritage values

The proponent will adopt all mitigation and avoidance measures listed below (1-46). The mitigation and avoidance measures listed below actively incorporate all mitigation and avoidance measures identified by the reports, recommendations and evidence found in this document.

Summary of Proposed Avoidance and Mitigation Measures

The following represents a summary of all impact mitigation and avoidances measures. All mitigation and avoidance actions listed will be adopted by the proponent, and have been incorporated into the subsequent Protected Matters Management Plan. If any confusion arises as a result of information found in this document, the below list should be considered the final consolidated list of impact mitigation and avoidance commitments to be adopted by the proponent:

Consolidated list of impact mitigation and avoidance commitments to be adopted by the proponent:

Fire: Impact mitigation and avoidance

1. No smoking, no open flames for heating, no outside fires, electric / gas / pellet heating only, no aviation fuel storage
2. Install appropriate fire retardation and fighting equipment (water only, no foams or chemicals)
3. No helicopters with downward facing exhausts will be used during operations as per PWS Policy P-057

Trampling and track formation: Impact mitigation and avoidance

4. Avoid routes through alpine *sphagnum* bogs and fens (MSP's), or facilitate passage across on-island MSP's by installing raised perforated boardwalking as recommended by the North Barker reports.
5. Education and supervision during trips in relation to trampling avoidance and exclusion zones
6. Implement visitor exclusion zones within applicable MSP, RKP and *P. hookeriana* communities.
7. Ensure routes/tracks avoid *Pherosphaera hookeriana*. Where existing on-island routes pass by this species (near the natural rock landing), use short lengths of boardwalk to ensure clearly delineated walking route that avoids plant species. Education and supervision to re-enforce impact mitigation.
8. Situate Standing Camp among ORO or WSU communities.
9. Flag work area prior to any construction to avoid impacts to sensitive MNES flora (*P. hookeriana*) during construction. Incorporate into CEMP.
10. Utilise air transport to access the site, avoiding extensive risk of trampling associated with hiking to site
11. Walking route from heli landing site to the lake edge shall follow the sclerophyll forest / open plain edge (rocky drainage line) as prescribed in the North Barker Flora and Fauna Assessment addendum. Guides shall provide advice and supervision to customers ensuring avoidance of MSP. When possible customers and guides shall use fan-out walking techniques to avoid trampling and track formation (eg within non-MSP communities).
12. Boat Launching details, Lake Malbena lake edge: The use of row boats and associated oar-powered water craft are proposed on Lake Malbena. During the activities the proponent will utilise areas of lake-edge featuring hard-wearing dolerite edges for embarking and disembarking to ensure no erosion impacts. Furthermore, staff are required to ensure that any *Pherosphaera hookeriana* pines are avoided, should

they be located on the Lake Malbena lake edge.

Exotic biota: Impact mitigation and avoidance

13. Prior to construction and operations, the proponent will implement ‘Keeping it Clean’⁹³ (check, clean, disinfect, dry) strategy used by state government in protected areas (eg Hydro Tasmania, Parks Tasmania), including associated equipment washdown and disinfection prescriptions to avoid introduction of exotic biota such as *Phytophthora* and frog chytrid disease.
14. Prior to construction and operations, the proponent will develop and implement a hygiene plan in accordance with DPIPW (2015) Weeds and Disease Planning and Hygiene Guidelines–Preventing the spread of weeds and diseases in Tasmania prior to construction and operations.
15. Incorporate Hygiene Plan and Keeping It Clean strategy within the CEMP and Operations Manual.
16. Utilise air transport to access the site, reducing risks of spreading exotic biota by walking in.
17. Operator will not permit guests to bring fishing equipment or associated water-based sporting equipment into the TWWHA (eg waders, wading boots)

Landscape and recreational disturbance (wilderness): Impact mitigation and avoidance

18. Built infrastructure to be removable (no permanent, excavated footings), and located in an area with existing impacts to Apparent Naturalness (viewfields) including human-habitation, structures (existing privately owned heritage hut) and pre-existing recreational use.
19. Minimal ground disturbance, no excavations or changes to watercourses.
20. Sympathetic building material selection, design and scale, no reflective surfaces, muted bush tones.
21. Camp design will reflect that of a camping experience with exterior canvas rooves on accommodation pods, whilst referencing key typology elements of the existing hut to maintain integrity of the historical values of the site, and maintaining existing recreational settings relating to the existing uses and infrastructure of the site.
22. Restrict commercial trips to 120 days per year. (No guiding for 240 days per annum)
23. Avoid overflights of the Wilderness Zone
24. TWWHA helicopter flights to occur for a maximum 48 hours per annum, across a maximum of 65 days per year
25. Helicopter access corridor is located in area of pre-existing overflight and soundscape disturbances, including ingress at the Lake St Clair / Derwent Bridge helicopter node.
26. Avoid overflights of walking tracks (as identified by map appendix 19)
27. No infrastructure or guiding large groups in the Wilderness Zone (group size must not exceed 2+2 as recommended by the PWS Track Management policy)

⁹³Appendices 26

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28. Customer helicopter landing site to be located in the IUCN Class VI Central Plateau Conservation Area (CPCA), outside of the IUCN Class II Walls Of Jerusalem National Park.
29. Camp infrastructure and supporting helicopter transport is located in an area with pre-existing built infrastructure (privately owned heritage hut), and existing overflight disturbances (overflights).
Characteristics of the proposed flight usage avoid any significant cumulative impact to Apparent Naturalness.

Aboriginal Heritage matters: impact mitigation and avoidance

30. Proponent has consulted and engaged with the Aboriginal Heritage Council (AHC). The proponent has altered elements of the proposal as a result of this engagement and subsequent feedback (see appendices 10 for instance). The proponent has committed to further engagement with the Aboriginal communities in relation to seeking potential involvement, input and opportunities with Aboriginal communities via the project.
31. The proponent will install the camp with minimal ground disturbance, no excavations.
32. The proponent will implement the Unanticipated Discovery Plan supplied by AHT prior to commencing actions.
33. Key staff have received cultural awareness training, and are experienced in the process of reporting cultural artefacts located at other unrelated locations in the TWWHA (for instance Skullbone Plains / Lake Ina relating to potential cultural artefacts AH13893 & AH13894).
34. In addition to AHT advice, proponent has voluntarily engaged a suitably qualified archaeologist and Tasmanian Aboriginal Heritage Officer to provide further advice relating to the proposal, including a survey of the camp installation site and immediate surrounds for heritage items, and the provision of additional advice relating to intangible cultural heritage.
35. As a result of concern over any (hypothetical) future potential for activities beyond Lake Malbena expressed through public comment, the proponent agrees not to propose or operate any guided walking or fishing activities within 1.5km radius (3km diameter) of the Mary Tarn cultural site for the life of the Standing Camp operations.

Raptor disturbance: mitigation and avoidance

36. Helicopter operations follow tailored routes (as opposed to a fixed flight path) with minimum likelihood of nests, climbing and descending gradually (to avoid bladeslap noise) whilst staying within end point 'safe zones'.
37. Avoid known nesting sites (as recorded on TheLIST) by 1km lateral distance.
38. Wherever possible use flight landing and take-off routes at Derwent Bridge already established by Parks and Wildlife Service helicopter use.
39. Where possible, transient operational height 1000+m (AGL) (when safe to do so, as determined by the pilot and CASA regs)

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40. Close manoeuvring, hovering and other 'lingering' to be avoided en route and minimised during landing and take-off.
41. During weather conditions not allowing 1000+m (AGL) utilise the pre-determined overflight route that avoids high probability nesting sites (since it has a very low chance of nests).
42. Eagles flying at or above operational heights to be circumvented.
43. Monitoring by aircraft of all nests within 4km of the proposed route(s) and take-off/landing places be undertaken each year in mid-October by qualified expert (to note the establishment of breeding) and mid-December (to note nesting success). This would allow for adaptive management of the operating procedures.
44. Survey for eagle nests of areas within 1km plus of the proposed route and takeoff/landing places be undertaken prior to commencement of construction (outside of defined breeding season August-Feb inclusive⁹⁴), and then every two years in autumn. This would allow for adaptive management of the operating procedures.

Disturbance of eastern ring-tail possum *Pseudocheirus peregrinus*

45. As a conservative measure, a pre-clearance survey of the impact area will be conducted (1-3 months prior to works) by suitably qualified expert to establish that it is still free of ringtail possum dreys (and to a lesser extent hollow bearing trees, which cannot feasibly have developed in the time since the assessment surveys).

General commitments

46. Complete capture and off-site disposal of sewage and greywater (outside of TWWHA).

Prior to commencement of actions, the above mitigation and avoidance measures shall be incorporated into a Protected Matters Environment Management Plan, which will be adopted in full by the proponent:

⁹⁴ <https://www.environment.gov.au/epbc/notices/assessments/2007/3385/pubs/note1-eagle.pdf>

Protected Matters Environmental Management Plan (PMEMP)

This Plan will be implemented by Wild Drake P/L prior to commencement of proposed actions

Contents

1. Construction – Protected Matters Environmental Management Subplan
2. Trampling and Track formation – Protected Matters Environmental Management Subplan
3. Weed and Hygiene – Protected Matters Environmental Management Subplan
4. Indigenous Heritage – Protected Matters Environmental Management Subplan
5. Fauna of significance – Protected Matters Environmental Management Subplan
6. Fire – Protected Matters Environmental Management Subplan
7. Customised FNA impact mitigation and avoidance prescriptions – Protected Matters Environmental Subplan
8. Other information – Public Access Plan
9. Consolidated list of mitigation and avoidance measures to be adopted

Introduction

The Protected Matters Environmental Management Plan (PMEMP) has been developed to ensure that all impact and avoidance strategies and procedures identified in the Request For Information documentation are encapsulated, and implemented, within the proposed activities and actions.

The General Manager (or equivalent) is responsible for adopting and implementing the impact and avoidance measures listed in this document, and ensuring that all sub-ordinates and contractors are aware and compliant with these measures.

The listed impact mitigation and avoidance measures outlined in this document shall be replicated in the Construction Environment Management Plan and Operations Manual prepared prior to the commencement of activities.

In the case of an environmental emergency, or if the PMEMP does not achieve the stated mitigation and / or avoidance measures, corrective actions will be taken, and applicable impact mitigation and avoidance measures will be immediately updated through the relevant CEMP, or Operations Plan.

In the event of an environmental emergency:

- The action resulting in the emergency will cease;

- The relevant environmental authority will be immediately contacted (the PWS in the first instance)
- The source or action generating the impact will be avoided or mitigated through improved avoidance and / or mitigation measures developed in co-operation with the applicable agency (the PWS in the first instance). The new impact avoidance and mitigation action will be implemented and incorporated into either the CEMP or Operations Manual

The General Manager (or equivalent) is responsible for implementing the corrective actions on behalf of Wild Drake P/L.

The proposed Halls Island operations will be reviewed annually through annual reviews of the Operations Manual.

1. Construction - Protected Matters Environmental Management Subplan

1.1 Objective

The objective of this Subplan is to ensure that all impact avoidance and mitigation measures relating to MNES are identified and implemented as appropriate.

1.2 Appropriate site selection

The Standing Camp site selection has been a result of adopting the North Barker Flora and Fauna Assessment (21 November 2016). The chosen Standing Camp Site is primarily ORO community, with a small proportion of WSU. Micro siting will be guided by advice from North Barker or other suitably qualified persons.

1.3 Heli-sling transport

The Standing Camp design shall be designed to include pre-fabrication as much as possible, to ensure that the minimum of heli-sling loads will be required to deliver materials to site, and that the camp installation process will require the minimum overflight time possible. Construction overflights will be included within annual overflight quota (hours).

1.4 Unanticipated Discovery Plan

Prior to the commencement of construction, and contained with the CEMP, an Unanticipated Discovery Plan (UDP) shall be implemented. The plan shall deal with situations where Aboriginal heritage or threatened flora and fauna are found on the Land. The UDP must detail a plan to deal with the discovery and must state that all work on the Land must be suspended until an assessment is made by the relevant (state) Minister and any relevant bodies in relation to the Aboriginal Heritage or threatened flora and fauna. The UDP will be implemented for the life of the project.

1.5 Hygiene Plan

Prior to the commencement of construction, The Operator must prepare a plan in accordance with the document prepared by the Department of Primary Industries Parks Water and Environment in 2015 titled 'Weed and Disease Planning and Hygiene Guideline – prevent the spread of weeds and diseases in Tasmania ('Hygiene Plan'). The Hygiene Plan will consider both the Development and Approved Use (including quality control checks, compliance and monitoring of biosecurity measures and a list of actions that will be implemented by the Operator if any weeds or threats are identified during the development or the approved use such as plant seeds, invertebrates, aquatic alga and pathogens, plant pathogens and the like.

1.6 Effluent and Rubbish Plan

1.6.1 At the commencement of construction activities, a complete-capture pod should be installed to ensure that all sewage and greywater is captured during the construction process, for complete removal off-site.

1.6.2 During Construction and Operations, the Operator shall:

1.6.2.1 maintain all toilets constructed as part of the Development in a proper safe and working manner;

1.6.2.2 ensure all persons accommodated in the Land use the toilets constructed within the Land where practicable;

1.6.2.3 ensure all garbage, rubbish and refuse generated on the Land and/or as a result of the Approved Use is:

(i) pending disposal, properly collected (with the Operator to provide adequate refuse receptacles on the Land and take all reasonable steps to ensure that they are used appropriately);

(ii) stored in a manner that it cannot be accessed by animals;

(iii) properly disposed of (and not burnt on the Land) at an authorised waste

disposal site at the end of each stay on the Land;

1.6.2.4 provide and use recyclable, compostable and/or reusable containers and wrappers wherever possible, and not use any plastic bags (unless they are of the fast degradable type) or single use plastic bottles;

1.7 Trampling and Track formation

Prior to commencement of proposed actions, flag work area to avoid impacts to sensitive MNES flora (*P. hookeriana*) during construction. Incorporate into CEMP.

1.8 Pre-construction and operations – Fauna searches

- 1.8.1 Survey for eagle nests of areas within 1km plus of the proposed route(s) and takeoff/landing places to be undertaken. This would allow for adaptive management of the operating procedures.
- 1.8.2 In relation to eastern ring-tail possums, as a conservative measure, a pre-clearance survey of the impact area will be conducted (1-3 months prior to works) by suitably qualified expert to establish that it is still free of dreys (and to a lesser extent hollow bearing trees, which cannot feasibly have developed in the time since the assessment surveys).

2. Trampling and Track formation – Protected Matters Environmental Management Subplan

2.1) Objective

The objective of the Trampling and Track Formation Subplan is to ensure that trampling and track formation impacts are avoided or mitigated during construction and operations. The Subplan incorporates all applicable impact mitigation and avoidance measures from 5(a) of this document.

2.2) Operations Manual

The Operator must prepare an Operations Manual (prior to commencement of activities) detailing the operational practices of the Operator in respect of both the Approved Use and the Licensed Activities (Operations Manual). The Operations Manual must ensure that operations adhere to the following avoidance and mitigation measures:

1. Avoid routes through alpine *sphagnum* bogs and fens (MSP's), or facilitate passage across on-island MSP's by installing raised perforated boardwalking.
2. Education and supervision during trips in relation to trampling avoidance and exclusion zones, and

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3. Implement visitor exclusion zones within applicable MSP, RKP and *P. hookeriana* communities.
4. Ensure routes/tracks avoid *Pherosphaera hookeriana*. Where existing on-island routes pass by this species (near the natural rock landing), use short lengths of boardwalk to ensure clearly delineated walking route that avoids plant species. Education and supervision to re-enforce impact mitigation.
5. Situate Standing Camp among ORO or WSU communities.
6. Flag work area to avoid impacts to sensitive MNES flora (*P. hookeriana*) during construction. Incorporate into CEMP.
7. Utilise air transport to access the site, avoiding extensive risk of trampling associated with hiking to site
8. Walking route from heli landing site to the lake edge shall follow the sclerophyll forest / open plain edge (rocky drainage line) as prescribed in the North Barker Flora and Fauna Assessment addendum. Guides shall provide advice and supervision to customers ensuring avoidance of MSP. When possible customers and guides shall use fan-out walking techniques to avoid trampling and track formation (eg within non-MSP communities).
9. Boat Launching details, Lake Malbena lake edges: The use of row boats and associated oar-powered water craft are proposed on Lake Malbena. During the activities the proponent will utilise areas of lake-edge featuring hard-wearing dolerite edges for embarking and disembarking to ensure no erosion impacts. Furthermore, staff are required to ensure that any *Pherosphaera hookeriana* pines are avoided, should they be located on the Lake Malbena lake edge.

3. Weed and Hygiene – Protected Matters Environmental Management Subplan

3.1) Objective

The objective of the Weed and Hygiene Plan is to ensure that no exotic biota is introduced to the TWWHA through the proposed activities. The Subplan incorporates all applicable impact mitigation and avoidance measures from 5(a) of this document

3.2) Operations Manual

The Operator must prepare an Operations Manual (prior to commencement of proposed actions) detailing the operational practices of the Operator in respect of both the Approved Use and the Licensed Activities (Operations

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Manual). The Operations Manual must include:

1. Prior to construction and operations, the proponent will implement 'Keeping it Clean' (check, clean, disinfect, dry) strategy used by state government in protected areas (eg Hydro Tasmania, Parks Tasmania), including associated equipment washdown and disinfection prescriptions to avoid introduction of exotic biota such as Phytophthora and frog chytrid disease.
2. Prior to construction and operations the proponent will develop and implement a hygiene plan in accordance with DPIPW (2015) Weeds and Disease Planning and Hygiene Guidelines—Preventing the spread of weeds and diseases in Tasmania.
3. Incorporate Hygiene Plan and Keeping It Clean strategy within the CEMP and Operations Manual.
4. Utilise air transport to access the site, reducing risks of spreading exotic biota by walking in.
5. Operator will not permit guests to bring fishing equipment or associated water-based sporting equipment into the TWWHA (eg waders, wading boots)

4. Indigenous Heritage – Protected Matters Environmental Management Subplan

4.1 Objective

The objective of the Indigenous Heritage Subplan is to ensure that Aboriginal heritage is treated sensitively and appropriately, and protected from impact. The Subplan incorporates all applicable impact mitigation and avoidance measures from 5(a) of this document.

4.2 Appropriate siting

The proposed Standing Camp site is located in an area with low probability of Aboriginal heritage being present (see appendices for AHT report).

4.3 Minimal ground disturbance

The Standing Camp will be installed using hand-tools / electric tools only. Minimal ground disturbance will occur, no excavations or changes to water courses, ensuring that unanticipated & unidentified artefacts remain undisturbed.

4.4 Community input

With regard to Aboriginal heritage, the proponent has and will continue to formally engage and consult with the

Aboriginal Heritage Council (AHC) and the Aboriginal communities to outline the details of the proposed development, and invite involvement in the delivery of the project development and operations.

4.5 Unanticipated Discovery Plan

Prior to construction, the operator must prepare a plan to deal with situations where Aboriginal heritage or threatened flora and fauna are found on the Land ('Unanticipated Discovery Plan'). The Unanticipated Discovery Plan (UDP) is a plan to deal with the discovery and must state that all work on the Land must be suspended until an assessment is made by the Minister and any relevant bodies in relation to the Aboriginal heritage or threatened flora and fauna. The UDP will be incorporated into the CEMP, and Operations Manual prior to the commencement of activities. See appendices for the UDP.

4.6 Additional proponent proposed measures:

The proponent has attended / undertaken a number of formal and informal cultural awareness and familiarisation activities, including On Country sessions with respected Tasmanian Aboriginal elders and Tasmanian Aboriginal tourism operators, and participated as an observer on cultural heritage surveys. In addition to AHT advice, the proponent has voluntarily engaged a suitably qualified archaeologist and Tasmanian Aboriginal Heritage Officer to provide further advice relating to the proposal, including a survey of the camp installation site and immediate surrounds for heritage items, and the provision of additional advice relating to intangible cultural heritage. As a result of concern over the (hypothetical) future potential for activities beyond Lake Malbena communicated through public comment, the proponent agrees not to propose or operate any guided walking or fishing activities within 1.5km radius (3km diameter) of the Mary Tarn cultural site for the life of the Standing Camp operations.

5. Fauna of Significance – Protected Matters Environmental Management Subplan

5.1 Objective

The objective of the Fauna of Significance Subplan is to ensure that all risk related to the proposed activities are avoided, or mitigated. The Subplan incorporates all applicable impact mitigation and avoidance measures from 5(a) of this document, specific to *Aquila audax subsp. Fleayi* Tasmanian wedge tailed eagle and *Pseudocheirus peregrinus* – Eastern ring-tail possum

5.2 Raptor disturbance: mitigation and avoidance

- 5.2.1 Helicopter operations follow tailored routes (as opposed to a fixed flight path) with minimum likelihood of nests, climbing and descending gradually whilst staying within end point 'safe zones'.
- 5.2.2 Avoid known nesting sites (as recorded on TheLIST) by 1km lateral distance.
- 5.2.3 Wherever possible use flight landing and take-off routes at Derwent Bridge already established by Parks and Wildlife Service Helicopter use.
- 5.2.4 Where possible, transient operational height 1000+m (AGL) (when safe to do so, as determined by the pilot and CASA regs)
- 5.2.5 Close manoeuvring, hovering and other 'lingering' to be avoided en route and minimised during landing and take-off.
- 5.2.6 During weather conditions not allowing 1000+m (AGL) utilise the pre-determined overflight route that avoids high probability nesting sites (since it has a very low chance of nests).
- 5.2.7 Eagles flying at or above operational heights to be circumvented.
- 5.2.8 Monitoring by aircraft of all nests within 4km of the proposed route(s) and take-off/landing places be undertaken each year in mid-October by qualified expert (to note the establishment of breeding) and mid-December (to note nesting success). This would allow for adaptive management of the operating procedures.
- 5.2.9 Survey for eagle nests of areas within 1km plus of the proposed route(s) and takeoff/landing places to be undertaken in autumn, every two years. This would allow for adaptive management of the operating procedures.

5.3 Disturbance of eastern ring-tail possum

As a conservative measure, a pre-clearance survey of the impact area will be conducted (1-3 months prior to works) by suitably qualified expert to establish that it is still free of dreys (and to a lesser extent hollow bearing trees, which cannot feasibly have developed in the time since the assessment surveys).

5.7 Unanticipated Discovery Plan

The Unanticipated Discovery Plan listed at 4.5 of the PMEMP shall be implemented prior to construction and during all proposed activities, and apply to all forms of heritage (natural and cultural).

6. Fire Management Subplan

6.1 Objective

The objective of the Fire Management Subplan is to ensure that all fire risks related to the proposed activities are

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avoided, or mitigated. The Subplan incorporates all applicable impact mitigation and avoidance measures from 5(a) of this document.

1. No smoking, no open flames for heating, no outside fires, electric / gas / pellet heating only, no aviation fuel storage
2. Install appropriate fire retardation and fighting equipment prior to commencement of construction and during operations
3. No helicopters with downward facing exhausts will be used during operations as per PWS Policy P-057

6.2 Camp Design

The design must satisfy, or be capable of satisfying, all applicable requirements for buildings being built in bushfire prone areas under the Building Code of Australia (Code). The design must encompass appropriate fire risk mitigation principles. There are no anticipated clearance requirements for bushfire prevention. Hazard Management Plans (HMP's), Emergency & Evacuation Plans are only finalised at the point of local planning design approval in negotiation with the Tasmanian Fire Service (which can only occur after PWS design approval etc). The operation will manage and mitigate risk primarily through small groups sizes, no operations on days with declared catastrophic fire ratings, and emergency egress by helicopter. The lake may also be used as a safe refuge as an element of the emergency and evacuation plan.

6.3 Fire risk – construction

All construction to be performed with electric or hand-tools only. A small generator may be used to charge equipment during construction activities only, if required. This will be located on ORO communities (exposed bedrock) to avoid and mitigate any potential for fire resulting from malfunction of the generator.

7. Customised Fly Neighbourly Advice (FNA) Subplan

7.1 Objective

The objective of the Customised Fly Neighbourly Advice (FNA) is to ensure that all mitigation and avoidance measures relating to impacts on MNES from the use of helicopter overflights are identified and implemented. The Subplan incorporates all applicable impact mitigation and avoidance measures from 5(a) of this document.

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1. Avoid overflights of the Wilderness Zone
2. TWWHA helicopter flights to occur for a maximum 48 hours per annum, across a maximum of 65 days per year (includes overflight time required for construction, and eagle monitoring).
3. Helicopter access route is located in area of pre-existing overflight and soundscape disturbances, including ingress at the Lake St Clair / Derwent Bridge helicopter node.
4. Helicopter access routes are located within a flight corridor to the east of the TWWHA Wilderness Zones
5. Customer helicopter landing site to be located in the IUCN Class VI Central Plateau Conservation Area (CPCA), outside of the IUCN Class II Walls Of Jerusalem National Park.
6. Camp infrastructure and supporting helicopter transport is located in a general area with pre-existing built infrastructure (privately owned heritage hut), and existing overflight disturbances (overflights).
Characteristics of the proposed flight usage avoid any significant cumulative impact to Apparent Naturalness.
7. Helicopter operations follow tailored routes (as opposed to a fixed flight path) with minimum likelihood of eagle nests, climbing and descending gradually whilst staying within end point 'safe zones'.
8. Avoid known nesting sites (as recorded on TheLIST) by 1km lateral distance.
9. Wherever possible use flight landing and take-off routes at Derwent Bridge already established by Parks and Wildlife Service Helicopter use.
10. Where possible, transient operational height 1000+m (AGL) (when safe to do so, as determined by the pilot and CASA regs)
11. Close manoeuvring, hovering and other 'lingering' to be avoided en route and minimised during landing and take-off.
12. During weather conditions not allowing 1000+m (AGL) utilise the pre-determined overflight route that avoids high probability nesting sites (since it has a very low chance of nests).
13. Eagles flying at or above operational heights to be circumvented.

7.4 General Impact Avoidance

7.4.1 Avoid overflights of walking tracks (as identified by map appendix 19)

7.4.2 The selected flight corridor avoids impacts on the core Western Lakes angling area, as defined by the map on page 193 of the TWWHA Management Plan (2016)

Construction and operations to comply with all requirements and recommendations of this FNA subplan, provided that in the event of any inconsistency between the FNA and any requirements of CASA or associated safety or aircraft legislation, the requirements of CASA or associated legislation will take precedence to the extent of the inconsistency.

8. Public Access Plan – other information

8.1 Previous public access arrangements

Under the ownership of Mr. Reg Hall, followed by Mrs. Elizabeth McQuilkin, generous public access to the private Halls Hut has been given to users who have sought permission to visit this significant but privately owned, Tasmanian heritage listed historical hut. Private huts are not uncommon in the TWWHA, or Tasmanian protected area network.

Recognising the importance of Mr. Reg Hall in the history of Tasmanian bushwalking and the foundation of the Walls of Jerusalem National Park, and his association with Halls Island, the new lessees of Halls Island continue to facilitate public access.

8.2 Historical public usage levels

Records from the past 26 years of use at Halls Island indicate 92 visits, with a total of 271 guests. Based on these records, and the desire to continue similar levels of public use, the lessees may permit public access to up to 15 trips per year, with a maximum groups size of 4 persons per trip.

8.3 Public Access Requirements

It is important to note that the lessees of Halls Island are responsible for the flora, fauna and general environment.

This Public Access Plan is the means through which public (non commercial) visitation to Halls Island may be facilitated, whilst ensuring the lessees can meet legal obligations including the protection of flora, fauna and Tasmanian Heritage listed matters. Managing visitation will also improve recreational outcomes for all users (both public and private), by maintaining appropriate wilderness recreational settings for all users. To ensure that continued public access is a right, the proponents have requested that continuation of public access is incorporated into the Lease and Licence Conditions (see appendix 42), compelling the operators to provide access as per the prescriptions of the Public Access Plan.

Users must have a history of being respectful of the hut owners & custodians of the private Tasmanian Heritage Listed hut. Specifically, any history or conduct involving abuse, harassment, intimidation, defamation or illegal activities will not be tolerated.

To ensure the environmental integrity of the island, maximise the recreational outcomes for visitors (whether

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public or commercial), and to provide indemnity to the lessees should it be required, visitors will be required to:

1. Contact Wild Drake P/L by Email to book in a suitable time to visit. This date must be approved in writing by Wild Drake P/L.
2. Provide an email address, residential address and phone number for booking contact.
3. Acknowledge and adhere to the requirements of the Halls Island Hygiene Plan, and NRM South 'Keeping It Clean' guidelines as provided.
4. Respect any temporary closures of the private hut or other restrictions relating to the private hut, which may be used from time to time to protect its historical integrity (for instance closures related to required maintenance needs)
5. No fires or smoking
6. Respect to the environmental exclusion zones, which will be identified with a supplied map
7. No interference with items located at Halls Island, including the Wild Drake row boat, or fauna monitoring equipment (motion-cameras)
8. Sign an appropriate waiver of liability and indemnity in favour of Wild Drake P/L.

(*Note that the above is typical information used and prepared by bushwalking clubs and outdoor groups during the preparation and planning of formal excursions.)

The means of access to the TWWHA, and walking routes etc to Halls Island are the responsibility of the visitor.

Whilst visiting Halls Island, visitors must adhere to any directions given by the lessors, to ensure that environmental integrity, safety and the important values of Halls Island are maintained.

Wild Drake will keep a record of formal visitation requests for the preceding 24month period, and subsequent public access records for periodic inspection by the PWS, should they be requested.

9. Summary of mitigation and avoidance measures which shall be adopted by the proponent:

Fire: Impact mitigation and avoidance

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1. No smoking, no open flames for heating, no outside fires, electric / gas / pellet heating only, no aviation fuel storage
2. Install appropriate fire retardation and fighting equipment (water only, no foams or chemicals)
3. No helicopters with downward facing exhausts will be used during operations as per PWS Policy P-057

Trampling and track formation: Impact mitigation and avoidance

4. Avoid routes through alpine sphagnum bogs and fens (MSP's), or facilitate passage across on-island MSP's by installing raised perforated boardwalking as recommended by the North Barker reports.
5. Education and supervision during trips in relation to trampling avoidance and exclusion zones
6. Implement visitor exclusion zones within applicable MSP, RKP and *P. hookeriana* communities.
7. Ensure routes/tracks avoid *Pherosphaera hookeriana*. Where existing on-island routes pass by this species (near the natural rock landing), use short lengths of boardwalk to ensure clearly delineated walking route that avoids plant species. Education and supervision to re-enforce impact mitigation.
8. Situate Standing Camp among ORO or WSU communities.
9. Flag work area prior to any construction to avoid impacts to sensitive MNES flora (*P. hookeriana*) during construction. Incorporate into CEMP.
10. Utilise air transport to access the site, avoiding extensive risk of trampling associated with hiking to site
11. Walking route from heli landing site to the lake edge shall follow the sclerophyll forest / open plain edge (rocky drainage line) as prescribed in the North Barker Flora and Fauna Assessment addendum. Guides shall provide advice and supervision to customers ensuring avoidance of MSP. When possible customers and guides shall use fan-out walking techniques to avoid trampling and track formation (eg within non-MSP communities).
12. Boat Launching details, Lake Malbena lake edge: The use of row boats and associated oar-powered water craft are proposed on Lake Malbena. During the activities the proponent will utilise areas of lake-edge featuring hard-wearing dolerite edges for embarking and disembarking to ensure no erosion impacts. Furthermore, staff are required to ensure that any *Pherosphaera hookeriana* pines are avoided, should they be located on the Lake Malbena lake edge.

Exotic biota: Impact mitigation and avoidance

13. Prior to construction and operations, the proponent will implement 'Keeping it Clean' (check, clean, disinfect, dry) strategy used by state government in protected areas (eg Hydro Tasmania, Parks Tasmania), including associated equipment washdown and disinfection prescriptions to avoid introduction of exotic biota such as *Phytophthora* and frog chytrid disease.
14. Prior to construction and operations, the proponent will develop and implement a hygiene plan in accordance with DPIWWE (2015) Weeds and Disease Planning and Hygiene Guidelines—Preventing the spread of weeds and diseases in Tasmania prior to construction and operations.
15. Incorporate Hygiene Plan and Keeping It Clean strategy within the CEMP and Operations Manual.
16. Utilise air transport to access the site, reducing risks of spreading exotic biota by walking in.
17. Operator will not permit guests to bring fishing equipment or associated water-based sporting equipment into the TWWHA (eg waders, wading boots)

Landscape and recreational disturbance (wilderness): Impact mitigation and avoidance

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18. Built infrastructure to be removable (no permanent, excavated footings), and located in an area with existing impacts to Apparent Naturalness (viewfields) including human-habitation, structures (existing privately owned heritage hut) and pre-existing recreational use.
19. Minimal ground disturbance, no excavations or changes to watercourses.
20. Sympathetic building material selection, design and scale, no reflective surfaces, muted bush tones.
21. Camp design will reflect that of a camping experience with exterior canvas rooves on accommodation pods, whilst referencing key typology elements of the existing hut to maintain integrity of the historical values of the site, and maintaining existing recreational settings relating to the existing uses and infrastructure of the site.
22. Restrict commercial trips to 120 days per year. (No guiding for 240 days per annum)
23. Avoid overflights of the Wilderness Zone
24. TWWHA helicopter flights to occur for a maximum 48 hours per annum, across a maximum of 65 days per year
25. Helicopter access corridor is located in area of pre-existing overflight and soundscape disturbances, including ingress at the Lake St Clair / Derwent Bridge helicopter node.
26. Avoid overflights of walking tracks (as identified by map appendix 19)
27. No infrastructure or guiding large groups in the Wilderness Zone (group size must not exceed 2+2 as recommended by the PWS Track Management policy)
28. Customer helicopter landing site to be located in the IUCN Class VI Central Plateau Conservation Area (CPCA), outside of the IUCN Class II Walls Of Jerusalem National Park.
29. Camp infrastructure and supporting helicopter transport is located in an area with pre-existing built infrastructure (privately owned heritage hut), and existing overflight disturbances (overflights). Characteristics of the proposed flight usage avoid any significant cumulative impact to Apparent Naturalness.

Aboriginal Heritage matters: impact mitigation and avoidance

30. Proponent has consulted and engaged with the Aboriginal Heritage Council (AHC). The proponent has altered elements of the proposal as a result of this engagement and subsequent feedback (see appendices 10 for instance). The proponent has committed to further engagement with the Aboriginal communities in relation to seeking potential involvement, input and opportunities with Aboriginal communities via the project.
31. The proponent will install the camp with minimal ground disturbance, no excavations.
32. The proponent will implement the Unanticipated Discovery Plan supplied by AHT prior to commencing actions.
33. Key staff have received cultural awareness training, and are experienced in the process of reporting cultural artefacts located at other unrelated locations in the TWWHA (for instance Skullbone Plains / Lake Ina relating to potential cultural artefacts AH13893 & AH13894).
34. In addition to AHT advice, proponent has voluntarily engaged a suitably qualified archaeologist and Tasmanian Aboriginal Heritage Officer to provide further advice relating to the proposal, including a survey of the camp installation site and immediate surrounds for heritage items, and the provision of additional advice relating to intangible cultural heritage.
35. As a result of concern over the (hypothetical) future potential for activities beyond Lake Malbena

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communicated through public comment, the proponent agrees not to propose or operate any guided walking or fishing activities within 1.5km radius (3km diameter) of the Mary Tarn cultural site for the life of the Standing Camp operations.

Raptor disturbance: mitigation and avoidance

36. Helicopter operations follow tailored routes (as opposed to a fixed flight path) with minimum likelihood of nests, climbing and descending gradually (to avoid bladeslap noise) whilst staying within end point 'safe zones'.
37. Avoid known nesting sites (as recorded on TheLIST) by 1km lateral distance.
38. Wherever possible use flight landing and take-off routes at Derwent Bridge already established by Parks and Wildlife Service helicopter use.
39. Where possible, transient operational height 1000+m (AGL) (when safe to do so, as determined by the pilot and CASA regs)
40. Close manoeuvring, hovering and other 'lingering' to be avoided en route and minimised during landing and take-off.
41. During weather conditions not allowing 1000+m (AGL) utilise the pre-determined overflight route that avoids high probability nesting sites (since it has a very low chance of nests).
42. Eagles flying at or above operational heights to be circumvented.
43. Monitoring by aircraft of all nests within 4km of the proposed route(s) and take-off/landing places be undertaken each year in mid-October by qualified expert (to note the establishment of breeding) and mid-December (to note nesting success). This would allow for adaptive management of the operating procedures.
44. Survey for eagle nests of areas within 1km plus of the proposed route and takeoff/landing places be undertaken prior to commencement of construction (outside of defined breeding season August-Feb inclusive), and then every two years in autumn. This would allow for adaptive management of the operating procedures.

Disturbance of eastern ring-tail possum *Pseudocheirus peregrinus*

45. As a conservative measure, a pre-clearance survey of the impact area will be conducted (1-3 months prior to works) by suitably qualified expert to establish that it is still free of ringtail possum dreys (and to a lesser extent hollow bearing trees, which cannot feasibly have developed in the time since the assessment surveys).

General commitments

46. Complete capture and off-site disposal of sewage and greywater (outside of TWWHA).

Prior to commencement of actions, the above mitigation and avoidance measures shall be incorporated into a Protected Matters Environment Management Plan, which will be adopted in full by the proponent:

END PMEMP

5b. A detailed description of the avoidance and mitigation measures proposed, including a statement of the objectives, the ongoing management and monitoring, the policy basis for the measures, the party responsible for each measure, and locations and timing of each measure.

5b (i) Potential Impact: Disturbance or culturally inappropriate use or interpretation of Aboriginal Heritage sites

Mitigation and avoidance measures to be adopted by the proponent:

The proponent will adopt all recommended mitigation and avoidance measures found at 5 (a) of this document.

Specific to this matter:

1. Proponent has consulted and engaged with the Aboriginal Heritage Council (AHC). The proponent has altered elements of the proposal as a result of this engagement and subsequent feedback (see appendices 10 for instance). The proponent has committed to further engagement with the Aboriginal communities in relation to seeking potential involvement, input and opportunities with Aboriginal communities via the project.
2. The proponent will install the camp with minimal ground disturbance, no excavations.
3. The proponent will implement the Unanticipated Discovery Plan supplied by AHT prior to commencing actions.
4. Key staff have received cultural awareness training, and are experienced in the process of reporting cultural artefacts (unanticipated discoveries) located at other unrelated locations in the TWWHA (for instance Skullbone Plains / Lake Ina relating to potential cultural artefacts AH13893 & AH13894).
5. In addition to AHT advice, proponent has voluntarily engaged a suitably qualified archaeologist and Tasmanian Aboriginal Heritage Officer to provide further advice relating to the proposal, including a survey of the camp installation site and immediate surrounds for heritage items.
6. In addition to AHT advice and as a result of concern over the (hypothetical) future potential for activities beyond Lake Malbena communicated through public comment, the proponent agrees not to propose or operate any guided walking or fishing activities within 1.5km radius (3km diameter) of the Mary Tarn cultural site for the life of the Standing Camp operations.

Risk after mitigation and management measures are in place: Low. Risks are mitigated through very minimal site disturbance, avoided by low likelihood of Aboriginal cultural artefacts on-site, mitigated by cultural awareness training, and mitigated by the use of the Aboriginal Heritage Tasmania Unanticipated Discovery Plan. The proponent has and will continue to consult AHT and the wider Aboriginal community as the project reaches various milestones.

Risk of significant impact: low

5 b (ii) Potential Impact: Impacts to the relatively undisturbed landscape, including viewfields and soundscapes

Mitigation and avoidance measures to be adopted by the proponent:

The proponent will adopt all existing mitigation and avoidance measures located at 5 (a) of this document. Specific to this matter:

1. Built infrastructure to be removable (no permanent, excavated footings), and located in an area with existing impacts to Apparent Naturalness including human-habitation, structures (existing privately owned heritage hut) and pre-existing recreational use.
2. Minimal ground disturbance, no excavations or changes to watercourses.
3. Sympathetic building material selection, design and scale, no reflective surfaces, muted bush tones.
4. Site selection avoids new viewfield impacts.
5. Camp design will reflect that of a camping experience with exterior canvas rooves, whilst referencing key typology elements of the existing hut to maintain integrity of the historical values of the site, and maintaining existing recreational settings relating to the existing uses and infrastructure of the site.
6. Restrict commercial trips to 120 days per year. (No guiding for 240 days per annum)
7. Avoid overflights of the Wilderness Zone,
8. TWWHA helicopter flights to occur for a maximum 48 hours per annum, across a maximum of 65 days per year
9. Helicopter access route is located in area of pre-existing overflight and soundscape disturbances, including ingress at the Lake St Clair / Derwent Bridge helicopter node.
10. Helicopter access routes are located within a flight corridor to the east of the TWWHA Wilderness Zones
11. No infrastructure or guiding large groups in the Wilderness Zone (groups must not exceed 2+2 as recommended by the PWS Track Class Policy)
12. Customer helicopter landing site to be located in the IUCN Class VI Central Plateau Conservation Area (CPCA), outside of the IUCN Class II Walls Of Jerusalem National Park.
13. Camp infrastructure and supporting helicopter transport is located in an area with pre-existing built infrastructure (privately owned heritage hut), and existing overflight disturbances (overflights). Characteristics of the proposed flight usage avoid any significant cumulative impact to Apparent Naturalness.
14. Complete capture and off-site disposal of sewage and greywater (outside of TWWHA).

Risk after mitigation and management measures are in place: Low. Built-infrastructure will be located in an area with existing human-habitation /structures and use (existing modified apparent naturalness). Viewfields are unchanged (see Cumulus Studio report appendix 11). The proposed flight corridor avoids overflights of the Wilderness Zone. The overflight route is located in an area of pre-existing soundscape disturbances. The proposed

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daily and annual frequency of overflights does not introduce a new form of soundscape impact. The proposed daily and annual frequency of overflights does not create significant cumulative soundscape impacts.

Risk of significant impact: Low. The soundscape impact is considered to be a 'short time, infrequent, slight interference' with the natural soundscape.

5 b (iii) Potential Impact : Fire

Mitigation and avoidance measures to be adopted by the proponent

The proponent will adopt all existing mitigation and avoidance measures located at 5 (a) of this document. Specific to this matter:

1. No smoking, no open flames for heating, no outside fires, electric / gas / pellet heating only, no aviation fuel storage
2. Install appropriate fire retardation and fighting equipment (water only, no chemicals)
3. No helicopters with downward facing exhausts will be used during operations as per PWS Policy P-057

Risk after mitigation and avoidance measures are in place: Low. Possible sources of ignition (eg open-fires, downward facing heli-exhausts, re-fuelling) are avoided, risk of fire is mitigated.

Likelihood of a significant impact: Low

5 b (iv) Potential Impact: Trampling and track formation:

Mitigation and avoidance measures to be adopted by the proponent

1. Avoid routes through alpine sphagnum bogs and fens (MSP's), or facilitate passage across on-island MSP's by installing raised perforated boardwalking as recommended by the North Barker reports.
2. Education and supervision during trips in relation to trampling avoidance and exclusion zones
3. Implement visitor exclusion zones within applicable MSP, RKP and *P. hookeriana* communities.
4. Ensure routes/tracks avoid *Pterosphaera hookeriana*. Where existing on-island routes pass by this species (near the natural rock landing), use short lengths of boardwalk to ensure clearly delineated walking route that avoids plant species. Education and supervision to re-enforce impact mitigation.
5. Situate Standing Camp among ORO or WSU communities.
6. Flag work area prior to any construction to avoid impacts to sensitive MNES flora (*P. hookeriana*) during construction. Incorporate into CEMP.
7. Utilise air transport to access the site, avoiding extensive risk of trampling associated with hiking to site
8. Walking route from heli landing site to the lake edge shall follow the sclerophyll forest / open plain edge (rocky drainage line) as prescribed in the North Barker Flora and Fauna Assessment addendum. Guides shall provide advice and supervision to customers ensuring avoidance of MSP. When possible customers and guides

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shall use fan-out walking techniques to avoid trampling and track formation (eg within non-MSP communities).

9. Boat Launching details, Lake Malbena lake edge: The use of row boats and associated oar-powered water craft are proposed on Lake Malbena. During the activities the proponent will utilise areas of lake-edge featuring hard-wearing dolerite edges for embarking and disembarking to ensure no erosion impacts. Furthermore, staff are required to ensure that any *Pterosphaera hookeriana* pines are avoided, should they be located on the Lake Malbena lake edge.

Risk after mitigation and avoidance measures are in place: Low. Raised perforated boardwalks are used across MSP as per expert advice (North Barker) and precedents from the TWWHA and Kosciusko NP. Activities that could result in trampling are mitigated, and activities that could lead to track formation are avoided through avoidance of sensitive plant communities, the use of perforated boardwalks where appropriate, and guide supervision and customer education.

Likelihood of a significant impact: low.

5 b (v) Potential Impact: Introduction of exotic biota.

Mitigation and avoidance measures to be adopted by the proponent

The proponent will adopt all existing mitigation and avoidance measures located at 5 (a) of this document. Specific to this matter:

1. Prior to construction and operations, the proponent will implement 'Keeping it Clean'⁹⁵ (check, clean, disinfect, dry) strategy used by state government in protected areas (eg Hydro Tasmania, Parks Tasmania), including associated equipment washdown and disinfection prescriptions to avoid introduction of exotic biota such as *Phytophthora* and frog chytrid disease.
2. Prior to construction and operations, the proponent will develop and implement a hygiene plan in accordance with DPIPW (2015) Weeds and Disease Planning and Hygiene Guidelines–Preventing the spread of weeds and diseases in Tasmania prior to construction and operations.
3. Incorporate Hygiene Plan and Keeping It Clean strategy within the CEMP and Operations Manual.
4. Utilise air transport to access the site, reducing risks of spreading exotic biota by walking in.
5. Operator will not permit guests to bring fishing equipment or associated water-based sporting equipment into the TWWHA (eg waders, wading boots)

Risk after mitigation and avoidance measures are in place: Low. Risks are mitigated and avoided through comprehensive hygiene processes and protocols including avoidance, along with check-clean-disinfect and

⁹⁵Appendices 26

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dry protocols.

Likelihood of a significant impact: low – very low

5 b (vi) Potential Impact: Disturbance to species *Macropus rufogriseus* and *Pseudocheirus peregrinus* from the nature and / or use of the development

Mitigation and avoidance measures to be adopted by the proponent

Appropriate infrastructure siting results in minimal risk.

Bennetts (Red-necked) wallaby (*Notamacropus rufogriseus*) - No specific mitigation or avoidance strategies are considered to be warranted or recommended for this species due to absence of risk of impact.

Eastern ring-tailed possum (*Pseudocheirus peregrinus*): as a conservative measure, a pre-clearance survey of the impact area will be conducted (1-3 months prior to works) by suitably qualified expert to establish that it is still free of dreys (and to a lesser extent hollow bearing trees, which cannot feasibly have developed in the time since the assessment surveys).

Residual likelihood of impact: Very Low

5 b (vii) Potential impact: Disturbance to *Aquila audax subsp. Fleayi* through helicopter use

Mitigation and avoidance measures to be adopted by the proponent

The proponent will adopt all existing mitigation and avoidance measures located at 5 (a) of this document. Specific to this matter:

1. Helicopter operations follow tailored routes (as opposed to a fixed flight path) with minimum likelihood of nests, climbing and descending gradually (to avoid bladeslap noise) whilst staying within end point 'safe zones'.
2. Avoid known nesting sites (as recorded on TheLIST) by 1km lateral distance.
3. Wherever possible use flight landing and take-off routes at Derwent Bridge already established by Parks and Wildlife Service helicopter use.
4. Where possible, transient operational height 1000+m (AGL) (when safe to do so, as determined by the pilot and CASA regs)
5. Close manoeuvring, hovering and other 'lingering' to be avoided en route and minimised during landing and take-off.
6. During weather conditions not allowing 1000+m (AGL) utilise the pre-determined overflight route that avoids high probability nesting sites (since it has a very low chance of nests).
7. Eagles flying at or above operational heights to be circumvented.

8. Monitoring by aircraft of all nests within 4km of the proposed route(s) and take-off/landing places be undertaken each year in mid-October by qualified expert (to note the establishment of breeding) and mid-December (to note nesting success). This would allow for adaptive management of the operating procedures.
9. Survey for eagle nests of areas within 1km plus of the proposed route and takeoff/landing places be undertaken prior to commencement of construction (outside of defined breeding season August-Feb inclusive), and then every two years in autumn. This would allow for adaptive management of the operating procedures.

Risk after mitigation and avoidance measures are in place: Low

Likelihood of a significant impact: Low – very low

New additional information related to MNES species *Aquila audax fleayi* Tasmanian Wedge Tailed Eagle and the proposed impact mitigation and avoidance measures

Additional (new) information has been provided by independent raptor expert Mr Nick Mooney, addressing (in particular) the concerns expressed by the Minister in her discretionary decision (see paragraphs 48-50 in the Statement of Reasons, for instance). A summary of the new materials are presented below, with the full document supplied as an appendices.

It is clear from the Statement of Reasons and Decision Brief that the term ‘bi-annual’ used in previous expert advice supplied to the department created some confusion as to the grammatical intent (see paragraph 49 for instance). The new expert advice clarifies the meaning of bi-annual and the associated frequency of recommended eagle nest searches as being every-two years. This new additional expert advice and clarification is consistent with the commitment and clarification previously provided by the proponent to the Department, and is also consistent with the recommendations of the Department made in the two previous Decision Briefs supplied by the Department to the Minister(s)/delegates.

The new materials re-enforce the previous expert recommendations made by Mr Mooney, which the proponent will adopt in full. These fully adopted mitigation and avoidance measures are described by the expert evidence as ‘*absolute best practice*’. Out of more than 1000 combined hours of total overflights currently conducted in the TWWHA per annum (Tasmania, 2021), the Lake Malbena proposal would be the only overflight meeting this new best-practice benchmark of mitigation and avoidance measures.

New evidence provided by expert Mr. N Mooney, July 2021, presented in question (from the proponent) and answer (from Mr. Nick Mooney) format:

Q1. Could you please describe who the Forest Practices Authority (FPA) are, and their relationship to Tasmanian Wedge-tailed eagle management?

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The Forest Practices Authority administers the Forest Practices Code, an essential element of the Regional Forestry Agreement and its supplements. DPIPWE which does not have a dedicated wedge-tailed eagle specialist, routinely asks the FPA (which does have a raptor specialist) for advice regarding wedge-tailed eagle management.

Q2. Could you please describe the recently updated FPA helicopter practices and techniques used in relation to eagle nest searches and monitoring actions: how are the searches and monitoring conducted?

The FPA helicopter practices in regard to searching for nests have not been changed in recent years but FPA practices in regard to monitoring known nests have changed from using light, fixed-wing aircraft to perform low level, slow fly-bys to record nest content to using twin turbine helicopters to conduct low level slow fly-bys for the same purpose. Simply put, helicopters are now used instead of fixed wing aircraft as a result of an aircraft safety audit of FPA practices.

Q3. Following on from Q2, was this the same or similar heli-survey practices utilised in the September 2019 DPIPWE eagle nest search of the TWWHA (including the Lake Malbena area), which involved 33 hours of helicopter use over 5 days to conduct required searches targeting high probability nesting areas (DPIPWE, 2019)?

The 2019 DPIPWE eagle nest search used helicopter search techniques identical to search techniques the FPA and most others (myself included) would use – standard methods for at least 5 years before that search.

Q4. The 2019 DPIPWE eagle nest search located numerous nests in areas currently subjected to varying levels of overflights (as defined by the PWS 2019 overflight audit), including a high number of nests along the South Coast Track and Overland Track which feature the highest levels of overflights in the TWWHA (hundreds of hours). What does this indicate in relation to the potential impacts of overflights on Tasmanian Wedge-tailed eagles?

Finding nests indicates little since those nests may have been built before or after overflights started. The use of those nests is what would inform the impact of overflights. The information gained from the 2019 survey (carried out outside the breeding season) is that a normal proportion of those nests found by the survey were in good condition with some evidence of recent use including maintenance. That would suggest overflights did not have a catastrophic impact (i.e. where nests are abandoned).

Q5. Could you briefly describe (to the best of your knowledge) current Tasmanian wedge-tailed eagle mitigation and avoidance measures (if any) applied to the existing set of TWWHA overflights recorded in the PWS 2019 overflight audit?

To my knowledge there are no wedge-tailed eagle mitigation and avoidance measures formally and uniformly used in the existing set of TWWHA overflights beyond simply avoiding flying eagles seen, actions no different to flights elsewhere in Tasmania and aimed mostly at aircraft safety. Where specific agreements such as a fly neighbourly agreement have been made extra measures are in place but I know of none such in the TWWHA.

Q6. Given the information provided in the PWS 2019 overflight audit, and the recently updated FPA practices for eagle nest searches and monitoring, would you describe helicopter or light aircraft overflights as a 'new and substantial source of visual and noise disturbance to Tasmanian Wedge-tailed eagles in the TWWHA'?

No

Q7. In light of the recent PWS 2019 overflight audit information, and the recently updated FPA practices and guidelines used in eagle nest monitoring and searches, how would you describe the mitigation and avoidance measures proposed for the Lake Malbena overflights in terms of best-practice?

Absolute best practice

Q8. The term 'bi-annual' has been used in 7.5 (c) and has led to some confusion amongst different parties: 'Bi-annual survey for eagle nests of areas within 1km plus of the proposed route and take-off/landing places be undertaken each year in autumn. This would allow for adaptive management of the operating procedures.' Could you confirm that your intended meaning of 'bi-annual' was the meaning of 'every two years / biennial' in relation to 7.5 I autumn nest searches?

Following my thesaurus I take bi-annual or biennial to mean every two years.

Q9. What type of aircraft would be required, and how much TWWHA overflight time would you require to perform the recommended (i) 'biennial (every two years) nest searches of route', and (ii) 'annual nest monitoring (mid-Oct and mid-Dec)' surveys?

- (i) A helicopter would be required for an estimated 2-3 hours every two years for each biennial nest search. Flights would consist of low level, slow flying conducted outside of breeding seasons.
- (ii) Nest monitoring fly-bys would be performed by helicopter or light, fixed-wing aircraft in October and December and would require very little total overflight time annually – less than 1 hour total overflight time per year (approximately). These flights consist of very brief, surgical, low level flying in which I still use light, fixed wing aircraft for, such as I do when monitoring the three Capes Track eagle nests (3CT) and elsewhere

Q10. In light of the recent information relating to existing overflights of the TWWHA, and the recent changes made by the FPA to nest survey practices, do you believe that the ' biennial (every two years) nest searches of route' and 'annual nest monitoring' (7.5 (b) and (c)) surveys are still required as an integral mitigation and avoidance measure for the Lake Malbena overflights?

By “required” I take it to mean for the conservation of eagles. Biennial (every two years) nest searching should be the most frequent that searching occurs. It is also the maximum period set by the FPA for (re) searching because the likelihood that nests may be built increases considerably over 2 years if disturbance occurs – this is why the previous 3 year minimum interval was changed. That advice was designed for production forest – where well- known

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disturbing activities routinely occur with consequent high nest turnover. I would expect the situation in the TWWHA to be much more conservative. The only recent changes made by FPA to nest survey practices are to use helicopters instead of fixed-wing for fly-bys conducting nest checks during breeding. I have correspondence from the FPA indicating they regard helicopter fly-bys as less disturbing than fly-bys using fixed wing aircraft. Those frequencies of searching (biennial) and monitoring of nearby nests (twice-annually) are maximums, and the former is very precautionary. If the overflights avoid nests by 1km as with the 3CT, nest movements in response to those overflights is extremely unlikely. If the annual monitoring showed measurably decreased nearby nest use which might indicate nest moves (ie., new nest building elsewhere) searches would be the response.

Q11. The Dept. Request For Information has asked for the following details from all consultant reports please: a) The source and currency (date) of the information. b) How the reliability of the information was tested. c) The uncertainties (if any) in the information. d) The guidelines, plans and/or policies considered.

a) The information on nest locations along the proposed route is from DPIPW's 2019 eagle nest search and a ground nest search around the Derwent Park helipad in 2017. The information on impacts of helicopter use and the effectiveness of 1km exclusion zones comes from nest searches around and near the 3CT route in 2012 and 2018 and annual aerial checks (since and including 2013) of activity at all those nests and productivity at those nests found active in that year. Results of searches and monitoring are held by PWS (DPIPW). These nest searching and monitoring techniques have been developed over many years through the Forest practices Authority (FPA) and its predecessors and have been accepted as methods in both technical reports and refereed publications.

b) Logging operations and other development as a consequence of those searches and checks provide a cross-check in that missed nests will highly likely be found. A variety of nests in logging areas, 3CT and other monitored areas (eg St Helens Bike Track) are checked at various times through the season by various people both formally and informally because the nests are obvious or placed so they can be easily checked or photographed. Overwhelmingly, results of aerial monitoring by appropriately experienced people are confirmed as accurate (ie a nest deemed active is being used for breeding) . Some of this data from coincidental cross-checking is on the NVA as records for particular nests. FPA has much such data showing aerial checks are far more reliable than ground checks.

c) It appears 95% of nests are found by appropriately experienced searchers (FPA records). The 2018 nest search of the 3CT found only one nest not recorded in the 2012 search and that nest appeared quite new. This search result success fits the norm.

d) Most guidelines for conserving eagle nests in Tasmania come from FPA prescriptions in the Forest Practices Code (FPC) for commercial forestry. These are routinely used by DPIPW to regulate nonlogging activities through conditions and/or recommendations. The flight exclusion of 1km from active nests around the 3CT also comes from the 1km line-of-sight to active nests restriction for commercial forestry (FPC). The PWS has adopted this distance as operating procedures for helicopters it contracts around the 3CT in particular and features in PWS fly-neighbourly

agreements elsewhere. At the date recommendations were made for the proposed flights there appeared to be no other guidelines for flights and eagle nests specific to other activities.

End of new NJ Mooney evidence

5c. Assessment of feasible alternatives to helicopter use or amendments to helicopter landing sites to reduce impacts to heritage values, and assessment of the impacts of these alternatives using relevant impact modelling.

The construction of the private Halls Hut (circa 1956) and subsequent recreational use and Tasmanian Heritage Listed history of Halls Island commenced when the area existed as unreserved land (prior to National Park and TWWHA status). Access was comparatively simple, typically via horseback at the start and end of seasons (essentially provisioning), or via walking and occasional amphibious plane at other times.

In more recent decades access has become problematic with the continual expansion of protected-area boundaries, with the area incorporated into the Walls of Jerusalem National Park (the eastern boundary is ~70metres east of Halls Island), and then incorporated into the TWWHA which now extends ~6km to the east of Halls Island.

Under the provisions of the TWWHA Management Plan 2016 all forms of commercial access to the TWWHA are now heavily regulated and restricted. It is a matter of public record that commercial walking access to Halls Island would not be permitted under the TWWHA Management Plan 2016 and associated policies, primarily due to the unacceptable biophysical impacts that would occur to MNES included alpine bogs and fens due to trampling and biosecurity risks associated with walking. For this reason air access, which is permitted by the 2016 TWWHA Management Plan, has been chosen as the viable, demonstrably low impact means to access the site.

The proposed helicopter access provides a very low impact means by which to access the area, producing only short, infrequent, temporal impacts to wilderness soundscape as demonstrated. Helicopter access avoids the more significant biophysical impacts associated with walking such as the trampling of MNES alpine bogs and fens, and avoids increased biosecurity risks found with walking in. Moving the proposed helicopter landing area further north, south or east would not alter the already small impact characteristics of the proposed air access, but would instead introduce a new additional suite of potential impacts such as those arising from the trampling of MNES alpine sphagnum bogs and fens, and would require the upgrading of sections of informal walking route from the east creating additional biophysical and wilderness (apparent naturalness) impacts. For these reasons the current proposed heli landing site was chosen, located in the IUCN Class VI equivalent Central Plateau Conservation Area, outside of the IUCN Class II National Park, immediately adjacent to Lake Malbena. The proposed infrequent, low levels of usage, and appropriate siting have resulted in a demonstrably low-impact form of access to the historical site at Lake Malbena. This access will facilitate high quality presentation, equity of access, product diversity and

support the conservation and presentation of important European cultural history, all of which are goals of the 2016 TWWHA Management Plan.

5d. An assessment of the expected or predicted effectiveness of the measures proposed, including an assessment of their past effectiveness where relevant

All impact mitigation and avoidance measures are based on expert advice, peer reviewed studies and frameworks, and are considered best-practice within TWWHA operations. Outside of the avoidance and mitigation measures specific to this proposal (wedge tailed eagles and helicopter use), the general impact mitigation and avoidance measures listed are commonly in-use throughout actions in the TWWHA. These include the impact and mitigation measures relating to trampling, fire, biosecurity, greywater and sewage, and cultural heritage, all of which are used in current public and private TWWHA actions. The proponent has previously implemented these general impact mitigation and avoidance measures at a previous TWWHA Standing Camp, at Skullbone Plains (11km south of Malbena), among the same landscape types, forms, and protected area category matrix. The proposed impact mitigations relating to wilderness quality and Tasmanian wedge tailed eagles are demonstrated to represent a new level of best practice for public or private operations in the TWWHA, providing additional certainty in relation to the expected effectiveness of the mitigation and avoidance measures.

5d. (ii) Mitigation and avoidance measures unique to the proposed action

Specific to potential impacts to Tasmanian wedge tailed eagles, the expert advice from Mr NJ Mooney (appendix 6 in particular) demonstrates by way of case studies (including experiences from the Three Capes NP and TWWHA examples) that the proposed impact mitigation and avoidance measures exceed the current best-practice, and represent a new level of best-practice. The predicted effectiveness of the proposed mitigation and avoidance measures is high, based on these case studies and associated data.

Specific to wilderness quality impacts arising from helicopter use, the data supplied in the independent PWS 2019 flight audit (appendix 2-4) clearly demonstrate that the proposed overflights are one of only three (out of a total 11 existing TWWHA overflight routes) that avoid overflights of the Wilderness Zone; and one of only two overflights that avoid crossing existing walking tracks and potentially significant levels of other recreational users. The independent PWS data illustrates that the proposed levels of use (annual and daily frequency) are at the low end of the frequency scale, compared with other TWWHA overflights. Quantitatively assessing the independent PWS data with the peer reviewed McKenna et al (2016) framework illustrates further that the proposed use would result in an *infrequent, short duration slight interference* to the wilderness soundscape disturbance, at the lowest measure of

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disturbance recorded among all the PWS audited overflights. This low-level impact is contrasted against other existing TWWHA overflight case studies, which are demonstrated to produce quantitatively larger impacts by way of annual frequency and/or daily duration, and are subject to no regulation regarding overflight characteristics. In summary, the predicted effectiveness of the helicopter impact and mitigation and avoidance measures are reliable, and based on relevant comparative TWWHA overflight case studies, in addition to international peer-reviewed assessment frameworks and wilderness management benchmarks. The proposed planning, mitigation and avoidance measures proposed in relation to helicopter use and overflights represent a new increased level of best practice for the TWWHA.

5d. (iii) Case study – Effectiveness of mitigation and avoidance measures previously implemented at the RiverFly Skullbone Plains standing camp, Central Plateau, TWWHA.

The proponent designed, installed, and operated the Australian Tourism Award winning RiverFly Standing Camp in the Central Plateau TWWHA from 2012-2021, at a location in the TWWHA known as Skullbone Plains. Skullbone Plains is approximately 11km south of Lake Malbena. The camp was similar in design and scale to the proposed Halls Island camp. More than half of the Skullbone Plains Reserve (approximately 950 ha) falls within the top 10 per cent of the highest rated conservation areas in the State, and about 250 ha is in the top one per cent of the State (DPIPWE, 2016). The adjacent area of daily operations, Lake Ina and surrounds (also part of the TWWHA / Walls of Jerusalem National Park, and Central Plateau Protected Area), feature numerous threatened communities including large areas of alpine bogs and fens (MSP), and some of the state's largest populations of *P. hookeriana*, providing direct relevance to the same habitats found at Lake Malbena. The mitigation and avoidance measures prescribed in this document have been previously used with success by the proponent at the Skullbone operations, including at locations featuring MNES alpine sphagnum bogs and fens, and large communities of *P. hookeriana*. The mitigation and avoidance measures included supervised off-track group walking in the TWWHA Central Plateau Protected Area and Walls of Jerusalem National Park, avoidance of trampling MSP, along with similar camp operation prescriptions including groups sizes, fan-out walking techniques where possible, on-site exclusion zones, Keeping It Clean hygiene provisions, education and supervision, and complete capture sewage and greywater. The camp was removed by two staff in 2021 over a six day period (approximately 24 hours on-site), with the support of four-hours helicopter slinging on the final day. The impact mitigation and avoidance measures were effective at achieving the stated outcomes during the nine-years of operations, and protected MNES values. This past experience and observations provides additional high-level certainty regarding the success of the proposed actions, mitigation and avoidance measures relating to this proposal.

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Figure 20 Skullbone standing camp, TWWHA



5e. Details of ongoing management, including research and monitoring programs to support an adaptive management approach and determine the effectiveness of the measures proposed.

Tasmanian wedge tailed eagle monitoring

The proponent will adopt all wedge tailed eagle monitoring prescriptions proposed by expert Mr Nick Mooney (appendices 5-7). This includes monitoring by aircraft of all nests within 4km of the proposed flight route and take-off/landing places be undertaken each year in mid-October (to note the establishment of breeding) and mid-December (to note nesting success). This would allow for adaptive monitoring and management of the operating procedures. Bi-annual (meaning every two years / biennial) survey for eagle nests of areas within 1km plus of the proposed route and takeoff/landing places be undertaken in autumn. This would allow for adaptive management of the operating procedures.

5f. If measures are proposed to not be adopted, a detailed assessment of why the expected or predicted effectiveness, and affordability or achievability of avoidance and mitigation options makes the measures unfeasible

Not applicable. All recommended mitigation and avoidance measures will be adopted in full.

6. Residual Impacts/Proposed offsets

Not applicable. Mitigation and avoidance can be achieved, there are no residual impacts on MNES after proposed avoidance and mitigation measures are adopted.

There are no offsets required or proposed.

7. Other Approvals and Conditions

State Approvals

The proposal has previously received approval to Step 7 of the attached Reserve Activity Assessment (appendix 14). This indicates that the listed activities are likely to be approved, subject to outcomes of the federal EPBCA assessment..

A lease and licence has been issued to the proponent by the Minister, in order to facilitate the assessment and operation of the proposal. The lease and licence (appendices 15 and 41) contains an extensive suite of approval requirements and conditions.

Upon conclusion of federal EPBCA assessments, the proposal is required to re-submit a new Reserve Activity Assessment (or EIA equivalent), incorporating all further matters arising from federal assessment and related information, for final assessment approval by the Parks and Wildlife Service

Local Approvals

Local Planning (development) approvals are required. In 2018 the proponent submitted a Development Application to the Central Highlands Council (CHC), for consideration against the interim Central Highlands Planning Scheme. This process included provisions for public comment. Against the recommendations of the CHC independent planner, and the proponent's planner, the CHC rejected the Development Application in Feb 2019.

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The CHC decision was appealed by Wild Drake P/L to the Resource Management and Planning Tribunal (RMPAT). The Wilderness Society and Tasmanian National Parks Association became Joined Parties to the CHC. The Wild Drake appeal was successfully upheld by the RMPAT. Wild Drake was issued with a subsequent Development Approval.

The RMPAT Decision was appealed by the Wilderness Society and joined parties to the Supreme Court of Tasmania. The appeal was unsuccessful, and the Wild Drake Development Approval was upheld.

The Supreme Court Decision was then appealed to the Full Bench of the Supreme Court by the Wilderness Society and joined parties. In September 2021 the Full Bench upheld the Wilderness Society and joined parties appeal (by split decision), requiring the Decision to go back to the RMPAT to issue a new Decision, requesting a specific determination as to whether or not the proposal met the requirements of the 2016 TWWHA Management Plan (a statement of this determination was omitted in the original RMPAT Decision). On 15 December 2021 Wild Drake withdrew the appeal in order to re-complete EPBCA assessments, which will be used to fully inform a new Development Application and simplify the process.

Since the original local planning process, the local planning authority has abandoned the interim planning scheme previously applied to the proposal in 2019, and has since adopted the Tasmanian Statewide Planning Scheme (February 2023). Under the new Tasmanian Statewide Planning Scheme the proposed Standing Camp is a permitted activity (tourism accommodation), providing approval is received from the Director of the PWS. This avoids the requirement to go through a further discretionary planning process.

7b. Any other approvals required

Local planning approval is required, as outlined above. This will be sought following approval at federal levels.

7c. A description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

Recommendations by Mr Nick Mooney in relation to Tasmanian wedge tailed eagle impact mitigation requires annual nest monitoring, and nest searches every two years. The proponent will adopt these recommendations and engage a suitably qualified expert (preferably Mr Mooney) to conduct this monitoring.

8. Social and Economic details

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8a. Consultation

The proposal has undergone numerous consultations, including informal and formal consultation with varied stakeholders, commensurate to the scale of the project and documented in various forms within the assessment process.

Formal public consultation processes have been conducted on three previous occasions, once through the local development application process, and twice through the on-going federal assessment process. These processes and outcomes are well documented and on the public record. The feedback topics and concerns are consistent, and broadly reflective of high-profile campaigns conducted by the Wilderness Society Tasmania. A fourth public consultation was conducted in relation to the RFI document during late 2022, with key issues identified and responded to. These issues and responses have been incorporated into the below materials.

Over a number of years since inception of the project, the proponent has sought to formally consult with the National Parks and Wildlife Advisory Council (NPWAC Tas) on a number of occasions. NPWAC has not agreed to consultation. One opportunity was initially provided for the proponent to present to NPWAC and address questions or concerns that the Council may have, however this was later cancelled by NPWAC. NPWAC has since stated that they do not consult with proponents, a position that is discussed further at point (XVII) below.

The Aboriginal Heritage Council (Tas) invited the proponent to consult with the organisation, and we acknowledge their time and advice. As a result of this consultation and the advice provided by AHC, numerous changes were made to the proposal, including the abandonment of potential Stage Two activities. See appendices 10 for correspondence between the proponent and the AHC.

The proponent notes comments received through public comment from that AHC in 2022, stating that *'It is incomprehensible that land stolen from the first people can be given over in a lease by the Parks and Wildlife Service to a private developer to make money. We implore the Parks and Wildlife Service to consider returning land back to the rightful owners if they don't want to manage and protect our heritage and lands'*. In response we acknowledge that Tasmanian Aboriginal communities are the traditional owners of the land, and our door is wide open to working with the Crown as land managers, and Aboriginal communities as traditional owners, on developing new business models that further facilitate beneficial outcomes for all Tasmanian communities, including the traditional owners and non-aboriginal Tasmanians. We also note that the Proponent's lease and licence are not unusual, and are one of more than 600 lease and licences in Tasmania's protected area network.

Key issues identified via public consultation processes.

(i) Public Issue: Destruction of wilderness quality

Response Action: Capped operations (120 days per year), limited geographical area of operations, small scale and temporary infrastructure, appropriate siting in a location requiring minimal disturbance, appropriate siting in a

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location of previously impacted characteristics, temporal and spatial mitigations placed on all elements of the operation

Outcome: Wilderness quality impacts are directly addressed, and the mitigation and avoidance measures result in negligible impacts to wilderness quality

(ii) Public Issue: Helicopter impacts (soundscapes, loss of recreational settings, reduced time remoteness)

Response Action: Capped overflight frequency per annum (48 hours across a maximum of 65 days per annum), commitment not to overfly the Wilderness Zone, overflight corridor avoids walking tracks, landing occurs outside of the National Park (within the IUCN Class VI Central Plateau Protected Area)

Outcome: Impacts are directly addressed and mitigated through a demonstrated new level of best practice in TWWHA helicopter operations.

(iii) Public Issue: Wedge Tailed Eagle disturbance

Response Action: Adopt all advice provided by raptor specialist Mr Nick Mooney, including minimum overflight altitudes, flight paths adhering to landscape with low probability of nesting, avoid all known nests by 1km, annual nest monitoring and bi-annual nest searches.

Outcome: Impacts are mitigated, and a new level of best-practice for helicopter use has been created.

(iv) Public Issue: The island is a flora and fauna fire refuge

Response: Multiple expert assessments of Halls Island (see North Barker for instance), along with oral history of the area confirms that Halls Island is not an island fire refuge for native flora. Multiple fires have occurred on Halls Island during the last century. Whilst areas of Halls Island may represent natural fire-resistant areas of refuge due to geographical landscape and moisture characteristics, the island itself is not a fire refuge.

(v) Public Issue: Private leases on public lands are inappropriate

Response: There are approximately 40 active commercial leases and licences in the TWWHA⁹⁶. This includes many commercial and recreational private huts, including five in the Central Plateau Protected Area of the TWWHA within 20 kilometres of Halls Island. Commercial and / or private leases and licences are a common feature of the TWWHA, and the broader Tasmanian reserve system (which features more than 600 leases and licences in total). Some are historical and pre-date the TWWHA, whilst others are used to facilitate presentation (*a key requirement of the World*

⁹⁶ PWS RFI comment

*Heritage Convention*⁹⁷), in addition to equity of access and diversity of experience in support of the TWWHA Management Plan goals.

(vi) Public Issues: Loss of access to Halls Hut and Halls Island

Response Action: Halls Hut has been privately owned since its construction, and access has always been a privilege, not a right. The proponent / hut owner has introduced a formal access program that continues to facilitate free of charge access to Halls Hut & Halls Island, while ensuring the environment of the island, recreational settings, and the Tasmanian heritage listed private hut are conserved for future generations. This will be achieved through appropriate management and significant private investment in restoration, maintenance and upkeep of the private hut, and the proposed installation of full-capture sewage and boardwalking via this proposal to ensure the protection of the island environment. The formal no-cost access program has been in use for a number of years, and remains in use. As of January 2023, the proponent has requested that public access as per the formal access program be a binding requirement of the lease. See appendices for letter to the PWS.

Outcome: No-cost public access to Halls island and Halls Hut has continued. The proponent has formally requested in writing that the formal lease contains prescriptions to ensure continued public access is facilitated as a binding requirement (see appendices).

(vii) Public Issue: Movement of the Wilderness Zone boundary in 2016 Management Plan

Response: The inappropriate and insufficient zoning of Halls Island in the 2014 Draft TWWHA Management Plan, and subsequent zoning change in the 2016 TWWHA Management Plan are discussed at length in this document. This includes the incorrect wilderness quality assessments previously assigned to Lake Malbena in 2005, and identified in 2015.

Outcome: The 2016 zoning of Lake Malbena as ‘Self-reliant Zone’ is appropriate to the history of recreational use and presence of built infrastructure, which was previously overlooked in the 2005 TWWHA Wilderness Assessment and associated zonings.

(viii) Public Issue: Presence of a private row boat

Response: Private row boats have been present and used by the owners of Halls Hut since the mid 1950’s. Row boats in general are a feature of the TWWHA, and to this day are present at many locations. They are regarded as a primitive form of transport, and appropriate in the TWWHA.

(ix) Public Issue: Camp design does not meet the perception of a Standing Camp, pods are not ‘tent-like enough’

Response Action: In response to public feedback, the proponents have agreed to modify the standing camp design to include exterior canvas rooves and eaves on all accommodation pods. Similarly, the proposal to fix the tents to

⁹⁷ 2016 TWWHA Management Plan, pg11

exposed sheetrock using bolts has been altered, and the tent pods will now be sited using gravity and weighted anchors. Minor adjustments have been made to the scale of the tent pods (decreased in volume).

Outcome: Public perception of the camp infrastructure matches that expected of a Standing Camp.

(X) Public Issue: Aboriginal Heritage impacts

Response Actions:

Following on from community consultation, both informal and formal, the proponent has previously agreed (in writing) to discontinue any investigations in relation to potential cultural site interpretation activities that would have been conducted in partnership with the Aboriginal communities.

The proponent has engaged an Aboriginal Heritage Officer and archeologists to conduct site surveys and prepare a draft Aboriginal Heritage report, in excess of the impact mitigation and avoidance recommendations received from Aboriginal Heritage Tasmania. Copies of this report have been supplied to the Tasmanian Aboriginal Centre for comment. No Comment was received.

As a result of the 2022 RFI public comment, the proponent has also committed to abide by a 1.5km radius buffer relating to the Aboriginal cultural heritage site east of Lake Malbena, that would preclude any new operations from occurring in the future within that area should new activities be proposed.

(XI) Public Issue: State Government Expression of Interest Process for developments in parks and reserves

Response Action: The EOI was created by the State Government to facilitate commercial proposals for appropriate activities in parks and reserves, whilst providing for an extra layer of scrutiny and oversight at the front-end of any expressions of interest. The process provides more oversight than previous proposals for activities in protected-areas.

(XII) Public Issue: Infrastructure should be located outside of National Parks, or on the boundaries.

Response: The proposed action is unambiguously located on the boundary of the national park, meeting this criteria.

(XIII) Wilderness Society / Wilderness Society Tas public comment and actions

Response:

The proponent notes the extensive previous legal interventions (x4 actions) and high-profile activist campaigns pursued by the Wilderness Society and / or Wilderness Society Tas in relation to the proposal. Of approximately 25 legal grounds raised by the Wilderness Society in the Resource Management Planning and Appeals Tribunal, Supreme Court of Tasmania, and Federal Court, the Wilderness Society has only succeeded on ~3 grounds in total, and has not been successful on any merit-based grounds relating to the project itself. During the most recent 2022 round of EPBCA public comments, the Wilderness Society went so far as to tell the public on statewide ABC radio

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that the current EPBCA assessment is shambolic, and ‘not to make comment’. The proponent notes that the proforma public comment provided by The Wilderness Society Tas contained purposeful misleading and erroneous statements, including deliberately attributing fabricated statements to the former Minister Sussan Ley. The proponent therefore highlights the expectation that the Wilderness Society / Wilderness Society Tasmania will continue to use campaigns and lawfare, regardless of project merits or proponent responses to public comments received from the Wilderness Society or otherwise.

The proponent notes that the Wilderness Society experts have no experience at wilderness soundscape modelling, mapping or management, and the Wilderness Society acoustic expert has acknowledged that he has no experience in wilderness quality matters, including mapping, management or wilderness soundscape management.

(XIV) Comment: Not all TWWHA Criterion have been overtly considered in the documentation (public comments received 2022).

Response: After consultation with Flora and Fauna consultants North Barker, reference to all other potentially relevant TWWHA Criterion has been added to the RFI documentation at (3h).

(XV) Comments received from the Parks and Wildlife Service Tasmania (public comments, 2022)

All suggestions from the PWS comments have been adopted, and minor alterations to the RFI have been actioned as requested / suggested (primarily grammatical in nature).

3) **(XVI) Comment: Information request detailing vegetation clearance required for fire prevention requirements.**

Response: There are no anticipated clearance requirements for bushfire prevention. Hazard Management Plans (HMP's), Emergency & Evacuation Plans are only finalised at the point of local planning design approval in negotiation with the Tasmanian Fire Service (which can only occur after PWS design approval). The operation will manage and mitigate risk primarily through small groups sizes, no operations on days with declared catastrophic fire ratings, and emergency egress by helicopter. The lake may also be used as a safe refuge as an element of the emergency and evacuation plan. This information has been added to 6.2 of the primary RFI documentation.

(XVII) National Parks and Wildlife Advisory Council (NPWAC) Tasmania comments and concerns

Response:

NPWAC provide policy advice to the Minister for Parks in relation to the management of Tasmania's parks and reserves, and review management plans. We note that under the structure and composition of the Australian Heritage Council (AHC), the NPWAC comments flow through to, and are essentially replicated by the AHC.

NPWAC has been a vocal critic of the Lake Malbena proposal, comments that ENGO groups opposed to the project have used and amplified. Whilst acknowledging and respecting the role of NPWAC to provide advice to the Minister (as opposed to proponents), the proponent has requested the opportunity to brief NPWAC a number of times during

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the past three years, as recently as July 2022. The purpose of this briefing would have been to enable NPWAC to provide fully-informed advice to the Minister. To date, NPWAC has not granted a briefing. Given the high-profile nature of the project, and the *extremely* complex approval process, we view this lack of interaction and transparency as highly unusual. As proponent, we have unique knowledge of the project, and access to the full suite of local, state and federal assessment documents, much of which NPWAC would not have ready access to, or ability to comprehensively review due to the sheer volume. The Director of Wild Drake is also the only operator with direct knowledge and experience of constructing and operating standing camps in the Central Plateau area of the TWWHA. Despite these considerations and repeated requests, we have not been granted a briefing with NPWAC at any time during the past 3+ years.

As proponent, we have not been issued with any copies of advice provided by NPWAC to the Minister, nor copies of any submissions made by NPWAC. We have not been made aware of NPWAC concerns via any direct communications. We have relied on publicly available Right To Information / Freedom of Information requests as the only means through which we have been able to view communications relating to NPWAC concerns. Indeed, at times we have solely relied on leaked NPWAC recommendations via Greens party Twitter accounts as the only way in which we can view NPWAC concerns.

We note that comments made in the NPWAC EPBCA public comments dated 17 April 2018 and 13 July 2018 were not referenced to any expert advice or evidence. Additionally, to the best of our knowledge there has been no formal site visit conducted by NPWAC to inform or ground truth NPWAC advice. We note that much of the NPWAC advice contradicted the expert advice provided by North Barker (Flora and Fauna), Mr Nick Mooney (raptor specialist), and the Parks and Wildlife Service, and many recommendations appear as arbitrary. Without full and transparent access to NPWAC advice, we cannot provide feedback on their concerns. We do however present feedback on two example NPWAC concerns in the public realm, that provide context to comments provided by NPWAC that are examples of being ill or mis-informed. Both comments are sourced from the NPWAC public comment dated 13 Jul 2018 (found in Freedom of Information requests):

The NPWAC EPBCA submission dated 13 July 2018 makes findings that contradict the provisions of the 2016 TWWHA Management Plan, and contradict research and peer-reviewed literature. Additionally, statements made in the submission may mislead readers and assessors. For example, the statement is made:

‘The proposed landing site (to the east of Halls Island), Lake Malbena and Halls Island is within the Self-Reliant Recreation Zone but abuts the Wilderness Zone on the shoreline of the western half of the lake (2016 TWWHA Management Plan, Map 24)’.

From this comment, readers and assessors may believe that the heli landing site ‘abuts the Wilderness Zone’. A review of the TWWHA zoning map illustrates that the helicopter landing site is in fact a significant distance of 1.5kms from the nearest Wilderness Zone boundary to the west. The landing site therefore does not ‘abut’ the Wilderness

Zone. For context, this 1.5km buffer represents a much greater distance than that provided by the Lake St Clair helicopter node, the Melaleuca airstrip, or *any* of the heli-serviced public and private huts in the TWWHA, which are all located between 100-400 metres from the Wilderness Zone.

A second example from the 13 July 2018 correspondence further illustrates the haphazard nature of the NPWAC submission and advice when it states: *‘NPWAC is of the view that helicopter access other than that required for the purpose of servicing any approved standing camp is incompatible with the concept of a Self-reliant Recreation Zone’*. NPWAC provide no evidence or literature supporting this view. The NPWAC statement regarding the use of helicopter access contradicts the statutory air access prescriptions of the 2016 TWWHA Management Plan, and is contradictory to the PWS Standing Camp Policy 2006 which aims to provide *‘visitors with a level of comfort and accessibility on an overnight guided tour above that which would normally be achievable as an independent free traveller’*. It is clear that standing camps and air access are purposefully aimed at providing a level of comfort and accessibility over and above average recreational settings in the Self-reliant zone, and that air access is a key element in meeting goals of the Management Plan including high quality presentation, diversity of product and equity of access. The NPWAC advice clearly contradicts these statutory and policy prescriptions. Furthermore, the proponent can provide a myriad of international peer-reviewed papers and management frameworks illustrating that air access is common within wilderness areas globally, and can be compatible in providing high quality wilderness recreation outcomes including feelings of self-reliance, solitude and remoteness, all of which are relevant and appropriate to the recreational settings of the Self-Reliant zone. A sample of this literature is included at page 74 of this document.

In writing this submission, we highlight that NPWAC has placed us in the difficult position of having to critique the findings of an advisory council that plays a key role in the approvals advice process. We don’t take the decision to address these issues lightly, and believe that an open and transparent evidence-based NPWAC consideration process would represent a more constructive approach, and ensure that accurate, evidence-based findings are provided to the Minister(s) and other interested parties. We re-issue our offer to brief the NPWAC, and address any questions or concerns that they have in an appropriately open, transparent and formal setting, in order to assist them in providing factually correct advice based on peer-reviewed research, evidence, statutory management prescriptions and expert advice in relation to this proposal.

Additional comment was received from the NPWAC during the 2022 comment. The proponent again notes that several key points from the NPWAC comment continue to directly contradict the provisions of the 2016 TWWHA Management Plan, case study examples, and peer-reviewed research. This includes statements made by NPWAC relating to air access and recreational settings in the TWWHA self-reliant zone, general standing camp operations, and peer-reviewed science relating to the management of Tasmanian Wedge Tailed Eagles.

Minor alterations have been made to the RFI in response to the 2022 NPWAC comment, including minor adjustments to the camp design as requested, further information about bushfire clearance requirements as

requested, and the voluntary creation of a 1.5km radius buffer around the Aboriginal Heritage site east of Lake Malbena, precluding the consideration of any potential future operations in that area.

The 2022 NPWAC comment identifies that the Council '*chose not to meet with the proponent...to ensure statutory processes were conducted with appropriate administrative and procedural fairness*'. The proponent wishes to highlight that the refusal to meet the proponent has had the perverse effect: no procedural fairness has been provided to the proponent, including a failure to provide the proponent with the opportunity to provide relevant facts, evidence and expert advice to the NPWAC. Furthermore, requiring proponents to respond retrospectively, after final assessment documentation has been prepared and submitted unnecessarily elongates assessment processes due to the need to retrospectively respond to concerns rather than pro-actively addressing concerns during the preparation of final materials. The policy of NPWAC not engaging with primary information sources and does not ensure that NPWAC make recommendations with all the required evidence, expert advice, or up-to-date information at hand as would be expected of a Ministerial advisory group.

8b. Economic impacts

Page 149 of the TWWHA Management Plan 2016 notes that:

'Commercial tourism is a legitimate and important component of meeting the obligation of presentation under the World Heritage Convention and in meeting the management objectives under the NPRMA for the encouragement of tourism and recreation.'

In order to provide the most current economic figures relating to the project, the proponent contacted the Office of the Coordinator-General (Tas) to update anticipated construction and operational figures. The original financial plan was adjusted some time ago to account for what was (obviously) going to be a protracted and legally complex approval process, due primarily to lawfare tactics from activist groups. The adjustment was within planned contingencies made during the project inception phase.

As a result, the new planning, approvals and construction budget is total \$1m, with projected annual turnover of \$0.8M/yr once fully operational. There are no changes proposed to the number of annual trips offered (capped at 120 days of operation), or other elements of the business plan or offerings.

Summary

The modelling provided by the Office of the Co-ordinator General (Tas) on the 17/5/2021 used the economy.id modelling tool to produce modelled outputs. The modelling shows that the operational business would provide an economic impact of +\$1.83M annually, and 13 local jobs.

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Fig 21. Economic impact summary generated by economy.id modelling : Construction phase, based on \$1.0M development costs.

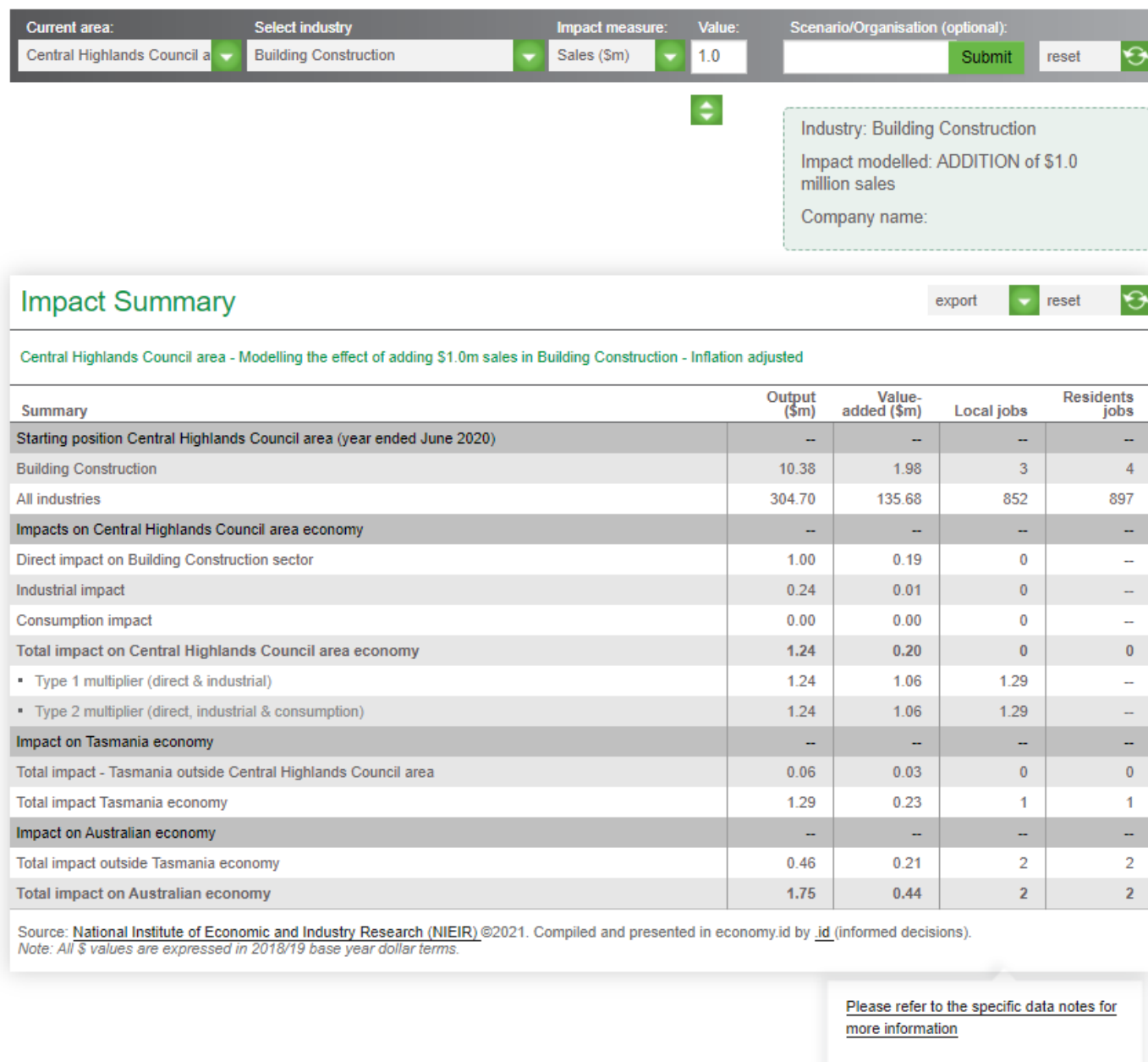


Fig 22. Economic impact summary generated by economy.id modelling: operational phase, assuming \$0.8M annual turnover

Impact Summary				
Central Highlands Council area - Modelling the effect of adding \$0.8m sales in Arts and Recreation Services - Inflation adjusted				
Summary	Output (\$m)	Value-added (\$m)	Local jobs	Residents jobs
Starting position Central Highlands Council area (year ended June 2020)	--	--	--	--
Arts and Recreation Services	0.90	0.36	10	18
All industries	304.70	135.68	852	897
Impacts on Central Highlands Council area economy	--	--	--	--
Direct impact on Arts and Recreation Services sector	0.80	0.32	9	--
Industrial impact	0.13	0.01	0	--
Consumption impact	0.02	0.00	0	--
Total impact on Central Highlands Council area economy	0.95	0.33	9	9
• Type 1 multiplier (direct & industrial)	1.16	1.02	1.01	--
• Type 2 multiplier (direct, industrial & consumption)	1.18	1.02	1.01	--
Impact on Tasmania economy	--	--	--	--
Total impact - Tasmania outside Central Highlands Council area	0.13	0.06	1	1
Total impact Tasmania economy	1.07	0.39	10	10
Impact on Australian economy	--	--	--	--
Total impact outside Tasmania economy	0.76	0.33	3	3
Total impact on Australian economy	1.83	0.72	13	13

Source: National Institute of Economic and Industry Research (NIEIR) ©2021. Compiled and presented in economy.id by .id (informed decisions).
Note: All \$ values are expressed in 2018/19 base year dollar terms.

Please refer to the specific data notes for more information

Economic returns to Parks and conservation

There are three differing rates of lease fees currently considered through the Wild Drake Halls Island Lease. The first and second amounts relate to fees payable whilst the project is conceptual, and undertaking the approvals and construction process. These are essentially holding fees, and do not permit the proposed activities to take place.

The Wild Drake Lease part 5 (d) relates directly to the lease payable once operational, and for the purposes of this document, is summarised as being equivalent to 'appropriate current market value'. Based on existing private commercial leases in the TWWHA and reserved-lands, it can be assumed that the 'appropriate current market value' is in the vicinity of 5% of gross turnover, to be determined at the end of the first operational year. Multiple examples of this pricing / value structure can be found in the numerous publicly available lease and licence conditions available for viewing on the DPIWE RTI disclosure log⁹⁸, with comparable examples including the Cradle Huts lease for private huts on the Overland Track.

⁹⁸ [https://dpiwe.tas.gov.au/Documents/RTI%20051-2019-20%20\(Stage%203\).pdf](https://dpiwe.tas.gov.au/Documents/RTI%20051-2019-20%20(Stage%203).pdf)

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Based on an annual turnover of \$800,000, the 5% gross turnover payable would equate to a lease return of \$40,000 per annum to the Parks and Wildlife Service.

In addition to rental payable, each customer would be required to obtain a Parks Pass, which have an assumed minimum value of \$40 / pp based on current pricing. For a potential 180 customers per annum, this equates to an additional \$7,200 return to the PWS per annum.

The project offers in-kind conservation returns, specific to the proposed mitigation measures of eagle nest searches every two years, and twice-yearly eagle nest monitoring as recommended in this submission. The September 2019 ‘*Eagle nest surveys within the Tasmanian Wilderness World Heritage Area*’ document released by DPIPWE⁹⁹ notes that DPIPWE project costs for each known nest site observed was equivalent to \$2765 per nest (p. 16). Relating to the Wild Drake operations, assuming that 6 nest sites were monitored (for use) once per season, and 2 nest sites were monitored for success each season, this equates to 8 nests monitored per annum. The cost benefit equivalent of monitoring 8 nests under the above DPIPWE costing structure is (8 * \$2765) per annum, indicating an in-kind conservation return of \$22,120 per annum derived from the Wild Drake eagle nest monitoring activities. This research will actively support the *Threatened Tasmanian Eagles recovery plan: 2006-2010* research objectives.

Economic impact summary:

- \$1.83M economic return annually
- 13 jobs annually
- Up to \$40,000 return annually to the Parks and Wildlife Service via lease arrangements
- Up to \$7,200 return annually to the Parks and Wildlife Service via Parks Passes
- Approximately \$22,120 in-kind conservation return annually, targeting wedge-tailed eagle monitoring and data collection
 - Total \$69,320 cash and in-kind return per annum to Parks management and conservation outcomes (equivalent to approx. \$385 per customer)

⁹⁹ <https://dpipwe.tas.gov.au/Documents/Eagle%20Nest%20Surveys%20in%20the%20TWWHA.pdf> , appendix 19

9. Environmental record of person proposing to take the action

The Sole Director and majority owner of Wild Drake P/L, Daniel Hackett, has an extensive and excellent history relating to environmental conduct. This includes the design and operations of the Australian Tourism Award winning RiverFly 1864 standing camp at Skullbone Plains, in the Central Plateau TWWHA, from 2012-2021.

More than half of Skullbone Plains Reserve (approximately 950 ha) falls within the top 10 per cent of the highest rated conservation areas in the State, and about 250 ha is in the top one per cent of the State (DPIPWE, 2016).

The consideration of the Skullbone Reserve shown by the business RiverFly 1864 and its customers have been acknowledged by the land owners of Skullbone Plains, the Tasmanian Land Conservancy¹⁰⁰.

During its tenure at Skullbone Plains, RiverFly 1864 generated \$40,000 in lease payments, \$7500 in cash donations, \$15,000 of in-kind trip donations, and generated \$110,000 in further cost-benefit to the TLC derived from time spent on site, and the associated decrease in inappropriate use of unauthorised 4wd's and vandalism of the sensitive environments and plant communities on the property.

Additional to the above figures, one RiverFly 1864 customer became a bequest donor to the TLC, and RiverFly 1864 successfully identified a wedge tailed eagle nest and conservation-minded land owner whom agreed to place a conservation easement on the nesting site via the TLC, directly as a result of the introduction and initial work facilitated by Daniel Hackett (2019).

This total cash and in-kind benefit of \$170,000+ return to conservation outcomes equates to a return of more than \$700 per Skullbone customer during the tenure. Giving back to the environment has been one component of a larger practice towards regenerative tourism practiced by Daniel Hackett and his family owned operations.

Outside of tourism, the Director of Wild Drake (Daniel Hackett) is qualified with a Master in Protected Areas Governance and Management, and is currently studying a PhD in Environmental Studies with research focussing on the theoretical and policy frameworks behind the mapping, designation and management of wild places and soundscapes as wilderness.

Wild Drake will commit to being carbon neutral by the end of the first year of operations (if not before).

10. Ecologically Sustainable Development

10a. Long-term and short-term economic, environmental, social and equitable considerations

The proposal successfully integrates short and long-term economic, environmental, social and equity considerations.

The proposal avoids any significant impacts, while facilitating access, presentation and diversity of product within

¹⁰⁰ Correspondence from the TLC dated 10 September 2020.

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the TWWHA, a location that represents more than 25% of Tasmania's landmass. The small scale, demonstrably sensitive proposal operates for just 120 days per year, and is modelled to generate approximately \$1.83 of economic activity annually, and the equivalent of 13 FTE jobs. It is low volume, high yield, low impact. Halls Island has a long history of private and public use, which is continued and facilitated through this proposal. The project has been purposely designed to restore, conserve and present the important privately owned Tasmanian Heritage Listed hut and associated matters on Halls Island for the benefit and enjoyment of current and future generations.

10b. Precautionary principle

'The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.'

The proposed action has been assessed in extreme detail, and there are no areas lacking in full scientific certainty. There are no predicted significant impacts from the proposal, and there will be no serious or irreversible environmental damage. The proposal is designed to conserve and present important Tasmanian listed heritage, and World Heritage values to the broader community.

Precautionary principle in relation to World Heritage Values and Statement of Outstanding Universal Value:

There is no formal Statement of Outstanding Universal Value for the TWWHA at this time. A Statement of Outstanding Universal Value is the official statement adopted by the World Heritage Committee identifying the criteria under which the property was inscribed, including the assessments of the conditions of integrity or authenticity, and of the protection and management in force. The primary purpose of a Statement of Outstanding Universal Value is to be the key reference for the future effective protection and management of the property.

When the Tasmanian Wilderness was listed in 1982 a Statement of Outstanding Universal Value was not required. The Australian Government is working with the Tasmanian Government and technical advisory bodies to the World Heritage Committee (IUCN and ICOMOS) to develop a Retrospective Statement of Outstanding Universal Value.¹⁰¹

Without a formal Statement of Outstanding Universal Value, the proponent (at the advice of DCCEEW) has taken a precautionary approach to the assumed Outstanding Universal Value identified in this document. The assumed OUV Criteria and Attributes were identified from the examples listed on the DCCEEW website¹⁰², and identified in consultation with DCCEEW staff through the Request For Information drafting process.

¹⁰¹ <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness#directly-or-tangibly-associated-with-events-or-with-ideas-or-beliefs-of-outstanding-universal-significance>

¹⁰² <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/tasmanian-wilderness#directly-or-tangibly-associated-with-events-or-with-ideas-or-beliefs-of-outstanding-universal-significance>

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10c. Inter-generational equity

The information contained in this document illustrates that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. Biophysical condition of MNES alpine *sphagnum* bogs and fens on Halls Island will be improved, and the existing risk of sewage contamination to waterways and MNES values on Halls Island will be mitigated. The proposed research and monitoring activities to be carried out through this project in relation to Tasmanian wedge tailed eagles will contribute to the knowledge, on-going research and protection of this federally listed icon species. The proposal will directly support the goals of the TWWHA Management Plan including goals of equity of access, presentation and diversity of product. The leading research presented in this document, with particular reference to elements relating to wilderness soundscape management in the TWWHA, will directly contribute to the on-going management of the wilderness in the TWWHA.

10d. Conservation of biological diversity and ecological integrity

This document conclusively illustrates that biological diversity and ecological integrity are unchanged by this project, while producing positive outcomes for biophysical conditions on Halls Island, and increased knowledge and research outcomes for matters including the conservation of Tasmanian wedge tailed eagles, and the management of wilderness soundscapes.

10e. Improved valuation, pricing and incentive mechanisms should be promoted

This proposal is the first proposal for the TWWHA that not only places a value on direct income generated to the Parks and Wildlife Service through the project (up to \$47,200 per annum), but also places an equivalent economic value on direct conservation research and monitoring to be carried out by the project (\$22,120 in-kind equivalent per annum), and a value on the restoration and on-going management and presentation of Tasmanian Heritage Listed hut and associated matters directly supported by the income of this proposal (estimated \$225,000 over 15 years). Total cash and in-kind value of the project to the PWS, conservation and research, and the restoration and presentation of valuable Tasmanian history amounts to an estimated \$84,320 per annum (or \$468 per customer, based on 180 customers per year).

11 Conclusion

This submission clearly illustrates that the proposed action will not cause significant impacts on MNES or OUV's. Key to these outcomes are considered and practical mitigation and avoidance measures, which are clearly outlined within the document. This finding is congruent with departmental advice provided by the two previous EPBCA Decision Briefs. Specific conclusions include:

1. No significant impacts from the proposal, subject to the mitigation and avoidances measure being implemented
2. Wilderness quality impacts in the form of Time Remoteness are temporally and spatially restricted to a landscape area equivalent area of (approximately) 200ha, with the temporal occurrence restricted to 16% of the year.

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3. The spatially and temporally restricted overflight impacts are shown to be minimal (of short duration, and infrequent annual basis), and amongst the smallest of all public and private overflight operations in the TWWHA. The proposed overflights are the only touristic overflight that *avoid* overflights of the Wilderness Zone. The soundscape impacts are not new forms of impacts, and produce no significant cumulative impact to the scale of the undisturbed landscapes or relatively undisturbed nature of the TWWHA.
4. Previous TWWHA wilderness quality assessments in 1999 and 2005 failed to identify the presence of the heritage Halls Hut at Lake Malbena, and combined with a failure to adhere to standard mapping conventions led to the incorrect zoning of Lake Malbena in the 1999 TWWHA Management Plan, and subsequent 2014 Draft TWWHA Management Plan. The NWI wilderness mapping error was acknowledged in the 2015 TWWHA Wilderness Quality assessment, and subsequent zoning changes in the 2016 TWWHA Management Plan corrected the zoning and mapping errors.
5. The proposed action will improve current on-island biophysical conditions, with the rehabilitation of braided footpads occurring in MNES alpine *sphagnum* bog and fen communities, and the installation of full capture toilets.
6. The proposed action will add to the knowledge and monitoring of the EPBCA listed Tasmanian-wedge tailed eagles with an in-kind cost benefit to conservation of \$22,120 per annum, in direct support of the *Threatened Tasmanian Eagles recovery plan: 2006-2010* research objectives
7. The operational project will generate \$1.83M economic return annually, and 13 jobs annually
8. The Parks and Wildlife Service will benefit from up to \$40,000 annually via lease arrangements, and a further potential \$7,200 annually via Parks Passes. Total \$47,200 annually.
9. The project will provide sustainable income to fund the on-going conservation and presentation of valuable Tasmanian heritage (a direct goal of the TWWHA Management Plan 2016), including the Tasmanian Heritage Listed Halls Hut and the associated heritage that led to the foundation of the Walls of Jerusalem National Park. Estimated value \$225,000 over 15 years.
10. The proposal represents an innovative approach to meeting the goals of the 2016 TWWHA Management Plan, including appropriate and sensitive high-quality interpretation, equity of access, presentation, appropriate air access, and the protection of Tasmanian listed heritage in the TWWHA

The proponent agrees to adopt all mitigation and avoidance measures identified in this document. We believe that the project should be approved.

The proposal does not require offsets.

12 Information sources (excluding appendices and footnotes)

In addition to the below, additional information sources have been footnoted in-text, along with additional in-text information including the source and currency of the information, the reliability, uncertainties and guidelines, plans or policies considered.

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13: Appendices

1. Halls Island EPBC ref June 2018-2
2. TWWHA flights_PWS Commercial Operators_2019__External.final.3
3. A3 TWHWA Aircraft Flightpaths Volumes 2019 – 20210319 (Ex LM)
4. A3 TWHHA Aircraft Flightpaths Volumes 2016 – 20210319 (inc LM)
5. N Mooney Eagle Assessment of Halls Island
6. Nick Mooney Answers to questions regarding searching and monitoring
7. Nick Mooney Response to expert evidence
8. North Barker Flora and Fauna Assessment June 2018 Addendum
9. North Barker_Appendix Flora and Fauna assessment Nov 2016
10. Letter to Aboriginal Heritage Council
11. Cumulus Studio 2019 preliminary design docs and statement of evidence
12. PWS Reserve Management Plan Letter
13. RAA – Halls Island proposed standing camp
14. Accompanying proponent letter supplied to DCCEEW with PWS Wilderness quality assessment
15. RTI 044 – 2017 – 18 Wild Drake Lease and Licence
16. DPIPWE 2019 Eagle Nest surveys in the TWWHA
17. PWS Wilderness Quality Assessment Lake Malbena V1.2
18. PWS Standing Camp prelim design approval letter
19. PWS walking track map in relation to Halls Island Lake Malbena
20. Riv002_RMPAT Appeal 20-19P A North Evidence 20190603

21. Daniel Hackett RMPAT Statement of evidence
22. Frazer Read Proof of evidence Halls Island 05062019
23. Hackett – Response to evidence 19061902
24. River002_RMPAT Appeal 20-19P_A North Response Evidence-20190618
25. Shaun McElwaine SC Wild Drake Closing Submission
26. NRM South Keeping it clean manual
27. UDP
28. FOI 181005 all public EPBCA comments rnds 1 and 2
29. TWWHA Wilderness Value Assessment 2015 (Hawes and Ling)
30. 190605-Statement of Gustaf Reutersward (Noise) filed by Joined Parties
31. 2018-8177 Assessment-brief
32. 2018-8177 Controlled Action Decision – Statement of Reasons
33. 20180528 AHT Response – Halls Island Lake Malbena EOI
34. ICUN equivalent reserve listing Tasmania
35. EPBCA Webform submission 151 8206 (1)
36. PWS Standing Camp Policy
37. THR 10805, Halls Hut, Halls Island, Walls of Jerusalem National Park
38. AHT Halls Island advice
39. P-057 PWS Low Exhaust Heli Policy
40. North Barker wallaby and ringtail addendum 2022
41. Deed of variation Wild Drake Lease and Licence
42. Public access program request 180123
43. TAC ALCT meeting minutes 2015
44. Public comment received – Parks and Wildlife Service Tasmania